THE ROLE OF TEACHER EPISTEMOLOGY IN INTEGRATING

STUDENT-CENTERED INSTRUCTIONAL SOFTWARE:

A CASE STUDY IN SOCIAL STUDIES EDUCATION

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THE ROLE OF TEACHER EPISTEMOLOGY IN INTEGRATING STUDENT-CENTERED INSTRUCTIONAL SOFTWARE: A CASE STUDY IN SOCIAL STUDIES EDUCATION

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Barry Neil Scott, son of Mr. and Mrs. Claud E. Scott, Jr. was born May 22, 1969, in Guntersville, Alabama. He graduated as Salutatorian from Susan Moore High School in Blountsville, Alabama, in 1987. In 1992, he graduated magna cum laude from the University of Alabama (Tuscaloosa) with a Bachelor of Science degree in Secondary Education, with an emphasis in Social Studies. Later that year, he began working in the Cooperative Education office at the University of Alabama in Huntsville (UAH) before enrolling in the graduate Instructional Design program at Auburn University in 1995, where he also worked as a graduate teaching assistant. In December 1996, he graduated with a Master of Education in Instructional Design. In 1998, he accepted a position as Distance Learning Coordinator at Troy State University – Ft. Benning (GA), where he also helped develop a new graduate level instructional design program. In 2001, he returned to UAH as the Director of Learning Technologies and lecturer in educational technology. While at UAH, he also served as the campus WebCT administrator, MIS instructor, and College of Nursing distance learning coordinator. In 2006, he accepted the position of Chief Instructional Designer at RTI International (Research Triangle Park, NC) for the FBI Remote Training Modules project. He and his wife, Dr. Gina R. Scott, have three children: Blake, Luke, and Julia.

DISSERTATION ABSTRACT

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This qualitative study was designed to examine the role of history teachers' beliefs about teaching and learning on their use of student-centered instructional software (*Decision Point!*) in an instructional unit, factors that inhibited or facilitated particular uses of the software, the type of role the software played in the unit, as well as teacher attitudes about use of the software. The study involved five high school social studies teachers and their students. Teachers completed the Schommer Epistemological Questionnaire (EQ) prior to the study as a means of determining general beliefs about the nature of knowledge. Beliefs were measured on a continuum from more naïve (or objectivist) to more sophisticated (or constructivist). Additional data were collected during interviews with teachers and students, classroom observations, and example lesson

plans and other classroom materials. Case study methods were used to analyze the data both within and across cases.

Two of the teachers, those on opposite ends of the epistemological continuum, carried out a *Decision Point*!-supported instructional unit that predominantly matched their espoused beliefs and observed teaching style. The other three teachers exhibited more traditional, transmission-oriented practices during the instructional unit, although all three reported more constructivist beliefs on the Schommer EQ. A number of factors were identified that conflicted with or took precedent over teachers' beliefs in regard to decisions about their teaching practice. External factors as well as established teaching practice held more influence over the teachers' implementation strategies.

Findings also included a list of barriers to effectively integrate instructional technology: unwillingness to change established teaching practice, the influence of state standards and standardized tests, limited access to computer resources, lack of knowledge about effective implementation methods, time constraints, and the lack of computer skills. Factors were also identified that either promoted or would influence the use of instructional software: perceived learning benefits for students, quality software/resources (if available), support from administrators, and the age or skill level of students.

This study illustrated some of the obstacles related to integrating student-centered instructional software in social studies classes. A number of implications for teachers, schools, and designers of instructional software are discussed.

Style manual or journal used:

Publication Manual of the American Psychological Association (5th ed.)

Computer software used:

Microsoft Office Word 2003 ®

Microsoft Office Excel 2003 ®

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I. INTRODUCTION

In the past few decades, K-12 schools, and the institutions and organizations that support them, have invested heavily in educational technology—primarily computer hardware and software. In the majority of schools today, computers are readily available to support instructional activities. In 2003, a reported 83 percent of all K-12 public school students in the United States used computers while at school, including 91 percent of all high school (grades 9-12) students (DeBell & Chapman, 2006). Despite the availability of computers for instructional use and the anticipated benefits of such technologies, researchers indicate that technology remains underutilized or used to support only peripheral classroom activities (Becker, 1991a; Marcinkiewicz, 1994). While making computer hardware and software available to educators and students has long been a priority, perhaps a more important issue to consider is *how* teachers and students *use* technology to support academic tasks.

Computers are tools that can be used in numerous ways to help advance educational goals. Means (1994), among others, has suggested that technology should play a vital role in education because of its capabilities for supporting student-centered learning environments. Student-centered learning environments engage students in meaningful activities and encourage a student to take responsibility for his/her learning (Hannafin, Hill, & Land, 1997). Such learning environments may reflect one or more of the tenets drawn from recent advances in cognitive science: “problem-centering, student

goal/problem generation, active reflection, metacognitive monitoring, and intentional actions designed to test understanding" (Hannafin, Hill, & Land, p. 95). Computers can be used to model and process data as well as to organize, store and retrieve rich sources of data in a multitude of forms—all tasks that may support and facilitate student activity in a learning environment.

Student-centered learning environments (SLEs) are generally grounded in a constructivist learning philosophy. Constructivism is rooted in the basic notions that knowledge is actively *constructed* in an individual's mind rather than acquired and that the purpose of instruction is to support students' construction of knowledge rather than to transmit knowledge (Duffy & Cunningham, 1996). In a constructivist learning environment, "[t]eachers are cognitive guides for academic tasks, and learners are sense makers" (Mayer, 1996, p. 154). In contrast, traditional teaching methods are typically grounded in objectivism, an epistemic belief that knowledge exists outside of the mind and is transmitted to the learner by some means, primarily a teacher, for learning to occur (Lakoff, 1987). "According to this view, humans take information as input, apply one or more mental operators to that information, and produce the information as output" (Mayer, 1996, p. 154).

The term constructivism has been used by a large number of theorists to describe differing ideas about the principles of learning. However, two general forms of constructivism have been identified: cognitive constructivism and social constructivism (Bonk & Cunningham, 1998; Cobb, 1994; Duffy & Cunningham, 1996; Windschitl, 2002). Cognitive constructivism draws from the theories of Piaget (1977) which focus on the mind of the individual learner and how knowledge is developed and altered through

individual encounters with different phenomena in the environment (von Glasersfeld, 1989). In contrast, social constructivism is rooted in the socio-cultural learning theories of Vygotsky (1978) which emphasize the contextual and situational nature of cognition (Brown, Collins, & Duguid, 1989; Choi & Hannafin, 1995). A cognitive perspective focuses on a learner's construction of knowledge by confronting a relevant cognitive conflict (disequilibration), drawing from and building on prior knowledge, addressing misconceptions about the idea or topic, and then ultimately constructing a new understanding of the phenomena. Social constructivists emphasize the role of language in mediating learning (Duffy & Cunningham), in particular the processes of "human dialog, interaction, negotiation, and collaboration" (Bonk, Oyer, & Medury, 1995, p. 35). Both forms of constructivism are well grounded in cognitive research and, as Bonk and Cunningham (1998) point out, both views are useful for informing instructional practice. For the purposes of this study, an examination of how social studies teachers implement student-centered instructional technology, both of the constructivist perspectives informed a framework for addressing the research questions of interest.

As recent advances in cognitive research have produced a clearer image of how learning occurs, educational reformers increasingly have urged teachers to move from more teacher-centered, objectivist instructional practices to more student-centered, constructivist approaches. However, many educators have resisted adopting constructivist practices, favoring instead the more traditional transmission-oriented approaches to teaching and learning (Becker, 1991b; Tobin & Dawson, 1992). Brown (1992) contrasted traditional (objectivist) and student-centered (constructivist) learning environments

regarding the roles of students, teachers, content, computers, and assessment. Table 1 summarizes these roles.

Table 1

Comparison of Traditional and Student-Centered Learning Environments

Role	***Traditional Classroom***	***Student-Centered Learning Environment***
Students	Passive recipients of incoming information	Students as researchers, teachers, and monitors of progress
Teachers	Didactic teaching Classroom manager	Guided discovery Model of active inquiry Thinking as basic inquiry
Content	Basic literacy curriculum (lower vs. higher skills) Content curriculum breadth fragmented fact retention	Thinking as basic literacy Content curriculum depth recurrent themes explanatory coherence understanding
Computers	Drill and practice Programming	Tools for intentional reflection Learning and collaboration
Assessment	Fact retention Traditional tests	Knowledge discovery and utilization Performance Projects Portfolio

Note. The source referred to an "intentional learning environment" rather than a "student-centered learning environment." From "Design experiments: Theoretical and methodological challenges in creating complex interventions in classroom settings," by A. L. Brown, 1992, The Journal of the Learning Sciences, 2(2), p. 150. Copyright 1992 by The Journal of the Learning Sciences. Adapted with permission.

As Brown (1992) noted, computers can be used to support both traditional and student-centered approaches to instruction. However, advocates of technology-enhanced student-centered learning environments (Abrami, 2001; Hannafin & Land, 1997; Means, 1994) stress that technology may be most effective when it supports students' active participation in authentic, problem-centered contexts (Brown, Collins, & Duguid, 1989). In fact, there may be only negligible benefits to using computers in some traditional classroom settings. For example, in a study of mathematics teachers who regularly had their students use a computer for instructional purposes, Becker (1991b) found that teachers still implemented a traditional curriculum, very similar to what they would have done had they not used computers. Not surprisingly, achievement scores for the students in these computer-supported classes were similar to those of students who did not use computers, and actually slightly worse for some groups of students. Becker concluded that "[f]or computers to make a difference in how students experience schooling will require teachers and administrators to modify their concepts of appropriate and inappropriate teaching behaviors…and to change habits and assumptions that guide their classroom and school management strategies" (p. 8).

Case studies such as those described by Means (1994) and those from Apple's *Classrooms of Tomorrow* program (Sandholtz, Ringstaff, & Dwyer, 1997) provide an encouraging picture of how technology can support student-centered learning environments. These studies examined the use of technology in school environments where reform efforts were highly encouraged and where technology resources were readily available. While technology implementations couched in instructional reform offer ideal settings for study, a look at how teachers use technology in more typical

settings is also warranted. Software developers have made available a growing number of sophisticated software tools that can be used to support student-centered learning environments. How teachers use these tools across a variety of educational settings has important implications for future design and development of such tools as well as for teacher training and educational reform efforts.

Purpose of the Study

The purpose of this study was to examine how high school social studies teachers implemented instructional software specifically designed to support student-centered learning activities and to compare the type of use with the teachers' core beliefs about teaching and learning. This software, titled *Decision Point!* (DP), is described in more detail in Chapter 3.

Teacher-centered, transmission-oriented practices have long been part of school culture, so it was suspected that teachers who hold this view would use the software to support traditional practices, eschewing features of the program that support student-centered activities (Becker, 1991b; Cuban, 1986; Tobin & Dawson, 1992). Teachers who advocate student-centered learning environments may or may not use *Decision Point!* to support student-centered instruction. While teachers' beliefs about teaching and learning may significantly impact their instructional practice (Kagan, 1992; Prawat, 1992), and thus their use of instructional technology, their "apprenticeship of observation"—years in school as a student observer—may be a more powerful influence (Lortie, 1975). Of particular interest in this study of social studies teachers, the ways in which teachers conceptualize the meaning of history may strongly influence the types of instructional

strategies that they implement. Other factors in the school environment may also conflict with teachers' beliefs and influence them to act contrary to those espoused beliefs (Becker, 1991b). This study examined how teachers implemented this program and related their practice to their espoused and observed beliefs about teaching and learning. A case study design was used in order to capture a naturalistic view of how teachers, across a variety of school settings, implemented this type of software. Additionally, teacher attitudes about use of this type software were examined. Barriers and facilitating factors that affected teachers' use of this software were also of interest.

Research Questions

The present study addressed the following research questions:

1. How do teachers' epistemologies, or beliefs about teaching and learning, relate to their use of student-centered instructional software (*Decision Point!*) to support instructional activities?
2. What facilitating and inhibiting factors are present in the teachers' environments that significantly impact their use of *Decision Point!*?
3. To what extent do teachers view the role of student-centered software as supplemental or integral to their instructional activities?
4. What are the teachers' attitudes about using *Decision Point!* and the embedded student tools? Of particular interest are the teachers' views on (1) whether this type of tool helps improve the teaching-learning process, (2) how well they think students learned as compared with other methods, (3) pedagogical considerations, (4) time requirements, and (5) student assessment issues.

Significance of the Study

National educational organizations have called for an increase in student-centered instructional activities along with the use of computers to facilitate such activities. For example, to address concerns of failed educational reforms, the American Psychological Association (1997) published a set of 14 basic principles to advance learner-centered instructional practices. Findings in cognitive psychology lend strong support to these principles. However, student-centered educational practices have failed to take root in most classrooms in the United States. Likewise, teachers do not routinely integrate the use of computers in their instructional lessons.

The research base on teacher practice in student-centered, technology-enhanced learning environments is limited, especially in social studies classrooms (Berson, 1996; O'neill & Weiler, 2006; Saye, 1998). Thus the results of this study should have important implications for teachers, school administrators, curriculum and software developers, and faculty in teacher preparation programs.

For teachers and public school administrators, it is important to understand the obstacles and challenges that teachers may face when attempting to implement student-centered instruction and/or to integrate technology as a significant component of their classes. School cultures and existing policies may conflict with efforts to change pedagogy. Knowing what these challenges are in advance would help teachers and administrators in planning for professional development activities.

This study may also be important for curriculum and software developers. Understanding the ways in which teachers actually use software designed to support student-centered learning may provide insights to help develop sample lesson plans,

instructional materials, or embedded tools that might better assist teachers in their efforts. Software design may also be influenced by a better understanding of the way teachers think about the teaching and learning process as well as the constraints that impact teacher decision making.

That teachers may struggle when attempting technology-supported, student-centered activities has implications for colleges and universities that prepare students to become teachers. The findings of this study may impact curricular decisions about how best to provide students with opportunities to learn about cognitive principles of learning, to reflect on their own beliefs about teaching and learning, and to see and experience technology-supported, student-centered activities in their classes.

Definition of Terms

1. *Objectivism* – A philosophy of knowledge and learning that defines knowledge as objective and available only through logical reasoning and empirical experience (Lakoff, 1987).
2. *Constructivism* – A philosophy of knowledge and learning that defines knowledge as temporary and subject to social and cultural subjectivities and regards learning as occurring within each individual through concrete experiences, dialogue, and critical reflection (Brooks & Brooks, 1993).
3. *Epistemological beliefs* – One's beliefs about the nature of knowledge and learning (Schommer, 1990).
4. *Instructional software* – A computer program specifically designed to support or facilitate instruction. Examples include tutorials, educational games, and drill and

practice. Non-examples include word processing, spreadsheet, or other tool software.

5. *Student-centered learning environment (SLE)* – An educational environment in which the focus is on students' active participation and their taking responsibility for learning (Means, 1994).
6. *Technology* – Used generically to refer to man-made innovations. In this study, the term typically refers to computer systems (hardware and software).
7. *Transmission-oriented teaching* – Method of teaching in which the teacher attempts to transmit knowledge to the student.

Organization of Remaining Chapters

This dissertation is organized into five chapters. This first chapter has provided an overview of the research problem, the rationale and significance of the study, the specific questions researched, and a list of definitions used in this report. Chapter 2 offers a review of the research literature related to the questions investigated in this study. The chapter is organized around the following topics: teachers' use of computers for instructional purposes, factors related to teachers' use of computers, the role of teacher beliefs on teaching practice, and the relationship between teachers' beliefs and the use of instructional software. Chapter 3 describes the methods used in this study. The materials and procedures used in the study, the role and subjectivities of the researcher, data analysis methods, and study limitations are outlined in this chapter. In Chapter 4, case studies of the five teacher participants are presented. The case studies provide a detailed account of how the teachers implemented the *Decision Point!* software, the decisions that

they made during the teaching units, the interactions they had with students, and the issues that they faced. Chapter 5 relates the research questions to the results of the study and presents a discussion of the findings and the implications of those results as well as recommendations for future research.

II. REVIEW OF LITERATURE

The purpose of this study was to examine the relationship between teachers' beliefs about teaching and learning and their use of student-centered instructional software, to identify factors that impacted instructional software implementation, and to determine teachers' attitudes and views about implementing such software. In this chapter, the following lines of related research are reviewed:

- objectivist and constructivist views of teaching and learning including a rationale for constructivist practice in the social studies,
- types of uses of instructional software,
- role of technology in student-centered learning,
- research that addresses teachers' uses of computers for instructional purposes,
- factors related to teachers' use of computers including facilitating conditions and barriers to technology integration, and
- research on the role of teacher beliefs on teaching practice including the relationship between teacher's beliefs and the use of instructional software.

Overview of Objectivist and Constructivist Views of Teaching and Learning

In recent decades increasingly educators have been urged to adopt instructional strategies that reflect a more student-centered, or constructivist, approach, and to move away from strategies based on traditionally teacher-centered, or objectivist, views of

teaching and learning (Feden, 1994). This call for educational reform has come not only from the suggestions of educational researchers but also from national organizations for school leaders and teachers (e.g., American Association for the Advancement of Science, 1989; National Association of Secondary School Principals, 1996; National Center for History in the Schools, 1994; National Council of Teachers of Mathematics, 1989). This section provides an overview of these opposing epistemic views. Because this study focuses on the use of software intentionally designed for student-centered activity, a research-based rationale for the adoption of student-centered instructional practices is also outlined.

Objectivism. Traditional educational practices in the United States are rooted in objectivism, a set of epistemological beliefs that views knowledge as structured in terms of "entities, properties, and relations" (Lakoff, 1987, p. 159) and as existing independently of individual experience (Duffy & Jonassen, 1992). Objectivism provides a basis for teacher-centered, transmission-oriented views of instruction in which the teacher is seen as transmitting his/her knowledge of a particular topic to students (Bruner, 1986). Accordingly, learning occurs when a person has developed a complete and correct understanding of these discrete bits of knowledge as they exist in the world (Duffy & Jonassen). Instruction designed according to these beliefs focuses on pre-planned programs of learning such as tutorials, lectures, or drill-and-practice exercises and places an emphasis on standardized tests, often of decontextualized knowledge and discrete facts. This mode of instruction has dominated schools in the United States, especially in high school classrooms, for much of the last century (Boyer, 1983; Goodlad, 1984).

Critics of this approach point to the incongruity of transmission-based practices with cognitive principles of learning. For example, Brooks and Brooks (1996) state that "…when schools attempt to impart one truth to all students, to standardize experiences, to control contexts, and to ignore relevance, they are operating in opposition to central principles of learning. They are organizing around issues of administration, not issues of education" (p. 30). While some educators have dismissed transmission-oriented approaches as misguided and unreflective of how learning occurs, others point to the benefits of this approach for certain situations (Hannafin, 1992; Reigeluth, 1992). For example, this approach has been shown to be effective at skill development where explicit outcome objectives are known or when efficiency in acquiring skills and/or knowledge is important (Hannafin & Land, 1997). These methods have also proven effective for certain student populations in certain subject areas, for example, with at-risk students in primary reading programs (Stanovich, 1994). Nonetheless, a growing body of research in cognitive psychology provides a theoretical basis for emphasizing the active role of the learner in constructing personal knowledge and in the development of higher-order thinking skills (Shulman, 1986).

Constructivism. Constructivism stands in contrast to objectivism, holding that knowledge is constructed and modified by individuals through their interactions with the world around them, rather than existing in the world as independent objects of truth (Duffy & Jonassen, 1992; Falk, 1996). According to constructivist principles, an individual's personal, social, and cultural experiences are considered major factors in what a person knows and how s/he knows it. As outlined in Chapter 1, constructivism can have different meanings, drawn from differing cognitive theories. Cobb (1994) identified

two general forms of constructivism: one that emphasizes individual cognitive processes (cognitive constructivism) and a second that emphasizes the social and contextual nature of knowledge construction (social constructivism).

Cognitive constructivism has strong roots in the theories of Jean Piaget (Fosnot, 1989). Piaget's notion of equilibration, through the associated mechanisms of assimilation and accommodation, describes the natural inclinations of individuals to seek organization and order in a world of constantly changing stimuli and environmental situations. From a constructivist perspective, learning occurs when an individual adapts new experiences into existing knowledge structures (assimilation) or constructs new or revises existing knowledge structures to account for a new experience (accommodation) (Piaget, 1970). Learning is viewed as an active process of engaging the environment in order to make sense of phenomena in the world, as opposed to absorbing and storing up isolated bits of information (Perkins, 1992).

Theories of social cognition and language development, such as those offered by Vygotsky (1978) and his protégés, provide the foundations for social constructivist principles. In general, social constructivism in practice is characterized by: (1) *situating problems* (Brown, Collins, & Duguid, 1989) in realistic contexts with access to rich sources of information; (2) facilitation of a *cognitive apprenticeship* (Collins, Brown, & Newman, 1989) which allows students to take an *active role* in learning the customs and practices of the discipline under study; (3) opportunities for *collaboration* with peers and experts with an emphasis on *dialogue*; and (4) recognizing and seeking *multiple perspectives* in the process of solving problems (Bednar, Cunningham, Duffy, & Perry, 1992). Bonk and Cunningham (1998) offer a broader list of key terms and principles

related to sociocultural theories and how they might apply to collaborative learning environments.

Advocates of student-centered approaches to teaching and learning point out a number of benefits over transmission-oriented practices. A student-centered approach provides students with opportunities to actively explore, inquire, discover, and experiment with problems. This approach also challenges students to reason, question, draw connections, communicate, evaluate viewpoints, frame problems, acquire and use evidence, and create new knowledge, understandings, relationships and products (Falk, 1996). Inquiry or problem-based approaches to learning may lead to deeper understandings of phenomena and may also assist transfer of that learning to similar situations (Shulman, 1986).

These conditions require a dramatic shift in the roles of teachers and students from those found in most traditional classrooms. Brooks and Brooks (1993) compared the general characteristics of constructivist classrooms with those of traditional (objectivist) classrooms, as shown in Table 2.

Table 2

Comparison of Traditional and Constructivist Classrooms

Traditional Classroom	**Constructivist Classroom**
Students primarily work alone.	Students primarily work in groups.
Curriculum is presented part to whole, with emphasis on basic skills.	Curriculum is presented whole to part with emphasis on the big concept.
Strict adherence to a fixed curriculum is highly valued.	Pursuit of student questions is highly valued.
Curricular activities rely heavily on textbooks and workbooks of data and manipulative materials.	Curricular activities rely heavily on primary sources.
Students are viewed as "blank slates" onto which information is etched by the teacher.	Students are viewed as thinkers with emerging theories about the world (cognitive apprentices).
Teachers generally behave in a didactic manner, disseminating information to students.	Teachers generally behave in an interactive manner mediating the environment for students.
Teachers seek the correct answers to validate student lessons.	Teachers seek the student's point of view in order to understand student learning for use in subsequent conceptions.
Assessment of student learning is viewed as separate from teaching and occurs almost entirely through testing.	Assessment of student learning is interwoven with teaching and occurs through teacher observation of students at work and through exhibitions and portfolios.

While descriptions of transmission-oriented and student-centered classrooms tend to reflect a clear dichotomy of possible practices, in reality, teaching and learning practices may fall somewhere on a continuum from objectivist to constructivist (Reeves & Harmon, 1994) and some teachers may utilize a variety of methods that would

represent a range of points on that continuum. Empirical research on how constructivist principles have influenced classroom practice remains limited (Green & Gredler, 2002), with a modest number of exceptions (e.g., Brown & Campione, 1994; Palincsar & Brown, 1984; Smerdon & Burkam, 1999). Cobb and Yackel (1996) proposed that empirical research on constructivist classrooms is inappropriate due to the emphasis on *processes* of learning as opposed to *outcomes* of learning in such classrooms. Due to this mismatch in aims, they suggested a more descriptive, qualitative, approach for research in this area: analysis of (1) instructional patterns and sequences, (2) student participation and level of engagement, and (3) the teacher's role in organizing the learning environment and facilitating and guiding student activity. The present study followed such an approach, with specific focus on the role of the teacher in implementing technology to support student-centered learning.

Technology-rich SLEs based on social constructivist principles seem well-suited for classes that emphasize the examination of ill-structured social problems and the facilitation of critical thinking skills as some social studies educators and researchers have advocated (Levstik & Barton, 2001; O'neill & Weiler, 2006; Saye & Brush, 2004). In response to the "morass of narrow topics, mythical stories, and unexamined instructional practices" (Levstik & Barton, p. 143) that has characterized the social studies curriculum in many schools and has led to disengagement from serious study of history by many students, some educators have stressed the need for educational practices that focus on developing civic competence, which is defined as "the ability to make informed and reasoned decisions for the public good as citizens of a culturally diverse, democratic society in an interdependent world" (NCSS, 1994).

Critical reasoning about social issues requires a number of skills on the part of learners: "(a) Thinkers must have empathy, an ability to view the world from the perspective of another. They must be able (b) to apply abstract concepts to specific situations and (c) to infer beyond limited data to draw conclusions. They must be able (d) to engage in critical discourse aimed at clarifying understanding about an issue and (e) to apply evaluative criteria to develop defensible decisions about a social problem" (Newmann, 1991, cited in Saye & Brush, 2002, p. 78). For students to acquire and hone these skills, they must be immersed in the work of the discipline and think in ways that an expert historian might think. Learning in this type of environment is very much a social act, a process of acculturation into the customs and culture of the discipline. It also stands in stark contrast to learning that is based on traditional, transmission-oriented methods.

Types of Uses of Computer-Based Educational Technologies

How teachers implement technological innovations in the classroom has long been a topic of interest for educational researchers. Uses of educational technology have been organized in a number of ways, including by type of technology (a focus on *what*) or by the type of use (a focus on *how*). Taking the latter approach, Means (1994) offered a classification system for organizing educational technologies according to their possible uses for instruction. In this system, technologies are organized based on whether they are used as a tutor, used to explore, applied as a tool, or used to communicate.

Used as a tutor. Computers that serve the functions of a tutor attempt to teach students by presenting pre-designed content to students, often in a workbook-type format. After the presentation of content or demonstration of a particular skill, students are

typically given opportunities to test their understanding of the material in the form of practice exercises. Computer-assisted instruction (CAI) generally falls into this category. Early uses of computers in educational settings tended to serve a tutorial function. Grounded in a behavioral theoretical approach, B. F. Skinner (1968) provided one of the first applications of this type when he introduced "teaching machines" which delivered programmed instruction that was appropriate to a student's readiness to receive it. Such systems were not designed to encourage student exploration, but rather to reward correct answers (Hawisher & Selfe, 1993). Papert (1980) called such an approach "the computer programming the child" (p. 19).

Used to explore. The second type of technology described by Means includes systems that allow students to control access to information, demonstrations, or simulations. Examples of this type include computer-based labs and simulations or microworlds (Papert, 1980; Rieber, 1992). Such systems allow students to explore and experiment but may also provide contextual constraints that support students' efforts to discover facts, concepts, or procedures (Means; Reiber, 1992). More recently, the Internet has opened classrooms to a vast repository of potential information.

Applied as a tool. Educational technologies used as tools include a wide range of general-purpose software, such as word processing, spreadsheets, databases, and desktop publishing, as well as video recording and editing technologies (which may or may not be computer-based). Tool software may allow students to complete certain tasks more efficiently or with a higher degree of quality than without the computer's assistance (Grabe & Grabe, 1998). While tool software affords students opportunities to complete certain tasks that match the nature of the tool—for example, using a word processor to

write and format a report—students may also use the tools in creative ways that the designers may not have originally conceived.

Used to communicate. Computers in networked environments, including local and wide-area networks as well as those connected to the Internet, provide students and teachers opportunities for communication that may not exist otherwise. Students may be able to share digital files and information with other students within the classroom, within the school, or on collaborative projects with students from other schools. They may also communicate with their teachers, students from other schools, or even experts in the field of study (Grabe & Grabe, 1998). In schools today, communication across networks may occur through the use of electronic mail (e-mail), instant messaging software, chat rooms, electronic bulletin boards or through the sharing of files via file transfer protocol or other shared network accounts. With the rapid growth of Internet access to homes, communication may also occur outside of schools and at variable times of the day.

The Internet, and in particular the World Wide Web, has been discussed as a valuable resource for social studies teachers and students (Berson, Lee, & Stuckart, 2001; Ehman, 2002). Research and critical thinking skills along with information literacy skills such as locating and evaluating resources can be practiced through interaction with the Web's diverse resources. The Web also provides access to diverse viewpoints on social issues, which are often controversial in nature. Berson, Lee, and Stuckart also cited research that showed learning benefits for social studies students when they used hypermedia texts and guides and described a variety of potential benefits for students who author their own multimedia products. Traditional productivity tools also offer a wide range of uses in social studies classes: word processing for reports, journals, and

logs; spreadsheets to examine relationships between sets of data; and databases for data collection, analysis and reporting.

Of the categories listed above, it might appear that technologies used as a tutor would represent an objectivist view of teaching and learning while the other three categories would be used to carry out constructivist-based instruction. This may or may not be true. Teachers may use, or ask their students to use, these technologies in unexpected ways (Niederhauser & Stoddart, 1994). For example, a teacher may use a computer-based simulation as part of a lecture on a particular topic, or another teacher may ask students to "explore" a multimedia database to find answers to complete a worksheet. The software used in the current study, *Decision Point!*, would best be categorized as a technology used to explore. However, Saye and Brush (1998) described one teacher's difficulties in implementing this program to promote student-centered learning attributable in large part to traditional, transmissionist views held by the teacher.

While it is important to know, in general, what types of technologies teachers are likely to use with their students, it is probably more important to determine how these technologies are actually being utilized to affect student learning. The following section addresses the specific role of technology in student-centered learning environments.

The Role of Technology in Student-Centered Learning

Technology, in particular computer hardware and software, has been extolled for its capabilities to support student-centered learning environments (Hannafin, 1992; Hannafin & Land, 1997; McDaniel, McInerney, & Armstrong, 1993; Means, 1994; Means, Olson, & Singh, 1995). Modern multimedia computers offer interactive functions

that may enable students to browse or search rich databases of text, graphics, audio, and video content to support inquiry into a problem. Hypermedia applications that offer an organizing framework for complex information systems are increasingly more accessible and easier to design (Marchionini, 1988). Teachers and students may access and utilize existing multimedia systems (e.g., Hedberg, Harper, & Wright, 1997) or they may use available authoring and production tools to construct their own content (Jonassen, Myers, & McKillop, 1996; Jonassen & Reeves, 1996)—in effect, learning by designing (c.f., Harel & Papert, 1991). Such systems, along with other software applications like word processors, spreadsheets, and a variety of other programs may be used as cognitive tools that help extend students' intellectual abilities and that enable and facilitate deeper processing of information (Jonassen & Reeves).

Several conceptual models have emerged that guide the instructional design of technology-supported, student-centered learning environments. Examples include microworlds (Papert, 1980; Rieber, 1992), anchored instruction (Cognition and Technology Group at Vanderbilt (CTGV), 1992), open-ended learning environments (Hannafin, Land, & Oliver, 1999; Land & Hannafin, 1996), SCenTRLE (Hirumi, 2002), and hypermedia models based on cognitive flexibility theory (Spiro, Feltovich, Jacobson, & Coulson, 1992). Each of these approaches affords learners opportunities to explore and manipulate information and concepts in ways that might be more difficult or even impossible without the assistance of technology.

Because of the varied tools and rich sources of information essential to the success of such systems, computer technology has an essential role in building and supporting student-centered learning environments. The Adventures of Jasper Woodbury

videodisc series (CTGV, 1992); the Computer-Supported Intentional Learning Environments (CSILE) project (Scardamalia, Bereiter, & Lamon, 1994); MOST, or Multimedia environments that Organize and Support learning through Teaching (CTGV, 1994); Exploring the Nardoo (Hedberg, Harper, & Wright, 1997); Rescuing Rocky (Barab, Hay & Duffy, 2000); and *Decision Point!* (Brush & Saye, 2000; Saye & Brush, 2004; Saye & Brush, 1999) are good examples of using technology to support student-centered learning environments. These programs emphasize the use of technology as integrated tools to support student inquiry, experimentation, and solution development as opposed to emphasizing the transfer of knowledge from the program to the learner. Hannafin and Land (1997) summarize a larger number of example methods and activities related to the role of technology in student-centered learning.

While student-centered learning environments and the technology used to support them have received much theoretical and empirical support, these environments still pose problems for instructional designers. Students left alone to discover or construct new knowledge in these environments may lose focus on their instructional goal(s), may wander aimlessly through seemingly endless streams of information, or may spend excessive time trying to surmount certain cognitive obstacles. The type and amount of guidance and support available to learners in these environments remains a critical issue. Poor implementation of support tools might well lead to cognitive deficiencies (Schwebel, Maher, & Fagley, 1990) or underdevelopment.

Various strategies have been employed by designers to neutralize these problems as well as to increase students' opportunities to take full advantage of working in open-ended learning environments. Scaffolding provides a robust method for supporting

students in open-ended learning activities (Anderson & Armbruster, 1990; Choi & Hannafin, 1995; Collins, Brown, & Newman, 1989; Hannafin, Land, & Oliver, 1999; Krajcik, Soloway, Blumenfeld, & Marx, 1998; Young, 1993). In general terms, scaffolding refers to the support provided to a learner to help bridge the gap between current knowledge and abilities and some desired level of knowledge or skill (Wood, Bruner, & Ross, 1976) and the gradual withdrawal of that support as a function of the learner's increasing mastery of the task (Choi & Hannafin, 1995; Collins, Brown, & Newman, 1989; Meyer, 1995). Scaffolding derives from Vygotsky's (1978) theory that meaning is socially constructed between a learner and a more knowledgeable other (Meyer, 1995). The gap in knowledge or skill acquisition being bridged through scaffolding is most often referred to as the zone of proximal development (ZPD) (Meyer, 1995; Palincsar & Brown, 1984; Rogoff & Wertsch, 1984; Vygotsky, 1978). This cardinal concept refers to the gap, or distance, between what a learner can achieve independently and what can be achieved with the help of a more knowledgeable peer (Vygotsky, 1978).

Hannafin, Land, and Oliver (1999) described four primary types of scaffolds that can be embedded in technology-supported learning environments to assist student efforts. *Conceptual* scaffolding can help students think critically about some issue or idea being studied or may provide hints to students about what to consider about a problem. *Metacognitive* scaffolds assist students with how to think while learning or may remind students to reflect on their learning goals and reflect on their process of learning. *Procedural* scaffolds orient students to how to use the resources and tools available

within the learning environment. *Strategic* scaffolds help students to consider alternative approaches to solving a problem.

Designing effective and appropriate scaffolds presents a challenge for developers of student-centered instructional software. Anticipating the myriad needs of learners may not be possible with current technologies. The developers of *Decision Point!*, the software used in this study, have addressed this issue in subsequent studies (Saye & Brush, 2002; Saye, & Brush, 2004). They refer to hard scaffolds as "supports that can be anticipated and planned in advance based on typical student difficulties" (p. 81). Soft scaffolds, on the other hand, must be provided by the teacher in response to the situational needs of students. Teachers in such environments may be challenged by the responsibility of scaffolding student problems at the time students need the support. It has been proposed (Saye & Brush, 2002) that scaffolds to support teachers in their efforts to facilitate student-centered learning activities might also be useful. More research is needed, however, on the types of support that teachers may need.

Research on Teachers' Uses of Computers for Instructional Purposes

Becker's (1991a) report on schools in the United States (based on 1989 data) provided an encouraging picture of the increased *amount* of computer use in schools. Subsequent reports also have supported the trend of increasingly available computer resources to K-12 schools (Coley, Cradler, & Engel, 2000; DeBell & Chapman, 2006; Jerald & Orlafsky, 1999; Rowand, 2000). By 2001, 81 percent of K-12 public school teachers reported having access to computers either in the classroom or a computer lab, with 30 percent reporting having access in both (U.S. Department of Education, 2003).

Despite the growing availability of computer resources in schools, however, teachers do not appear to routinely use computers for instructional purposes (Abdal-Haqq, 1995; U.S. Department of Education, 2003). A 1999 *Education Week* survey revealed that while 97 percent of teachers surveyed reported using a computer either at home and/or school for school-related tasks, 53 percent reported using software for classroom instruction, and only 17 percent reported using software as a primary resource related to classroom instruction (Fatemi, 1999). Based on 2001 survey data, 55 percent of all teachers reported using computers to support an instructional activity at least once per week, while 43 percent of secondary teachers reported this level of use (U.S. Department of Education, 2003).

Social studies teachers tend to use computers less than their peers. In a 1986 survey of computer use, Becker found that 12% of all teachers used computers in some way, as compared to one percent for social studies teachers. In a more recent study (Becker & Ravitz, 1999), 12% of secondary social studies teachers reported using computers for instructional purposes at least once per week. Anderson and Becker (2001) reported that "…social studies teachers participate in learning how to use computers as much as other teachers, but they don't actually tend to use what they learn" (p. 17).

When computers *are* used to support instruction, teachers tend to use them to assist students with learning basic skills. In Becker's (1991a) report, for example, the majority of teachers reported that they used computers primarily to "help students master basic facts or skills" (p. 401). For example, math, science, and elementary teachers reported using drill and practice programs (typically meeting low-level instructional objectives) more than any other category of instructional program. A more recent survey

conducted by Becker and Ravitz (1999) revealed that only 27 percent of teachers reported using computers for higher-level objectives like analyzing information. A recent *Education Week* survey indicated that 77 percent of teachers reported using instructional software primarily as a "supplementary resource" (Fatemi, 1999). The most frequent computer-related activities reported by teachers in 2001 were related to improving students' computer skills, to reward students, and for drill and practice. Writing activities, problem-solving with data analysis, and other research-type activities were used less frequently (U.S. Department of Education, 2003). One criticism of these studies is that they rely heavily on survey data and/or teachers' self-reported usage and preferences. Studies that include more sophisticated, qualitative, methods over longer periods of time would help illuminate the quality of technology-supported instruction that occurs in our schools. But, by most accounts, it appears that computers are used primarily to support lower level cognitive activities or as a supplement.

The Apple Classrooms of Tomorrow (ACOT) project (Sandholtz, Ringstaff, & Dwyer, 1997) is one such longitudinal study that yielded important findings about how teachers integrate technology into their teaching to support student-centered learning. The long-term nature of these studies allowed ACOT staff to identify and describe an evolutionary process of technology integration that includes five stages: entry, adoption, adaptation, appropriation, and invention (Dwyer, Ringstaff, & Sandholtz, 1991). Not unexpectedly, initial uses of technology in the classroom tended to mimic or supplement traditional instructional strategies. As teachers became more expert with available technology and witnessed their students using computers to work on self-directed projects, their uses of technology became more sophisticated and their instructional

practices more creative. ACOT researchers pointed out that even in technology-rich environments; however, significant changes in instructional practice did not occur until teachers had challenged their own beliefs about teaching and learning (Dwyer, Ringstaff, & Sandholtz). ACOT teachers worked in school settings with ready access to modern interactive, multimedia technologies, and in environments that sought changes to more student-centered practices. The majority of schools do not have the advantages of those participating in the ACOT studies; therefore, it is important to consider the barriers that exist for teachers in typical schools.

Facilitating Conditions for and Barriers to the Adoption of Educational Innovations

The two primary themes advanced thus far—the theoretical basis for student-centered instructional practices and the use of technology to support instruction—share a common history in that both have failed to live up to their promises in facilitating educational reform. This section provides an overview of the research on factors that inhibit teachers' adoption of educational innovations.

Barriers to implementing student-centered learning environments.

Teachers attempting to implement student-centered learning environments face a number of challenges. Creating an environment that fosters student construction of knowledge is more complex and demanding, in most cases, than a teacher-centered approach (Duffy & Jonassen, 1992; Hannafin & Land, 1997; Prawat, 1992; Rieber, 1992; Windschitl, 2002). One difficulty may be the transition into new roles for both teachers and students (Hannafin & Savenye, 1993). In student-centered learning environments, students often assume or share responsibilities normally reserved for the teacher,

including goal setting, sharing expertise with other students and the teacher, and assessing their own work as well as the work of others. Teachers in these settings typically operate more as a coach and facilitator, guiding students to achieve success in their pursuits; and often take on the role of learner themselves (Ringstaff & Sandholtz, 1994).

A good example of the change in roles is found in the reciprocal teaching strategy described by Palincsar and Brown (1984) in which students gradually take turns assuming the role of teacher in leading discussions about a particular task. Reciprocal teaching, like other student-centered strategies, requires a change in traditional views of teaching and learning. "[I]n all constructivist teaching-learning scenarios, the traditional telling-listening relationship between teacher and student is replaced by one that is more complex and interactive. It is not surprising that constructivist teaching places greater demands on teachers (and students)" (Prawat, 1992, p. 357).

Curricular and organizational concerns have also played a role in teachers' implementation of student-centered practices. For example, emphasis on standardized tests may influence teachers to implement more traditional instructional practices (Talbert & McLaughlin, 1993). Transmission-oriented practices allow for a broader coverage of content while constructivist practices require more time for in-depth exploration, research, and analysis. Support for new forms of instruction is often weak, especially from parents who may be concerned about their child's ability to score well on college entrance exams. Finally, few guidelines and/or curricular models exist to help guide those teachers who are interested in translating student-centered instructional principles into practice (Bonk & Cunningham, 1998). For these reasons, and perhaps others, many

educators, administrators, and parents prefer traditional teaching and learning practices (Cohen & Barnes, 1993). Windschitl (2002) frames the challenges that teachers have in adopting constructivist principles into four "dilemmas": conceptual dilemmas which deal with grasping the theoretical basis for constructivism, pedagogical dilemmas which acknowledge the dissonance between constructivist and traditional instruction, cultural dilemmas which include issues related to the changing classroom culture demanded by constructivism, and political dilemmas which address resistance from stakeholders in the school community.

Curricular and political pressures certainly play an influential role in the adoption of innovative practices. However, researchers sometimes have neglected the key role of the teacher as the "gatekeeper" to instructional innovation (Saye, 1998). Teachers' beliefs about teaching and learning may represent a significant factor in whether educational innovations are adopted (Ertmer, 2005; Ertmer, Addison, Lane, Ross, & Woods, 2000; Hannafin & Savenye, 1993; Hativa & Lesgold, 1996; Maor & Taylor, 1995). Developing a better understanding of how teachers' beliefs impact their choices to adopt or reject instructional innovations is essential.

From their work on the ACOT project, Dwyer, Ringstaff, and Sandholtz (1991) identified two conditions necessary for educational reform to occur:

- Teachers must be given an opportunity to reflect on their own beliefs about learning and instruction and to develop a sense of the consequences of alternative belief systems.
- Administrators must be willing to implement structural or programmatic shifts in the environment, for teachers who are instructionally evolving. (p. 51)

Barriers to implementation of higher order thinking in social studies instruction

According to Newmann (1991) higher order thinking involves the skills of interpretation, analysis, and the manipulation of information to answer a question or solve a problem that requires more than simple recall or use of previously learned knowledge. Ill-structured social studies issues, for example, may require students to synthesize disparate facts and ideas to generalize or hypothesize new meanings or understandings in a novel way. This type of thinking stands in opposition to more traditional learning activities in social studies instruction that focus on students' acquisition of knowledge. According to Onosko (1991), students need to possess three critical attributes in order to successfully complete higher order thinking tasks: (1) in-depth, domain-specific knowledge related to the question or problem; (2) general cognitive problem-solving skills and strategies as well as domain-specific skills and strategies; and (3) dispositions of thoughtfulness.

In social studies education, however, efforts to implement instructional strategies designed to promote student thinking have resulted in minimal success at best and with a persistent focus on lower level thinking occurring in most classrooms (Newmann, 1991). Onosko (1991) reported on a five-year study of social studies classrooms that focused on factors that inhibited higher order thinking instructional strategies. The research identified six primary obstacles that prevented or limited teachers' efforts to promote student thinking.

1. *Instruction as knowledge transmission*. Social studies teachers generally focused on acquisition of historical knowledge such as facts, dates, and other

discrete content. Instruction focused on knowledge products as opposed to the thinking and reasoning processes that lead to notions of historical knowledge.

2. *A curriculum of coverage*. Teachers felt pressure, often self-induced, to expose students to cover a broad range of topics, which led to shallow coverage of topics and a focus on student absorption of facts instead of more in-depth inquiry.
3. *Teacher perceptions of students*. Many teachers held negative opinions about students' abilities and/or motivation to engage in activities that required higher-order thinking. This in turn led to low expectations for what students could accomplish and an overemphasis on knowledge acquisition.
4. *Large number of students*. Attempting higher-order thinking activities in classes with a large number of students also presented an obstacle to teachers. Probing the thinking of an individual student at the risk of misbehavior by other students, difficulty in monitoring small group discussions, and the challenge of dealing with large volumes of written assignments were all cited as issues.
5. *Lack of planning time*. Inadequate time for researching and planning for more challenging lessons was the most frequently cited barrier that teachers identified. Schools generally offered short preparation periods and often at times that conflicted with colleagues, which limited opportunities for collaborative planning.
6. *A culture of teacher isolation*. Despite the common concerns and interests shared by many teachers and the inherent opportunties to learn from one

> another's experiences, school culture often lead to teachers working in isolation, with the unspoken norm being "you don't bother me, I won't bother you" (Onosko, 1991, p. 360).

Onosko viewed these barriers to promoting students' higher order thinking as highly interrelated with one barrier feeding into another, further complicating efforts at reform. In order to address these issues, he suggested that a comprehensive approach that addressed each of these barriers concurrently would be necessary.

How teachers themselves approach historical problems is certainly another critical factor in how their students learn to conduct historical inquiry. While history teachers may have accumulated a wealth of historical facts through their studies of history, they may be less skilled in the practices of expert historians to analyze historical texts and construct historical understanding (Bohan & Davis, 1998; Yeager & Davis, 1995; Wineburg, 1991). Teachers who "think historically" exhibit the characteristics described by Onosko (1991) listed earlier in this section. This more sophisticated epistemology is likely requisite for a pedagogy of history that goes beyond the accumulation of facts and places emphasis on inquiry and analysis. Teachers with a less developed epistemology of history may view primary historical documents as less important and rely more on textbook accounts. Research on social studies student teachers' historical thinking revealed a pattern of simplistic approaches to conducting historical inquiry (Bohan & Davis, 1998; Yeager & Davis, 1995). Evans (1988) described how teacher conceptions of history affect instructional practice, and that practice may influence student knowledge and beliefs about the subject.

Barriers to technology integration.

Cuban (1986) has documented a long list of various technologies that have failed to fulfill their promise of significantly influencing classroom instruction. The failure of computers to spark significant classroom reform has been no less a disappointment. Some reformers have explicitly pointed to technology as an important link to the creation of more efficient and effective learning environments (e.g., Hannafin & Land, 1997; Means, 1994), but previous efforts by educators to integrate new technologies into educational practices have typically fallen short of lofty expectations (Becker, 1991b; Cuban, 1986; Tobin & Dawson, 1992).

While computers offer powerful utility and have been touted as essential tools for improving education, there is little reason to expect that merely installing computer hardware and software in schools will significantly change teachers' instructional practices (Becker, 1991b; Cuban, 1986; Ely, 1993; Hawisher & Selfe, 1993). Computers have typically had little impact on changing learning and instruction, from teacher- or content-centered curricula to student-centered curricula, despite advocates' appeals (Hawisher & Selfe, 1993; Means, 1994; Sandholtz, Ringstaff, & Dwyer, 1997).

Previous research on factors that influence teachers' use of computers has identified two general categories: first-order factors that are external to the teacher and second-order factors that are internal to the teacher (Ertmer, Addison, Lane, Ross, & Woods, 2000). Ely (1993) identified several categories of first-order factors, including availability of quality software, time for teacher learning and planning, hardware availability, and administrative support. In the same report, Ely cites a study by Sheingold and Hadley (1990, p. 21) in which computer-using teachers were asked to rate

a list of 35 barriers to using technology. Teachers identified the following top five barriers:

1. Teachers lack enough time to develop lessons that use computers.
2. Problems scheduling enough computer time for different teachers' classes.
3. Too few computers for the number of children.
4. Not enough place in the school schedule for more computer-based instruction.
5. Inadequate financial support for computers from the school and/or district.

Ertmer, et al. (2000) identified four general types of second-order factors (stated in terms of barriers): "beliefs about teaching, beliefs about computers, established classroom practices, and unwillingness to change" (p. 54). As Ertmer, et al. pointed out, barriers that are external to the teacher can often be removed through the acquisition of additional resources or, perhaps, through the reorganization of existing resources. However, eliminating second-order barriers, or those internal to the teacher, may require critical reflection on core beliefs about the culture and traditions of schooling (Tobin & Dawson, 1992). Failure to consider the influence of teachers' beliefs on their instructional practice may perpetuate the trend of failed educational reform (Tobin & Dawson).

Ely (1999) has identified eight conditions that appear to be necessary for successful implementation of educational innovations, including integration of computers for instructional purposes: (1) dissatisfaction with the status quo, (2) existence of pertinent knowledge and skills, (3) availability of resources, (4) availability of time, (5) existence of rewards and/or incentives for participants, (6) expectation and encouragement of participation, (7) commitment by those who are involved, and (8) evidence of leadership (pp. 23-24). Support for the validity of these conditions can be

found throughout the literature (c.f., Becker, 1991b; Henry & Clements, 2000; Loveless, 1996; Saye, 1998; Selwyn, 1999; Vockell, Janich, & Sweeney, 1994).

While much is known about the influence of first-order factors on teacher practice, research on the effects of second-order barriers, particularly the role of teacher beliefs, is less robust. However, a growing number of researchers have begun to examine more closely the influence of teachers' beliefs on their instructional decisions, including how computers are used to support instruction (Ertmer, 2005; Ertmer, et al., 2000; Hannafin & Savenye, 1993; Henry & Clements, 2000; Laurenson, 1995; Maor & Taylor, 1995; Saye, 1998; Scott & Hannafin, 2000). The following section will offer an overview of teacher beliefs and what is known about the relationship between beliefs and their influence on instructional practice.

The Role of Teacher Belief in Instructional Practice and Technology Integration

The construct of teacher beliefs has been defined in a general way by Kagan (1992) as a teacher's "implicit assumptions about students, learning, classrooms, and the subject matter to be taught" (p. 66). As Kagan points out, however, this broad definition has not been used consistently and encompasses a wide range of research agendas including teachers' sense of self-efficacy, images of teaching, beliefs about or orientations to teaching in their discipline, beliefs about the role of a classroom teacher, and beliefs about classroom management—to name just a few (Hofer & Pintrich, 1997).

Teacher beliefs have been identified as a major factor in shaping a teacher's pedagogical decisions (Fang, 1996; Kagan, 1992). Kagan described a widely varied research base on teacher beliefs but reduces this research to two general forms: the

teacher's sense of self-efficacy and the teacher's content-specific beliefs. The latter type is of the most interest in this study since it includes "the teacher's epistemological conceptions of the field to be taught, as well as his or her judgments about appropriate instructional activities, goals, forms of evaluation, and the nature of student learning" (Grossman, Wilson, & Shulman, 1989, p. 67). These core epistemological beliefs are believed to serve as a filter through which teachers consider alternative instructional methods and make other academic decisions.

Kagan (1992) offered two generalizations that are consistently supported in the literature on teacher beliefs. One is that teachers' beliefs are relatively stable and resistant to change. The second is that teachers' beliefs generally reflect a compatible teaching style that is consistent throughout different types of classes and with different groups of students. In other words, teachers' beliefs usually reflect the actual instructional strategies teachers implement in the classroom. Based on these general findings, one would expect that teachers' beliefs about teaching and learning would heavily influence the strategies that teachers use to implement technology in the classroom.

Personal experience also heavily influences teachers' beliefs (Cobb, 1988) and particularly powerful is one's "apprenticeship of observation" – the countless hours of experience as student observers of their teachers (Lortie, 1975). Teachers' beliefs about teaching and learning are likely derived from their many years of experience as students themselves and from observing their teachers' instructional methods (Slekar, 1998). Lacking in most teachers' apprenticeships of observation are good examples of using technology to support student-centered learning (Niederhauser & Stoddart, 1994). Without a highly-developed belief system about such practices, teachers may tend to rely

on or revert to more familiar patterns of education when faced with opportunities to implement instructional innovations. Slekar refers to this tendency as reflexive conservatism and asserts that failure to challenge these tendencies in teacher preservice programs has contributed to teachers holding to traditional beliefs and resisting change to less-familiar, student-centered instructional methods.

Schommer described personal epistemology as a belief system that includes an individual's deeply held convictions about the certainty of knowledge, about how knowledge is organized, and about the ability of individuals to control their own knowledge acquisition (Schommer, 1990; Schommer-Aikins & Hutter, 2002). Teachers' epistemological beliefs include those about how students learn and about how their subject area is best taught, including appropriate instructional strategies and assessment methods (Kagan, 1992). While much of the early research on epistemological beliefs has been on how students' beliefs influence comprehension and academic achievement (Ryan, 1984; Schoenfeld, 1983; Schommer, 1990), researchers have recently extended this line of work to examine the influence of teachers' epistemologies on their instructional practices (Fang, 1996; Hofer & Pintrich, 1997; Kagan, 1992; Lyons, 1990; Marra, 2005; Prawat, 1992).

Howard, McGee, Schwartz, and Purcell (2000) provided a summary of the research that has examined the influence of teacher epistemology on a number of educational practices, including "…teachers' use of teaching strategies (Hashweh, 1996), their use of problem-solving approaches (Martens, 1992), their efforts in curriculum adaptation (Benson, 1989; Prawat, 1992), their use of textbooks (Freeman & Porter, 1989), their openness to student alternative conceptions (Hashweh), their preservice

training needs (Many, Howard, & Hoge, 1997), their students' reading practices (Anders & Evans, 1994), and their students' use of higher-level thinking skills (Maor & Taylor, 1995)" (p. 455). Other researchers have looked specifically at the role of teacher beliefs on their use of computers for instructional purposes (Dexter, Anderson, & Becker, 1999; Ertmer, 2005; Ertmer, et al., 2000; Henry & Clements, 1999; Marcinkiewicz, 1994; Niederhauser & Stoddart, 1994; Pedersen & Liu, 2003; Scott & Hannafin, 2000). Pedersen and Liu, for example, found that some teachers struggled with accurate definitions of student-centered learning, a conceptual dilemma according to Windschitl (2002).

In the foreword to *Teaching with Technology* (Sandholtz, Ringstaff, & Dwyer, 1996), Cuban acknowledged the importance of considering teachers' beliefs about teaching and learning as well as the difficulty in altering those beliefs as related to the use of technology. The ACOT research described in that book supported the importance of that practice. Some technology enthusiasts, though, have posited that the introduction of computers in the classroom may be a sufficient factor to prompt teachers to make changes in their instructional practices (Means, 1994). In a study of computer-supported inquiry-based learning in a high school science classroom, Maor & Taylor (1995) found that the teacher's epistemology, not the computer, was the key factor in the use of the computer for scientific inquiry. Results from the ACOT project described earlier, along with Riel and Becker's (2000) study of how teacher leaders use computers, supported the finding that change in beliefs precedes change in practice. However, the introduction of computers in the classroom may serve as a catalyst for teachers to begin a process of

critical reflection on existing practices and to consider alternatives (Dexter, Anderson, & Becker, 1999).

A number of researchers have associated Schommer's notion of naïve and sophisticated epistemologies with objectivist and constructivist views of teaching and learning (Arredondo & Rucinski, 1998; Brooks & Brooks, 1993; Howard et al., 2000). Schommer (1990) proposed that epistemological beliefs are multidimensional and that they can be viewed along a continuum within each dimension. Factor analyses in a number of studies using the Schommer Epistemological Questionnaire (EQ) have yielded four factors to account for the different epistemological dimensions. Schommer described each dimension as ranging from naïve to sophisticated beliefs (using Schommer's terminology) and labeled the dimensions according to the naïve perspective. The *Fixed Ability* factor refers to whether one views intelligence as fixed or whether it can be improved over time. The *Quick Learning* factor accounts for views of learning as occurring quickly or not at all or whether learning occurs as a gradual process over time. *Simple Knowledge* accounts for characterizations of knowledge as clearly defined bits of information or as complex, interrelated concepts. Finally, *Certain Knowledge* accounts for views of knowledge on a range from absolute to tentative and ever changing. Schommer proposed that the multidimensional nature of personal epistemologies might help explain seemingly incongruous beliefs about similar concepts held by the same individual. Besides its explanatory value, the Schommer EQ may also provide a useful tool for measuring teachers' epistemological beliefs. Table 3 compares sample methods for each epistemological dimension as related to objectivist and constructivist learning models.

Table 3

Epistemological Dimensions Compared to Contrasting Learning Models

Epistemological Dimension (Schommer, 1990)	Objectivist Learning Model (sample method)	Constructivist Learning Model (sample method)
Simple Knowledge (Simple…Complex)	*Simple*: Teachers define concepts. Students memorize these and other facts. (The teacher lectures.)	*Complex*: Students examine complex knowledge and draw their own conclusions. (Students have small-group discussions.)
Certain Knowledge (Certain…Tentative)	*Certain*: Students learn the concepts as presented and are penalized for misconceptions. (Students read textbooks and write answers to chapter questions.)	*Tentative*: Students are allowed to develop alternative conceptions. (Students create and test models.)
Fixed Ability (Innate…Acquired)	*Innate*: Teachers believe that students understand only according to their level or ability. (Teachers use ability groupings.)	*Acquired*: Students can learn to learn. Learning is process-oriented. (Teachers use strategies for reading comprehension.)
Quick Learning (Quick…Gradual)	*Quick*: Students learn from well-designed curricular materials and presentations. (Students watch multimedia presentations.)	*Gradual*: Students learn by discovering or doing. (Students complete ill-structured problem-solving tasks.)

Note. Adapted from "The Experience of Constructivism: Transforming Teacher Epistemology," by B. C. Howard, S. McGee, N. Schwartz, and S. Purcell, 2000, Journal of Research on Computing in Education, 32(4), p. 457. Copyright 2000 by the International Society for Technology in Education. Adapted with permission.

Teacher Conceptions of History and their Influence on Instructional Practice. How teachers view the discipline in which they teach and how they believe that content in their discipline should best be taught is an important aspect of teacher belief. In an exploratory investigation of history teachers' conceptions of history, Evans (1989, 1990) identified five general typologies that could be used to explain teachers' views about history and the purposes for studying history: storyteller, scientific historian, relativist/reformer, cosmic philosopher, and eclectic. The *storyteller* focused on transmitting historical facts to her students through the use of stories about people and events. *Scientific historians* taught from the perspective that understanding history requires open-ended inquiry that leads to objective interpretations and that the process of historical inquiry is useful for generalizing to current issues. *Relativist/reformers* related problems and events of the past with those in the present with a goal of improving society. *Cosmic philosopher* teachers viewed history in patterns or generalizations that cross generations and believed that these generalizations are the most important aspect of studying history. Finally, *eclectic* teachers exhibited no dominant conceptions of history and generally tried multiple approaches to teaching the subject. These typologies were based on teachers' instructional practice and personal epistemology as examined through teacher and student interviews and classroom observations.

In a related study, Evans (1990) found that these typologies related to student understanding of historical thinking. Students of scientific historians held clearer conceptions of history and were more likely to link their beliefs about history to their history courses with these teachers. On the other extreme, students in reformer and

eclectic led classes had little or shallow understanding of the purposes of historical inquiry and held beliefs about history that were little impacted by these teachers. Students of cosmic and storyteller teachers had better understandings of history

Evans' typologies represent diverse conceptualizations about the meaning of history and revealed how these conceptions influenced their instructional practices. It is reasonable to expect, then, that these conceptions would also influence the ways in which teachers might use student-centered, technology-supported learning environments to teach history. For example, a storyteller may be interested in the ways that historical artifacts stored in a multimedia database can be shared with students, but might be unwilling to relinquish her role completely to allow students to become apprentice historians.

Levstik and Barton (2001) offered another perspective on how teacher views of history affect the aims and activities in history classrooms. Taking a sociocultural approach that "doing history" (p. 21) is rooted in mediated action—the intersection of specific historical acts and the social contexts that influence these acts—Levstik and Barton outlined a rationale for reconceptualizing the purpose of history education as preparing students to be active citizens in a more participatory democracy. They described four distinct perspectives, or stances, that affect history instruction, particularly that which is related to promoting participatory democracy: the identification stance, the rationalistic stance, the exhibition stance, and the moral response stance.

In the *identification stance*, historical acts are related to establishing an identity of "who we are" (Levstik & Barton, p. 128) in the present based on what has happened in the past. The focus of this stance is on characteristics, customs, traditions, holidays,

events, and other historical artifacts that help us to know about the past and that help shape our sense of self in the present. The influence of this stance in the classroom can result in an emphasis on people, events, and symbols often for the purpose of establishing a sense of national pride or to highlight other positive characteristics to be valued as "morally right" (Levstik & Barton, p. 129).

The *rationalistic stance* focuses on the act of analysis, in particular those related to understanding historical patterns, cause-effect relationships, and other factors that have affected people to take action or make change. According to Levstik and Barton, this stance has shaped history education in three distinct ways: (1) through the study of societal development; (2) through the study of the past to solve problems of the present; and (3) through a focus on the processes of historical investigation and interpretation to answer questions based on evidence.

The *exhibition stance* emphasizes performances, assignments, and other classroom activities in which historical knowledge is put on exhibit. In particular, this stance is characterized by exhibitions that focus on specific bits of historical knowledge but that are generally devoid of higher level analysis and interpretation.

Finally, in the *moral response stance*, the study of history is focused on extracting the good and the bad, the right and the wrong, or other moral evaluations about the people and events of history. In particular, historical acts in this stance focus on eliciting feelings of admiration, condemnation, or remembrance through the study of moral and ethical issues interwoven in the fabric of history.

Levstik and Barton posited that each of these four stances provide elements that are critical to achieving the goal of history instruction that most effectively prepares

students for participatory democracy. The exclusion of any particular stance or an overemphasis of one stance over the others may leave students ill-prepared for their expected contribution to a participatory democracy.

Summary

This chapter has reviewed relevant literature and issues related to the research questions addressed by this study. Interest continues to grow in learning how technology, primarily computers, can be used in classrooms to support student-centered learning. While a large number of studies have investigated factors that facilitate or inhibit the use of computers for instructional purposes, there is still a small research base on how teachers implement instructional software specifically designed for student-centered activities. Teacher epistemology, or beliefs about the nature of knowledge and how it is acquired, is one factor that would seem to play an important role in how a teacher would implement student-centered instructional software. However, research that has addressed the role of teacher epistemology in instructional decision making has produced mixed results. Likewise, there have been relatively few studies that have investigated the role of teachers' beliefs/epistemologies on how instructional technology is implemented. How teachers conceptualize their discipline is another factor that has been related to curricular decisions. Developing a better understanding of the conditions and factors that encourage or inhibit social studies teachers to implement technology-enhanced SLEs will assist educators, administrators, researchers, and designers in addressing questions about the viability of promoting and sustaining such instructional systems.

III. METHOD

This study examined how high school social studies teachers with varying epistemologies implemented student-centered instructional software and sought to identify factors that affected their implementation. The following research questions were addressed in this study:

1. How do teachers' espoused beliefs about teaching and learning relate to their use of student-centered instructional software (*Decision Point!*) to support instructional activities?
2. What facilitating and inhibiting factors present in the teachers' environments significantly impacted their use of *Decision Point!*?
3. To what extent did teachers view the role of student-centered software as supplemental or integral to their instructional activities?
4. What were the teachers' attitudes about using *Decision Point!* and the embedded student tools? Specifically, what were teachers' views regarding: (1) whether this type of tool helps improve the teaching-learning process, (2) how well they think students learned as compared with other methods, (3) pedagogical considerations, (4) time requirements, and (5) student assessment issues.

Participants & Settings

Five high school social studies teachers from five different north Alabama school districts participated in the study. Near the beginning of the 2000-2001 school year, the researcher contacted principals in 14 high schools within a 60-mile radius of the researcher's residence to ask for permission to recruit teachers for the study. Ten principals granted permission to discuss the project with teachers. From those ten schools, five teachers were selected for participation based on the following criteria: (1) the teacher typically taught a unit on the civil rights movement, (2) the teacher planned to teach the unit sometime during the fall 2000 or early spring 2001, and (3) the teacher had access to appropriate computer hardware and software either in the classroom or in an available computer lab. Teachers who met those criteria and were interested in participating were asked to complete the Schommer Epistemological Questionnaire (Schommer EQ). The survey identified teachers as holding either more traditional (objectivist) beliefs or more student-centered (constructivist) beliefs about learning. The research questions necessitated that the teachers selected for the study represent a spectrum of teaching beliefs. Three teachers were identified as more traditional while two were more student-centered.

The five teachers and their school settings are briefly described in this section. Table 3 provides a summary of the teacher and school characteristics. Pseudonyms have been used to protect the true identities of the teachers and the schools.

Table 4

Teacher and School Characteristics

	Teachers				
Teacher/ School	Chet Chapman HS	Jack Hillsboro HS	Janet Northwood HS	George Winfield HS	Brian Parkside HS
Age	25	53	31	50	35
Yrs of teaching experience	3	9	6	15	11
Level of education	BS	EdS	MS with work on EdS	MS	MS
Grade/subject	12/Government	11/American History	11/American History	11/American History	11/American History
Number of students in class	17	29[a]	27	25	14
Number of students in school	887	900	1100	855	420
Length of class period (minutes)	96	73	95	50	52

Note. [a]Only four students participated directly with *Decision Point!* in this class.

Chet (Chapman High School)

Chet, a 25-year old white male, was entering his fourth year of teaching, his third at Chapman High. Besides the 12th grade government class that participated in the study, Chet also taught two sections of 11th grade American history. This was the first year he had taught these classes after teaching ninth grade social studies the previous three years.

Chapman High School had a student population of 887, with approximately 85% of those white and 15% African-American, and was one of six schools in the county's school district. Located 15 miles outside of a large north Alabama city, the campus was set between several large cotton farms common in that area. Chet believed that the rural setting contributed to the strong parental involvement and the feeling of community that existed within the school. In the previous school year, the school ranked in the top 10 statewide in standardized test scores for schools similar in size. The main wing of the school, built just two years before, included four new computer classrooms. The current school year was the first that the district had implemented a block schedule of five 96-minute class periods.

Jack (Hillsboro High School)

Jack, a 53-year old white male, had taught for nine years at Hillsboro after a 20-year career as an automobile mechanic. He had taught a variety of social studies courses during his tenure at Hillsboro, including democracy, economics, geography, and history. Within the year prior to this study, Jack had received an educational specialist (Ed.S) degree in educational leadership. As part of that program, he took a series of three instructional technology courses in which he was exposed to student-centered uses of technology. Jack's interest in technology was evident at Hillsboro. For example, he used grant money to develop a media lab that students used to broadcast morning news briefs to classroom televisions throughout the school. In addition, Jack used personal money as well as persistent determination with school administrators to obtain the five multimedia computers in his classroom, as compared to the average of one in the other classrooms. In his spare time, Jack built and sold computers.

The Hillsboro campus was set in a mid-sized city in north central Alabama. Covered sidewalks connected the several one-story brick buildings that made up the high school. Each building had a single, long hallway with classrooms on either side. The buildings were erected in the early 1970s and were showing some wear. The lone high school in this city district, the Hillsboro student population was predominantly white, 99 percent, with just a small number of African-American and Hispanic students.

Janet (Northwood High School)

Janet, a 31-year old white female, was a second-year American History teacher entering her seventh year of teaching overall. Before joining the high school faculty, she had taught social studies and a basic computer skills class at the local junior high. She offered that she was "not a computer genius" but felt "comfortable with the basics." After recently completing her master's degree in social studies education, which included one course in instructional technology, she had also completed four classes toward an education specialist degree.

Northwood High was the only high school in the city school district and had approximately 1,100 students, the most of any of the schools in this study. The student population was almost all white, about 99 percent, with only a few Hispanic and Asian students. Janet (as well as the school's principal) pointed to strong parent support as one of the school's strengths. In the previous school year, 100 percent of students taking the state graduation exit exam passed it.

George (Winfield High School)

George, a white male in his early 50s, had taught at Winfield High for the previous 16 years. After teaching special education for the first four years of his teaching

career, George then moved to seventh and eighth grade social studies for ten years before moving to his current high school position teaching U.S. History and advanced placement classes in government and economics. He had earned master's degrees in both special education and social studies and was a past recipient of a National Educator Award from the Milken Family Foundation.

Winfield High, one of five high schools in a large city school system in North Alabama, was the magnet school for performing and fine arts in the district. Of the 855 students who attended Winfield, about 70 percent were African-American, 29 percent white, with a number of races making up the other one percent. George cited weak parental involvement as one of the major challenges Winfield faced, but also pointed to the positive affects of the school being the magnet for performing arts.

Brian (Parkside High School)

Brian, a white male in his mid 30s, had taught for 11 years at Parkside High. Along with three regular American History classes, he also taught two advanced placement classes. After completing his master's in social studies education, Brian had also taken an additional nine hours of graduate classes. Along with his teaching responsibilities, Brian also coached basketball.

Parkside High was the only high school in the small city school district located in north central Alabama. With 420 students, Parkside was the smallest school to participate in the study, but matched most of the other schools in available technology. The school had a reputation among other schools in the area for being technology-oriented, although Brian wished that the classrooms had more PCs and more Internet access. The large majority of students (approximately 90 percent) were white, with the remainder mostly

African-American. Brian cited community interest and involvement as a major strength of the school and saw this as a factor in the high percentage of students "who really want to learn."

Materials

Epistemological Beliefs Survey

The Schommer EQ (Schommer, 1998) was administered prior to selecting teachers for participation. The 63-item instrument measures epistemological beliefs—beliefs about the nature of knowledge and truth—on a continuum from naïve to sophisticated according to Schommer. The inventory is composed of twelve subcategories of epistemological orientations. Schommer (1990) validated four of five hypothesized factors within the instrument: Simple Knowledge, Fixed Ability, Quick Learning, and Certain Knowledge. Respondents were asked to read a statement and indicate their level of agreement using a Likert-type scale from 1 (strongly agree) to 5 (strongly disagree). Sample questions representing each factor are displayed in Table 5. The complete survey is reproduced in Appendix A.

Table 5

Sample Items from the Schommer Epistemological Questionnaire

Factor Title	**Sample Items**
Simple Knowledge	*Most words have one clear meaning.*
Fixed Ability	*An expert is someone who has a special gift in some area.*
Quick Learning	*If you are ever going to be able to understand something, it will make sense to you the first time you hear it.*
Certain Knowledge	*Scientists can ultimately get to the truth.*

Howard et al. (2000) used the Schommer EQ to measure teachers' epistemologies before and after a training program focused on constructivist instructional methods. Their study paralleled Schommer's naïve and sophisticated epistemologies with objectivist and constructivist beliefs about teaching and learning, respectively. They cite Arredondo and Rucinski (1998) and Brooks and Brooks (1993) as drawing similar parallels. In the present study, the survey was used as an initial screen for selecting teachers for the study. The survey results were used to identify teachers' espoused beliefs and were compared to other observational data to check for consistency between stated beliefs and actual practice.

Instructional Software

Decision Point! (Saye & Brush, 1999) is an open-ended instructional software program that includes a database of artifacts such as video clips of TV news coverage, newspaper articles, photographs, maps, and other documents related to the American Civil Rights movement—from the mid-1950s up to the assassination of Martin Luther King, Jr., in 1968. Users can explore the database in a variety of ways, similar to navigating a multimedia encyclopedia. Documents are organized hierarchically and can be accessed by clicking on a series of menus. The main menu lists three strands, or themes, that describe different approaches used during the civil rights movement: *Using the Legal System*, *Non-Violent Direct Action*, and *Black Power/Use of Force*. Clicking on one of the three strands takes the user to the main *Decision Point!* content screen (see Figure 1), which displays a strand menu with related events for that strand. For example, the strand menu for *Using the Legal System* contains links to events such as Brown vs. Board of Education, Little Rock School Integration, and the Civil Rights Act of 1964.

Each event in *Decision Point!* has an associated event menu that lists links to an interactive essay that outlines the event, a detailed timeline with related sub-events, and artifacts such as news reports, primary documents, photographs, and videos.

On the main *Decision Point!* screen, a timeline provides a visual overview of the events documented in the database. The timeline allows users to move from one part of the program to another without having to return to the main menu or one of the strand menus. When a user clicks on an event listed in the timeline, two options are presented: preview the event or explore the event. If the preview option is selected, the user sees a video clip that provides background information about the event. The explore option takes the user directly to the event menu for that event.

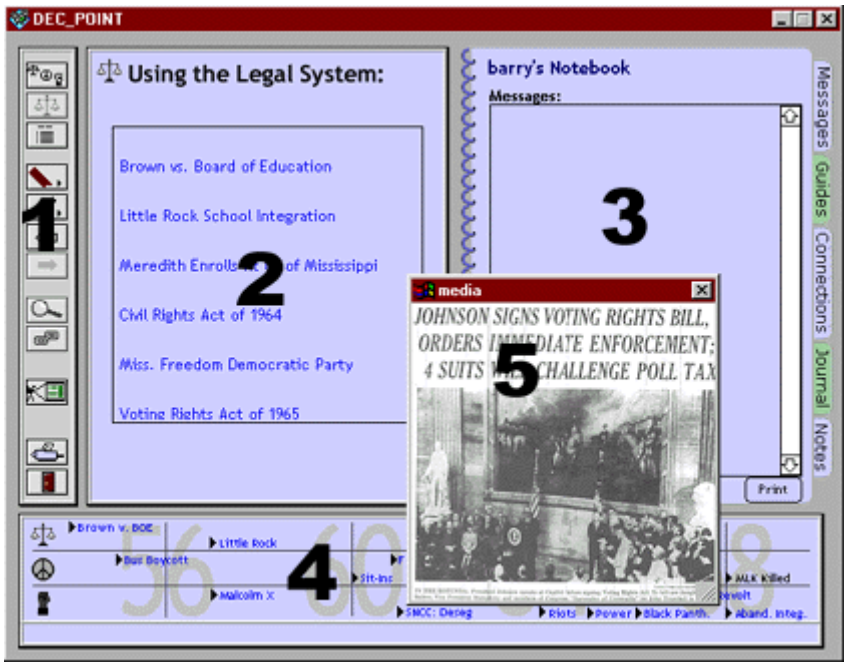

Figure 1. Major areas of *Decision Point!* main content screen: (1) Toolbar, (2) Content Display Area, (3) Notebook, (4) Timeline, and (5) Multimedia window.

Users can use *Decision Point!* simply to locate information related to a specific topic, as described above. The open-ended nature of the program, however, allows for a variety of uses. The software includes educational tools specifically designed to facilitate and guide student interaction with the program content. For example, a student notebook tool contains guiding questions that students can use to focus their study of a particular topic. Higher-order questions found in the notebook (see Figure 2) challenge students to think critically about issues and events surrounding the civil rights movement. Students can also use the notebook to collect and organize links to information found in the database. Finally, a slide show presentation tool (see Figure 3) provides students with a framework for organizing and presenting their research. The presentation tool includes a template that students can use to create a presentation, allowing students to focus on the content of the presentation.

Decision Point! was developed at Auburn University by a team led by Dr. John Saye and Dr. Tom Brush (now at Indiana University). The current investigator was also a member of the original development team as a graduate research assistant. The software is not commercially available and, because of copyright restrictions, has not been distributed other than for the purposes of research. Each teacher was provided a sufficient number of copies of *Decision Point!* to carry out their planned unit. Teachers returned all discs after the study was completed.

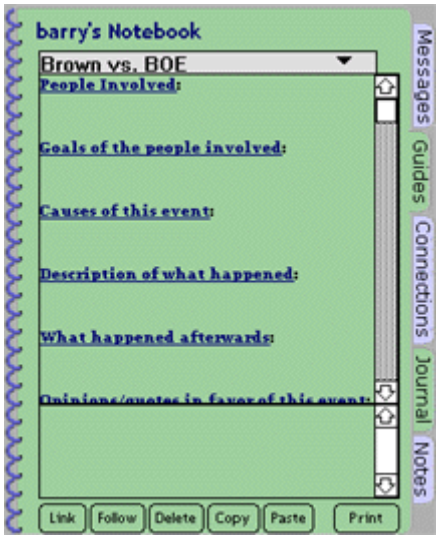

Figure 2. Decision Point! notebook with Guides tab active.

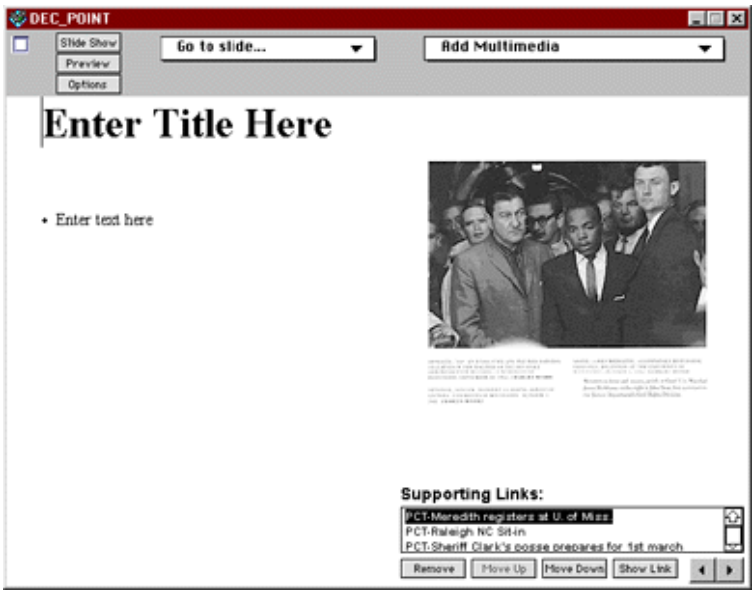

Figure 3. Decision Point! presentation tool in authoring mode.

Software Documentation

A *Decision Point!* user's guide (Appendix B) was developed to support teachers in learning to use the software. The guide provided installation instructions, directions for starting the program, descriptions of navigational tools and general interface conventions, and suggestions for possible uses of the program. Teachers received the guide during a

mandatory training session prior to the start of the unit. Two of the teachers used parts of this document to create student handouts to help students learn to use the program.

Teachers received an additional handout (also in Appendix B) that provided instructions for transferring students' presentation files from one computer to another—for example, from a lab computer used for research and production to a classroom computer used for presentations. Teachers received this handout toward the end of the civil rights unit, prior to student presentations.

Researcher Role & Subjectivity

The role of the researcher in collecting qualitative data may range anywhere from being a full participant to being a spectator with no participation (Merriam, 1998). In the current study, the researcher took the role of "observer as participant" (Merriam, p. 101). According to Adler and Adler (1994) researchers in this role "observe and interact closely enough with members to establish an insider's identity without participating in those activities constituting the core of group membership" (p. 380). Since one of the goals of the research was to investigate how teachers implemented *Decision Point!* in as naturalistic a setting as possible, it was important that the researcher focus on observation and limit participation as much as possible. One concern in qualitative research is that the researcher may affect how participants react in the study environment, ultimately affecting what is observed (Merriam, 1998). To minimize this potential problem, the researcher kept in mind identifying and accounting for any such effects when interpreting the data.

Another concern in qualitative research is the subjective beliefs and perspectives of the researcher. One way to address these concerns of reliability is for the researcher to describe the qualifications, experience, and perspective he or she brings to the study (Merriam, 1998; Patton, 1990). The researcher participated in the initial design and development of *Decision Point!* and had observed the program's classroom implementation during a previous research study (Saye & Brush, 1999). He had worked in a variety of educational settings, in both higher education and public schools, for the last 10 years. He holds a bachelor's degree in secondary social science education and a master's degree in instructional design. For two years, he was an instructor in a master's level instructional design program at Troy State University – Fort Benning, Georgia, and currently is an educational technology instructor at the University of Alabama in Huntsville. Courses in the master's and doctoral programs at Auburn University explored a wide range of theory-based pedagogical methods but emphasized the study of constructivism. After exploring research in cognitive psychology, and related fields, the researcher understands better how student-centered instructional strategies facilitate natural learning processes. Students who are active participants in a learning environment tend to learn more deeply and are often better able to transfer knowledge to new situations. Computer technology provides teachers with another tool that they can use to allow students to take responsibility for their own learning. Computers should not be used in place of a teacher, but rather, computers can provide students with a rich set of tools and resources with which to participate, communicate, and collaborate in a learning environment. Utilizing technology in that way allows the teacher to focus less on dispensing instructional content and more on checking students' progress and providing

scaffolding (Meyer, 1995) to support students as they work on an activity. Having worked in a variety of educational settings, the researcher understands that instruction is but one component of the larger educational framework and that competing demands often inhibit teachers from implementing desired methods into praxis.

Data Collection Procedures

This qualitative study examined five high school social studies teachers in the naturalistic settings of their schools. The primary methodology used was case study. Data were collected through observations with field notes, teacher interviews before and after the teaching unit, lesson plans and materials, a teacher beliefs survey (the Schommer EQ), and student focus group interviews. Four of the studies took place in November and December 2000 while a fifth study was conducted in February and March 2001. Each study followed the same general procedure although the sequence of events varied in some cases.

Introductions and Documentation

Prior to each study, the researcher met with the teacher to describe the procedure that would be followed and to provide a general introduction to *Decision Point!* At the end of this meeting, the teacher was given a consent form and the Schommer EQ. Appendix C shows the teacher consent form. The teacher was asked to return the signed consent form and completed survey by mail or to have it ready for the researcher to pick up if another meeting was planned within the following one or two days. The researcher provided the teacher with self-addressed stamped envelopes for convenience in returning the two documents.

Beliefs Survey

The Schommer EQ survey provided a measure of the teacher's general beliefs about the nature of knowledge and learning. This measure was used to ensure that teachers with a range of beliefs were selected for the study. After the survey had been reviewed to determine if the teacher was a good fit for the study, the researcher contacted the teacher to confirm that the teacher had been selected to participate. Times and dates were then arranged with the teacher for the pre-unit interview, *Decision Point!* training, and classroom observations.

Pre-unit Teacher Interview

The pre-unit interview focused on (1) general information about the teacher, including their teaching experience, educational background and philosophy, and experience using computers; and (2) the school environment, including information about the students, parents, and administrators and the goals of the school. Interviews were semi-structured, following a general script but allowing for exploratory questions depending on teacher responses. Interviews were conducted at the teacher's school during a planning period or after school and lasted between 30 and 45 minutes. Figure 4 shows the interview script used during the initial interview.

Pre-Unit Teacher Interview Script

General Background

1. Number of years taught…total? This subject/grade level?
2. Number of years at current school
3. Educational background
4. Number of classes currently…grades/subjects…number of students

School Environment

1. Tell me about your principal…what is he/she like…goals for the school?
2. Number of faculty…Tell me about the faculty
3. Number of students…Tell me about the students
4. Tell me about the parents
5. What one word best describes your school?
6. What goals (stated or unstated) does your school have?
7. Strengths/weaknesses of the school

Teaching/Curriculum Planning

1. In your opinion, what is the primary purpose of education?
2. What do students learn when they take [target class]?
3. In your opinion, what should be the role of the teacher in the classroom? Do you think this is true all of the time?
4. What kind of influence do you think you have on your students?
5. What is the role of the student in your classroom? In all cases?
6. Describe your interaction with students.
7. How do you decide what to teach in your classes?
8. Do you ever make changes to what is taught? If so, in what way(s) or under what circumstances?
9. Which is more important: teaching what will help students do well in class or helping students learn about what they are interested in?

Computer Background/Use

1. How long have you used computers (PCs)?
2. What kind of PCs are you most familiar with?
3. What kinds of activities do you use a PC for
   …at home?
   …at school?
4. How many PCs do you have in
   …your classroom
   …your school's computer lab(s)
5. How often do you use PCs for
   …administrative tasks?
   …instructional tasks?
6. What software programs do you use most often?
7. What software programs do your students use most often in your class?
8. What do you think is the most important role for computers in schools? Is this true at your school?
9. Describe the type of instructional software that you think is most effective. Why?
10. Describe a model you might use to integrate technology in an instructional unit in your subject area?

Figure 4. Question script used during pre-unit teacher interviews.

Decision Point! Training Session

Before the start of the civil rights unit, the researcher conducted a one-hour training session on *Decision Point!* Because of differences in the teachers' schedules and the distance between the schools, the training sessions were held individually at each teacher's school either during a planning period or after school. The session consisted of two parts: technical training on how to use the program and an overview of possible uses of the program. To support the technical training, teachers received one copy of the *Decision Point!* user's guide, which provided installation instructions and descriptions of the program's features. The technical training was designed to show the teachers the functionality of the program and to let teachers gain confidence using the software. Teachers operated the computer while learning the structure of the database, how to navigate the program, and how to access and use the notebook and presentation tools. After the technical training, the researcher also described several possible uses of *Decision Point!* The possible uses were divided into four areas: teacher-led presentations, student research and presentations, uses of the notebook tool, and uses of the presentation tool. During this portion of training, the goal was to present to teachers a variety of methods for using *Decision Point!*, covering a range of teacher-centered and student-centered strategies but not advocating any one instructional strategy over another.

Pre-unit Observations

Also prior to the civil rights unit the researcher arranged to observe at least two class sessions to gather additional data about the teachers' general instructional practice

and to learn more about the general classroom environment. During these observations, the researcher sat in a corner of the classroom away from the teacher and students. Observations yielded information about the teacher's instructional methods and classroom management style, the objectives of the lesson, the relationships between the teacher and students and among students, the types of interaction that occurred, and the general climate of the classroom.

Lesson Plan Samples

After the first observation, the teacher was asked to provide copies of lesson plans for a one to two-week period, separate from any planning they might have already done for their civil rights unit. The lesson plans provided further insight into teaching strategies typically employed by the teacher.

Implementation of Unit

Teachers started their *Decision Point!*-supported civil rights units within two to three weeks after the training session. Except for one case, the timing of the units fit the teachers' normal curriculum timeline. One teacher taught the civil rights unit as part of Black History month in February instead of including it as part of a unit on the 1960s that had been scheduled for March. Teachers determined every aspect of the unit including how the software would be used and how long the unit would last. No explicit instructions for how to use the software were given to the teachers. Scheduling conflicts prevented the researcher from observing every class, but a majority of classes in each study were observed. The researcher observed as a spectator (Patton, 1990) and tried to

avoid direct interaction with the teacher or students. The researcher did help solve technical problems with *Decision Point!* when asked. During the observations, the researcher took field notes. After each class, the researcher attempted to talk to the teacher about the session, focusing on issues such as how they thought the unit was going, how well they thought the students were doing, and how they liked using the program.

Student Focus Groups

Toward the end of the unit, the teacher selected six students to participate in a focus group. It was expected that students would provide a unique perspective regarding how their teacher implemented the *Decision Point!*-supported unit. The teacher was asked to select two students each whom they considered above average, average, and below average. Students selected by the teacher were given consent forms to take to their parents or guardians and were instructed by the teacher to return the signed forms within one to three days. The parental consent form is shown in Appendix C. The focus group sessions were held following the civil rights unit at a time that was convenient for the students. Sessions were held in an empty office or classroom and lasted for about 30 minutes. Only the researcher and the students participated in the focus group session. A cassette-tape recorder was used to record the sessions. The line of questioning followed a script (see Figure 5) but non-scripted questions were also asked on occasion to probe deeper into a student's thoughts.

Student Focus Group Interview Script

1. How often do you use computers in your classes? Which classes? What kinds of activities do you use the computer for?
2. What did you like most about the civil rights movement unit?
3. What did you like least about the civil rights movement unit?
4. What were some challenges that you had during this unit?
5. What did you like most about the *Decision Point!* software? Specific tools?
6. What did you like least about the *Decision Point!* software? Specific tools?
7. Tell me how you used the *Decision Point!* software. What were some of the different tools that you used? Were these tools beneficial? Why?
8. How was your experience different from what you normally do in this class?
9. Would you say that the purpose of this unit was to discover new knowledge or to find specific facts about the civil rights movement? How were you graded?
10. Do you think that you learned a lot about one or two topics or a little about a lot of different topics?
11. Did your teacher teach differently during this unit? If so, how?
12. Would you have liked to receive more/less help from your teacher during this unit?
13. Do you think you learned more during this unit than you would have without using *Decision Point*? Why or why not?
14. In which setting do you learn best: lecture, discussion or student-centered (hands-on) group and individual projects, experiments, simulations, etc? Which do your teachers use the most?
15. Would you like to use software like *Decision Point!* in other units? Would you like to study other topics in similar ways to those used in this unit?
16. What suggestions do you have for improving *Decision Point*?
17. What suggestions do you have for your teacher in how to best use *Decision Point*?

Figure 5. Question script used during post-unit student focus group interviews.

Post-unit Teacher Interview

Finally, the researcher interviewed each teacher immediately following the end of his or her unit. The purpose of this interview was to determine what the teacher liked and disliked about the unit and to probe the teacher's beliefs and attitudes about the use of *Decision Point!* during the unit. Also of interest were barriers and/or facilitating factors that the teacher thought impacted their use of the program or might impact their use of similar programs in the future. Figure 6 lists questions that were used to guide the post-unit interviews. A cassette-tape recorder was used to record the sessions. Interviews were

conducted at the teacher's school during a planning period or after school and lasted from 30 to 45 minutes.

Post-Unit Teacher Interview Script

Evaluating the unit

1. Considering your plan going into this unit, how closely do you think the implementation matched what you had planned? If different, how?
2. Describe some of the methodological decisions you made in planning for this unit? What were some major factors that affected your decisions?
3. Is the way you implemented *Decision Point!* consistent with methods you typically employ in this class? If so, how?
4. Did the availability of *Decision Point!* significantly affect your teaching of this unit? How?
5. Were your students' experiences with history in this unit different from other units? If so, how?
6. Overall, what were the strengths and weaknesses of this unit?
7. What were some of the challenges you faced in teaching this unit?
8. What were some of the challenges your students faced in this unit?
9. Did things work pretty much as you envisioned or were there surprises?
10. If you were to teach this unit again, what would you do to make it work more effectively?
11. How could *Decision Point!* be improved to help you as a teacher?
12. How could *Decision Point!* be improved to help your students' learning experiences?
13. Would you use these tools to study other history topics in ways similar to those used in this unit?

Attitudes and Beliefs about Student-Centered Instructional Software

14. How did you like using *Decision Point!* as part of this unit?
15. Did *Decision Point!* support your typical teaching methodology or were changes required?
16. Do you think students learned more or less during this unit than they would have otherwise?
17. Do you think *Decision Point!*, or similar programs, enable students to learn in different ways than with traditional methods? If so, how?
18. Do you think students have to be assessed differently when a program like *Decision Point!* is integrated into an instructional unit? If so, how?
19. Do you think the time available/required to use *Decision Point!* in a teaching unit affected your use of the program? If so, how?
20. Would you use *Decision Point!* again, if it were available?
21. Will you look for other programs like *Decision Point!* when purchasing instructional software?
22. Does the presence of technology have effects on the classroom environment? The interactions between teacher and students? Between students?
23. What problems do you see in using technology in your teaching? What advantages?

Figure 6. Question script used during post-unit teacher interviews.

Data Analysis

Available data were from the Schommer EQ, observations with field notes, teacher and student interviews, and teachers' lesson plans and instructional materials. The multiple data sources were used to achieve triangulation. Denzin (1978) described four types of triangulation: (1) data triangulation, where a variety of data sources are studied; (2) investigator triangulation, where a number of researchers are involved in data collection and/or analysis; (3) theory triangulation, where multiple theoretical perspectives are used to interpret data; and (4) methodological triangulation, where multiple methods are used to examine the data. Triangulation strengthens the reliability and internal validity of the study (Merriam, 1998). Denzin proposed that multiple methods should always be used since each method "reveals different aspects of empirical reality" (p. 28). In the present study, data triangulation and methodological triangulation were employed.

The Schommer EQ was examined to identify teachers' espoused beliefs about knowledge and learning. This instrument contained 63 items that were written using a Likert-type scale ranging from 1 (Strongly Agree) to 5 (Strongly Disagree). About half of the items were written so that a teacher with constructivist, or sophisticated, epistemologies would agree with the statements. The other items were written such that teachers with traditional, or naïve, epistemologies would agree with the statements. This latter set of items was reverse-coded before analysis. A composite score was computed by summing the 63 adjusted responses. Possible scores ranged from 63 to 315, with lower scores indicating more constructivist beliefs and higher scores indicating more traditional

beliefs. Four subset scores were also computed based on the factors identified by Schommer: Simple Knowledge, Fixed Ability, Quick Learning, and Certain Knowledge.

All data related to a case were collected and stored together separate from other case data for the purpose of creating a case record (Patton, 1990). To create a case record, field notes, interview transcripts, lesson plans, and other documents were read and edited so that redundant data could be removed. Information in the case record was then organized chronologically to aid in writing a case study narrative. Each narrative was written to provide "thick description" (Denzin, 1989, p.83) of the setting and the events that occurred during the study. Narratives were written to stand on their own, apart from other cases.

Analysis of the cases occurred in two phases: (1) within-case analysis, and (2) cross-case analysis (Merriam, 1998). Within each case, the pre-unit interviews and observations, lesson plans, and the Schommer EQ were analyzed to determine the teacher's predominant teaching style. Brown's (1992) matrix comparing traditional and student-centered learning environments (see Table 1) was used as an initial framework for coding and analyzing interview transcripts and field notes to determine teachers' instructional orientations.

Comparative pattern analysis (Patton, 1990) was used to categorize the data, both within and across cases. According to Guba (1978) one of the problems of qualitative data analysis is convergence, or determining which data fit together in the same categories. Through comparative pattern analysis data were examined to identify recurring, meaningful patterns related to the four research questions.

IV. RESULTS

Five North Alabama high school social studies teachers and their students participated in this study. Each teacher implemented the *Decision Point!* software into a unit of instruction related to the United States Civil Rights Movement. Data were collected before, during, and after the implementation and were analyzed in order to address the research questions listed at the end of Chapter 3. Each teacher and school setting represented a case and was analyzed using case study methods. Cross-case analyses were also conducted to address the research questions. The results of these analyses are described in this chapter while a detailed discussion of these findings follows in Chapter 5.

Data were collected in three phases. During Phase 1, prior to the instructional unit, teacher interviews and classroom observations were conducted and sample lesson plans were collected. Teachers also completed the Schommer Epistemological Questionnaire (Schommer EQ) (Schommer, 1990) prior to the initial interview. Data collected during Phase 1 were examined to determine the teachers' epistemological orientations and typical instructional practices. In Phase 2, classroom observations were conducted to see how teachers implemented *Decision Point!* in an instructional unit. Finally, Phase 3 data collection consisted of teacher and student interviews after the unit had concluded. Phases 2 and 3 data were examined collectively and compared with findings from Phase 1 to address the research questions.

Phase 1: Identifying Teacher Beliefs and Practices

Schommer Epistemological Questionnaire (EQ)

The Schommer EQ provided a quantitative measure of the teachers' epistemological beliefs, or beliefs about the nature of knowledge and learning. This questionnaire measured four dimensions of epistemological beliefs (described in Chapter 3) that ranged from naïve (objectivist) to sophisticated (constructivist). The four belief types, written from the naïve viewpoint, were Simple Knowledge, Fixed Ability, Quick Learning, and Certain Knowledge. Survey items that measured each belief type were used to compute subscale scores for each of the four belief types. A composite score was also computed to provide a measure of the general direction of teacher beliefs on a continuum from sophisticated (constructivist) to naïve (objectivist). These scores are reported in Table 6.

Four of the teachers—Brian (174), Janet (161), George (156), and Jack (143)—had composite Schommer EQ scores below the median of 189, indicating from weak to moderately strong constructivist beliefs. To provide a baseline for comparison, the current researcher also completed the Schommer EQ and had a composite score of 143. Chet, the least experienced teacher and the only teacher of the five without a graduate degree, was also the lone teacher with a composite score that indicated more objectivist beliefs (197). On three of the four factor scores, Chet was at or above the median. George was the only teacher to score below the median on all four measures while Jack had the lowest composite score (most constructivist).

Table 6

Results of Schommer Epistemological Survey

	Belief Types				
	SIMPLE	FIXED	QUICK	CERTAIN	Composite
Range (Median)	34-170 (102)	16-80 (48)	7-35 (21)	6-30 (18)	63-315 (189)
Chet	112	44	23	18	197
Brian	96	41	17	20	174
Janet	95	33	13	20	161
George	93	33	15	15	156
Jack	89	22	13	19	143

Note. Lower scores indicate more sophisticated epistemologies (constructivist beliefs); higher scores indicate more naïve epistemologies (objectivist beliefs). The terms "naïve" and "sophisticated" are not those of the current author but are from Schommer (1990).

Fixed Ability was the only factor on which all five teachers were below the median score, perhaps not too surprising for a group of teachers given that this factor measured the belief that intelligence can be improved over time. Four of the teachers, all but George, scored higher (more objectivist) on the Certain Knowledge component. This result may be due to a view of history content as being relatively stable—with a focus on people, places, dates, and events—and less open to interpretation.

The Schommer survey provided a useful filter for examining the teachers' epistemological beliefs, though the results were viewed tentatively. It is possible that other teacher samples would have represented a wider range of epistemological beliefs. It

is also plausible that teachers open to teaching innovations, as were the teachers in this study, would tend to have more similar beliefs.

Lesson Plans

Teachers provided copies of weekly lesson plans prior to conducting their *Decision Point!*-based unit. The teachers provided varying numbers of lesson plans with Brian supplying plans for one week, Chet, Janet, and George two weeks each, and Jack four weeks. While each teacher used a different lesson plan format, each plan had identifiable lesson objectives and activities. Lesson objectives were categorized using the six levels of Bloom's Taxonomy (Bloom, Englehart, Furst, Hill, & Krathwohl, 1956) and lesson activities were categorized by type of activity. As described in Chapter 3, the lower three levels of Bloom's Taxonomy were considered to represent teacher- and content-centered tasks while the higher three levels represented more student-centered tasks.

Table 7 summarizes the analysis of lesson plan objectives using Bloom's Taxonomy (1956). Nearly all of the lesson plan objectives (91%) fell within the first two Bloom categories. Only Jack and Brian recorded objectives at the analysis level or above. To determine an overall average objective level for each teacher, each category was assigned a number from one to six in order from the lowest level objective (e.g., knowledge = 1) to the highest (e.g., evaluation = 6).

Table 7

Sample Lesson Plan Objectives Summarized by Bloom's Category

Category (Score)	Teachers				
	Chet	Brian	Janet	George	Jack
Knowledge	15 (62.5%)	3 (50%)	6 (67%)	7 (70%)	13 (46%)
Comprehension	9 (37.5%)	2 (33%)	3 (33%)	3 (30%)	9 (32%)
Application					
Analysis		1 (17%)			6 (21%)
Synthesis					
Evaluation					

Table 8 summarizes the instructional activity types represented in the lesson plans. All of the teachers listed lecture in their lesson plans more often than any other activity. Chet and Janet also listed worksheet work as a major activity. Only three of the teachers—Chet, Janet, and Jack—included small group discussion and cooperative learning in the sample lesson plans. These same three teachers were also the only ones to list educational media/computer use in their activities.

Table 8

Sample Lesson Plan Instructional Activity Types

Activity Type	Teachers				
	Chet	Brian	Janet	George	Jack
Lecture	7.5	4	7	5.5	2
Class discussion	1.5	0	0.5	0	0
Reading textbook	7	3	0	0.5	0.3
Worksheet work	6.5	1	8.5	0	0
Hands-on activity	2.5	0	1.5	0	0
Small group discussion	1	0	0.5	0	1.5
Educational media/computer use	1	0	2	0	0.3
Student presentation	1.5	0	0	0.5	1
Writing activity	0	0	0.5	0	0.3
Cooperative learning (roles)	0.5	0	1	0	1.8
Objective Test/Quiz	2	1	2	2	1

Note. Data were normalized to reflect the average number of instructional activities for one week.

The teachers provided an unequal number of lesson plans, each with differing levels of detail. For example, Brian provided plans for only one week, each with minimal detail, while Jack offered detailed lesson plans for four weeks. These disparities made meaningful comparisons difficult, although data were normalized to reflect an average

week of activity for each teacher. It is also unknown how the teachers actually implemented these lesson plans. It is quite likely that a variety of other activities actually occurred that were not reflected in these plans. Nevertheless, the lesson plans provided additional insights into the teachers' normal practice patterns and were useful for comparisons with other collected data.

Teacher Beliefs and Learning Environment Profiles

Chet

With a composite score of 197 on the Schommer EQ, Chet held the most objectivist epistemological views of the five teachers. The three observed classroom lessons were also categorized as being teacher-centered, with an emphasis on content coverage. Chet's classes were marked by discussions that focused on covering material from assigned textbook readings, quizzes on the material, and a review of the material following quizzes. Each class period followed a similar pattern: 30-40 minutes of discussions focused on course content, seatwork such as reading from the textbook or a supplemental class text or looking up vocabulary words and recording definitions in a notebook, and a shorter discussion time on current events. This observed pattern matched the typical classroom schedule that Chet described in the interview.

> We work...we do ours in 30 minute increments, for 30 minutes we may work, for 30 minutes we may talk as far as a lecture, interactive lecture… if they will ask the question, you know...but during that 30 minute interactive lecture I'm giving them free rein to ask me as many questions as they possibly can.

Students. Students were primarily tasked with answering and asking questions during class discussions and gathering factual information in preparation for future quizzes and tests. While students were encouraged to ask questions about the material being covered during discussions, they appeared to have little input on selecting the discussion topics.

Despite the teacher-centered orientation in his classes, Chet acknowledged the active role that students must take in the learning process and that one set of methodologies does not work for all students.

> [T]he kids must be accountable for their own learning. If you…you can't just spoonfeed 'em at all times. If they don't pick it up, then, you know, you got to modify it to their needs. And then, you know, once you modify it, and they still can't pick it up, then we'll look at other options."

The grade level of students was another factor that influenced the types of activities Chet implemented in his classes, limiting more sophisticated assignments to students in higher grades.

> [Y]ou can do a lot more things, a lot more accelerated things with the government kids because they are almost in college and, and they're, you know, practicing to be in college, and you can give them some more accelerated type learning, which is, you know, Internet and using the Internet writing a paper, using books and writing papers…a lot of stuff you can't do with a ninth grader because they don't have the skills developed yet to write a research paper, or to research anything really.

In general, Chet expected all of his students to put forth their best effort in order to maximize their learning potential, although his idea of "learning" was a practical one based on student preparation for traditional tests.

> Their responsibility is to be the best student that they can be as far as learning as much as they possibly can learn; and I understand, you know, they may learn it today and be able to regurgitate it for a test but not be able to remember it five years from now.

Chet talked about the importance of students to take personal responsibility for their own learning but also recognized the value of students working in groups on assignments. However, he described practical limitations to using group assignments more often.

> It's hard with so many kids and limited space, but we do group activities so they can, they can teach another student, or they can ask another student questions that they may not ask me; they may be embarrassed to say, you know, anything, you know. But they will ask their fellow students.

Teacher roles. During the observed class sessions, Chet was organized, managed his classroom well, and had a good rapport with students. While several different types of activities were planned for each session, they were primarily teacher- or content-centered. Chet involved students in lectures/discussions; however, the focus was on factual content and lacked a basis in inquiry. Chet's primary role in the observed classroom sessions was as a content provider. He stated that one of his goals as a teacher was to make learning interesting and fun in order to help students learn.

> Oh, we have fun, I mean, I joke, they joke; we have fun because, you know, I have sat in a class for 96 minutes in college and if somebody is just up their lecturing and lecturing, in a monotone voice and they never change their voice, you know, you start to get sleepy, you start to daydream.

During the observed class discussions, Chet mostly asked questions that were at the knowledge or comprehension levels and rarely asked open-ended questions. Out of the 31 different questions that were recorded in observation notes, 25 were knowledge type, 4 were comprehension, and 2 were application.

The role of classroom manager was an important one for Chet as well as the school in general. He described the influence of the school's principal: "He's a very strict principal as far as classroom management. You must manage your kids. If you can't manage your kids then you won't be around here."

Content/curriculum. During observations in Chet's classes, the focus of the instruction was on fact retention, although he made multiple attempts to link historical and current events. The focus on surface level discussions of historical facts, events, and people seemed to match the lesson plan objectives that were written at the first two levels of Bloom's Taxonomy, including 62.5% at the Knowledge level. An emphasis on preparing students for the state's standardized achievement test (SAT) perhaps contributed to the focus on these lower level objectives. When questioned about how he determined what to teach, Chet indicated the importance of the SAT.

> Well, they learn all of their SAT (standardized achievement test) skills...you're supposed to say that. That's the big thing...I have to go by

> the Alabama course of study and then we have an SAT skills notebook and I just correlate both of those together.

"Coverage" of course content was an implicit goal in Chet's courses. During one classroom observation, the teacher led students through the contents of a textbook chapter, stopping at several points to quickly make a point. Flipping through the pages of the book, Chet said, "We have *covered* that," then continues to flip pages, then said, "We'll go back and *cover* that. But now we're going to *cover* Civil Rights."

The textbook was a prominent source of content and was the only resource used during the observed class periods. Several class discussions were framed around opening the textbook and systematically moving through a segment of text. During the initial interview, Chet commented on the role of the textbook in his class.

> Now this book here it's got everything, you know, worksheets, videos, handouts that the students can read. It's also, it's got more pictures in it for one thing; and these kids today, they don't understand what World War I soldiers looked like, so when they can see a picture of it, you know, it jars their memory a whole lot better later on in life because they can say, well, hey, I know what they look like because I saw a picture of it.

Later, when asked what he expected students to learn in his classes, Chet replied, "I want 'em to be able to know that when they walked out of there [at the end of the school year] in every aspect...that book was taught to them." Reading and study skills were important goals for Chet's students.

> One thing they learn, they learn how to study. They learn how to read a book, and retrieve information from that book, and then to be able to tell it

> to me on the test. They also learn how to adapt to changing methods of education...such as sometime we may do a game, sometimes we may do a lecture; so they learn to adapt in that 96 minutes and they also learn how to do research. I'm pretty big on that.

Chet expressed an interest in trying new instructional strategies and indicated in the interview that he had tried a number of different techniques, in particular games, "to make [learning] as fun as possible. We do games, because the more you can keep them involved, the more they're going to learn instead of just daydreaming and going to sleep, things like that." Chet described one game that he had used in a geography class, a "baseball game" in which students would receive questions of varying difficulty based on whether they wanted a single, double, triple, or home run. Chet used the game for drill and practice to help students improve their knowledge of geographical facts in preparation for the SAT.

Computers. Chet and his students had three computers in their classroom, but only one of those was in working condition. Access to the Internet was unavailable in this classroom. He expressed frustration with the current arrangement and an interest in having more computers available in the classroom for students to use. The working computer was an older Macintosh model, which Chet indicated he did not like to use. Students did not use the classroom computer either, but did visit one of the two computer labs (all Windows-based computers) each Friday for "Internet learning" or to use either a subject-related Plato program or a program that accompanied the textbook. Students did not use computers during any of the initial classroom observations.

Students used the Internet lab primarily to conduct research but often browsed sites such as Marco Polo (http://marcopolo.mci.com) to complete activities pre-selected by the teacher. The activities Chet described included content-relevant games, but with a drill and practice format.

> We have a site that we go to every time with the Internet…[I]t's a Marco Polo site and you can go into economics, government, history, all that just through that one site. And what I try to do, is I try to go in there and find something for them to do beforehand and then tell them what to go to, and they can play games with it, but it's all learning. Like we did presidential hang man and try to guess all the presidents. It's pretty hard for some of them.

Students also used a program from a CD that accompanied their textbook. Chet explained that the CD provided a good way for students to review material previously covered in class. Students earned a "quiz" grade based on the number of review questions answered correctly. He also mentioned that there were other resources on the CD that he would like to use more if there were more computers in the classroom.

Chet believed that the primary purpose for students to use computers was to improve their technology skills to better prepare them for the future.

> "[K]ids ought to learn how to use them and how to be able to maneuver through them. I know that, because it's so hard for some of us teachers to get on and do what the kids are doing. I know our technology teacher, he has a web site, and if the students can't get on that web site, then they can't

do their work, so they have to maneuver through the Internet and they're going to have to do that the rest of their lives."

Each teacher was asked to describe an ideal model for how they could best use technology to support teaching and learning. For Chet, the ideal situation involved increased access to computers for all students in order to support more of the activities they routinely performed.

> First of all, I would like for every kid to have a computer, uhm, access to a computer, everyday in class. You know, of course, that would be a lot of computers; but they wouldn't have to run everything; they wouldn't have to do everything. They would just do what you need. I wish I could do the program that we have in the Plato lab in my classroom. And that way you could, if you had dead time in class, you know, if a student gets finished with a worksheet five minutes before somebody else or the last person, get on the computer and work; and make it a game for them, make it something that, where if they excel at it, they get a grade. We do have a thing called *Accelerated Reader* where they take…where they read books and take tests on the computer and I wish we could do that in our classroom. I wish we could, you know, say, 'All right now, here it is; go to the computer and make it happen.'

Assessment. Analyses of lesson plans and classroom observations indicated that traditional tests (and quizzes) focused on measuring fact retention were used as a primary source of assessing student performance. Chet also mentioned using a number of other assessments including research papers, biography reports, and a flag project. Student

projects, such as posters and timelines, were displayed prominently on the walls of the classroom. He expressed particular pride in the ninth grade flag project.

> The first year it was very weak…but now I have enough models around the room that kids are starting to out do one another. But I give them an outline to what I want in their reports. It's a five-page report, typed, and they must touch on all aspects of that outline. And it has like the geography, it has the gross domestic product, it has all that stuff; and then they have to make a flag by hand.

Brian

Brian had a composite score of 174 on the Schommer EQ—the second highest score among the teachers—which indicated constructivist beliefs just above the median. The pre-implementation interview, lesson plans, and two classroom observations provided additional insights into Brian's beliefs and practices.

Students. During the pre-unit interview, Brian described the student's role as being an "active participant" and to be "involved" in the learning process.

> I think, you know, to be an active participant, an active learner, you know, whether it's taking notes; and again, you know, you're getting into that motivation thing…you know it's so hard to get some of them motivated. But, I think that's their role, to take part, to get involved.

Brian expressed the belief that students learned better when they were actively engaged in a task or assignment and felt that "new teaching strategies" were more effective at providing students these opportunities. He expressed a desire to have…

> …more hands-on kinds of activities for students, you know…anything to jazz it up. And it's that way with all classes too. And the kids enjoy it. I think they learn better, you know, that way. They learn by doing it much, much better than they do…most of them, I think, learn better that way than just hearing or writing or whatever.

During the two pre-unit observations, a notable student activity involved maintenance of a class notebook, which was used to record content from the textbook as well as questions and "incomplete outlines" provided by the teacher. Students turned in their notebooks periodically for a grade, but also used them during open-notebook quizzes.

Brian's lesson plans also indicated an emphasis on his students acquiring factual information from the teacher, the textbook, or other resources and recording it in their notebooks. Each of the lesson plans included a class procedure section that included a note: "Students will take notes from lecture material." During one of the classes, Brian asked his students, "How many of you don't have your 20 facts about the Holocaust?" A large number of students shook their heads. Brian responded, "OK, you're going to get those today…get your sheets out." Then, without introduction or further directions, he started a 20-minute video on the Holocaust. Students took notes as the video played. The class bell rang as the video ended and Brian asked the students to "turn in your 20 facts about the Holocaust."

Except for a short Jeopardy game activity, students worked individually at their own desks during both observations. However, Brian discussed the value of students

working in groups and expressed that he would like to have more activities where students could work together.

> I think [group work is] important because when they graduate they're going to be doing that somewhere some how. If they go to college or if they don't go to college, sooner or later they're going to have to work with a group of people, and the give and take and all that that's involved.

Teacher roles. During the pre-unit interview, Brian described the teacher's role as being more of a "facilitator" or "guide" whose focus is on getting students involved in the classroom.

> I like to think of [a teacher] as a facilitator of learning. You know, ideally, I think it would be good if they were kind of like a guide almost rather than just a source of knowledge because then that 10 percent of kids that are going to learn regardless, you know if you just walked in and handed them the book and left and came back, and then give them a test later, they're going to learn it; you get that 10 percent. If you can get the other 90 percent involved somehow, you know, and not just put the knowledge out there, but somehow involve them; I think that's an important role.

For Brian, non-traditional teaching strategies appeared to be ideally suited for lower performing students, for example, to motivate them to want to learn. Teachers need "better ways to reach, you know maybe, the lower level of students; you know, those that aren't really motivated, you know the D, F—some might call them high-risk—students or whatever, you know, some way to motivate them."

Based on a review of the lesson plans and the two class observations, these views on the teacher's role in the classroom were more of an ideal but not necessarily what Brian followed on a daily basis. Each of the lesson plans described the teaching procedure as "finish notes from [the last class]" and "discuss lecture material, notes." During the first class observation, Brian shared pictures of the Holocaust with students, which generated several student questions, but not in an organized fashion. Then, Brian re-directed the class to start a 15-minute overview: "I want to go a little bit into section two. I'm going to give you an incomplete outline to fill out…Look in your book on page 436." Brian began going through the outline with the students and pointing out related sections of the textbook. Shortly after starting the outline, Brian stopped to explain, "Now, we're going to run through this quickly, but we'll come back and spend more time on each one of these later." A little later, after a visitor interrupted the class, a student seemed concerned about falling behind on filling in the outline. Brian replied, "Don't worry; we're going to go more into these later." Brian seemed in a hurry to cover the outline before moving on to the next activity.

Content/curriculum. As indicated earlier, Brian provided only a small number of lessons plans to analyze. While one of the lesson objectives was coded at the "analysis" level, the other objectives and activities fell in the lower portion of Bloom's Taxonomy.

Brian described a number of more traditional sources as influences on his curriculum including the state's standardized achievement test (SAT).

> [We] are supposed to go by—and I do—the state curriculum guide. That's like supposed to be our Bible, so to speak. Also we use, the state has come up with, in history anyway…they have correlated their course of study

with, like SAT objectives and so, that's kind of like our second Bible. [T]hat's I guess the main thing, that's where it starts from, but I mean I'll throw in stuff from wherever, you know. I've got old notebooks from college. I've got, you know, I do a decent amount with videos…now you've got the History Channel you've got Discovery, PBS, you know, you've got a lot more available today than you had in the past.

While Brian listed a number of sources from which he drew ideas for conveying historical content to students, the strong influence of the SATs was reinforced again later when he described the school's administration and their general expectations of teachers at Parkside High.

High standards [are] correlated with the SAT scores and of course those have gotten more important the past few years even … five years or so; it seems like they get, they've gotten more and more important. So, you know, high standards for the students' performance on those…they stress those.

Beyond preparing students to perform well on the SATs, Brian also expressed a desire for students to learn about history to gain an appreciation of the discipline and to make learning about history a lifelong pursuit.

Hopefully, one will be an appreciation for, of history with the idea that knowledge is a good thing, and, you know, that they need to make, you know, life kind of a quest for that. We talk about that a lot, you know, because some kids tend to like, it's almost like they're fighting it, you

know, you're trying to teach them; the last thing they want to do is actually learn something.

Use of computers. With about six years of computer experience, Brian felt "comfortable" using computers, primarily for word processing, spreadsheets, gradebook/attendance software, and the Internet. He admitted, however, that his students used computers "very little" in his class citing "lack of quality programs" as the primary reason. The single computer available in the classroom (on the teacher's desk) also limited Brian and his students, though students had access to a nearby computer lab as well as to new multimedia computers in the library. Brian expressed disappointment about the lack of subject-related resources but also mentioned the school's plans to improve in this area:

> That's in the process of being solved by [the librarian]. She's recently, she's getting like different world history, U.S. history programs installed on the computers in the library. If we went to the library to use computers, up until, you know, recently there's only been maybe three, in there, they could work on at a time. And, then, the computer lab has…those computers have nothing on them, you know, they're not hooked up to the Internet, they don't have social studies programs, so you really can't go there.

Brian cited a lack of resources as a barrier to integrating technology to a greater extent, but he was excited about the acquisition of the new history programs in the library. He believed that the computer was a good motivational tool to get students more

interested in the study of history. Secondarily, he noted the benefits that computers offer in presenting information visually.

> I think to involve students, you know…to pull them into learning, almost where they're learning without realizing it… you know, because now I think you get to that last 20 or 30 percent of kids, you know, they may not care, they may not care about whatever it is you're studying in history, but they like…computers, and, they may be into computers; and then, so give them something to do with computers that involves history and before they realize it, they're learning history.
>
> Anything that involves them is a good thing. I think computers can do that, as well as anything, you know, that I can think of….as long as the programs are, you know, especially visual, you know, computers are visual, and some of the kids are more visual learners anyway and if they can be visual and interactive at the same time, that's a big plus.

When asked how he would ideally like to use computer technology in his classroom, Brian described a technology-rich environment in which students could work on a number of projects.

> I think you [need to have a class set of computers], which like in my case, it's some kind of interactive program for different themes in history…If for example, I could start with, you know, you know you could have one on the Spanish-American war, and you could have one on…World War I, or you know, have one on the Progressive movement, all the way up… [I]f you had that…and then also at the same time had those same computers

> hooked up to the Internet, you know, where you could say, OK, you could give them a project, you know, using that kind of program, an interactive program, and, and then, you know, all kinds of different ways you could do it, but then have them relate back to the present, you know, using the Internet. I think you can really do some unreal things there, comparing past and present, making them, you know, forcing them to make these connections.

The interactive history software that Brian described had similarities to the *Decision Point!* program used in this study. Although he did not offer a detailed description of how students would use the history software, he did describe a general strategy in which students would work on projects comparing historical events across time—a more sophisticated approach than simply acquiring factual historical knowledge.

Assessment. During the pre-unit interview Brian mentioned an interest in having access to more computers and history-related software to support student research projects. As it were, the primary assessments in Brian's class were a test at the end of each chapter and a periodic open-notebook quiz—both focused on factual historical information.

During the second pre-unit observation, preparation for an upcoming open-notebook quiz and the chapter test was the main purpose of the class. During the pre-bell activity, Brian made a more concerted effort to ensure that each student was working on the assignment. Afterward, Brian told the students, "What you did in pre-bell…is important for tomorrow's quiz." After a five-minute review in which Brian asked a number of questions and then called on students to answer, he asked the students to "take

your book and turn to chapter 14…and for 6 minutes, I want you to study like you were going to have a test." He explained that they would review the chapter by dividing the class into teams to play Jeopardy. A minute later, when a student complained, "I can't study in five minutes," Brian replied, "Do the best you can. Study some leaders. Study some battles." The Jeopardy questions focused on facts (e.g., names, dates, battles) and other terms related to World War II. The focus on objective tests and quizzes correlated well with the observed teaching strategies.

Janet

Janet's composite score of 161 on the Schommer EQ indicated that she held more sophisticated epistemological (constructivist) views overall and placed her in the middle of the five teachers selected for the study. Along with the initial interview, the researcher collected additional data during observations of two class sessions and from four weeks of lesson plans.

Students. Students took on a number of roles given the variety of assignments and activities that Janet used. They were responsible for taking lecture notes in a class notebook, completing worksheets, as well as writing vocabulary words and other terms on index cards, all of which helped prepare them for the semester exam. Other, more hands-on assignments involved students in research-oriented projects. However, the predominant expectation of students seemed to be that of recording facts in notebooks or on index cards.

Janet expected students to come to school ready to learn and to participate in class activities, but realized that some students were not motivated to do so.

> I would hope the students would come to school with a willingness to learn and wanting to learn as much as they can. I am afraid a lot of them don't. They come to socialize and to just get by, but I would hope that the students would come to obtain all the knowledge and skills that they need to become successful.

Lesson plans, observations, and the pre-unit interview all showed that Janet valued and implemented group work. Students worked in pairs or small groups on short in-class activities as well as on more extensive projects. Part of the rationale for group work was to put students in situations where "they have to work with and socialize with other students that they may or may not like." During class observations, students working in pairs primarily were tasked to answer a list of questions provided by the teacher.

Teacher roles. As suggested earlier, Janet expressed the belief that being a teacher meant being more than a purveyor of knowledge. Encouraging students to "open up" and express their interests and building relationships with students were important aspects of her role in the classroom.

> Well, it's complex. As a teacher, uhm, I know a lot of times you have to be a friend and a mother and just listen to what the kids have to say. Teachers give out information—you know; we are to educate our children. But a lot of times you have to be more than that.

Janet said that a teacher should be willing to experiment with teaching methods. During a conversation with the school's principal, he remarked that Janet would be a good teacher for this study because of her desire to try new classroom strategies. Janet

also mentioned this trait in her interview and expressed concern that other teachers in the school were more complacent about "trying new things" and were content with the "status quo" of traditional classroom practice. Admittedly, settling into a pattern of "doing what works" as well as other typical constraints and concerns presented barriers to Janet attempting more student-centered strategies.

> We may run out of time or it may not work and the kids may not enjoy it. I have taught the same thing for a year, so I know what will work and will not work and I try to do these things. They know we will have lecture, but they don't know what else we will do for the day. I don't tell them what we will be doing. We might do group work where I walk around to each group, or watch a video, or do some kind of writing exercise.

Lecture was an important teaching strategy for Janet, but it did not fill the bulk of her instructional time. She recognized the importance of utilizing different methods but admitted that lack of student preparedness for class led her to lecture more than she would like to.

> I try to be interactive as much as possible…and really try to vary things quite a bit. I do lecture quite a bit, but they expect us to talk. I wouldn't lecture as much if they would read, but they will not read, so I end up lecturing for a third of the time.

One segment of the first pre-unit observation illustrated Janet's use of multiple strategies. Shortly after class started, Janet began to ask questions about a topic covered in previous classes to help students see how this topic led into the upcoming one. Then to introduce the new topic, she played a related video. She read a short introduction from a

booklet that accompanied the video, but otherwise did not give instructions to students for what to look for in the video. Twenty-five minutes into the video, Janet wrote four questions on the board (two at the knowledge level, one analysis level, and one evaluation level) related to the video. When the video ended a few minutes later, she instructed students to write the questions in their notebook and then to find a partner and discuss the questions. As the students worked together to answer the questions, Janet passed out information sheets for an upcoming activity. After a few minutes for discussion, Janet asked students to share their answers. Following the review of the questions, she asked students to look at the information sheets handed out earlier, and then started a mini lecture related to the sheets. Although students seemed to lose interest toward the end of the video, students were otherwise engaged during the 80-minute class.

Content/curriculum. This teacher used a variety of teaching strategies, as evidenced by the lesson plans as well as the pre-unit observations. However, analyses of Janet's lesson plans indicated a focus on lower-level objectives. Out of nine objectives identified in the four weeks worth of lesson plans, six were at the knowledge level and three were at the comprehension level. Looking at specific activities identified in the lessons, lecture and worksheet activities were used the most, although Janet employed a number of other strategies including small group discussion and hands-on activities with and without computers.

Janet used the state course of study and graduation exams as curriculum guides, but not exclusively so.

> Well, we have a course of study, and I go by that and I also go by graduation exams. We do have to go by that. I do try to focus on things

> that are the most important, though. So I might sometimes skip things I think are not important; you know, focus on what they really need to know. To look at history and...and think about why this or that takes place today.

While knowledge of history was important to Janet, she indicated that the purpose of schooling was not just the acquisition of "head knowledge" but also to help them become good citizens and to prepare them "…for what they will encounter once they get out of school."

> It is a lot more than just teaching them history or math or English or whatever, but also teaching them how to be citizens. I try to balance it out. I want my kids to understand what happened in history and…or if I am teaching the law class for them to understand the laws and how it applies to them, but I want them to learn to be responsible people. When they say they will do something, then they will do it. They need to be on time with assignments, things like that, because I think that flows over into adulthood when they get jobs and things like that.

Use of computers. Janet's first teaching job was at a junior high where she taught a basic computer class. She admitted, however, "…I had no idea what I was doing," and felt that she still did not have a lot of experience with computers. For personal use, she did feel comfortable with basic tools such as word processing, PowerPoint, and searching for information on the Internet.

Only one computer was available in Janet's classroom and she used it primarily for administrative tasks such as grading and attendance. Students did not use computers

during the initial observations, but three computer labs as well as a computer arcade in the library were available for students to use. Students used computers in Janet's classes primarily for research and writing papers, but a stock market game was also a prominent project in her economics class. Students looked up stock data on the Internet but recorded it in a paper notebook. In another class, students maintained a "marriage" notebook and used the Internet to research homeowner's insurance premiums and other marriage-related issues. According to Janet, other teachers in her school used technology less than she did primarily because "they don't know how to operate it in their classroom, or because it takes up so much time."

Another constraint Janet cited for her limited use of technology was the lack of quality social studies software and a limited budget to purchase classroom technology resources. Teachers received about $120 per year to spend on classroom technology, but she lamented that, "the bad thing is unless you combine it [with other teacher's funds] you can't get anything big."

Regarding the impact that computers and technology have had in her classes, Janet said that the most important benefit was students having open access to multiple sources of information.

> Quick access to information from the Internet…that's just changed everything. That is the way we get information. I think it has made it easier for the kids and it has opened up their eyes to things they've never seen before.

Ideally, Janet would like to have had a large classroom with desks on one side of the room and banks of computers—one per student—on the other side of the room. The

computers would be connected to the Internet, which would provide students with more convenient access to information searches to support assignments Janet normally would use such as research papers, the stock market game, and the marriage notebook. Additionally, Janet wished that these computers would have interactive social studies programs that could be used to supplement lectures and the textbook.

Assessment. In line with Janet's use of a variety of instructional strategies, students were assessed using several different measures. Students maintained stacks of index cards on which they recorded pertinent vocabulary or other important terms and their definitions or descriptions. These were turned in at the end of each week for a 200-point daily grade (100 cards were due during the week of the pre-unit observation). Worksheets completed in class were also submitted for part of a daily grade. A semester exam, which carried the most weight on the overall grade, was an objective-type test based on notes from the index cards. Students also completed more open-ended assignments such as research papers and other projects as major assessments.

George

With a composite score of 156 on the Schommer EQ, George had the second lowest (more constructivist) score among the teachers. He was the most experienced of the five teachers with 16 years as an educator. The interview with George at the beginning of the study, along with three class observations and related lesson plans, were analyzed as part of Phase 1.

Students. Students in George's classes were expected to participate in discussions. During the lecture/discussion in the second pre-unit observation (described in the

previous section), George called on students to read short vignettes from the textbook to provide context for the discussion or to transition to a new or related topic. For this lesson, the interactive reading and discussion kept students involved in the class.

George encouraged students to think about the content that they encountered. For example, in a discussion about the role of African-American soldiers in World War II (they were generally placed in support roles behind predominantly white front line soldiers), the following exchange occurred:

Student: Why wouldn't they want the blacks to go into battle?

George: I don't know; that's a good question. Anybody have a good answer?

Student: They don't want them to get the glory…

Student: Maybe lack of ability.

The discussion continued with a few more students participating and with George prompting other student responses.

Teacher roles. During the pre-unit class observations, George's primary teaching method was interactive lecture/discussion. Classes were 50 minutes long and consisted primarily of lecture/discussion. It was clear that he had built a good relationship with his students based on the way students responded to the teacher and the lack of classroom behavior problems. Lecture/discussions were notable for the amount of student involvement as well as the emphasis on historical themes over time. For example, during the second observation George led the class in a discussion of the "African-American socio-cultural situation in America for about 30 years, from the 1920s to about the start of the civil rights movement." At the start of the discussion, George asked students to open

their textbooks to a particular page and then started asking general questions about the period.

George: Tell me about Klan membership in the 1920s.

Student: All-time high.

George: Give me some numbers.

Student: 3 million.

George: Right…it peaked in 1927 at three to four million. Now, somebody tell me what it is that allowed membership to grow.

Student: Senators, governors were involved in it.

Student: It had to do with the Red Scare.

George: Yes, it had to do with the Red Scare, excellent!

Then, a little later in the discussion, George brought up the subject of lynchings to relate the situation of African-Americans at that time.

Alright, lynchings; you know what those are, right? The 1920s was about an all-time low for the life of the African-American, even though we contrast that with what's on the poster up there (points to a poster about the Harlem Renaissance). The vast majority of African-Americans were not much better off [in the 1920s] than in the 1870s right after the Civil War was over.

Given that the majority of his class was African-American, George had helped students make a personal connection with history. During the remainder of the discussion, students remain actively involved in asking and answering questions.

George said that how he viewed a teacher's role has changed over the years. He saw the most important aspect of his job as being "a role model and a father figure." He also said that it was important for a teacher to make classes interesting.

> I joke and use sarcasm…this is one of my strengths. My favorite teachers were the ones who made it most fun. I learned better and I learned more.

Content/curriculum. The lesson plans that George submitted included ten objectives that were all written at the lower levels of Bloom's Taxonomy. Lecture was the predominant activity type and traditional objective type quizzes and "chapter" tests were the only assessments mentioned in the plans. The emphasis on lower level objectives may have been at least in part to the school's priority of "keeping test scores above the alert level." George expressed frustration about the growing demands of preparing students for state testing.

> Standardized testing is the driving force behind what teachers do in the school. We are testing and testing and we do not even know what we should be preparing them to test for. It is backwards from how teachers should be teaching.

While George recognized the importance of preparing students for the annual standardized test, he also wanted students to learn more than just basic historical knowledge. "We talk a lot in this class. How do [the students] feel? We talk about the past in terms of changing the present and how the past is…uhm, is it any different from today. We emphasize that socio-cultural component."

His goals for students varied depending on their academic track: for advanced placement students, he wanted to prepare them for college, while for students on the

regular track the primary goal was to make history relevant. “I hope they learn history is not useless and boring; and, no matter what, there is something useful you can apply today.”

George said that the main influence on what and how he taught, testing aside, was “my life experience.” He expressed a desire to make history meaningful to students. He said that his philosophy of education is, “To prepare the kids to become competent citizens. I want them to be educated voters.”

Use of computers. A computer user for about seven years, George admitted, “I don’t use them [computers] like I should” in the classroom. Students in his classes used computers to conduct research using the Internet and CD-based encyclopedias while he listed maintaining grades, using e-mail, creating student handouts and study guides, and developing PowerPoint presentations as ways he used the computer. Three Windows-based PCs—including one Gateway Destination with TV and remote keyboard and mouse and one Macintosh—were available for student use in George’s classroom. During the pre-unit observations, only one student was observed using a computer, in that case to surf the Web after completing a quiz.

George said that the primary benefit for students to use computers in high school classes was as a research tool. He mentioned using an instructional economics program “a little bit” in another class, but complained that he only had one CD and it was “cost prohibitive” to buy enough copies for more intensive student use. George cited two other reasons for not using computers more: limited training opportunities during school time and lack of time to learn on his own. He mentioned that training was available for

teachers but only during the summer or after school, which meant he would have to use his personal time.

Describing his ideal model for using technology in the classroom, George said that he would "get rid of textbooks and get laptops for the kids." He said that access to the Internet also would be a critical element: "It is cost effective, and it is fun for the class and it's a great resource for research material." He admitted that students were "far ahead of teachers" in the use of technology and was "a little afraid to turn students loose" with computers in the classroom. He also said that teachers in other disciplines, such as science and math, should be given first choice at any new technology since they would likely see a greater benefit.

Assessment. George's lesson plans listed "chapter test" as the primary means for assessing students. Also, two shorter quizzes were observed during the class observations. Lower level objectives were the primary focus of the quizzes, but George did not focus exclusively on that type of knowledge. During one quiz, a student asked a question about "item nine" and the teacher responded that this would be a "free space; just write 'free' in the blank." A few minutes later, George told the students to "just tell me something, anything you remember about [the topic of item nine]; it's not a free space." In this case, George was less concerned about specific bits of knowledge as he was that students could express some connection that they had with the content.

While his AP students also wrote research papers, George expressed concern about this type of assignment for all of his students: "If I did [research papers] in all my classes, I'd have 120 to grade." He mentioned the student-to-teacher ratio as "a problem" and said the ratio should be reduced to improve the students' ability to learn.

Jack

Jack had the lowest composite score (143) on the Schommer EQ, indicating he held the most sophisticated epistemological views among the teachers in the study. His 10 years of teaching experience placed him third among the teachers, but he was the second oldest teacher in the study. He was the only teacher among the group with a degree above the master's level (educational specialist in administration). According to Jack, the purpose of education is to "prepare students for competition in the world market" and to help students to become responsible citizens. The observed lessons generally followed the same pattern: 20-30 minutes of teacher-led lecture and discussion, followed by 20-30 minutes of student small-group work on ongoing projects, ending with 5-10 minutes of individual student work. During each grading period, students formed small groups (3-4 students) to work on research projects. After the opening lecture period, the students worked together in their groups on their research and/or preparation for their presentation. Each group had an assigned presentation day sometime during the grading period. Jack allotted 40 minutes for the presentations.

Students. During the observed classes, students were up and moving around the classroom in group time. It was a work-type environment, with students holding meetings in different areas of the classroom. Students seemed to have fun in this relaxed environment, but were serious and generally on task.

With the emphasis on group research and presentations, students often took on the role of teacher. Students working in groups were encouraged by Jack "to help each other to make the project better." Jack also required that each student group to develop a list of

questions to ask the other students at the end of their presentations. The question and answer sessions at the end of presentations helped ensure that students paid attention to the presentation, but also encouraged students to present material in a way that helped other students learn.

Students worked in groups on almost a daily basis, with the group projects an integral component of the learning environment. Jack suggested that students could accomplish more working together, but also gave a practical reason for the group arrangement.

> They learn about working together. In society today you work in groups…that's in industry…that's in college. A lot of times you don't work well with groups. So, I want to make them good citizens and to work well with others.

Jack expected students "to be pliable, so we can mold them" in order to help them become more responsible and prepared for the "real world."

> I expect students to be flexible and to follow instructions and to be responsible students. You try to bend them and mold them and if they do what they are supposed to do then they're going to do it [be successful]. You have a hard time failing my class, because I make you work. I am a real strict dictator and they know when something is due it is due. I've got two that will get a zero if they don't show up with their work tomorrow. If you go out in life, you will be unemployed for stuff like that.

Teacher roles. Jack stated that as a teacher he was a "classroom facilitator, a dictator, and a friend at times." All three of those roles were evident during the three

classroom observations conducted prior to the *Decision Point!*-supported unit. The role of facilitator was particularly evident as illustrated by the following sequence during the first observation. Jack started class with a 30-minute lecture/discussion and then directed students to break into their small groups.

Jack: OK, you've got about 35 minutes left, so get in your groups.

(Walks over to a group of students (group 2) that gave a presentation during the previous class and told them that he would try to look over the presentation and meet with them to review it.)

(Walks over to a group and asks the students if they know when their presentation is due.)

(Jack returns to his desk and turns to his computer. A group of students walks up to his desk to discuss their project.)

(The students give Jack a couple of disks and he runs a virus check on the disks before the students put them into one of the student PCs.)

(Explains to the two students how to copy files to the disk.)

(Walks over to the student PC area and explains to a couple of students how to use a CD, pointing out a couple of key features.)

(Moves from group to group to check their progress; checks with each group to see if they need to use the PCs for their project.)

(Talks to a group (group 6) about a previous presentation): "I want to see some research next time. I don't want to see one word from that book (textbook)."

(Walks to the front of the room and stands at the podium and reviews a document for a couple of minutes.)

(Returns to group 6 to offer a few suggestions):

Jack: Work on the presentation; practice it. You had an excellent idea…but you need to cut out misinformation. Look through the chapter and make a list of things that are interesting to you. If you pick things you like, you're going to do a lot better job and you'll probably learn more too. What I want are interesting things that are not covered in the chapter. I don't want regurgitation of the chapter.

(Returns to the podium and reviews other papers.)

(Walks over to another group (group 2) to review the presentation that this group had given in the previous class. He critiques the presentation, offering specific suggestions for improvement. He reminds the group to go through the chapter and pick out topics of interest and then research to gain additional information.)

(Walks over to the student PCs to get a group of students back on task. Reminds students of assignments that are due tomorrow just before dismissing class.)

This sequence in the last part of the class involved some general classroom management tasks, but also illustrated Jack's role as a facilitator.

Content/curriculum. Compared to the other teachers, Jack's lesson plans included a higher percentage (21%) of objectives from the top three levels of Bloom's Taxonomy and an almost equal mix of lecture (8), small group discussion (6), and cooperative

learning (7) activities. For each unit, Jack provided students with a handout with a list of standards from the Alabama course of study and related objectives. Jack acknowledged the emphasis on using the state course of study as a guideline but also stressed the importance of students conducting their own research: "I don't know everything and no teacher does."

The student-oriented projects emphasized the use of primary sources of historical information and the use of textbooks as references to generate ideas. Jack described how he made a transition from "straight lecture" to a more project-oriented approach as a result of his participation in a technology-infused graduate program.

> I took three education technology classes in my graduate program at [a state university]. Before that, I used to be just straight lecture, and then I came back from this program and thought I'd do PowerPoint. At first, it was me using it to give them information but then I tried putting the technology in their hands and letting them present it. We did the questionnaires and asked if they like it or they don't like it. A lot did like it. It is different from other classes.
>
> They will choose not working if they can, and it is a lot of work to make it interesting. Most of the colleges are doing it this way. It gives them the opportunity to get in front of people and show their work. It's a lot of work but it helps prepare them for college.

Use of computers. Jack was comfortable using computers and said that he used them "for research, lectures, and things that are not in the book" and for personal

correspondence and preparation of handouts. In his spare time, Jack assembled and sold computers.

Jack's classroom was noticeable for the amount of technology that was available to students. Tables holding five computers lined one wall of his classroom, while an additional PC was stationed on the teacher's desk. Access to the Internet was available on each of the PCs. Students also had access to a digital camera, flatbed scanner, an LCD projector, VCR, and a stereo with CD and cassette players. Jack liked the current arrangement of technology in his classroom but said he would like to have "four or five additional work stations and all my televisions and equipment mounted on the wall."

As mentioned previously, about a third of each class was planned for students to work in groups on research projects. Students used the computers primarily for research—using the Internet as well as multimedia encyclopedias as resources—and for preparing presentations and related handouts. Computers and other technologies were integral tools that supported class activities. Students worked together to author presentation materials, including PowerPoint slides and other supporting multimedia files.

The most important role of computers in education, according to Jack, was "to make the kids more comfortable with them and for their presentations. The way they get into it and do the research and come to that computer instead of coming to the teacher or facilitator…you've got another source you can give them to research the question."

Assessment. Jack reported using quizzes, tests, notebook reviews, and research presentations as assessments of student progress. Group projects were an integral part of

Jack's class, with about a third of each class devoted to group time to work on the projects. Jack considered the group presentation grade the equivalent of two tests.

Jack viewed the presentations themselves as part of the learning experience and provided procedural and strategic scaffolds to students during one presentation observed in Phase 1. During the presentation, one student held up a poster that graphed NASA spending by year in the 1960s. With the amount of information on the poster, some students could not see all of the text and numbers.

Jack: After the presentation you can pass the posters around, so everyone can see them.

A few minutes later, one of the presenters switched from their PowerPoint presentation to show a segment from a videotape.

Student: We've got a video we want to show about the Kennedy Assassination.

Jack: Tell us a little bit about it before you show it.

(The student clarified the specific purpose of the video before showing it. A little later, the student began reading from a prepared script and mentioned President Lyndon B. Johnson.)

Jack: Tell us a little bit about him, OK.

(After providing some background information on Johnson, the student began reading again, this time at a faster pace.)

Jack: (Student's name), slow down.

(The student slowed the pace, but gradually quickened the pace again.)

Jack: "(Student's name), slow down and enunciate. You're starting to go da-duh, da-duh, da-duh [running words together].

(Later in the presentation, another group member stood up and said that he was going to pass out posters to "help keep everyone awake.")

Jack: Yes, we're all about to zonk out. Can you paraphrase some of this? If I stood up there and read this much, you'd all be asleep.

(The student presenter continued reading from the prepared script.)

Jack: (Student's name), do you know what I mean by paraphrasing? Give us a summary of the facts. Do you know the facts? I don't mean to put you on the spot, but try to move on through."

After the presentation, Jack asked the other students in the classroom if they had any questions for the presenters before offering constructive comments himself.

Jack: OK, a lot, a lot of good information.

(Jack reassured the student that read from the script that "you did a good job")

Jack: "OK, let's do a quick critique."

Jack made several concrete suggestions for students to improve their presentation including coordinating PowerPoint slides with the narration script, to use the slide text for prompts rather than reading from the script, practicing beforehand (including ideas for how to find time to practice), to focus on topics "we didn't know), and to go beyond facts and describe *why* events happened. Afterward, Jack asked the students to make other suggestions for improvement.

Phase 1 Summary

Four of the five teachers—all but Chet—were identified as espousing more sophisticated (constructivist) beliefs according to the Schommer Epistemological Questionnaire. In practice, these teachers exhibited a variety of instructional methods, with the majority of those reflecting more teacher- or content-centered approaches. Around 91 percent of all lesson plan objectives analyzed in Phase 1 were written at the lower half of Bloom's Taxonomy. Not surprisingly, all of the teachers lectured for a large portion of time in each class; but all were also attentive to keeping student interest with questions or other interaction techniques. While teachers expressed a number of goals for their students, class activities tended to focus on acquisition of lower-level historical facts, explained at least in part to a universal concern for preparing students for the state's standardized achievement tests. All of the teachers expressed an interest in trying new instructional methods, especially those using computer technology. However, only Jack had already integrated technology as a significant element of routine classroom activity. Chet, Janet, and Jack listed group activities in their lesson plans, but only Janet and Jack were observed implementing such practices. Again, only Jack had made student groups a major component of his classroom learning environment.

It is important to note that it was not the purpose of Phase 1, or of the study in general, to evaluate the quality of the teachers' practice. All of these teachers were selected by their principals for consideration to participate in this study because these teachers were open to innovation and because they were considered successful teachers.

Phases 2-3: Analysis of *Decision Point!* Implementation Strategies

In Phase 2, the researcher observed selected class periods during the teachers' implementation of a *Decision Point!*-supported unit. After the unit ended, teachers and students were interviewed (Phase 3) regarding their use of *Decision Point!* Analyses of both phases are reported in this section.

Chet

Chet used *Decision Point!* with 17 students in a Government class, the only non-American History class of the five studies. The unit lasted for seven days including three for the student presentations. On Day 1 of the unit, Chet used the first 15 minutes in the lab introducing the software to students. Chet covered technical tasks such as login procedures, using the timeline for navigation, linking documents in the notebook, and creating a presentation. The teacher demonstrated the steps to perform those tasks (using an LCD projector) as students watched. Chet showed students how to access and use the notebook, directing them to use the Notes tab to "collect information" for their projects. Chet gave a cursory description of the Guides tool and then suggested to students "it might be better to do the guides [first] and then a few general notes." When a student questioned whether they had to complete the Guides, Chet indicated that it was optional. Students were told to ignore the other options in the notebook.

After introducing *Decision Point!*, Chet spent five minutes reviewing the requirements and expectations for the project. Chet initially instructed the students to select one of the three strands for their project but later informed them they could "do one of three, tie all three together, or do two of the three. I want your presentation to be at least five minutes and not more than ten. I also want two pages of documentation…

printed from your notebook [the Notes tool in *Decision Point!*]." Chet said that he would grade the documentation as well as the presentation. A student inquired about using the notes during the presentation, to which Chet replied, "No…no, you can't carry your notes."

Students worked individually at the computers throughout the unit. As students began to work the first day, Chet answered a number of technical questions such as how to login, how to copy and paste information from the notebook to the presentation, how to add music to the first slide, and whether the lab had speakers for listening to media clips. When the first student asked if there were speakers in the lab, Chet answered, "You don't need speakers." Later, Chet understood that students needed to listen to the media clips. However, only the "teacher" station at the front of the lab had speakers. Chet installed *Decision Point!* on this machine and left it running so that students could come up to the computer and play music and video files.

Within 15 minutes of Chet giving instructions for the assignment, four students had begun putting information in the presentation tool. Toward the end of the first class, a student called Chet over to the computer to ask a question about how to perform a task in the presentation tool. Chet took control of the mouse and performed the action for the student. In doing so, he accidentally closed the presentation without saving it, resulting in all of the student's work being lost.

During the next three classes, students continued working on their own to compile the required notes documentation and presentation. Chet answered an occasional question, mostly related to technical issues with *Decision Point!* or to the requirements of the assignment. The questions were few, though, and Chet often sat at an unused PC to

look at *Decision Point!* or to browse the Internet. At various points in the class, Chet would remind students how much time they had left in the period. On the last day before the presentations, Chet accepted the role of media player. Instead of a student walking up to the teacher station (which had the only speakers in the room) to play a clip, the student would call out the clip name to Chet and he would play it. Later in this class, Chet became more of a manager to help students keep track of time and to remind them to print their documentation.

Chet: Does anybody need to print?

No student responded.

Chet: I do want you to print out something, even if it's just a page.

With just a few minutes left, Chet reminded students:

Alright, you've got five more minutes and that's gonna be it for today.

OK, [student's name] print, then [another student's name] print.

Presentations were conducted in the computer lab and spanned three class periods. Students ran the presentation from the teacher station at the front of the lab. The presentations were displayed on a touchscreen-driven SmartBoard™. The researcher observed the first day of presentations, when seven students displayed their work. Four of the seven students focused their presentations on narrow topics such as "Black Panthers" (twice), "Malcolm X", and "Just a Peaceful Ride?" (on the Freedom Riders). The other three students gave presentations that encompassed multiple events or topics represented with the titles "Gee, I'm Glad I Didn't Live in '63: Protests, Riots, & Killings", "Civil Rights", and "Civil Rights Riots."

Presentation styles varied among the students, but these were seniors who had worked on research projects and given presentations before. Generally, though, students included paragraphs of text on each slide, usually complemented with one picture and one video. The presentations overlapped in some cases, with the same information and media clips repeated multiple times during the presentations. Although students primarily focused on discrete facts such as important dates, people, places, and events, several tried to make connections between events. For example, the student who presented "Gee, I'm Glad I Didn't Live in '63" discussed a number of events that led to various riots and then ended with events that occurred as a result of the riots.

Chet helped a couple of the students work out problems with getting their presentations started, but otherwise stood at the back of the room throughout the day. When one presenter would finish, Chet provided no specific feedback other than, "Alright, thanks," before soliciting a volunteer to go next. The class bell rang just as the last presenter neared the end of her presentation, so Chet did not have a chance to comment before students were dismissed.

Students. Each student worked individually on their own project throughout the unit. Chet explained the reason for this arrangement: most of these students were going to college and would benefit from doing projects like this individually. Students interacted with one another very little during the unit. The few interactions that were observed generally were about *Decision Point!* or about the project requirements.

Student 1 to Student 2: "How many slides are you going to have?

Student 2: Seven

Student 1: I have five right now.

During the research part of their project, students used the General Notes to record information collected from other parts of the program. Students were especially interested in being able to copy information and paste it in the notes (an option not available in *Decision Point!*). Only one student was observed using the Guides feature.

Chet allowed students to select their own topic of interest and research it using *Decision Point!* However, the majority of students chose a copy/paste method for conducting research. Likewise, most of the presentations focused on discrete bits of lower level knowledge.

Students cited "freedom" as one of the things they liked most about this unit:

Student 1: This gave us a whole lot more freedom. We didn't have to wait on what the teacher says. We need more freedom.

Student 2: I like that it was interesting to explore and the program…it gave some students a chance to go farther then they normally would.

When asked how this unit was different than what they normally did in class, one student replied, "Normally, you [students] don't get to choose what you learn about." Another mentioned, "We mainly taught ourselves. He [Chet] did not have to do it."

Teacher role. Chet primarily served as project manager and technical guru during this unit. During the observed classes, approximately 70 percent of the questions he answered were about how to use *Decision Point!* Twenty percent were related to clarifying the project requirements. Less than 10 percent of the teacher-student interactions related to the actual content of the unit, all of which involved correcting factual errors that were found in the program. Chet allowed students to work on their own unless they had questions: "You could put these kids to work and you can leave the room

and come back and they are still working…[t]hey could read their own material…and they were accountable for themselves which was the main thing I was looking at."

Chet confirmed during the interview that the large majority of interactions with students involved technical questions, but he also realized that the nature of teacher-student interactions changed: "here [in this unit], I could monitor and do one on one."

Content. Due to the nature of working with *Decision Point!*, students worked with numerous primary historical documents. However, students were not encouraged to explore critical questions and/or themes in their project and so their focus remained on people, facts, dates, and events. Chet justified using the Civil Rights-related *Decision Point!* program in his government class by linking the events to Constitutional amendments related to civil rights issues. Chet covered the amendments with a number of readings in the textbook followed by discussions.

Use of computers. The bulk of the unit was conducted in one of the school's computer labs. Chet distributed the *Decision Point!* CDs (required to run the program) at the beginning of each class. Students worked individually at a PC assigned to them. *Decision Point!* was used essentially as a multimedia resource for students to prepare their presentations, similar to how they had used the Internet for previous research assignments. Although tools for reflection and deeper historical analysis were available in the software, they were mostly unused in this study. Chet answered numerous technical questions, but otherwise took a hands-off approach unless a student engaged him.

During the interview, Chet admitted that he didn't feel comfortable helping the students with their presentations, but later "got to the point where I could do it. I could help them with a problem."

Assessment. For this unit, students worked individually to prepare a presentation using the built-in *Decision Point!* tools. Chet only required the students to use the presentation tool and one of the notebook functions (e.g., Notes or Messages). Students described their frustration in the post-unit interview: "It was not easy to know which tool was to be used." One student commented that the Guides would have been a good tool to use if the presentations had been longer.

As students worked on their projects, Chet rarely monitored their progress. During the presentations, Chet stood at the back of the room and did not always appear to be listening to the student. Chet offered no feedback after presentations, possibly due to the tight schedule with so many individual presentations. Overall, Chet was pleased with the presentations:

> It went better than I expected. Just how well the kids picked it up really astounded me. We had one girl who had a 25-minute presentation and she had pictures and movies and she really did well. I was hesitant about what would happen. They read a lot more than I wanted them to [from slides during the presentations], but it showed a visual that reinforced what they said…it was a lot more interesting to show a visual. It really worked out well.

Following the presentations, students also took a written test that included essay questions. The presentations, along with their printed notes from the *Decision Point!*, were worth 500 points (about one-third of their grade for the nine-week grading period). The written test was worth 100 points.

Students would have preferred that Chet provide "stricter guidelines" to clarify the expectations for the project and how it would be graded. The students agreed that this was a broad assignment and that they would like to have had more help from Chet helping them to narrow their focus on the research.

Brian

Brian implemented a *Decision Point!*-supported unit in an Advanced Placement (AP) American History class with 14 students. The unit lasted six days counting one day for the student group presentations. Brian initially took his class to one of the computer labs, but students experienced a problem on Day 2 with notebooks appearing blank when opened. When this problem occurred, Brian took his class to the library where there were five computers available. Students installed *Decision Point!* on the library computers and no other notebook problems were encountered. However, one of the computers was unavailable after the first day. With five groups in all (four groups of three students and one group of two), one group worked in the computer lab just down the hallway starting on Day 2 of the unit. Brian stayed in the library for the majority of time, but occasionally checked on the computer lab group.

The library had an open-air design with most of the stacks on the outer walls and with the computers on tables on either side of a commons area. The computers in the library were new multimedia models. One PC was connected to a large television and was controlled by a wireless mouse and keyboard. Students used this PC to display their slide show presentations. The computer lab PCs were several years old and barely met the minimum requirements to run *Decision Point!*

On Day 1 of the unit, Brian led his students from the classroom to the library and directed them to get into their groups. Brian had assigned students to groups prior to arriving in the lab. The students had not previously worked in groups in this class.

> When I divided them up I tried to get them away from their friends. A couple of them did not work out that well, but most did… [W]e had not done a single group activity other than a little small stuff, so I thought they did very well.

Decision Point! had not been installed on the PCs in the computer lab so the first few minutes of Day 1 were spent installing the software and getting headphones to work so students could hear the multimedia clips. The researcher helped students with installation issues, getting sound to work, and other technical issues during this first session. Once these initial startup issues were resolved, Brian gave students a handout (see Figure 7) and some initial verbal instructions on how to login.

Students spent the rest of the first day exploring *Decision Point!* on their own. The instructions from the handout allowed students to choose how they would use *Decision Point!* to develop a presentation of their choosing. There were no requirements for students to use specific tools in *Decision Point!* other than the Presentation tool. As students began using the program the first day, their questions focused on how to transfer text from a content document to the notebook and similar "copy/paste" requests. One student asked about the content window: "There's no way to print it out?" Students explored various event documents and media clips while Brian went from group to group providing technical assistance.

A.P. CIVIL RIGHTS PROJECT
INSTRUCTIONS

Objective: To analyze the African American Civil Rights movement (1954-1964) by producing an information presentation and writing an analytical essay. Both of these will be done using the "Decision-Point" program.

STEP 1 : Install the program.

1. *Insert the CD ROM into the computer.*
2. *From the Desktop, open My Computer. Then double click on the Dec_point icon to open it.*
3. *Double click the setup.exe to start the installation program.*
4. *In the Installing Decision Point box, click the Start button.*

STEP 2 : Click the Start Menu, then Programs, then Decision Point to begin.

*STEP 3 : Type a login name and click the Login button. ***Your Group Login name should always be the same, because this is how the program will save data you need****

STEP 4 : Browse and select a topic (10 min.)

After choosing a topic, use the bulk of your time researching it as it relates to the entire civil rights movement. You will then produce……

1. A presentation using the Decision point presentation program (30 pts)
- *6 - 8 slides*
- *Style points available*

2. An outline for your group essay.(10 pts.)
3. A three page informative essay . (20 pts.)

Figure 7. Student handout distributed by Brian on the first day of the unit.

Because of the notebook problem, Day 2 began with a move from the computer lab to the library. Brian noted that this would "work out OK" since the AP class had a small number of students. However, he had previously inquired about using *Decision Point!* with his regular American History class (apart from this study) but now was concerned that he would have to use the computer lab with the larger class.

As students moved from the computer lab to the library on Day 2, they had to install *Decision Point!* on the library computers and then login with a new profile. The small amount of work students had completed in their notebooks on Day 1 was lost. Some of the initial startup issues resolved the first day (i.e., installation issues, hearing multimedia clips) in the computer lab had to be dealt with again in the library. Brian answered some of the same technical questions as on Day 1, but also answered questions about the assignment.

By the third day of the unit, the students had settled on their topics and were busy at work. One group had already selected their presentation topic and immediately opened the slide show tool to create a title slide. By the middle of this class, all of the groups had begun work on their slide show presentation. Students were printing their notes to work on the presentation. Initially, the network printer did not work and Brian, the librarian, and the researcher worked to re-install a print driver to enable printing.

Up to this point, Brian had typically served as a technical assistant, addressing initial setup issues and helping students learn how to use *Decision Point!* Students began to ask a few more questions about the project, but mostly worked quietly in their groups. One student asked Brian about the number of lines on one slide (three lines of text for the first bullet, two lines for the second, and four lines for the third). Brian responded, "Now you don't want to put a whole lot more on there. Keep it kind of short." When not assisting students, Brian could most often be found talking with someone else in the library. On this particular day, Brian was observed talking with the librarian toward the beginning of the class, the school's principal about halfway through the class, and

students from other classes toward the end of the period. The more public access of the library presented more opportunities for casual chatting than normal.

On the fourth and fifth days, students worked predominantly on the slide show presentations. Brian became somewhat more engaged with students, reviewing progress on their presentations and offering suggestions for changes. After students arrived in the library on Day 4, Brian reminded students to designate roles and "map out how the presentation will go." He also cautioned students to "be careful" about putting too much text on a slide, based on observations he had made the previous day. After Brian reviewed the requirements for the group essays, students resumed work on their presentations. Student questions still focused on specific requirements and expectations for the presentation. For example, one student asked Brian if nine slides would be OK. Brian answered, "OK, just not less than six." Brian mentioned that he had advised students to include no more than two videos on any one slide, but he seemed unsure if that was a reasonable restriction. The advice Brian gave students continued to focus on the technical aspects of preparing multimedia-supported presentations, rather than on content or other learning-centered issues.

Toward the middle of the period on Day 4, two groups began to disband. One student in each of those groups continued to work at the computer while the other members left the area to go chat with other students. Three of the groups remained intact, with one group observed practicing the presentation and discussing strategies for what to say and how to say it. Another group took their slide show to the presentation station (the PC connected to the TV) and ran the slide show. They subsequently changed the text style when they saw that it was hard to read on screen. Several times on Days 4 and 5,

Brian had prompted the students to practice their presentations. On Day 5, students continued preparing and practicing the presentations and began working on their essays.

The groups gave their presentations on Day 6, the final day of the unit. After arriving in the library, the teacher and researcher spent ten minutes transferring all of the presentation files to the presentation station (the PC connected to the large television). Presentations ranged from five to nine minutes. The first presentation was titled *Nonviolent Direct Action* and provided a chronology of the events in this strand. The student played several videos, letting them run beginning to end without adding any comments or interpretation. The presentation ended without a conclusion.

Presentation 2, titled *Black Power*, started without an introduction by the speaker. Starting with slide two, the presenter read the text from the screen, then showed a picture from the multimedia links, then presented a video, and then advanced to the next slide. The speaker skipped over one slide, but continued without notice. One slide offered factual information about Martin Luther King, Jr., however the students did not explain how Dr. King was related to the Black Power movement.

The third group gave a presentation titled *Using the Legal System (Black Man's Rights)*. This group ran the presentation slides in authoring mode rather than Slide Show mode, which presented no major problems. The students in this group followed the same general format of the previous presentations, reading text on the slide, showing a picture and/or video and then moving on to the next slide. The students were matter of fact throughout the presentation using these general phrases as transitions during the slide show: "This is the next slide…", "On this slide…", "This slide is about…", and "This is our last slide…"

Presentation 4 was titled *The Birmingham Riots* and focused exclusively on that event. The first speaker was surprised when the selected music did not play on the title slide: "What happened to our music?" Brian reminded the students to use the Slide Show button in order to hear the music. This group did not read the text from the screen as the other groups had done. The speaker described the slide content in her own words and occasionally looked at the slide for a reminder. On another slide, the speaker described how the selected picture fit in with the slide's content. When the last speaker froze when no text appeared on slide five, Brian said reassuringly, "Just talk about it." The student talked briefly about the slide and ended abruptly, "And that's our project."

The final group was unprepared to give their presentation during this class and was not observed. After the last presentation on Day 6, Brian gave only general feedback to the class, "Listen…good job everybody" and then made some other announcements unrelated to the project. Between presentations, Brian offered no specific comments to the groups other than "OK, thank you very much. OK, who wants to go next…any volunteers?" Brian worked to ensure that each of the groups had a chance to give their presentation during the 52-minute class.

Students. Brian assigned students to project groups for this unit. Students worked together to choose a topic for research, researched the topic in *Decision Point!* and then produced a presentation summarizing their research. Brian thought the group format worked well, but when asked why he chose that arrangement he gave a practical reason: "I knew we were limited on computers. I guess they…I am not sure why it just struck me as something that would work, but it did."

The majority of students in the focus group said that they liked the group format, "…because you have to do it and the group is counting on you. We learn a lot that way." However, one student did comment that it got crowded around the computers and would have preferred an individual assignment.

Students also liked being in control of their own learning on this project.

> I have never used anything like that here before. I like it. We did it every day for like three days in a row. We did most of it ourselves [without teacher involvement].

Teacher role. Brian mentioned that his normal "teaching style" with these students was "more of a lecture/notes kind of class." However, Brian took a more hands-off approach in this unit. Brian described how his role as teacher had changed for this unit.

> You are more of a leader, a guider than you are lecturing, and I think it is more enjoyable that way. You can actually stand there and watch what they are doing and stand there and then answer a question. Not having to stand in front of them for 40 minutes having to talk. You are less involved…and you don't have to use as much energy once you start using the program. But, you use more [energy] before trying to prepare the program.

Brian liked the change in roles and suggested that students benefited from the different format because it was "more like the real world."

> We do some audio-visual type things and video and we go to the library, but as far as like *Decision Point!*…no, it is the first time that I have used

anything like that. I think it is more interesting. They [students] don't have to get involved with me unless they need to. They are working on their own and, if they need guidance or have a question, then you can call on the teacher. It's more work oriented. You have a boss and he leaves you alone unless you have a question. Kind of like a real work environment.

Students also commented on how this unit differed from others they had experienced with Brian.

For one, we used computers the whole time. We got into it and really liked it. We would ask him [Brian] questions and he would get excited. He would come and help us right away. He was there if we needed help. He was there to help us.

Content. Brian mentioned in the post-unit interview that the way students worked in this unit was similar to other projects they had completed.

Yes, it is very similar to the things that they are used to doing. They go to the library and use books and periodicals or whatever, but as far as the end product, it's very similar project wise.

However, when Brian discussed what changes he might make if he were to use *Decision Point!* again, he described a different focus for student learning.

I would probably spend a little more time, maybe like three days…in letting them use it and requiring them to take that much time whatever you had to do [for students to be comfortable with the software]…and do a more in depth kind of thing. What we do is more just like pick a topic and do more or less a summary, which is pretty much what, when, where, and

how, that kind of thing. I would like it to be a little more in depth to make them think a little more.

Brian identified several benefits of a more student-centered approach to learning, including access to primary historical sources, improved student motivation, and working with different learning styles.

> [T]he immediate access to primary sources helped the students get involved and interested. If I stand and lecture for 45 minutes…they are, they're gone. This can hold their attention for 45 minutes with no problem. They're doing it [learning] for themselves. In a lot of cases they are learning more…just because it is more of a hands on kind of thing, not just listening and taking notes.
>
> It [*Decision Point!*] was interactive. The visual part of it…they could hear Martin Luther King, Jr. They could see Rosa Parks. So, it engages several different learning styles. Kind of like an imprint deal when they see it or hear it or have an emotional experience. I just believe that you learn that way. You give a test and they forget everything, just because they don't get involved.

Students confirmed some of these benefits during the post-unit interview:

> Student 1: Yes. I think it would be easier if we did something like [*Decision Point!* more often]. It [traditional instruction] does get boring.
>
> Student 2: I did learn more. It gets boring and I don't like to take notes.

Although Brian and the students agreed on several positive aspects of using *Decision Point!*, one student's comment on how she used the software highlighted one

concern with students working in an open-ended learning environment with little or no guidance from a teacher.

> It [*Decision Point!*] pretty much spelled out what we needed; it was organized and gave us good information. I just had to read and write down what was needed [for the presentation].

Use of computers. Students indicated that they rarely used computers in any of their classes; but when they did, it was usually to type a report or essay. None of the students in the focus group had ever used software similar to *Decision Point!* While some of the students reported using the Guides section of the notebook to focus their research, the majority of students used the software as a resource to locate and collect information. Student use of the Guides and other cognitive tools had not been a requirement for this assignment.

Students reported that they liked *Decision Point!* because it was quicker than looking up information in a book. In one case, a student in the computer lab used *Decision Point!* on one computer and opened a multimedia encyclopedia on an adjacent computer. He searched for information on Martin Luther King, Jr., in the encyclopedia and then typed some of the information into the *Decision Point!* notebook.

Assessment. For this unit, students were assessed on the presentation and an informative essay (see Figure 8), both group assignments. According to Brian, this was the first real group assignment for these students. He identified several areas in which the students struggled, including problems following the requirements, problems narrowing the topic, typing too much text on slides, and reading too much during presentations.

> I guess some of them had a problem knowing exactly what the requirements were and they needed help narrowing down topics…where to get their presentations.

Despite the directions to "use the bulk of your time researching [the topic] as it relates to the entire civil rights movement" in the project instructions, students jumped into the presentation early on and focused their presentations on discrete topics.

> Looking back I would have spent more time than what I did coming up with the assignment. Mine was more on the end product than it was on the process. Looking back, I wish I had had a checkpoint every so often.

Brian made general notes as students gave their presentations, but he had no tangible framework for grading them. He saw this as an issue with doing this type of project for the first time. Brian commented that developing a grading scheme for the assignment was one of the bigger challenges of the unit.

> I guess it took a while to grade and also coming up with a way to grade accurately. Especially the presentation, you know that really had to be subjective. I am not really crazy about it, and you have to be careful with it and everything else. A way to grade those accurately and fairly is impossible. You can put…and I did put some requirements on it. But, you know, you have to watch the presentation, how good it was and then come up with the points from there. But if I would do it over again, I think I would be a lot more specific on that.

AP Civil Rights Project
Score Sheet

Group Name: _____

Group Members: _____

Topic: _____

Comments: _____

_____

Estimated Score (1-10): _____ (based on impression from presentation)

Actual Score (0-35): _____ (based on outline, research turned in on paper)

Figure 8. Score sheet used by Brian to grade the presentation assignment.

Janet

Janet used *Decision Point!* with 27 students in one of her 11th grade American History classes. The unit involved five days of work in one of the school's computer labs and two days for presentations in the classroom. On the first day of the unit, Janet was finalizing a handout for students as the class started. After printing the handout, she assigned students in pairs to work on the unit project. The students met to begin talking about the project while Janet went to make copies of the handout. Ten minutes after class started, Janet led her students down the hallway to one of the school's computer labs. The lab's computers were relatively new, with 12 machines along three of the walls and two

rows of four computers positioned back to back toward the middle of the room. Students would work in this lab throughout the unit, though they would give their presentations in the classroom.

After the student pairs settled in at the PCs, Janet distributed the handouts and *Decision Point!* CDs and instructed each pair of students to insert the CDs and start the program. Janet and the students discovered that the software had not been pre-installed by the network administrator as had been expected. Janet made a quick decision that students would just run the program from the CD and told students that they would not need to save their notebook entries today. After she explained the login procedure and helped students get into the program, Janet asked the students to click the *Using the Legal System* strand on the Main Menu.

> I want you to look at your handout and follow the directions. First, click on Brown versus Board of Education and then go to the interactive essay. You are to read this and then answer the questions on your own.

Janet distributed a different handout for each of the first three days of the unit (see Figures 9, 10, and 11) to direct students to selected events in each of the three strands (i.e., Legal, Non-Violent, Black Power). On the fourth day of the unit student pairs worked on their presentations. As indicated on the handouts, each student was expected to answer the questions and activities in their own regular class notebooks. Questions and activities consisted of mostly lower level knowledge and comprehension items. Students worked with their assigned partner throughout the week, some taking turns operating the mouse and keyboard.

Janet occasionally walked around the room to check on students, but was often observed recording grades on another PC in the lab or sitting and watching from the corner of the room. The large majority of student questions dealt with locating a specific answer in *Decision Point!* or with clarification of the assignment. On Day 1, after getting the same question from several students, Janet stopped the class to remind students: "If you will read the interactive essay first, then try to answer the questions, you will do a lot better." Janet commented later that "some are just being typical students" trying to quickly find the answers instead of reading the entire essay.

About halfway through the first class, Janet announced, "OK, you should be finishing up this first activity in the next few minutes" (referring to the first item on the handout, Brown v. Board of Education-Interactive Essay, which had six questions). A couple of minutes later, a student asked Janet about exploring the Brown v. BOE event documents in *Decision Point!* Janet replied, "I'm going to let you do some on your own, but I want to point out some things first." Then, Janet immediately stopped the students to provide instructions for locating the information related to item two on the handout. "So, when you go to your second activity, that's all you have to do…is click on the timeline, click Little Rock, and voila, there you are."

After another student question, Janet announced to the class, "Remember, you need to read before you do the activity…you need to read it first" to address students who were not reading through the assigned content thoroughly. Janet then turned to the researcher and said, "I wish I knew how other teachers were using this." She expressed concern that things were not going well and mentioned that she had run out of time the day before planning for the first day of the unit.

After a student asked about the required format for completing a timeline (item 3 on the handout), Janet repeated the answer for the entire class: "Just like you've done before in class. You don't have to do it word for word." Despite Janet's directions, the large majority of the students copied the timeline wording from *Decision Point!* to their own paper. With a few minutes left in the class, Janet walked students through installing *Decision Point!* on the PCs.

For the first three days of the unit, class followed the same general pattern. Janet led the students to the computer lab and gave students the CDs and the handout of the day. She gave students explicit, step-by-step instructions to help students get started for the day. Students worked quietly while locating answers to questions from the handout and recording them in their notebook. By Day 2, students had settled into a pattern of completing the required assignments: one student would operate the computer to navigate to a specific page in *Decision Point!*, both students would record the answer in their notebooks, and then the operator would scroll the window when both were ready to move on. Occasionally one of the students would point to or slide their finger along the screen to point out a particular passage of text, in most cases to call attention to an answer. Some of the students would swap roles each day while other pairs maintained the same roles for the entire unit.

Students exhibited some initial signs of excitement when they arrived in the lab the first day; but, by the middle of the second class, many of the students appeared to lose interest and seemed bored. For example, four non-computer operators put their head on the table while their partner navigated *Decision Point!* to locate the answer to the next question. A little later in the class, some students completed the required questions and

began to explore *Decision Point!,* the first time in the unit they had watched video clips. Initially, students could not hear the audio in the media clips because *Decision Point!* required an older version of QuickTime than was on the lab PCs. The teacher and researcher assisted students with installing QuickTime. With no speakers in the lab, listening to the videos required some cooperation between students. One student in each pair would put on headphones to listen to the video clip, then hand the headphones to the other student, and then replay the video. Student-student interaction increased during the exploration period but mostly to coordinate using the headphones and deciding which video to view next. The majority of questions for Janet continued to be for clarification of the assignment, verifying that "they are where they're supposed to be." Between questions, Janet sat at another PC in the lab and entered grades. As class ended this day, Janet commented to the researcher that "time flies in the lab."

American History II
1950s and 1960s Notebook

Directions: Go to "Using the Legal System." Complete the following activities.

1. Brown v. Board of Education-Interactive Essay

    a. What did the case Plessy v. Ferguson establish?
    b. How did the NAACP challenge Plessy v. Ferguson?
    c. What was the basis of the Supreme Court case Brown v. Board of Education?
    d. In December 1952, who argued Brown v. Board of Education before the Supreme Court? What were his 2 main points concerning this case?
    e. How did the Supreme Court rule in the previous case?
    f. Did changes occur immediately? Explain.

2. Little Rock School Integration-Elizabeth Eckford's Account

    a. Read Elizabeth Eckford's account of the Little Rock School incident. Explain in your own words what happened to her and the other students who attended Central High School.

3. James Meredith-University of Alabama Timeline

    a. Complete the timeline on your own sheet of paper. Summarize each entry as much as possible on the timeline.

4. Voting Rights Act of 1965-Interactive Essay

    a. Read the essay and summarize how the Voting Rights Act of 1965 came about.

Figure 9. Student handout distributed by Janet on Day 1 of the unit.

American History II
1950s and 1960s Notebook

Directions: Go to the section labeled Non-Violent Direct Action. Answer the following questions.

1. Montgomery Bus Boycott

    a. How were African Americans treated concerning public accommodations? Specifically buses?
    b. How did Rosa Parks take a stand against segregation? What happened to her as a result?
    c. What happened on December 5, 1955?
    d. How long did the boycott last?
    e. How did African Americans get to work or school as a result of the boycott?
    f. What effect did the boycott have on Montgomery's economy?
    g. What happened on November 13, 1955?
    h. What were the far-reaching consequences of the Montgomery Bus Boycott?

****After you have finished your assignment, you may explore other entries in this program.**

Figure 10. Student handout distributed by Janet on Day 2 of the unit.

American History II
1950s and 1960s Notebook

Directions: Go the section on the computer program labeled Black Power/Use of Force

Black Power-Interactive Essay

1. What fueled efforts to build an individual black power base?
2. Name the two earliest experiments in the Black Power movement.
3. What incident occurred to bring about the term "Black Power" so that it gained public attention?
4. Who was Stokely Carmichael?
5. Why did Carmichael reject integration?
6. What were Carmichael's beliefs concerning blacks and whites?
7. What happened at the 1968 Summer Olympics?

Opposing Viewpoints

Read Martin Luther King's viewpoint concerning Black Power. What were his views concerning this idea? Explain.

Cartoonists Views

Look at the following cartoons and interpret the meaning of each.

1. Black Power-KKK (8-1-66)
2. Magnifying Glasses (8-4-67)

Go to the section labeled Malcolm X located on the main menu. Read the Interactive Essay. Summarize the life of Malcolm X beginning with his early life through his years with the nation of Islam ending with his assassination.

****When you are finished with this assignment, you should make a list of (1) topics (2) pictures and (3) videos you wish to use in your presentation. Sketch an outline of your presentation on paper. When you are finished, see me for final approval.**

Figure 11. Student handout distributed by Janet on Day 3 of the unit.

The next class, Day 3 of the unit, students began working on that day's handout and returned to a pattern of quietly working to locate answers with only limited interaction between students. Some of the student pairs had to finish the handout from the previous day before starting the new one. A few of the students had begun reading from

Decision Point! as their partner recorded the notes in their notebook. Then, the reader would take their partner's notebook and copy the answers into his own notebook. While students had now looked at certain documents in each of the three major strands in *Decision Point!*, the notebook and other tools remained unused. Janet commented to the researcher that she was "afraid that we won't have enough time" to use those tools.

As students completed the initial handout questions this day, they had fewer questions for Janet than the previous days. Janet alternated between sitting at a desk at the front of the lab and walking around to check on students' progress. Later, students began to look at the two cartoon interpretation activities from the handout, which prompted slightly more discussion within the pairs and with Janet. During this activity, Janet commented to the researcher that she liked the cartoons in this section. This activity initiated the most interaction between the teacher and students during the unit. When a student asked a question about a cartoon, Janet would help them come up with their own interpretation.

Student: What does this mean?

Janet: You tell me.

Janet then described what was shown in the picture (a magnifying glass) and prodded the student to say what she thought it meant. She walked over to another pair of students where one of the students explained her interpretation of the cartoon to her partner. Janet seemed satisfied with the explanation and moved to another set of students.

Shortly after the cartoon discussion began, Janet announced to the class, "You have about 35 minutes to get everything on the sheet finished. So, don't spend a lot of time on any one thing." About ten minutes later, Janet announced, "You have about 25

minutes." The last part of the handout offered some general guidelines for the required presentation. Students had not previously seen the presentation tool and began to ask numerous questions about how to do the presentation and what the requirements were.

Student: Are the presentations together [with their partner]?

Janet: Yes, they are together.

Student: How many topics do we need?

Janet: That's entirely up to you.

Student: Would 3 or 4 be OK?

Janet: Sure.

The student lists a number of possible topics.

Janet: That's OK. Just make sure you have a variety.

Janet explained to the whole class that the "big thing about the presentation is to figure out what you want to talk about." Students continued to raise their hands to ask questions about the presentation during the last 15-20 minutes of class.

Janet started the fourth day in the lab by demonstrating to students how to use the presentation tool in *Decision Point!* The computer lab did not have an LCD projector, so Janet used a computer at the front of the lab to describe the steps as students followed along. Janet allowed students to "play around" with background music. Students smiled and seemed excited. A few minutes later, Janet provided more details about her expectations for the presentation.

On the first slide put the name of your topic. You should know that already because you planned yesterday.

Janet demonstrated how to create a new slide and explained to students where to enter text. Spelling is important. Make sure words are spelled right.

When you get through typing on the left…the right side is reserved for the media. When you're ready for that [inserting media], I'll come help you. You're going to narrate the presentation, so make sure that you practice. Remember, time will go by fast in here and we only have today to work on it. So, you must pace yourself.

Within a few minutes, all of the students are busily working on the presentations. Janet was kept busy as well moving from one group to another answering various questions with no breaks in between. She pointed out a misspelled word to one group, showed how to add multimedia clips to another, reminded one student how to create a new slide, and periodically reminded students to save their presentation. About 10 minutes after students began working, Janet announced, "OK, you only have about 45 minutes." Janet repeated instructions for adding pictures and videos numerous times around the lab.

Nearly 20 minutes after students started working, Janet said to the researcher, "They're just going to have to come back in here Monday [the next school day]." She expressed concern that they were running out of time preparing the presentations and also that she might have a problem reserving the lab for Monday. A few minutes later, Janet asked the researcher, "I think most are going to have 5 or 6 slides. Is that about average?" With 20 minutes left in the class, Janet mentioned, "You know, today has gone by faster than any of the other days."

Janet continued circling around the lab to monitor the students' progress. She commented that one group is almost finished but doesn't think most of the groups will be done before the end of class. With just a few minutes left, Janet instructs students to logout of *Decision Point!*, "You can see how fast time flies with this…so we'll finish up on Monday. Do you like doing this? This is fun, isn't it? Several students nodded their heads in agreement, but most continued to work on their presentations.

Janet was able to secure the computer lab for Monday so that students could finish working on their presentations (Day 5). The day began with several groups unable to open their presentations. The students did not realize that they had to work at the same computer they had used to create the presentation. A few minutes were lost as students logged out of *Decision Point!* and switched computers. Within a few minutes, one group informs Janet that they are finished.

Janet: Are you sure that you have enough information?

One of the students nods his head.

Janet: Are you sure?

Other students talked quietly with their partners, some with headphones around their neck ready to listen to a media clip when necessary. Within 20 minutes several other groups indicated to Janet that they were finished. Janet reminded the students to double-check slides to check for spelling errors. Within 30 minutes most of the groups were finished or nearly so. Students already finished began to browse the Internet or to talk with other students (off topic). None of the students were observed practicing their presentation. About 35 minutes after arriving in the lab, Janet announced, "OK. Y'all

need to be finishing up in the next 10 minutes…so, make sure you look at the clock. Ten minutes later, Janet returned to the classroom with her students.

The following day, the sixth day of the unit, students gave their presentations. Janet had a laptop in the classroom that was connected to a mobile LCD projector. The researcher helped Janet setup for the presentations, including troubleshooting a problem with the projector. Ten minutes after the class period started, the first presentation began. The projector, pointed toward the back wall of the classroom, created a large projection area making it easy to read text. Classroom lights were turned off to make the image even crisper. Sound came from the laptop speakers, with the volume barely adequate.

Six groups presented this first day with presentations averaging about 10 minutes. Janet sat at her desk and intently watched each of the presentations. When the first group finished, Janet left the room to see if the principal could come see the presentations. She returned disappointed saying that he was too busy. Five of the six presentations followed the same general format with general factual statements, chronological lists of events and using pictures and videos to "show facts" rather than to support an argument. Students tended to play one video after another without comment or transition between them. The third group was representative of the others regarding the intent of their presentation: "We just wanted to touch on four or five things to give you an overview." Most of the students read text directly from the screen or from note cards. Half of the groups swapped speakers sometime during the presentation, while the other half had a designated speaker as the other member ran the slide show on the computer or just stood next to the podium.

During the second presentation, students were paying attention but seemed to be losing interest. By the fifth presentation, several students began laying their heads on

their desks. The presentations had several overlapping topics and many of the media clips were displayed in more than one presentation. In fact, group six introduced the Montgomery Bus Boycott video (for the sixth time) with "And once again…"

Janet helped students with technical issues such as starting the slide show properly, plugging in the laptop power cord when the low battery indicator appeared, and logging out to prepare for the next group. Otherwise, the only times she interacted with a presenting group was to correct a mispronounced word or to remind a student of Elizabeth Eckford's name. She offered only the general comment, "Good job," after presentations before quickly transitioning to the next group.

Students. Janet paired students to work on this assignment, although most of the activities could have just as easily been completed individually. Janet selected each of the pairs and explained, "I purposely put them with opposite people to learn to socialize with other people…to get them to know each other and to rely on each other." Students primarily worked together to locate answers to questions from the handouts. For much of the unit, especially the first three days when the handouts were required, the students interacted very little. Only when students got to the presentation, did they have a more open-ended task where they could choose a direction of their own.

Even with the directed activities the first three days, students reported feeling more in control of their learning during the unit as compared with normal class activities.

> Student 1: We were in control. I liked it better because of that and I understood the information better. I learned it a lot better.

Student 2: All we do is take notes and that is boring and I want to go to sleep half the time. Half the time students don't learn; it doesn't stick. But, this was fun. The pictures and videos helped a lot.

Teacher. During class sessions in this unit, Janet switched from primarily a lecturer and discussion leader to a manager and guide. She clarified instructions for students and provided hints about finding answers in *Decision Point!* Janet enjoyed the different teaching format.

It was as much fun for me as it was for them, and it took the pressure off me. It put it on them.

Despite this change in roles, Janet remained in control of the content that students encountered for much of the unit. She provided students with explicit instructions to answer questions related to specific topics within *Decision Point!*, keeping all students on the same tasks at essentially the same time. Janet mentioned that her time for planning for the unit was limited and learned a lot as the unit evolved.

Helping students keep track of time was another aspect of class management that was evident throughout the unit. Janet mentioned several times that she was concerned with "how quickly time flew in the lab." She announced to students how much time remained in the period numerous times. Janet had to schedule extra time in the computer lab in order for students to finish their presentations.

Content. For each of the first three days of the unit, Janet provided students with a sheet of questions that were to be answered during that session. Questions primarily focused on lower level objectives although a few higher level objectives were seen on the second and third days. During the post-unit interviews, students were asked what aspects

of the unit they liked and disliked. Students liked working on the presentations because, "you had a little bit more freedom" and disliked the handouts: "The way she gave us questions to answer and…and I just didn't like that I had so many questions and had to spend so much time on it."

The handouts ensured that students covered several topics in each of the major strands in *Decision Point!* The presentations allowed students to explore a specific topic or theme in more depth, but Janet acknowledged that many did not do so.

> It depended on their approach and how they looked at everything. Some of them took advantage of the time and went deeper.

Janet said that this was the first time she had tried an activity like this and felt that she learned a lot by the experience. However, Janet indicated that what she had learned would help her better use *Decision Point!* to meet her current goals for instruction.

> I wasn't sure what all I could do and have them do. I would definitely vary activities more and give them more time with it.
>
> I learned more in there actually looking at it [*Decision Point!*]…accessing information and how to use it. I could learn to go to different spots [in the program]…try to gear it toward things I would normally talk about anyway.

Janet said that she felt that students learned better during the unit, primarily because of the "visual media" and "excerpts" from primary documents.

> It was good for them to have something like that. They could read it on the screen; and they like being entertained, yet they still learned.

Use of Computers. Students used *Decision Point!* primarily as a resource to find answers to questions generated by the teacher. They used the Presentation tool to prepare their slide show, but used none of the other built-in notebook tools. While students worked together in pairs during this unit, they collaborated very little during the first three days while completing the worksheet activities.

Janet expressed concerns about the limitations of her computer skills as well as those of her students, which may have contributed to the more traditional approach at least early in the unit.

> I'm not the most computer literate. I didn't know if I did it justice; but once I figured it out, I was OK. It made me nervous to teach something I had just learned. But, I got more comfortable with it just going on, sitting and playing around with it. That makes a difference.

Janet stated in the post-unit interview that some of the students lacked experience with computers and may have been less confident than normal with this type activity.

> Some of them didn't have that much experience [with computers] coming in. I mean they are exposed to PowerPoint and…but I think they are generally shy around computers. They do not have the confidence they need.

Janet saw the content in *Decision Point!* as one of its primary strengths, in particular the multimedia clips, but did not mention any of the other student-centered tools included in the software. Students also mentioned the benefit of being able to "see history" through the pictures and video clips.

Using *Decision Point!* during this unit raised Janet's awareness of how technology might be used in history. She expressed a desire to find more instructional software that she could use, in particular multimedia-based products focused on "big events" in history.

Overall, although Janet felt good about the unit and felt that the students learned during the unit, she felt that the use of *Decision Point!* was an "alternative" to other teaching methods and would "use it more as a supplement" if she were to use the software again.

Assessment. Students were graded based on the content of their presentations, completion of the activity sheets, daily participation, and a regular unit test. Janet walked around the room to check on students throughout the week, but rarely initiated interaction with students. Assigning grades for the presentation presented a challenge for Janet.

> I feel as if I graded them easy it being my first time with something like this. About the only thing I took off for was a misspelled word or grammar…maybe a point or two. I may expect more out of them the next time, but they did have to complete the activity sheets

Other than getting a daily grade for completing the worksheets, students said that they were not sure how they were graded and just "tried to pick out the most important information" for their presentations. Janet provided only general details about the presentation requirements. Students also completed their weekly index card assignment, which along with their worksheets from the first three days helped students prepare for the unit test.

George

George started the *Decision Point!*-supported unit in the classroom for the first class period and a half before moving to the computer lab for three and a half periods. During the class just prior to Day 1 of the unit, George had mentioned that students would be working in groups. He allowed students to form their own groups, but advised them to be sure to select group members with technical skills in mind. A few minutes after class started, George had recorded the group members on a notepad: eight groups of three students each. Six of the eight groups were composed of all males or females, while two of the groups had a mix of genders. George approved the groups: "OK…everybody has a group. Actually, that might work out, in that the program is divided into three areas—one per person in each group."

George spent the rest of the 50-minute class making connections between various events related to the "African-American sociocultural situation" from the 1920s to 1950s that set the stage for the Civil Rights movement. He directed students to open their textbooks and then asked a series of rapid-fire questions that students could answer using their books. The teacher moved around the room as he asked questions and added additional supporting information regarding the topics. Students also read selected passages from the text, vignettes that offered personal perspectives on African-American life during that era. George mixed the interactive discussion with textbook readings in a way that kept the students interested and involved.

The following class, George set the agenda for the day:

> Alright, here's the plan for today. We're going to wrap up what we started yesterday. I'm going to give you handouts on how to use the *Decision*

Point! program. I'll also give each group a disc with the program on it. We won't have a lot of time to do much with the instruction packet today… probably only time to look at the program.

George reviewed the major topics from the previous class by asking questions and soliciting answers from students. Again, he asked students to open their textbooks to "pick up where we left off yesterday." When two students did not have their textbooks, George turned to me and shrugged, "Most of the time we don't use this thing [the textbook]." As in the previous class, George used the textbook to draw out important events that occurred leading to the Civil Rights movement.

About halfway through the class, George handed each group a *Decision Point!* CD and gave some initial instructions. Students were responsible for turning in the CDs at the end of each class. George asked students to think about a group name and explained the purpose of a login name. He also asked each group to appoint one student as the leader of the group. George led the students to the lab without about 15 minutes left in the period.

After students settled in at a computer, George told the students, "At some point during this project, everybody will have the responsibility to drive. We're not going to have just one person driving." He instructed students to insert the CD and then login to *Decision Point!* As students followed these instructions, George walked around the lab to offer assistance. George reminded students, "Your handout, folks, has a description of the program" to help them learn how to use the software. Within a few minutes, students began playing the introductory video all at the same time. Because the sound played

through speakers instead of headphones, students began to laugh as the video played repeatedly at different stations throughout the room.

As students read through the handout to learn the major features of the software, George commented to the researcher that the goal today (a Friday) was to "just let the kids play around. Next Monday, I'll give more specific information about the assignment. I need to come up with a way to hold students accountable…I'm planning on having each student in a group pick two events from each area [strand] and be responsible for that information." While George had clearly prepared for the unit, his plan for integrating *Decision Point!* was still evolving.

The third class began in the classroom. George handed assignment packets and the CDs to each of the group leaders. After reminding all of the students to use the same computers they used in the last class, George discussed his plan.

> Having looked at it (*Decision Point!*) more and looked at our time, I don't think we're going to have time to do what I had originally planned. Each one of you…I want each of you to choose one topic out of each category [strand] and prepare something. Don't choose Brown versus Board of Education. I want you to choose something you're not familiar with. Your groups are going to present these. When you get to the lab, you need to take a few minutes working through the packet…as a group, look at it collectively. We're limited in time…so in budgeting our time, each person needs to prepare something each day.

Students arrive in the lab with about 38 minutes left in the period. As students gathered around the computers, George told a few students to move to a new location,

apparently because of some disruptive behavior. Another student was asked to put up a magazine. Five minutes after arriving in the lab, all of the students were situated in their groups. Two of the computers had their CD/DVD drives mapped to a different letter than the expected default in *Decision Point!*, forcing the students at these stations to move to another computer. Students quickly began working on their presentations and asking questions to clarify the requirements for the project.

Student: How long do each of our presentations have to be?

George: What we're looking for is a summary of this event.

A few minutes later, George addresses the whole class: "What you're doing is one presentation for each group; it's just that each one of you has a part. The title is a group title and then each of you will present either a violent, non-violent, or legal event." In most of the groups, one student worked on his/her part of the presentation with little interaction the other group members. The students not working on the presentation began to talk off-topic. How students used *Decision Point!* varied from group to group. A few used the Guides section of the notebook, but most used the General Notes or Messages sections. With a minute left in the class, George asked students to turn in their packets and discs.

A few minutes into the class on Day 4, George asked if students had any general questions about the project so far. One student asked, "How do you get to the presentation." George explained to the student to push the presentation button on the toolbar. He spent a few minutes clarifying how students should approach the presentation.

A lot of you are asking about the length. Consider a couple of things…the significance, tell us a good summary of it and then tell us why it's important. I want to see all of these before you finish to make suggestions for improvement.

Nine minutes into the class, students arrived in the lab. George reminded students to sit at the same computer as before as he distributed the assignment packets and CDs. After noticing that two discs were missing from the stack, he returned to the classroom to retrieve them. While most of the students were logging in, two groups sat waiting. After returning with the discs a few minutes later, George circled the room observing student progress. He noticed a common practice among the students:

Most of you are typing your summary in the Messages or Notes area. Since you can't copy and paste into the presentation window, I suggest that when you're finished, that you print it out and get a paper copy.

George reminded the group leaders to "make sure these guys do their part…don't do it for them." He continued moving from group to group, not staying in one place for long, mostly answering technical questions. At one point, however, he noticed a student researching the Freedom Riders. George pointed out a couple of facts about the Freedom Riders and then quickly moved to another group. Student-student interaction generally continued to be social in most groups. Occasionally, all of the members of a group would look at the screen together and comment on a picture or video.

In the latter half of the class, George approached the researcher to share that the computer lab would be available tomorrow (Wednesday) but not the following two days (Thursday and Friday). "We're going to have to get them to finish tomorrow." He

immediately turned to one of the groups to re-focus their attention: “OK, you have 21 minutes today and then tomorrow and that’s it.” George then moved from group to group to ask who had already completed their part of the presentation. Some of the students would miss the next class because of practice for a school play, so George announced that these students had priority on the computers for the rest of class today.

As students switched roles to allow others in the group to work on their part of the presentation, some repeated the question about the length of the presentation:

Student: It doesn’t have to be real long does it?

George: No, just make sure to give a good summary…add a picture, add a video…some kind of visual.

On the fifth day, students arrived a few minutes earlier than previous days, about seven minutes into the period. Students quickly started work at the computers. After a student expressed concern about some of her group members (the drama students involved in the play) not being there to help, George responded, “You’re getting graded separately on these, not as a group. So don’t worry about those that are not here, just worry about your own work.” A few minutes after arriving in the lab, one group mentioned to George that they were finished. George reminded the students to practice, to make sure that each of the members was prepared. He walked around to different groups asking “How many of you have finished in this group?” At one stop, he offered suggestions to a student for picking a topic and then reviewed the assignment requirements again. When the student asked about a certain topic, George replied, “It’s your choice; do what you want to do.”

George helped students keep track of time during this last day in the lab, announcing, “OK, you have 25 minutes,” then later “15 minutes” and then finally “OK, you’ve got about 5 minutes.” During the last half of the class, one person in each group worked at the computer while the other students did homework or chatted socially.

Students returned to the classroom for presentations on the following two days (the sixth and seventh of the unit). Presentations were displayed on a computer at the front of the room which was connected to a large television and was operated with a wireless keyboard and mouse. Three groups presented on Day 6 and three more presented on Day 7. Two groups were not observed giving their presentations.

Students focused their presentations on dates, people, and events and used pictures and videos associated with their topics. However, they provided little explanation about the media clips they displayed. George interjected during each of the presentations, to elicit additional supporting facts. For example, in the first presentation, a student pointed to a picture of President Lyndon Johnson and then talked briefly about the Civil Rights Act. He followed with a video of Alabama governor George Wallace, but offered no additional comments regarding the video.

George: Who is that, [student’s name]? (referring to Wallace)

Student: Governor Wallace.

George: George Wallace.

George: Before you go on, what did the Civil Rights Act do?

The student offered a general answer.

George: It ended segregation in public places.

Later in the presentation, a different student played a video of President John F. Kennedy.

George: Who is that, [student's name]?

George continued the same pattern of interaction in the second presentation. The first speaker began to describe the Albany Movement on the first slide.

George: Tell us who the Freedom Riders were, [student's name].

Student: I have no idea.

George: Anybody in the group…can you tell us a little about the Freedom Riders?

One of the other group members offered some additional information.

George: Do you know what state that was in?

Student: Georgia.

George: Very good.

Later, during another student's part of the presentation:

Student: We don't know what is on this video; we didn't have sound, so we couldn't hear. *The student plays the video.*

George: I can't help but be struck by the fact…that this is the 1960s and here we see a horse and buggy wagon.

The final speaker presented information on the Black Panthers.

Student: The Black Panthers came in to help, but they really didn't help.

George: Why is that?

The student provided a more detailed answer that was acceptable to George.

At the conclusion of the presentation, George asked the class if they had any questions or comments. When no one responded, George offered, "Most white Americans were very much afraid of the Black Panthers because they threatened to use violence."

The third group of the first day was less prepared than the first two. Students had problems logging in to *Decision Point!* to access their presentation. The first speaker read directly from notes printed from the program and did not have any slides in the presentation. When the student struggled in his presentation, George prompted the group, "Whoever's responsible for putting the material together, tell us what you did." The second member of the group then stood up to start his part of the slide show presentation.

When the class had ended and students were headed to their next class, George reflected on the presentations: "We all have a lot to learn from these. I've been taking notes." He listed a number of ideas for improving the unit including spending four days in the lab instead of three, requiring students to practice the presentations, making sure all computers have sound capability, and setting time requirements for the presentation (most of the presentations were less than five minutes). Later, walking down the hallway, George said, "It's clear that I should have put together a presentation to show the students what the expectations were." George talked about time being an issue but that "that's part of the gig"— a routine concern that teachers have to manage. Overall, after the first day of presentations, George was not pleased with how things were going.

Before presentations the following day, George announced to students that "we need to take a quiz to keep everyone honest." George does not mention the quiz again until the next class (Monday) when he schedules it for the last day of the unit (Tuesday).

The second day of presentations followed the same pattern as the first, with students presenting basic historical facts and displaying multimedia clips without comment. George continued asking probing questions to raise or clarify certain ideas. As George asked for volunteers to go next, he learned that some of the groups were unprepared to present.

George used 40 minutes of class time on Day 8 of the unit to review for the upcoming quiz.

> Today, I'm going to give you the notes that you're going to be quizzed on when you walk in tomorrow. You don't have all of this memorized, but you're certainly familiar with much of this after working with the interactive *Decision Point!* Let's go back to a few court cases.

George used the same interactive question/answer/discussion style that was observed in earlier classes to highlight major dates, people, organizations, and events of the Civil Rights movement. The focus was on factual information that George was concerned had not been covered during the presentations. As the bell rang that day, George ended class with, "OK, you're responsible for everything."

Before the quiz on Day 9 (see Figure 12), George gave students a handout with 14 review questions (see Figure 13) to help students prepare for the unit test.

1. Name two groups other than the NAACP that participated in the Civil Rights movement.

2. Tell me what those letters stand for that you just wrote for #1.

3. Martin Luther King, Jr. studied at Morehouse College. There, he studied a man who used non-violent methods. Who was that man?

4. That man I just asked for in #3…What country was he from? What country did he run out of his country?

5. Tell me what the Freedom Riders did. Be as specific as you can.

6. Where did most sit-ins occur?

7. Tell me what happened at Arlington National Cemetery in relationship to Hispanic civil rights movement.

8. What was happening with the Native Americans about this same time…that we talked about yesterday?

9. 1896 was a very important year. Without this, there might have been no need for the civil rights movement. Something legally happened. Tell me what it was and tell me the nickname.

10. Same question again for 1954. Name the case and what it did.

5 point bonus. Any fact not used on the quiz that you learned yesterday or learned during the *Decision Point!* presentation.

Figure 12. Oral quiz George gave to students on Day 9 of the unit.

All information begins on page 575

1. Explain what happened in October of 1960 that caused African-Americans to switch their vote from Nixon to Kennedy in the November presidential election.

2. Why wasn't a civil rights bill passed in the Kennedy administration like he had promised in the election campaign?

3. What was the day, month, and year of the March on Washington?

4. What was Lyndon Johnson's civil rights "record" like before he became president?

5. Define cloture and explain how it was used by President Johnson.

6. What last minute change was added to the Civil Rights Act of 1964 to make it harder for the bill to pass and become law?

7. Tell which two of the five titles in the Civil Rights Act of 1964 you thin are most important and WHY.

8. During the Freedom Summer of 1964, what did the KKK do (other than hold rallies) to try and stop integration and voter registration?

9. What exactly happened during the Selma March that shocked American television viewers?

10. What was the purpose of the Selma March?

11. What were the exact provisions of the Voting Rights Act of 1965.

12. What did the Twenty-fourth Amendment do?

13. List two effects of the legal landmarks (C.Rights Act, Voting Act,etc.) in the 1960s.

14. How many new African American voters registered in the South between 1960 and 1970? (See graph on page 579).

Figure 13. Unit test review sheet distributed by George on Day 9 of the unit.

Students. Students worked in groups during the *Decision Point!*-supported civil rights unit. George asked students to choose their own groups and then to select a team leader. Student leaders ensured that all members of the group participated in the assignment and were responsible each day for getting the CDs and packets at the beginning of class and returning them at the end of the period. Students

Each student in a group researched one topic out of one of the three major strands and then prepared slides in the Presentation tool for the group presentation. Students received individual grades for their part of the assignment. Perhaps because of this arrangement, students took turns at the computer to work on their part of the project with little to no collaboration or interaction in the groups. Student not working at the computer gradually began to work on other school work or socialized with other students. The school play may have been another contributing factor to the group interaction patterns. Several drama team members in George's class missed time in the lab to practice for the play. Students commented that the interruptions were distracting with "so many people in and out. My partners were not here because the play was going on." Perhaps due in part to these logistical issues, George said that if he were to do this kind of project again, he would have students complete the assignment individually.

After the unit, students said that they enjoyed having group discussions in George's class but that there "was not a lot to discuss" during this project. Students acknowledged that they did most of the work on their own with little assistance from other group members. Still, one student pointed out that their role was different during this unit: "Well, one thing I liked was we had more control of what you are learning. We

got to choose what we were talking about. We don't get to do a lot of presentations like this."

Teacher role. George started and ended the unit with a more traditional teaching style including lecture/discussion, in class textbook readings, and worksheets. In the middle of the unit he also allowed students to work on a more open-ended assignment with *Decision Point!*: "I pretty much just let the kids handle it….it turned out not to be a problem actually, but I would do some things differently." George admitted struggling to develop a concrete plan for the unit and to understand how students might use the software.

> It was a positive experience overall, but it had some stress too, because I did not really prepare the way I should have and going in not knowing the program and not really having done my homework the way I needed to. You get better every year, though. Next time you put things in there you didn't before.

In the computer lab, George spent much of his time answering technical questions about the software, clarifying requirements for the assignment, and monitoring student progress. As the week progressed, George became more concerned with time management and making sure that each student would be able to finish their part of the presentation by the end of the last scheduled lab day.

Content. George and his students both made positive comments about the amount of content, in particular the multimedia clips, available in *Decision Point!* The software provided "new information" that students would not normally encounter, according to George. Students commented that *Decision Point!* made it easier to access content

compared to other resources: “We usually have to go on the Internet to do research, which sometimes it’s hard to find what you’re looking for.”

George said that students learned differently during this unit not so much because the process was different but primarily because of the visual media available. “[The students] are so visually oriented and the audio, the music, I think all that made a big difference. That is just the nature of the kids.”

Students agreed that the visual nature of *Decision Point!* made the unit interesting but at least one student also thought that his learning experience was improved as a result.

> I think I probably learned more like this. The program gave you more specific information than you usually get. You can watch videos, which makes it more personal. There’s more activity than just discussions and book work. I think maybe it helps you make better neurological connections…I don’t know.

Use of computers. Although students enjoyed using *Decision Point!*, they primarily used the program for lower-level type activities. Students complained that they could not copy and paste information and that it took a lot of time to type their presentation text. Of the six students in the focus group interview, one used the Guides tool while the others used the general notes to collect information. George provided only general directions for students on this assignment and, so, most students focused on gathering cursory information about their topics.

George felt uncomfortable with *Decision Point!* and, therefore, felt that he was unprepared to assist students.

> The biggest challenge for me was I did not know how to operate the program well enough to walk around and show the kids. I think it is a good thing for me to practice so that I know how to do it also. When they got hung up, I just didn't have that computer knowledge to rely on. I'm just not as knowledgeable as I should be.

George indicated that if he were to attempt the unit again, he would probably add another week to the unit, primarily to give students more time to get comfortable with *Decision Point!* Students agreed that they would like to have had at least a full class period to become familiar with the software.

Students complained that the computer lab was too small and that they would prefer to have computers in the classroom for easier access. Space in the computer lab was limited, with narrow aisles between the computer tables. At times, George had trouble getting past students to move from one side of the lab to another. George also commented that he would like to have more computers to accommodate each student working on their own project.

> You've got to have more computers; that would be the first thing, I would have to have more computers. I would have to if I were doing this project with them and I were doing one kid per computer. Right now, I would have to break the classes in half and have to stagger what they are doing so that I can get half of them in here because there is just not enough computers in the computer lab.

Assessment. Although the group presentations represented the major component of assessment for this unit, George described several grades that students received during the unit.

> I looked at their notes, their printed out information. I looked to see who knew what they were talking about basically. I also looked at whether or not they operated the software and knew how to operate the slides even though they read off their screen. And then an overall feel for their effort. I looked at who did what when they were in the lab…whether they were socializing or working. I gave that three class work grades. So I have test, homework, class work, and three daily grades in that. If I did it again, it [the research presentation] would be for a test grade.

Both George and his students mentioned that the directions for the assignment were not clear. Students asked numerous questions in the lab about the requirements and indicated in the post-unit interview that they "couldn't understand how to do the assignment." George recognized that students struggled to understand the assignment and offered several ideas for making improvements.

> I know what I would do differently and that would be to put more requirements into the criteria that their presentation had to have in it. I would probably require them to have a notebook and a certain number of stills or video. I think actually, if I had a preference, I would not group them at all. I would have each do one of their one. It might not be a bad idea for them to write a report, in depth. I could have them do a report on

the civil rights movement incorporating all three of the strands and how they interrelate into their report.

I think the assignment should be printed out and given to them in a handout. Another thing is examples…I should probably provide sample projects for them to look at to get an idea of what I'm looking for.

George also discussed the need to help students prepare to speak in groups and to gain basic technology skills related to preparing a research paper and presentation, skills that were unaddressed in this unit. As students struggled at times during the presentations, George asked questions to elicit more detailed information or to help students make a connection between topics.

Besides the group presentations, students also took a quiz and a unit test related to the civil rights movement. After the student presentations, George took a full class period to review content to prepare students for the quiz. He reported that student scores on the unit test were comparable to what he would typically see in a traditionally taught unit, even for typically poorer performing students who might have been thought to do better on this type of assignment.

Yeah, it's probably about the same. Really, I think the ones who don't normally do well…I didn't really see much difference.

Jack

The *Decision Point!*-supported unit in Jack's class involved only a group of four students. The other students in the class read their textbook, heard lectures, and completed other traditional activities as part of the larger unit on *Post War U.S.: 1945 to the Early 1970s*. They were also responsible for material covered in the *Decision Point!* group's Civil Rights presentation. Project groups were formed earlier in the grading period and students had already begun researching for their project prior to the Phase I observations. Jack had previously given students a detailed handout that outlined the requirements for the project (see Figure 14).

The pattern of instruction observed during this unit was similar to that described in Phase I earlier in this chapter. The initial class on the Civil Rights movement started with students completing reading study guides related to a textbook reading assignment. Several minutes into the class, Jack lectured for 30 minutes tracing the roots of the civil rights movement from the 1875 Civil Rights Act through major events in the 1950s and 1960s. Jack asked numerous questions throughout the lecture, mostly of the declarative knowledge variety, but also several interpretation questions. For example, Jack described a well-known video clip of an African-American man who says "I ain't getting' on 'til Jim Crow gets off" then asked the class, "What did she mean by that?"

At another point during the lecture, Jack asked a specific student a question.

Student: I don't know.

Jack: Think about it.

Jack paused for a few seconds before rephrasing the question and adding some additional information—enough to allow the student to answer the question. "See, you did know it; good job," Jack approved.

After the lecture, Jack summarized the schedule for the remainder of the week and then instructed students to get in their groups to work on their unit projects. The *Decision Point!* group gathered around two adjacent computers along one wall while the other groups pulled together desks in a circle or walked around the room to look at different reference materials. Students in the *Decision Point!* group worked in pairs on either of the two computers. One pair opened their PowerPoint slide show and worked for several minutes trying to incorporate a sound file they had found on the Internet. The other pair browsed the Internet for related information and copied information to a notebook.

The students worked with *Decision Point!* only in a limited fashion, primarily as just another resource like they might use a multimedia encyclopedia. In most cases, the students used the software to locate supporting files (primarily pictures and videos) to support an idea they had for their presentation. Prior to the unit, Jack created a separate CD for the students that contained all of the pictures and videos from the *Decision Point!* disc. Jack said he did this just in case the students thought it was easier to extract the media this way, rather than navigating through all of the screens in the software.

Jack moved from one project group to another, but had only minimal interaction with the students while they worked at the computers. These students had already completed a similar project in the previous grading period and were familiar with Jack's expectations. One of the students occasionally asked Jack for assistance with performing a technical task in PowerPoint or with other technology such as a DVD player. Jack

checked on the group later in the class and reminded the students, “I’d like to see History Then and Now. Also, I would like to see maps and charts and things like that.” Jack quietly watched as the students intently discussed what information to include on a particular PowerPoint slide.

Group Presentations

1. All members of the group should work equally on group project.
2. Elect a group leader; pick someone that will see that work is done on time and that all requirements are met.
3. This is a research project not a copy the information out of the book project. There should be research on the chapter that is assigned to the group. Each group member should be assigned a job and the information should be compiled in a group notebook.
4. If a group member is not doing their assigned job within the group this should be brought to the attention of the teacher. **Do not wait until the day of the presentation or after the presentation.** This should be reported to the teacher in a timely manner so that action can be taken and the group grade does not suffer.
5. Everyone should participate in the presentation; use each individual’s skills for the betterment on the presentation.
6. PowerPoint presentations should be turned in the day before the presentation there will be a 10-point deduction if this deadline is not met.
7. A hard copy of the presentation is due the day of the presentation and should be handed in before the presentation begins.
8. Sources should be given for information used and footnotes or notations should appear in the hard copy text to reference sources.
9. Only one encyclopedia can be used for a source, information should come from research, Internet, books, periodicals, etc.
10. Group presentation due dates are given well in advance; if there is a conflict on a presentation date it is the students responsibility to contact the teacher. If a student does not show up for the presentation they will receive a grade of zero for their part in the presentation unless arrangements are made with the teacher.
11. Things that should be included in the presentation:

1. Charts and grafts.
2. Comparison of history then and now.
3. Videos, graphics, and sound clips.
4. Videos can include student made commercials and skits.
5. Questions about the presentation that will be asked at the end of the presentation.

Group Presentation Evaluations

Group presentations are group projects and will be graded accordingly.

I don't want to hear I did my part I should get an "A". The objective of the group project to learn to work together, it is not an individual project!!!!!!! Grades will be determined by:

1. Following instructions on what is to be presented.
2. The quality of research and hard copy that is turned in.
3. Quality of oral presentation, speaking ability, eye contact, graphics, etc.
4. How well group members work together.
5. Where things done in a timely manner or was presentation thrown together at the last minute.
6. Where the questions that were asked covered in the presentation and were they answered correctly?

Individual Notebooks

Individual student notebooks will include information from reading guides, notes taken from the book, and classroom notes. The first page will be an assignment sheet, which must be kept up to date. The second page will be a grade sheet where you will be responsible for keeping a record of all of your grades. The third page will be goals and objectives, followed by reading guides, and notes. The notes will be divided into sections, to correspond with the sections in each chapter. Notes will be done neatly or typed. I cannot grade what I can't read.

Figure 14. Group presentation requirements in Jack's class.

On presentation day, within a few minutes of the class bell, the presenting students had started the PowerPoint slide show and distributed a "Class Guide" handout,

which contained a list of ten questions. The presentation lasted for most of the class—just under one hour. The first speaker began shortly after the handouts were distributed:

Student: "OK, my name is _____."

Jack: "Never, never, never, never start with 'OK'."

The PowerPoint slide show served as an organizer for the students' presentation. The students were prepared and talked about information related to the slides rather than reading text from the screen. All four of the students presented. At several points during the presentation, the students switched from PowerPoint to show a digital video clips in a separate media player (four clips from *Decision Point!*), to show VHS videotapes (twice), to play streamed music files from the Internet (twice), and to play a student-made skit (titled "Anti-negro Shopping Network") from a video camera that was also connected to the LCD projector. The transitions between PowerPoint and the other multimedia tools were well coordinated and resulted in only minimal lost time.

The students took on multiple roles during the presentation. While one student spoke about Martin Luther King, Jr., another member of the group distributed a timeline of key events in the life of Dr. King, all while a third member ran the slide show from the computer. At another point in the presentation, two students presented a "Then & Now" poster on school segregation. One student read a "then" description while the other student countered with a related "now" depiction. The students alternated reading the now and then items listed on the poster while the computer driver switched to different pictures related to the topic.

At the end of the presentation, one of the student presenters reviewed the ten questions from the handout distributed at the beginning of the class, and then asked the

student audience if they had any questions about the presentation. One student asked about the Civil Rights Act of 1964. After the student presenter answered the question making some distinctions between the 1964 and 1968 acts, Jack added, "It's very important you know the difference between those two, 1964, 1968." Otherwise during the presentation, Jack inserted only a few comments. He commented later that this was one of his stronger groups and that he didn't have to "get involved" as much as he did with the earlier group (during a Phase 1 observation).

When the students concluded, Jack resumed the role of class leader: "Let's do a quick critique." He called on students to make comments first before he added his own critique. Jack mentioned that the "good aspects of the presentation" were that the students did a good job of organizing the content, had a good PowerPoint, and that there was evidence that they had practiced. He also mentioned a couple of "areas for improvement," specifically that students had pulled some information directly from the book and that the information on the PowerPoint slides did not always synchronize with the narration.

Students. Since this unit occurred in the second grading period of the year, these students had already completed a similar technology-supported project. Students saw this project as part of the normal routine in Jack's class. Students worked in groups to research a topic related to the curriculum and then designed a related presentation. Jack encouraged students to start with the textbook to generate ideas, specifically related to questions the textbook did not address. Students used numerous resources for their research, including classroom reference books, the Internet, and the library.

Students took on the role of teachers during the presentations. Jack pushed the students to develop posters, handouts, and even their own videos to help illustrate major themes or topics. Students also developed questions to ask the student audience at the end of their presentations. After the unit Jack said, "Presentation and research skills are so important. These are real world skills. The way we do it, they learn from their peers." However, one student offered an alternative perspective: "I think I learned a lot out of my section. I didn't pay attention to the other sections. I can't tell you what their sections are about."

Students commented about the amount of hard work expected in this class, but also took pride in their final product.

> You are expected to go above and beyond. I think this is an immense amount of responsibility and there's no way this would work for the junior project. It's stressful and it took a lot of time...twice as much time as any other class. I think everyone can see the time and the work we put into this.

During the interviews after the unit, another student commented that one of the benefits of doing the presentations was that she learned what interested people and what would hold their attention. She commented that Jack helped students to "really learn"—more than just basic content but also "how to do a project."

Teacher role. Because of the way Jack implemented *Decision Point!*—with students using it primarily as a resource—his role in the classroom did not significantly change. Jack was very much a classroom manager, moving from group to group to check on and to offer feedback about their progress. He challenged students to work hard to

meet the high expectations he had for them. Jack guided students in the research and presentation preparation processes, offering suggestions to improve the students' products before the presentation was complete.

Content. Jack lectured for about a third of each class during the civil rights part of the unit. Lectures included basic facts about the period, but also emphasized causal or relational links between major events. This emphasis on *understanding* versus basic *knowledge* continued as Jack guided students in the research process, encouraging them to think about recurring themes (with the Then and Now requirement) and about why historical events occurred the way they did. Jack encouraged students to use a variety of sources, but emphasized primary sources when available. Access to primary sources was one of the major benefits of *Decision Point!* according to Jack.

Use of computers. Computers remained a central component of the classroom learning environment as Jack implemented *Decision Point!* However, despite the fact that *Decision Point!* included critical thinking tools to guide analysis of historical data and to promote reflection, Jack used the software as a resource for students to obtain some content, but primarily multimedia clips for their presentations. Jack said that, in general, computers provided students with "more tools to do the things they need to do" and that they helped keep students on task.

Assessment. Jack used the same grading criteria that he distributed to students at the beginning of the school year. For this particular assignment, Jack considered several elements in assessment.

> They had to turn in a hard copy of their research. We did footnotes and I would periodically check them to see what they're doing. So, I looked at

> their written copy and then how they did the PowerPoint. How they typed it, organized it, their references, and how presentable it was. Appearances are important. I tell students to make sure they cover the objectives [from the state course of study]. Then I look for things like maps, charts, graphs, and the 'history then and now' they're supposed to do. I want them to personalize it and not just copy something from a book or the Internet.

Jack viewed the presentations themselves as part of the learning process—critiquing students at times and asking for clarifications or pointing out related facts at others.

Summary

Teachers used varying strategies for implementing *Decision Point!* to support a unit of instruction. Four of the teachers, all but Jack, made the software an integral component of the unit. However, Janet stated that she would be more likely to use *Decision Point!* in a supplemental way if she were to use it again. These teachers directed students to explore *Decision Point!* as part of a research-based assignment. This format represented a change in their normal teaching style, although none of these teachers made significant use of the student-centered cognitive tools available in the program. The teacher most successful at implementing student-centered practice in his routine practice, Jack, asked one group of students to use the software as a supplement to other resources in preparation of their research presentation. Thus, students in that class used the software significantly less than students in the other classes. Jack did not adapt a different strategy than he normally would use, but rather adapted the software to fit his preferred methods.

How students worked with the software varied widely. Chet's students worked individually on their own research project. Janet paired students to work on the activities assigned in her unit. Brian, George, and Jack had their students work in groups of three or more with George and Jack allowing students to form their own groups. Collaboration between students was greatest in Jack's class partly because the students had more rigorous requirements and had to work together to produce a well-coordinated presentation. Students in George's class, even though in groups, effectively worked individually as they took turns at the computer working only on their part of the presentation.

Epistemological Dimensions Compared to Implementation Strategies

Howard, McGee, Schwartz, and Purcell (2000) compared traditional and student-centered learning environments in relationship to the four Schommer (1990) dimensions of epistemological beliefs (see Table 3, chapter 2). This section describes analysis of the strategies teachers used to implement *Decision Point!* in this study examined against the framework of Howard, et al.

Simple Knowledge

In the Simple dimension, teachers regularly define concepts, generally through lecture, and expect students to memorize those facts. In the Complex dimension, students regularly examine complex knowledge and draw their own conclusions, often facilitated through small-group discussions.

Chet was the only teacher who held more naïve/objectivist beliefs on the Simple Knowledge factor (based on a factor score higher than the median). Although the large majority of time in this unit occurred in the computer lab with students working on research assignments, the emphasis of the assignment was on collecting facts. Students worked alone and rarely interacted during the unit. Chet's practice during the *Decision Point*! unit corresponded with simpler conceptions about knowledge acquisition.

Of the other four teachers, only Jack clearly exhibited teaching practices during the unit that matched his score on the simple domain. He guided students to go beyond low-level knowledge to try and make sense of historical themes. Brian, Janet, and George—in between Chet and Jack on this continuum but all on the more sophisticated side—gave little guidance to students on their research presentations (perhaps with the belief that this represented an appropriate open-ended approach) but tended to direct student focus on collecting historical facts. For example, Janet provided handouts to students that directed them to answer specific questions about teacher-determined topics, a clearly more objectivist approach. Interestingly, during the unit George, despite having the second lowest factor score on this dimension, exhibited more traditional, transmissionist characteristics (as compared to the pre-unit observations), with more lecture and an emphasis on covering teacher-defined content. Brian, with the second highest (more objectivist) factor and overall scores exhibited less control over content coverage than George.

Certain Knowledge

In the Certain dimension, students would be expected to learn concepts as they are presented and be penalized for misconceptions. A typical learning pattern based in the Tentative dimension would include students developing alternative conceptions through the creation and testing of knowledge models.

Only George had a factor score below the median on this factor, indicating more sophisticated/constructivist views on the certainty of knowledge. The other teachers' scores were either at (Chet) or above the median (Brian, Janet, and Jack). During pre-implementation observations, George was observed leading class discussions in which he sought students' conceptions of the topic being discussed. Additionally, this view was illustrated again during a quiz when George encouraged students to "…just tell me something, anything you remember…" on a particular question. During the civil rights unit, however, George used the textbook more than usual (according to George and the students) during lectures. In the computer lab, students generally took turns at the computer and had very little discussion about the content of their research. Students stuck to basic facts and made few interpretations or even tentative connections between topics. Despite having the lowest factor score on this dimension, George's practice during this unit tended to be more objectivist. Janet, with the highest score on this factor (tied with Brian), exhibited practices that matched an objectivist view on the certainty of knowledge. Janet led students to focus on specific concepts and knowledge with the daily handouts. Chet and Brian gave students freedom to select and develop their own research presentation, but offered little guidance to students in terms of analyzing historical events and knowledge. Only George and Jack explicitly challenged students to support

alternative conceptions with evidence and reason. While Jack held a slightly more objectivist view on this dimension, students in his class were encouraged the most and were given the most opportunities to develop alternative conceptions of historical knowledge.

Fixed Ability

Rooted in the Innate dimension, teachers believe that students understand only according to their level or ability and group students accordingly. In the Acquired dimension, teachers believe that students can learn to learn and that learning is process-oriented.

All five teachers held more sophisticated/constructivist beliefs about knowledge and the ability to acquire it, with Chet and Brian falling closest to the median. None of the teachers grouped students by ability, although Chet did choose his Advanced Placement government class for the study because he felt that those students were more capable of doing advanced work such as a research project. Jack and George specifically suggested to students that they choose at least one group member with good computer skills.

Quick Learning

This dimension ranged from Quick beliefs, in which students are thought to learn best from well-designed curricular materials and presentations, to Gradual beliefs that students learn by discovering through experience and through interaction with ill-structured problems.

Again, Chet was the only teacher of the five that held a more naïve/objectivist view on this epistemological factor. Janet and Jack held the most sophisticated beliefs in this area according to the Schommer EQ. However, in their *Decision Point!*-supported implementations, Janet and Jack followed almost opposite strategies while the other three teachers fell somewhere in between. Janet used the first three days of the unit to direct students to specific documents in *Decision Point!* to locate answers to well-defined questions. Jack used a more open-ended approach, giving his students only general parameters for developing their research presentation. Janet did gradually move to more open-ended assignments as the unit progressed. All of the students in the study took on a more active role and learned more through self-discovery than they would with a more traditional approach. Jack's students produced the most sophisticated research projects, while in the other classes students faced mostly practical problems related to locating, re-organizing, and presenting basic factual content.

Influence of Teacher Conceptions of History on Instructional Strategies

Teacher conceptions of history were inferred through analysis of Phase 1 and 2 data, with a particular focus on insights into each teacher's purpose of education, purpose for learning about history, teaching philosophy, and general teaching style. Evans' (1989) typology categorizing teachers as storytellers, scientific historians, relativist/reformers, cosmic philosphers, or electics, along with Levstik and Barton's (2001) four historical stances—identification, rationalistic, exhibition, and moral response—provided a framework for analyzing teachers' conceptions of history.

While all of the teachers described various conceptions of history and used multiple teaching strategies, Chet and Janet were the most diverse and, thus, were viewed as eclectic. These teachers cited maintaining student interest as a primary reason for the use of multiple approaches in the classroom and gave other practical reasons for the study of history in general. Overall, Brian exhibited dominant characteristics of a storyteller with a focus on making a quest for knowledge an explicit goal for his students. Lectures and textbook readings were the prominent instructional strategies used which indicated a focus on the transmission of historical facts. In the few observations when Brian used historical sources in a lesson, inquiry-based analysis of those documents was limited or non-existent. For example, when a video on the holocaust was used in a lesson, Brian made no attempt to analyze the events in the video or to connect the content to other events. The video seemed to provide just another way to relate stories to the students.

George clearly identified most with the relativist/reformer type. In describing his general teaching style and goals for his students, he gave two related quotes:

> *(1) We talk a lot in this class. How do [the students] feel? We talk about the past in terms of changing the present and how the past is…uhm, is it any different from today."*
>
> *(2) I hope they learn that history is not boring and that, no matter what, there is something useful you can apply today.*

Specifically on student projects, a major component of his classes, Jack emphasized analysis and interpretation of historical events for the purpose of linking them to current issues. Although he also exhibited characteristics of other types, the

emphasis on analysis for the purpose of understanding history relates more the perspective of a scientific historian.

Teachers' historical conceptions and practice were also viewed using the four historical stances described by Levstik and Barton (2001). Clearly, the exhibition stance dominated all of the classes as the teachers emphasized the importance of preparing students for the state's standardized exams. Students were expected to demonstrate their knowledge of discrete historical facts on objective tests and in other assignments. Chet described one assignment, a flag project, in which the focus was on student creativity in how the project was constructed and made no mention of what historical lessons students learned through the process. George held more of a moral response stance than the other teachers, particularly during a lesson on lynchings and the African-American situation leading up to the civil rights movement. It was unclear whether this was a dominant trait, though, or simply related to the topic and the fact that the majority of his students were African-American. Jack's classes also were indicative of the rationalistic, or analytic, stance. Jack routinely reminded students to go beyond the facts and make connections between topics or time periods.

The way the teachers, with the exception of Jack, implemented *Decision Point*! reflected even a greater emphasis on the exhibition aspect of historical study than previously observed. Jack's class also emphasized exhibition, but that was not the most important purpose. For the other teachers, the general emphasis of the units was to use *Decision Point*! to collect historical artifacts for display during presentations. For Brian, and possibly for others, the software provided another way to transmit the stories of history, just in a different and possibly more interesting way. George failed to take

advantage of the myriad opportunities available in *Decision Point*! to explore moral issues. Despite the fact that the software included tools specifically designed for deeper inquiry of historical issues and topics, teachers largely ignored these process-oriented tools in favor of the product-oriented presentation tool. Given the general content-oriented focus in these classrooms, these decisions should not have been a surprise.

Barriers and Facilitating Factors

Data were analyzed to identify factors that either inhibited or promoted the use of *Decision Point!* in a more student-centered manner or that would possibly affect integration of instructional software. Analysis was not limited to the implementation strategies used in this study but also included items identified in the pre and post interviews.

Barriers

Established teaching practice. Teachers suggested that one barrier to effectively integrating instructional technology is an unwillingness to change established teaching practices. According to Brian and Janet, teachers tend to settle into a routine as they gain experience and become more unwilling to change their practice once it is established.

> Brian: One thing I think teachers get kind of, you know, stuck in doing things a certain way. If you've taught a certain way for five years, that's the way, you know, a lot of teachers might try something different. But if you taught that way for 15 or 20 years, you can just about forget it. And so, you know, teachers like we have today that are over, they might be 40

or so years or older, you know, they're going to teach their established way and forget it…most are.

Janet: Well, I think a lot of times many of the teachers are just happy. They don't want to incorporate new things in their classroom, because a lot of them have taught for many years, and they will not change their way of thinking. They don't get out of their comfort zone a lot.

State standards/testing. All five of the teachers in this study cited state standards and standardized tests as one of the most significant influences on their curriculum. This factor seemed to impact teachers' thinking about student-centered learning in at least two different ways. First, Chet was concerned about devoting significant time to any particular topic. "You are really pressed for time and there are 26 subjects to cover. If you give up a week for one topic it better be a good topic." Secondly, teachers who use a program such as *Decision Point!* in an instructional unit may be overly concerned with still covering a certain amount of content in a given period of time. George agreed that meeting state standards and "keeping test scores above the alert level" was the "number one priority, for [his] school" and expressed frustration with that condition: "All that [testing] comes from politicians and it has nothing to do with educating these kids."

These first two barriers, established teaching practice and focus on standardized testing, are directly related to the first two barriers identified by Onosko (1991): instruction as knowledge transmission and a curriculum of coverage. These related barriers inhibited the use of strategies that would encourage or emphasize higher order thinking by students.

Access to computer resources. Although each of the schools in this study would fall in the upper half of large schools in Alabama, teachers cited lack of hardware and software resources as a concern. Brian, in particular, blamed a lack of resources as a reason that he arranged for students to use computers no more than once per grading period. Janet described a similar situation at her school, citing a lack of quality instructional social studies software. She, along with George and Jack, indicated that funding issues prevented teachers from obtaining classroom software. "We had 118 dollars per person to spend on technology, but the bad thing is unless you combine it you can't get anything big."

All of the teachers said they would like to have had additional computers that were easily accessible—preferably in the classroom.

> Chet: I wish we could use, I wish we could use the computer a lot more in the classroom. We just don't have it. I mean, first thing, you don't have the money, you don't have the space, you don't have the outlets.

Janet mentioned that scheduling the computer lab at times to fit her class schedule was often a problem. George had a similar problem at his school, but also noted that a shortage of computers in the computer lab would be prohibitive for certain student work patterns.

> I would have to have more computers. I would have to if I were doing this project [a *Decision Point!*-type unit] with them and I were doing one kid per computer. I would have to break the classes in half and I am going to have to stagger what they are doing so that I can get half of them in here because there is just not enough computers.

Effective methods. Brian, Janet, and George expressed a desire to know how other teachers had implemented *Decision Point!* More generally, Brian said it would be helpful to have greater access to emerging methods for how to effectively integrate social studies software.

Time. Of the barriers identified in this analysis, time issues were perhaps the most prominent for the teachers and students. Onosko (1991) identified "lack of planning time" as a barrier to promoting higher order thinking instruction. Similarly, Ely (1999) identified "availability of time" as a requisite condition for successful educational innovation. In this study, there were several categories of time issues that either presented problems or were identified as potentially inhibiting effective integration. Brian indicated that preparation time for his *Decision Point!*-supported unit was longer than for a more traditional unit. However, he did point out that he spent less time preparing for class once the unit started and that overall the work was "spread out" differently. George and Janet mentioned that they ran out of time in planning and did not feel as prepared as they would have liked starting the unit. However, George commented that time issues were just "part of the gig" for teachers and said that he would be better prepared in the future. Interestingly, George mentioned that grading projects such as research presentations would save him time, because he could grade them on the spot as opposed to taking written papers home and grading them in his personal time.

During the units, teachers and students encountered a number of other time-related issues. Even though Janet's classes lasted 95 minutes—second only to Chet's 96 minutes—she commented several times about how "[t]ime flies in the lab." George had the shortest amount of time in each class (50 minutes) and lost approximately ten minutes

per period for administrative tasks such as walking to the lab and distributing the CDs and related project packets. He also expressed concern over students being able to complete their work in the time scheduled in the lab. Brian said that the time commitment required for the *Decision Point!*-supported unit would be a factor in planning future projects.

> Time is a big factor, because we have to cover so much in such a limited amount of time over the course of the year. It is very difficult, like I said before, to go that long….Time was a big factor. You have to think, 'What can they produce that can be graded in that three days, two days for that period of time?'

Some students in the study commented that they did not have enough time to complete the project. In particular, one student in Brian's class said, "I would suggest having more time to do the project. I felt rushed and felt I could have done more research." One of Jack's students said that her research assignment took "twice as much time as any other class" and that she could not imagine having similar assignments in other classes running simultaneously.

Computer skills. All of the teachers except for Jack mentioned lack of computer skills in general, or lack of knowledge of *Decision Point!* in particular as problems during their implementation of the software. For example, Chet expressed concerns that he could not help students in the initial stages of the unit. "Early on, I guess learning how to get around it [*Decision Point!*]. Learning what all the menus were and getting place to place. And then we had [other] computer problems [with getting *Decision Point!* to run on some computers]. Brian and George suggested that they would need to take more time at the

beginning of the unit to help students become more familiar with the software. Similarly, Janet felt that students lacked confidence with the program early in the unit.

Related to computer skills, Janet and George indicated that lack of quality training opportunities was an issue at their schools. George, in particular, expressed frustration with his school system.

> They don't train us. They will not train me on my time, but if I want to learn it on my own in the summer or after school, then that's fine. But I pay my own transportation to the workshop.

Lack of computer skills may have been exacerbated by the unspoken belief that the teachers had to figure out how to use and implement *Decision Point!* on their own. In this study, only Janet mentioned or was observed discussing strategies with another teacher or staff. This related barrier of working in isolation (Onosko, 1991) may have prevented teachers from advancing their skills and abilities to effectively use technology to support learning.

Facilitators

Student learning benefits. Every teacher noted a belief that multimedia-rich instructional software, such as *Decision Point!*, could help improve learning opportunities for some students. Brian and Janet, for example, suggested that some students were "visual learners" or aural learners and would benefit from viewing and/or hearing the media clips. In general, the teachers recognized that computers were more fun for students and could help motivate and maintain their interest in learning. Students in

Brian's and Jack's classes stated that they took pride in their projects and worked harder to make a quality product.

Quality software/resources. Although teachers considered a lack of quality software a barrier, teachers also commented that they would consider using a good program if it were available.

Support from administrators. Jack was the only teacher who felt like his school's administrators did not encourage teachers to attempt new teaching strategies or to pursue technology-related innovations. The other four teachers all commented that their principal and/or other administrators encouraged them to try new methods.

Age/skill level of students. Teachers and students both suggested that project-oriented, technology-supported assignments were best suited for higher grades or for advanced ability students. Chet, in particular, chose to use *Decision Point!* with his advanced placement Government class for this reason.

> I like the government [AP course] the best because…well you know, of course, you've got accelerated students and, and to me it's, it's a whole lot more fun to teach it; you can draw on a lot more things….You can do a lot more things, a lot more accelerated things with the government kids because they are almost in college and, and they're, you know, practicing to be in college, and you can give them some more accelerated type learning.

Teacher Attitudes Regarding the Use of Decision Point!

Each of the teachers expressed moderate (Jack) to strongly positive attitudes (all others) about *Decision Point!*, with each teacher saying that they would likely use the software again given the opportunity. Teachers expressed more positive comments about the video and audio clips than any other feature of *Decision Point!* Another positive the teachers mentioned was the access to well-organized content, including primary sources, about the civil rights movement. The large majority of negative comments about *Decision Point!* were confined to technical issues such as installation problems, transferring notebooks from one computer to another, and other minor user interface annoyances.

Regarding the teaching-learning process, teachers were mixed on how much *Decision Point!* affected student learning about the civil rights movement. All of the teachers commented that their students seemed to enjoy the experience of learning using technology, mainly because they thought it was "more entertaining" and therefore more motivating for students. For example, Brian said in the post-unit interview, "I think the kids enjoyed it, probably not very surprisingly. They got into it a little bit more than I thought. Well, most of them did. They engaged a little bit more then I thought they would." George reported that students performed about as well on the unit test as he would expect normally, but did not believe that students learned more or better during this unit.

Brian and Chet both commented favorably about the opportunity to use an instructional method for this unit different than their normal practice. Brian enjoyed his role of "guide" and "leader" as opposed to lecturer. Brian, George, and Janet all reported

difficulties in planning for the unit—primarily about the uneasiness of how students should use the software—and all had suggestions for changing the unit if they were to use *Decision Point!* again. One of the major planning issues was that of time, as described earlier in this chapter.

All five teachers liked the idea of having students develop a research-based presentation, citing the more active role students have to take in such assignments. All of the teachers except for George were generally pleased with the student performance on the presentations and, in the case of Chet and Brian, essays. All of the teachers except for Jack, however, seemed uncomfortable with or unsure about developing requirements as well as grading criteria for the assignment. Brian, Janet, and George confirmed this uncertainty in the post-unit interviews, but all agreed that this was a learning experience and shared ideas on how to improve future projects.

None of the teachers in the study asked their students to use the embedded tools for reflection and guided historical inquiry, therefore, data were unavailable to address attitudes about these tools.

V. DISCUSSION

The purpose of this study was to examine how social studies teachers implemented instructional software that had been explicitly designed for student-centered activities. Five social studies teachers participated in this study, four of them with their 11th grade American History classes and the other with a senior year Advanced Placement (AP) government class. Of particular interest was the role that the teachers' epistemologies, or beliefs about knowledge and how knowledge is acquired, played in their implementation strategies. Secondarily, the study also explored barriers to and facilitating factors for integrating the *Decision Point!* software or similar technology, whether the teachers used the software in an integrated or supplemental manner, and teacher attitudes related to the use of the software to support instruction. This chapter offers discussion of the results as they relate to each of the research questions addressed in this study.

Research Question 1

How did teachers' espoused beliefs about teaching and learning relate to their use of student-centered instructional software (Decision Point!) to support instructional activities?

Prior research on teacher beliefs and technology integration (c.f., Becker, 1991b; Cuban, 1986; Tobin & Dawson, 1992) supported the notion that teachers who held more

objectivist beliefs would use *Decision Point!* in a more traditional, transmission-oriented manner. However, mixed research results left unclear whether to expect that teachers who held more constructivist beliefs would implement *Decision Point!* in a manner consistent with those beliefs. In this study, one teacher (Chet) was identified as holding more objectivist beliefs while the other four were identified as holding more constructivist beliefs. The two teachers on the far ends of the continuum—Chet (objectivist) and Jack (constructivist)—were the only ones whose practice closely matched their espoused views. The three teachers in the middle (Brian, Janet, and George) exhibited more teacher-centered, transmission-oriented strategies than student-centered, even though their Schommer EQ scores indicated that they held more constructivist beliefs.

Although it was not surprising that Chet arranged for students to use *Decision Point!* in a content transmission-oriented manner (students transferred content to the notebook and then to the presentation tool and then presented the content to the class), it was somewhat unexpected that the student work in Brian's, Janet's, and George's classes would differ so little from Chet's. Certainly, the *Decision Point!*-supported units were different for these teachers and students as compared to normal practices. For example, the teachers lectured less than normal and students suggested that they were in more control during these units. Yet, the learning environments of these three teachers identified as holding more constructivist views by the Schommer EQ were marked by few, if any, of the student-centered characteristics described by Hannafin, Hill, and Land (1997) among others. Of these four teachers, only Jack implemented student-centered practices in any significant way (although his use of *Decision Point!* was limited).

Kagan (1992) posited that "teachers' beliefs usually reflect the actual instructional strategies teachers implement in the classroom." However, the results of this study seem to support the research of Laurenson (1995) who found in a study of math educators that teacher beliefs and teacher practice do not always match. The results of this study indicated that teachers faced a myriad of challenges that may have conflicted with or took priority over teachers' core beliefs. One of the most powerful factors in how teachers implemented *Decision Point!* appeared to be the influence of established teaching practice. Four of these teachers (all except Jack) were attempting to integrate technology in a significant way for the first time. Without previous experience in such a task, the teachers either adopted a strategy that was intuitive to them or imitative of tried and true traditional practices. For example, Janet provided students with worksheets to ensure that specific teacher-selected content was covered. Slekar (1998) described this act as "reflexive conservatism" and suggested that intentional reflection on such practices was essential to change them.

It is possible that the Schommer EQ instrument was inadequate at identifying the teachers' true beliefs. However, it seems more likely that the complexity of considering how to use instructional software in a student-centered way for the first time led to several "dilemmas" similar to those described by Windschitl (2002). While teachers were not specifically asked to implement *Decision Point!* in a student-centered unit of practice, all attempted to do so at least to some degree. Trying to negotiate this new type of learning environment without well-founded models to guide them might explain to some extent why much of the student work seemed similar to that accomplished in more traditional, objectivist, educational practices. As the ACOT research (Dwyer, Ringstaff,

& Dwyer, 1991) suggested, it may take time and experience for teachers to progress to more sophisticated instructional strategies supported by technology. Cultivating student-centered learning environments is a complex and demanding task for teachers and requires a transition into new roles, perhaps regardless of the epistemological beliefs teachers hold.

Research Question 2

What facilitating and inhibiting factors present in the teachers' environments significantly impacted their use of Decision Point?

Sheingold and Hadley (1990) identified the top five barriers that hinder teachers' integration of technology as lack of time to develop appropriate lessons, problems scheduling computer time for students, a low number of computers per student, lack of curricular time to attempt computer-based instruction, and inadequate funding. All of these barriers were clearly still issues for the teachers in this study; however, none of these barriers prevented the teachers from implementing *Decision Point!* nor greatly impacted their ability to carry out their desired strategies. Brian, Janet, and George all had problems with scheduling computer lab time and struggled with time issues related to planning and student work at the computer. However, many of the time issues could have been mitigated with better planning. These teachers would most likely learn to handle many of these issues as they gain experience with such learning environments. As teachers and students gain familiarity with working with technology to support more open-ended activities, they will spend less time with the initial learning curve of getting started.

The influence of standardized achievement tests was also identified as a barrier to more sophisticated use of *Decision Point!,* as at least two of the teachers emphasized coverage of course content over student inquiry. This finding confirms the position by Talbert and McLaughlin (1993) that standardized testing might be a strong influence on teachers to continue using traditional methods. It is important to note that data for this study were collected prior to the No Child Left Behind Act of 2001 which has put even more of an emphasis on standards-based test scores.

From the somewhat limited data examined in this study, it would appear that teachers tended to focus on satisfying first-order factors (Ertmer, et al., 2000) before seriously considering second-order factors such as beliefs and practices. An explanation for that could be that the sheer number of external factors some of these teachers were dealing with for the first time left little time in an already busy schedule. First-order or external issues are more visible and easier to define whereas internal issues are typically more complex and, thus, harder to sort out. This conflict between competing factors illuminates the need for teachers to have time to reflect on their practice, as suggested by the earlier ACOT (Dwyer, Ringstaff, & Dwyer, 1991) research.

The number of potential barriers that teachers may face when attempting to implement technology in a significant way may indeed conflict with teacher's beliefs about the best way to use technology for instructional purposes, as Becker (1991b) suggested. When these conflicts occur, traditional strategies may be more practical or expedient. Ertmer, et al. (2000) suggested that external barriers might be easy to overcome through additional resources or shifting resources. However, certain external issues—such as standardized testing, funding, and some curricular decisions to name a

few—are not easily remedied and may continue to hinder teachers interested in integrating technology to a greater extent.

Research Question 3

Did teachers view the role of student-centered software as supplemental or integral to their instructional activities?

While Fatemi (1999) reported that teachers rarely used computer software as a primary instructional resource and Anderson and Becker (2001) found that social studies teachers tended to use computers less than peers in other disciplines, four of the teachers in this study used the *Decision Point!* software as an integral component of an instructional unit. The fifth teacher, Jack, used the software in a more supplemental way; but, it should be noted that Jack's students used other technology in the unit and in a more sophisticated way than any of the students.

In the post-unit teacher interviews, however, both Janet and George indicated that they would be more likely to use the program as a supplement if they were to use it again. These teachers provided the most direct instruction during their units and seemed most concerned about ensuring that students were presented specific bits of knowledge about the civil rights movement. Proponents of student-centered learning environments favor focusing on depth of content rather than breadth (Brown, 1992). It would appear that teachers who prefer that their students be exposed to broad coverage of content are more likely to use instructional software in a supplemental way.

Even though four of the teachers generally made *Decision Point!* a more integral part of their instruction, students primarily used the software to complete lower-level

tasks and obtain basic historical facts, a concern pointed out by Becker in two separate studies (1991; 1998). Even when teachers make instructional software a major component of their curriculum, if the learning outcomes only imitate those of traditional strategies, then the potential benefits of using the computer to enhance student learning remain unrealized.

Research Question 4

What were the teachers' attitudes about using Decision Point! and the embedded student tools? What were teachers' views on (1) whether this type of tool helps improve the teaching-learning process, (2) how well they think students learned as compared with other methods, (3) pedagogical considerations, (4) time requirements, and (5) student assessment issues.

All of the teachers in this study expressed positive attitudes about *Decision Point!* and the potential of such software. Unfortunately, none of the teachers asked their students to use any of the embedded tools other than the basic Notes and Presentation tools. Research by Berson, Lee, and Stuckart (2001) cited evidence that social studies students who used hypermedia texts and associated guides experienced learning gains over more traditional methods. George mentioned that his students scored about the same on the unit test than he would normally expect. It would have been interesting to see what effect use of the embedded Guides in *Decision Point!* would have had on the students' grades had the tool been used.

While teachers had mostly positive and encouraging comments about using *Decision Point!*, consideration should be given to the fact that none of the teachers used

the program in a manner for which it was designed. Teachers commented about the motivational aspects of the program as well as the quality content. None of the teachers described how the program could be used to improve student learning other than with very cursory statements about the multimedia-rich content appealing to various learning styles. While this certainly is an important benefit of programs like *Decision Point!*, more sophisticated uses of the tool for open-ended learning, such as those described by Hannafin, Hill, and Land, (1997) were either not of interest or simply not recognized.

A number of teachers recognized later in the unit that students needed clearer guidelines for the unit assignment such as general teacher expectations for quality and grading criteria. The teachers in this study generally provided students with little guidance throughout the unit, with Jack being the main exception. This behavior may represent a misconception that many teachers have about student-centered learning. While teachers should allow students more freedom to set goals, to explore concepts, and to develop their own initial explanations of phenomenon, providing little or no scaffolding during this process may allow students to develop misconceptions or to wander off track in their explorations.

Limitations

The reader should consider the following possible limitations before attempting to generalize the results of this study to other school situations:

1. The number of cases examined, five teachers in all, was relatively small. The beliefs and practices of these teachers may represent only a small segment of the teacher population and other samples may yield a more diverse set of results.

2. Each teacher case study occurred over a relatively short period, approximately four to six weeks. An extended study time, with more opportunities for observation of teacher practice, would have resulted in a richer set of data from which to detect typical instructional patterns.

3. Although efforts were made to seek diverse settings, including urban and rural schools, the contexts of each case were fairly homogenous with only north Alabama social studies teachers with their 11th and 12th grade students participating. The results of this study should be considered in that light with comparisons most appropriate with similar school settings.

4. The selection of teachers for this study was out of convenience rather than at random. Schools in north Alabama were targeted because of geographic convenience. Principals suggested specific teachers in their school to participate. While the analysis of this study takes into account this factor, the readers should keep in mind that principals selected these teachers with no set criteria other than that described in chapter 2.

5. Member checks with teachers were conducted informally during and after observations and during the post-unit interview. Data validity may have been strengthened by a more formal member check procedure after case study records were prepared.

6. Analysis and interpretation were done by a single researcher. The use of multiple researchers (investigator triangulation) may have strengthened the design of the study by adding unique perspectives and interpretations as well as corroborating findings reported in Chapter 4.

Future Research

The results of this study prompt a number of questions and issues to address in further research on this subject. Of particular interest would be a longitudinal study of teachers who are implicitly attempting to use instructional software, such as *Decision Point!,* to support student-centered, inquiry-based practices. An action research process methodology would be appropriate for such a study to examine the process of change while guided by a researcher with expertise in technology-supported student-centered learning environments. Teachers and researchers working together to solve the problems inherent in transitioning to more student-centered practices may yield useful frameworks or guidelines for successful practice. The longitudinal format would be necessary to better capture the evolving strategies of teachers learning to integrate technology in a meaningful way. Such a study would naturally expand beyond the examination of one software package to a more holistic look at technology use and other support tools for constructivist practice. Additionally, it is recommended that the study design explicitly include strategies and opportunities for collaboration between and among participating teachers. This might involve multiple teachers from the same school or teachers from different schools using current Internet-based conferencing and collaboration tools.

An extension of the above proposed research would be to examine teacher and student beliefs and attitudes related to student-centered learning practices. Do the beliefs of students who are "digital natives" conflict with those of teachers who are mostly "digital immigrants" and, if so, what implications does that have on student learning? Documenting and examining teacher and student reflections in such a study could

produce interesting insights regarding conflicting beliefs about knowledge acquisition in the information age classrooms.

In the social studies education discipline, another area of interest is on teachers conceptions of history (Evans, 1989), as described at the end of chapter 2. The design of the present study produced only limited data related to how teachers conceive of their discipline and the teaching strategies that resulted from these conceptions. It would be interesting to more closely examine how certain conceptions of historical knowledge may inhibit or facilitate the use of student-centered strategies and/or the adoption of technology to support learning. Examining teachers' conceptions from a mediated action approach and how teachers and students use available cultural tools to conduct historical acts. As Levstik and Barton (2001) point out, it is likely that teacher conceptions of history and how they model conducting historical acts significantly influence student conceptions of history.

Implications

For some time now, there has been a growing call for educators to adopt student-centered practices that emphasize deep examination of ill-structured problems and critical thinking skills (Levstik & Barton, 2001). This study highlights some of the challenges that teachers face when attempting to integrate student-centered software in social studies classes, adding to a limited research base on this topic (Berson, 1996; Saye, 1997). It has been posited that teachers' epistemologies are a major factor in how they think about teaching and learning practices and in the practices that actually occur in the classroom. The finding of this study, however, indicated that teachers' beliefs did not greatly impact

how student-centered instructional software was implemented. This is a somewhat discouraging finding given that teachers often are given software with little guidance on how to effectively use it. Considering that three of the teachers in this study who espoused more student-centered beliefs did not actually use *Decision Point!* in a way consistent with these beliefs has a number of implications.

First, schools should carefully consider the types of instructional software that they purchase and the types of training that they provide teachers to aid effective use of the software. Second, to expect significant change in teaching practice to occur, other elements must be in place to encourage and promote it, above and beyond the introduction of quality software. Intentional reform efforts, with opportunities for teacher collaboration and critical reflection, would appear to be necessary elements in this process. Third, instructional designers should be aware of the challenges that teachers face in using software in more open-ended settings. Instructional models to guide teachers through the complexities of student-centered learning may greatly enhance the possibilities of successful implementation.

Conclusion

Research on how social studies teachers implement software explicitly designed for use in student-centered learning environments has been limited up to this point. This study highlighted the complexities that teachers face when attempting to integrate instructional software of any type, much less when using the technology to support more student-centered activities. Epistemological beliefs, while certainly an important factor generally in a teacher's decisions about how to teach, did not appear to have a major

influence on how three of the five teachers in this study implemented student-centered instructional software. Other external factors as well as established teaching practice were more influential over the implementation strategies. Four of the five teachers appeared to be in the entry stage of technology integration and would have benefited from a framework for using *Decision Point!* to support student-centered activities.

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APPENDIX A – SCHOMMER EPISTEMOLOGICAL QUESTIONNAIRE

Schommer Epistemological Questionnaire

Directions: There are no right or wrong answers to the following questions. We want to know what you really believe. For each statement, circle the number that represents the degree to which you agree or disagree.

Strongly Disagree **Strongly Agree**
1 2 3 4 5

1. If you are ever going to be able to understand something, it will make sense to you the first time you hear it.	1	2	3	4	5
2. The only thing that is certain is uncertainty itself.	1	2	3	4	5
3. For success in school, it's best not to ask too many questions.	1	2	3	4	5
4. A course in study skills would probably be valuable.	1	2	3	4	5
5. How much a person gets out of school mostly depends on the quality of the teacher.	1	2	3	4	5
6. You can believe almost everything you read.	1	2	3	4	5
7. I often wonder how much my teachers really know.	1	2	3	4	5
8. The ability to learn is innate.	1	2	3	4	5
9. It is annoying to listen to a lecturer who cannot seem to make up his mind as to what he really believes.	1	2	3	4	5
10. Successful students understand things quickly.	1	2	3	4	5
11. A good teacher's job is to keep his students from wandering from the right track.	1	2	3	4	5
12. If scientists try hard enough, they can find the truth to almost anything.	1	2	3	4	5
13. People who challenge authority are over-confident.	1	2	3	4	5
14. I try my best to combine information across chapters or even across classes.	1	2	3	4	5
15. The most successful people have discovered how to improve their ability to learn.	1	2	3	4	5

16. Things are simpler than most professors would have you believe.	1	2	3	4	5
17. The most important aspect of scientific work is precise measurement and careful work.	1	2	3	4	5
18. To me studying means getting the big ideas from the text, rather than details.	1	2	3	4	5
19. Educators should know by now which is the best method, lectures or small group discussions.	1	2	3	4	5
20. Going over and over a difficult textbook chapter usually won't help you understand it.	1	2	3	4	5
21. Scientists can ultimately get to the truth.	1	2	3	4	5
22. You never know what a book means unless you know the intent of the author.	1	2	3	4	5
23. The most important part of scientific work is original thinking.	1	2	3	4	5
24. If I find the time to re-read a textbook chapter, I get a lot more out of it the second time.	1	2	3	4	5
25. Students have a lot of control over how much they can get out of a textbook.	1	2	3	4	5
26. Genius is 10% ability and 90% hard work.	1	2	3	4	5
27. I find it refreshing to think about issues that authorities can't agree on.	1	2	3	4	5
28. Everyone needs to learn how to learn.	1	2	3	4	5
29. When you first encounter a difficult concept in a textbook, it's best to work it out on your own.	1	2	3	4	5
30. A sentence has little meaning unless you know the situation in which it is spoken.	1	2	3	4	5

31. Being a good student generally involves memorizing facts.	1	2	3	4	5
32. Wisdom is not knowing the answers, but knowing how to find the answers.	1	2	3	4	5
33. Most words have one clear meaning.	1	2	3	4	5
34. Truth is unchanging.	1	2	3	4	5
35. If a person forgot details, and yet was able to come up with new ideas from a text, I would think they were bright.	1	2	3	4	5
36. Whenever I encounter a difficult problem in life, I consult with my parents.	1	2	3	4	5
37. Learning definitions word-for-word is often necessary to do well on tests.	1	2	3	4	5
38. When I study, I look for the specific facts.	1	2	3	4	5
39. If a person can't understand something within a short amount of time, they should keep on trying.	1	2	3	4	5
40. Sometimes you just have to accept answers from a teacher even though you don't understand them.	1	2	3	4	5
41. If professors would stick more to the facts and do less theorizing, one could get more out of college.	1	2	3	4	5
42. I don't like movies that don't have an ending.	1	2	3	4	5
43. Getting ahead takes a lot of work.	1	2	3	4	5
44. It's a waste of time to work on problems which have no possibility of coming out with a clear-cut and unambiguous answer.	1	2	3	4	5
45. You should evaluate the accuracy of information in a textbook, if you are familiar with the topic.	1	2	3	4	5

46. Often, even advice from experts should be questioned.	1	2	3	4	5
47. Some people are born good learners, others are just stuck with limited ability.	1	2	3	4	5
48. Nothing is certain, but death and taxes.	1	2	3	4	5
49. The really smart students don't have to work hard to do well in school.	1	2	3	4	5
50. Working hard on a difficult problem for an extended period of time only pays off for really smart students.	1	2	3	4	5
51. If a person tries too hard to understand a problem, they will most likely just end up being confused.	1	2	3	4	5
52. Almost all the information you can learn from a textbook you will get during the first reading.	1	2	3	4	5
53. Usually you can figure out difficult concepts if you eliminate all outside distractions and really concentrate.	1	2	3	4	5
54. A really good way to understand a textbook is to re-organize the information according to your own personal scheme.	1	2	3	4	5
55. Students who are "average" in school will remain "average" for the rest of their lives.	1	2	3	4	5
56. A tidy mind is an empty mind.	1	2	3	4	5
57. An expert is someone who has a special gift in some area.	1	2	3	4	5
58. I really appreciate instructors who organize their lectures meticulously and then stick to their plan.	1	2	3	4	5
59. The best thing about science courses is that most problems have only one right answer.	1	2	3	4	5
60. Learning is a slow process of building up knowledge.	1	2	3	4	5

61. Today's facts may be tomorrow's fiction.	1	2	3	4	5
62. Self-help books are not much help.	1	2	3	4	5
63. You will just get confused if you try to integrate new ideas in a textbook with knowledge you already have about a topic.	1	2	3	4	5

T H A N K S!

APPENDIX B – *DECISION POINT!* USER'S GUIDE

Decision Point!: The African-American Civil Rights Movement

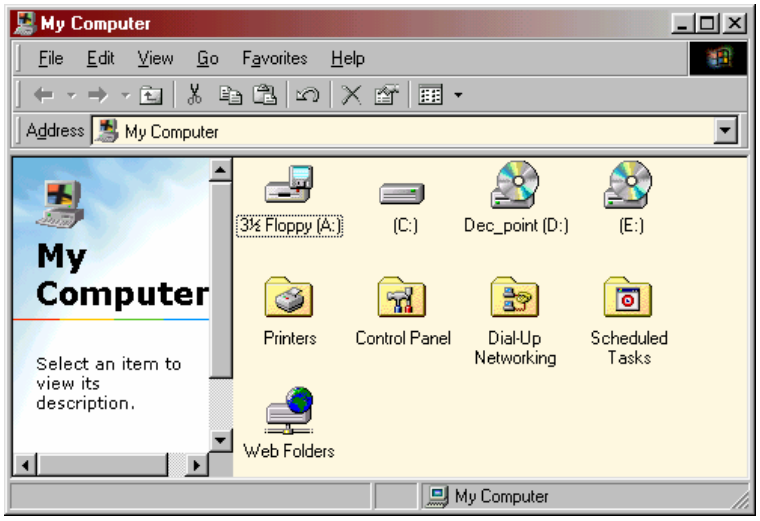
User's Guide

Table of Contents

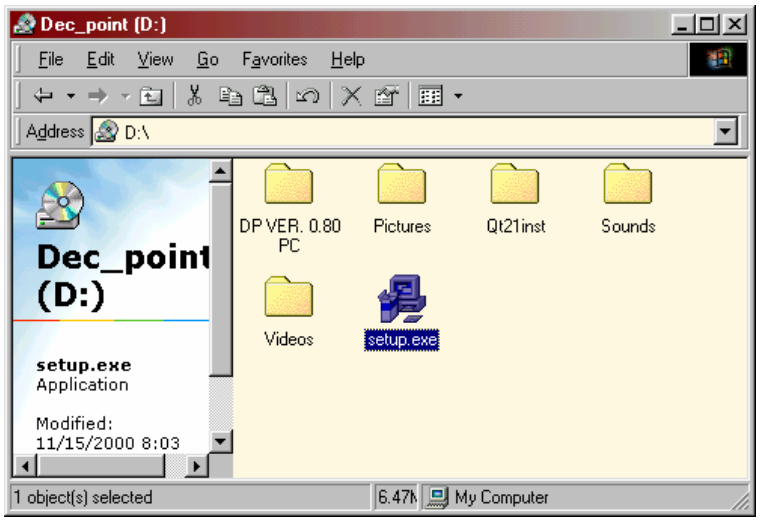
Installing Decision Point

Step 1: Insert the *Decision Point* CD-ROM into computer.

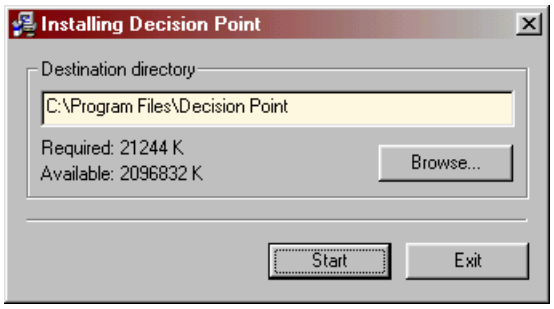
Step 2: From the Desktop, open My Computer. Then, double-click the CD-ROM icon to open it (this will probably be the D:\ drive on most computers, but look for the icon labeled **Dec_point**).



Step 3: Double-click **setup.exe** to start the installation program.



Step 4: In the **Installing *Decision Point*** box, click the **Start** button.



The installation will then install necessary files to your computer's hard drive. You will still need to have the CD-ROM in your computer in order to run *Decision Point*.

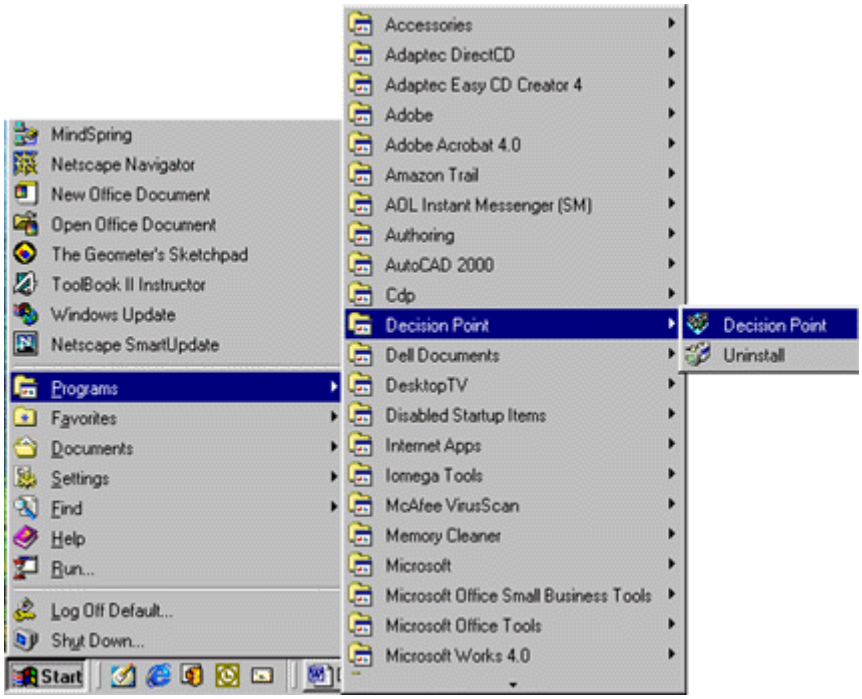
Installing QuickTime

If you are unable to get the video clips to play in *Decision Point*, you probably need to install QuickTime on your computer. Follow these steps to install QuickTime.

- Exit all open programs.
- Repeat steps 1 and 2 above.
- Open the folder named **Qt21inst**.
- Double-click the file named **Qt32.exe**.
- Follow the onscreen instructions to complete the QuickTime installation.
- Restart the Computer and then restart Decision Point.

Starting the Program

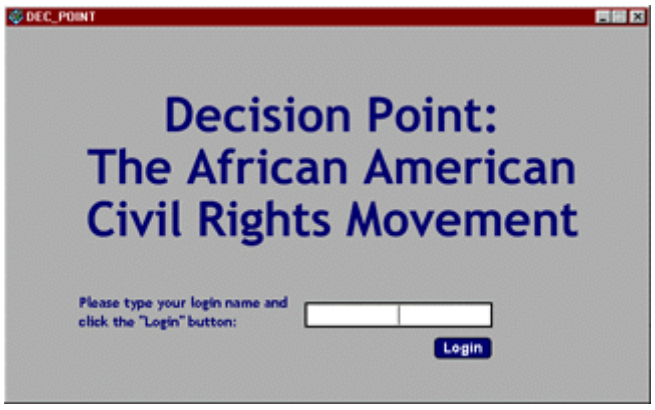
1. Select *Decision Point* from the Start Menu (click Start > Programs > Decision Point > Decision Point).



   After a few seconds, you should see *Decision Point* start.

2. Click the Continue button to enter the program.

3. Type a login name and click the Login button, or press Enter on the keyboard.



   When you use *Decision Point*, information is saved for each user based on the login name. Students will need to use the same login name each time to retrieve

previously entered information.

4. Click the Introduction button on the Main Menu screen. If the introduction video does not begin playing, you will need to install QuickTime on your computer. (See *Installing QuickTime* on page 4, if necessary.)

Click one of the three menu items to enter the main part of the program.

The events documented in *Decision Point* are organized along three main themes, or strands:

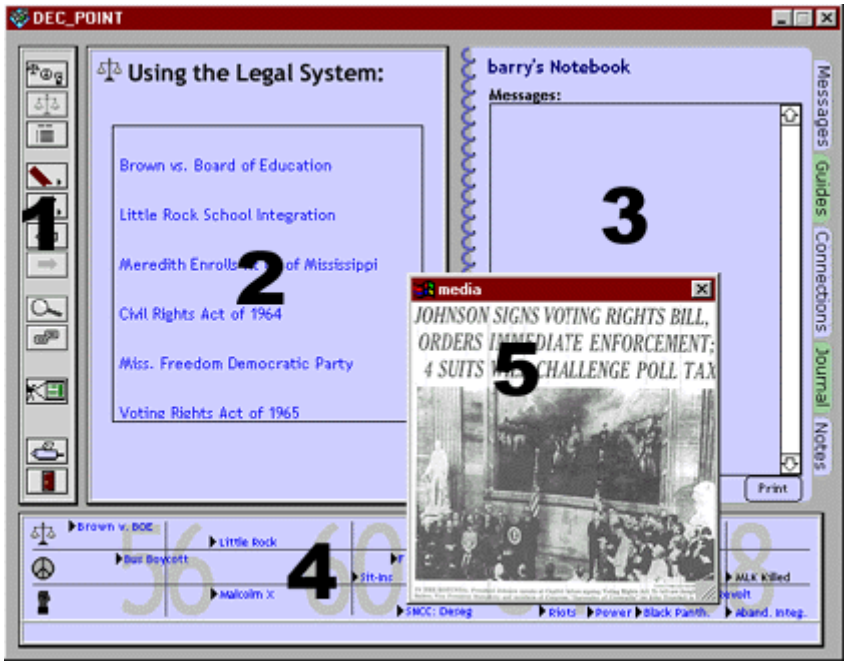
- Using the Legal System
- Non-Violent Direct Action
- Black Power/Use of Force

You can easily jump from an event in one strand to an event in another strand by using the timeline.

The Decision Point Screen

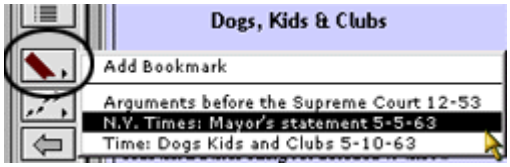
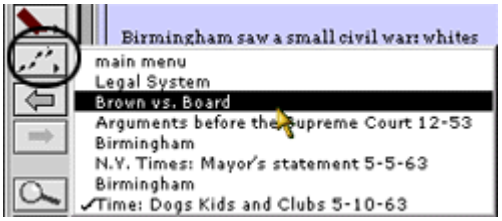
The main *Decision Point* screen is divided into five areas:

1. Toolbar
2. Content area
3. Notebook
4. Timeline
5. Multimedia window



Toolbar

Toolbar Button	Function
	**Main Menu** – Returns you to the main menu, or introduction, screen.
	**Strand Menu** – Returns you to the menu for the strand you are currently exploring. The icon changes depending on which strand you are in.
	**Event Menu** – Returns you to the menu for the event you are currently exploring.

	**Bookmarks** – Allows the user to bookmark pages of interest. **To set a bookmark**, go to the page you want to mark, click the Bookmark button, then select Add Bookmark. **To go to a bookmarked page**, click the Bookmark button, then select the page you want to go to. 
	**User History** – A running list of the last several pages visited. The checkmarked page is the page currently being viewed. To return to one of the other pages, select it from the menu. 
	**Back** – Use to backtrack through one or more pages you have viewed.
	**Forward** – Only active after using the Back button. Use to go forward through the same pages just backtracked.
	**Search** – Not currently active.
	**Connections** – Not currently active.
	**Presentation Tool** – Create custom presentations including pictures, videos, and music found in **Decision Point**.
	Print – Not currently active. The print option in the notebook is

	active.
	**Logout** – Use to logout and log back in as a different user or to Exit the program.

Content Area

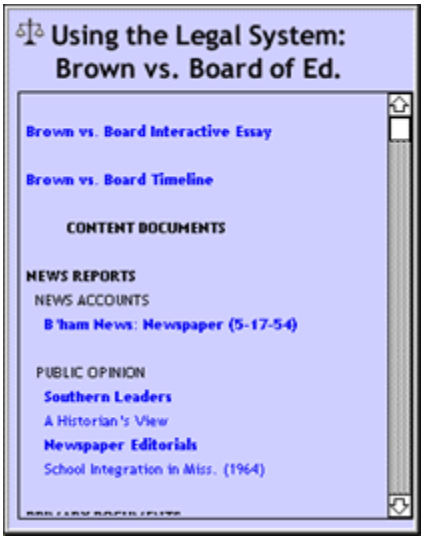
The content area changes depending on the choices you make in *Decision Point*. There are three primary types of information you will encounter in the Content Area: a strand menu, an event menu, and an event document.

Strand Menu

When you first enter a strand from the main menu, you will see the strand menu, which lists all of the events that are associated with that strand. The events listed in the strand menu correspond to the events on the strand's timeline.

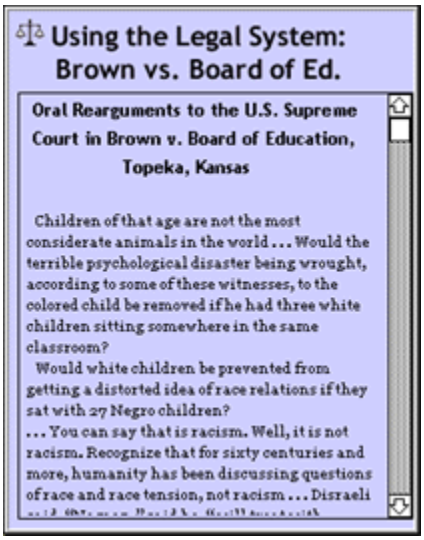
Event Menu

After choosing an event to explore from the strand menu, an event menu will appear. The event menu will display links to (1) an interactive essay that provides an overview of the event, (2) a timeline of sub-events related to this event, and (3) content documents such as newspaper articles, photographs, maps, and videos related to the event.



Event Document

When you click on an item in the event menu, that document will display in the content area and/or the multimedia window.

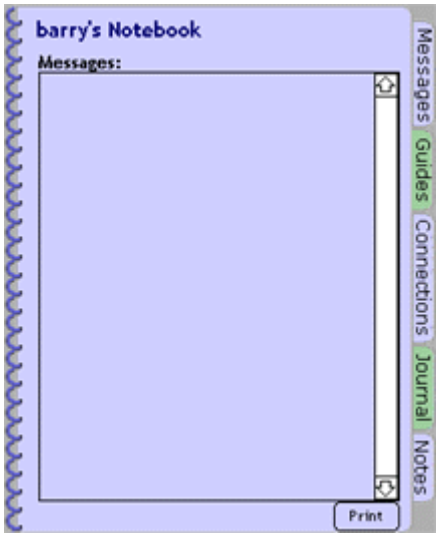


Notebook

The notebook is divided into five sections: messages, guides, connections, journal, and notes.

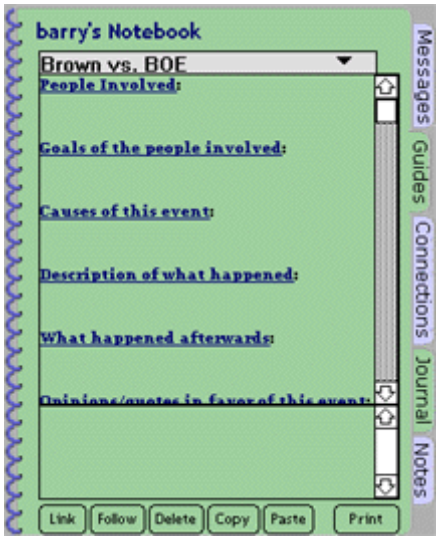
Messages

The messages area could be used in many ways, but it was initially designed to allow teachers to leave notes for students to view when they logged into *Decision Point*. Students working in groups could also use this area to leave notes for one another.



Guides

The Guides area of the notebook was designed to help students focus on key elements of an event as they conduct research. Each event has its own page in the Guides area of the notebook. Click the Event drop-down menu to select the page for a different event.



At the bottom of each Guides page is an area for adding links to documents of interest. Students could use this feature to add links to documents related to the event they are researching. This provides a convenient way to organize research notes.

Link – Adds a description of the current page to the Links list
Follow – If a link is selected in the list, clicking the Follow button will take the user to that page
Delete – Deletes the selected link from the list
Copy – Copies a link. The link can then be pasted in another part of the notebook.
Paste – Pastes a link that has previously been copied.
Print – Prints the current notebook page.

Connections

The connections area of the notebook is not currently active.

Journal

The journal area of the notebook can be used to help students reflect on specific questions or conflicts they may have encountered. A teacher can request that the journal area be modified to meet his/her particular needs.

Notes

The notes area provides a space for general note-taking for students and/or teachers. It also includes a Link area similar to that found in the Guides section.

Timeline

The timeline provides a visual overview of the major events that occurred during the Civil Rights Movement. It also provides a useful way to move from one part of *Decision Point* to another without ever having to return to the Main Menu.

When you click on an event in the timeline, you have two choices: (1) preview the event, or (2) explore the event. If you choose **preview**, a video will be displayed which provides an overview of that event. If you choose **explore**, you will go to the event menu for that event.

You can quickly go to a strand menu by clicking the strand icon on the left side of the timeline.

Multimedia Window

The multimedia window is used to display pictures and videos in *Decision Point*. The contents of the window may change when a selection is made in a menu or in the timeline.

- To move the window to a new location, click somewhere in the title bar (at the top of the window where it says “media”) and drag the window to another spot on the screen.
- To close the window, click the X in the upper right-hand corner of the window. The window will reappear when a new selection is made.

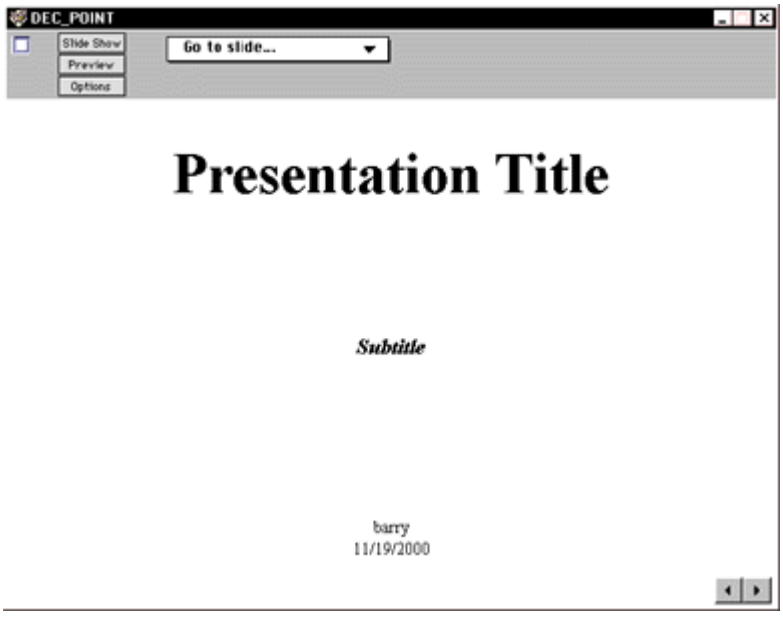
Presentation Tool

The Presentation Tool can be used for a variety of purposes but is most commonly used for teacher or student presentations.

Title Slide

The first page of a presentation is the title slide. To change the title, highlight it and begin typing the new title. You may also enter a subtitle (this is optional).

You may notice that the login name and the current date are automatically displayed on the title page.



To get to another slide in the presentation, click the Forward and Back buttons in the lower right corner of the screen, or click the **Go to Slide…** menu and select the slide you want to view.

Content Slides

Slides other than the title slide are called content slides. One content slide is automatically added to each new presentation. Click the Forward button to go to the first content slide.

To add a new content slide, click the **Go to Slide… menu** and select **Add New Slide**. A new slide will be added after the currently selected slide.

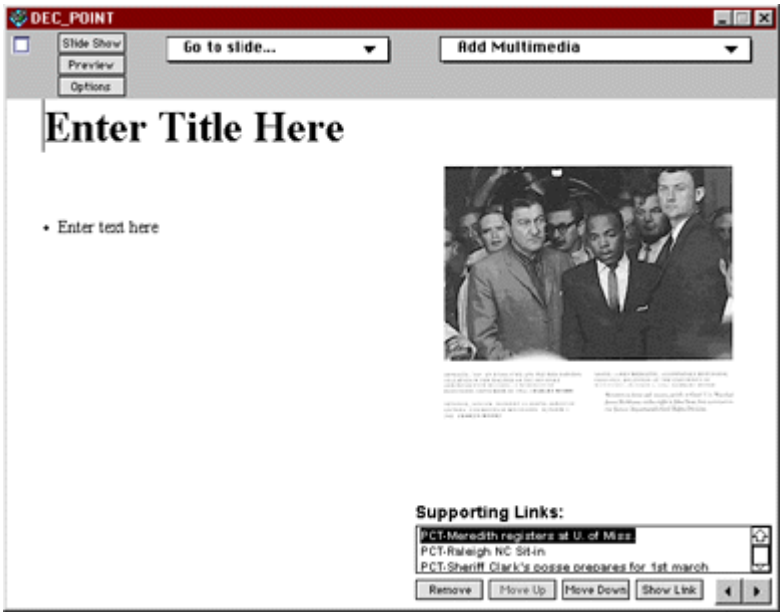
Adding Multimedia to a Slide

To add a picture or video to a slide, click the **Add Multimedia** menu, select the desired event, then select the picture or video you want to add. The media file will be displayed on the right side of the slide and the title of the media file will be added to the Supporting Links box.

To remove a media file from a slide, click on the title of the file in the Supporting Links box, then click the Remove button.

To rearrange the order of media files in the Supporting Links list, use the Move Up and Move Down buttons.

To display a media file, click once on the title in the Supporting Links box, then select Show Link. You may also double-click a title to display it.



Slide Show

Click the Slide Show button when you are ready to begin a presentation. Use the Forward and Back buttons in the lower right corner of the screen to navigate through the presentation. When you reach the end of the slide show, you will be asked whether you want to exit the slide show or start the slide show again. Click the desired option.

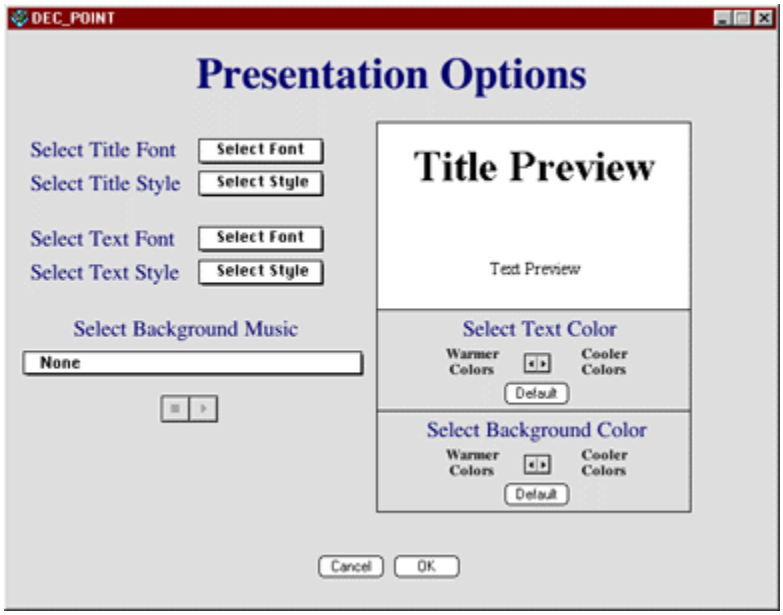
To exit a slide show without going all the way through it, press the letter Q on the keyboard. DO NOT press the ESC key to exit the presentation; this will exit *Decision Point* completely and you may lose work that you have done on the presentation.

Preview

While building a slide, click the Preview button to hide the menubar at the top of the page and see what the slide will look like in the Slide Show.

Options

Users can use the Options area to customize font types, colors and styles as well as background colors and background music used in the presentation.



To activate changes made in the Options area, click the OK button. Click the Cancel button to return to the presentation without changing any options.

Closing the Presentation Window

Click the box in the upper left corner of the presentation window to close the presentation and automatically save changes.

Decision Point

How to Transfer Presentations

Overview

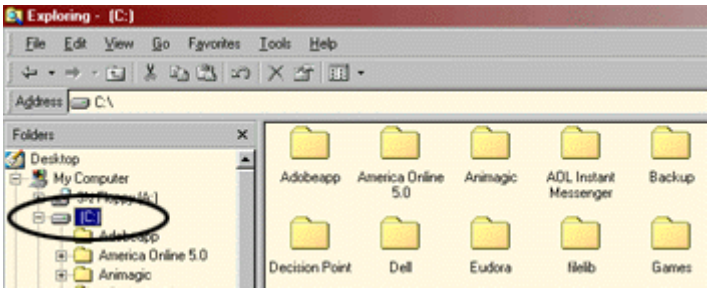
When you installed Decision Point, the setup program installed a folder named Decision Point on your hard drive—inside the Program Files folder. Inside the Decision Point folder you will find a folder named **PresNotes**. Presentation files are stored in the PresNotes folder and are named based on the login used when the presentation was created. For example, if the login name JaneDoe were used to enter Decision Point, a presentation file named **JaneDoe.cst** would be found in the PresNotes folder.

You can transfer a presentation file by copying it from the PresNotes folder on the computer where it was created and then moving it into the PresNotes folder on another computer where Decision Point is installed.

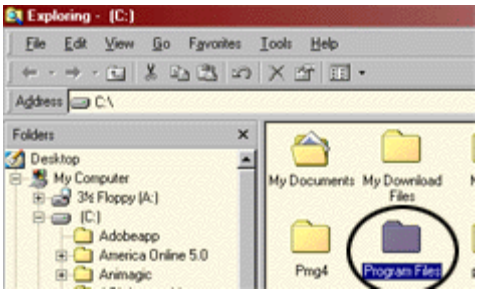
Step-by-Step Instructions (Using Windows Explorer)

1. Start Windows Explorer (click the Start menu, select Programs, then select Windows Explorer).

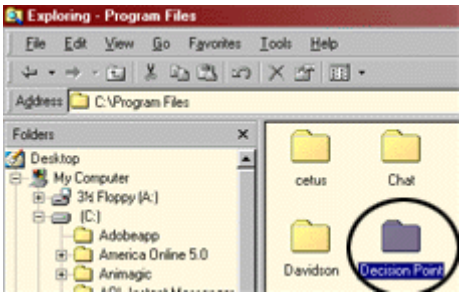
2. In the Folders pane (left-hand side) click on the **(C:)** icon.



3. Find the **Program Files** folder and double-click it to open it.

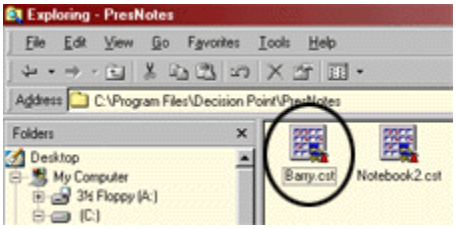


4. Locate the Decision Point folder and double-click it to open it.

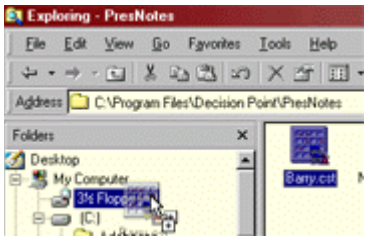


5. Locate the PresNotes folder and double-click it to open it.

6. At this point you should see one or more files in the PresNotes folder. Locate the presentation file(s) you want to transfer. (Note: You should not transfer the Notebook2.cst file to another computer.)

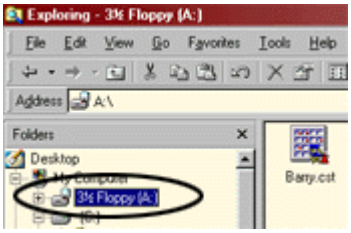


7. Make sure you can see **3 ½ Floppy (A:)** in the Folders pane. In the right-hand pane, click the file you want to transfer and drag it on top of 3 ½ Floppy (A:).

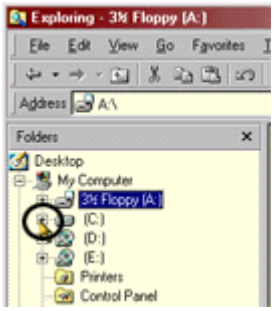


8. Next, take the disk and place it in the computer where you want to put the presentation file(s).

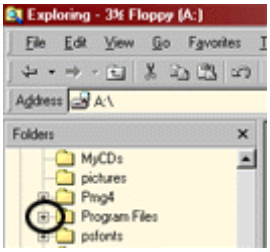
9. Open Windows Explorer and in the Folders pane, click the **3 ½ Floppy (A:)** icon. You should see the presentation files in the right-hand pane.



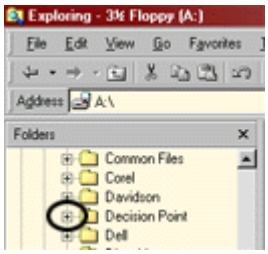
10. In the Folders pane, click the [+] sign to the left of **(C:)**. If you see a [-] sign instead of the plus sign, skip to step 11.



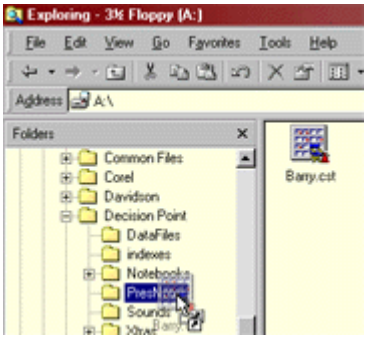
11. In the Folders pane, click the [+] sign to the left of **Program Files** (under the (C:) directory). If you see a [-] sign instead of the plus sign, skip to step 12.



12. In the Folders pane, click the [+] sign to the left of **Decision Point**. If you see a [-] sign instead of the plus sign, skip to step 13.



13. In the Folders pane, you should see the PresNotes folder underneath Decision Point. Drag the presentation file(s) from the right-hand pane on top of the PresNotes folder. This will copy the file from the disk into the PresNotes folder on the hard drive.



14. Once the presentation file has been transferred, start Decision Point and login. The presentation should be available.

NOTE: Notebooks can be transferred in a similar way. Notebooks are stored in the **Notebooks** folder in the Decision Point folder. Notebook files are also named using the login. Be careful not to put notebook files in the PresNotes folder or put presentation files in the Notebooks folder.

APPENDIX C – CONSENT FORMS

INFORMED CONSENT
FOR
High School Social Studies Teachers' Use of Instructional Software

You are invited to participate in a study that will examine how high school social studies teachers implement *Decision Point*, a multimedia software program on the Civil Rights Movement. I am a graduate student at Auburn University and am conducting this study as part of my dissertation. The purpose of the study is to learn how different teachers utilize this type of instructional software in the classroom. You were selected as a possible participant because you are a high school social studies teacher located in North Alabama.

If you decide to participate, I will ask you to complete the Schommer Epistemological Questionnaire to determine if you will be included in the current study. If you are **not** selected to participate in the study, you are completely released from all other procedures described in this consent letter. If you are selected for participation in this study, the following procedures will be followed:

1. Initial Interview – The researcher will interview the participating teacher to determine demographic information, educational and employment background, experience using computers, and general school environment. An audio tape recorder will be used to provide an accurate record of the interview. This interview should last no more than one hour.
2. *Decision Point* Training – The researcher will arrange with the teacher time, date, and location for training on how to use *Decision Point*. After training, the researcher will provide the teacher with a copy of *Decision Point* for the duration of the study. The training session(s) will require 2 to 4 hours.
3. Pre-*Decision Point* Observations – Prior to the teacher's use of *Decision Point* in the classroom, the researcher will observe **two** classroom sessions. These observations will be scheduled at a time convenient to both teacher and researcher.
4. Lesson Plan Review – The researcher will review the participating teacher's lesson plan book prior to the teacher's use of *Decision Point* in the classroom. The purpose of this review is to provide the researcher further information about the teacher's typical classroom activities and instructional methods.
5. *Decision Point* Unit – The teacher will use *Decision Point* with his/her students as part of a unit on the civil rights movement. The researcher will provide technical assistance during preparation and implementation of this unit. The researcher will observe all class sessions during the unit. A video camera will be set up in the corner of the classroom to capture class activities. The researcher and participating teacher will review the tapes together to discuss the activities that occurred. The participating teacher will keep the tapes in his/her possession during the study. The researcher will talk briefly with the teacher after each class session to follow up on the class activities that occurred in that session.
6. Post-Unit Interview – Following the unit, the researcher will interview the teacher to follow up on observations made during the unit and to determine general attitudes about

the unit and use of *Decision Point*. An audio tape recorder will be used to provide an accurate record of the interview. This interview should last no more than one hour.

7. Student Focus Group – Upon completing the unit, the teacher will select six students—representing low, average, and high achievement levels—to participate in a focus group during which the researcher will inquire about the students' views of the unit. This session will last no more than 45 minutes.

Should you participate in this study, you should understand that there are a number of slight risks involved. First, although your name will not be used on study documents, there is always a slight risk of breach of confidentiality. To protect against this, a pseudonym will be used in place of your name for all study purposes. Also, a coded list to match real names to pseudonyms will be stored in a locked safe at the researcher's residence. Second, some students, and perhaps the teacher, may find technology-supported instruction less effective for them. However, embedded tools in *Decision Point* are available to guide students and some students may prefer this type of instruction. The researcher will also be available to provide technical support to both teacher and students throughout the study. Your participation in this study will provide important data that may be used to improve *Decision Point* and similar instructional software. You may find that participation in this study has provided opportunities for you to improve your use of technology in the classroom. I cannot promise you that you will receive any or all of the benefits described above.

Any information obtained in connection with this study and that can be identified with you will remain confidential. Information obtained in this study will be disclosed to members of the researcher's dissertation committee and disseminated through publication of the researcher's dissertation and/or other academic publications. Code lists that link the participant's name with a pseudonym will be protected. This code list and any other identifiable data, including video and audiotapes, will be destroyed one year from the approval date to begin the study.

Your decision whether or not to participate will in no way jeopardize your or your school's future relations with Auburn University. You may discontinue participation at anytime without penalty. You may withdraw any data related to you at anytime without penalty. Taking part in this study is entirely voluntary.

If you have any questions, Mr. Barry Scott (256-586-9402 or scottbn@mindspring.com) or Dr. William Spencer (334-844-3073 or spencwa@auburn.edu) will be happy to answer them. You will be provided a copy of this form to keep.

For more information regarding your rights as a subject you may contact the Office of Research Programs, Ms. Jeanna Sasser at (334) 844-5966 or Dr. Steven Shapiro at (334) 844-6499.

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH TO PARTICIPATE IN THIS RESEARCH PROJECT. YOUR SIGNATURE INDICATES YOUR WILLINGNESS TO PARTICIPATE.

_____	_____	_____	_____
Subject's Signature	Date	Investigator's Signature	Date

INFORMED CONSENT
FOR
High School Social Studies Teachers' Use of Instructional Software

Your child is invited to participate in a study that examines how high school social studies teachers implement a computer software program to support social studies learning. I am a graduate student at Auburn University and am conducting this study as part of my dissertation. Your child was selected as a possible participant because his/her teacher is participating in the study and selected your child to participate.

If you decide to allow your child to participate, he/she will be asked to take part in an audiotaped interview at the conclusion of a social studies unit in which the computer software program is used. In this interview, students will be asked to assess the strengths and weaknesses of the software program and what they liked and disliked about the social studies unit. The interview will be arranged with your child's teacher to assure that it does not interfere with the student's academic responsibilities. Total time required of participants should be less than 45 minutes.

Some students may find computer-supported instruction less effective for them than more traditional forms of instruction. However, there are tools built into the software available to assist students in using the program. The researcher will also be available to provide technical support to both teacher and students throughout the study. Your child's participation in this study will help us determine ways to improve this and similar software programs and how these programs are used in the classroom.

Your child's participation will be anonymous. Names will not be recorded at any time. No information obtained in connection with this study will be associated with your child in any identifiable form.

Your decision whether or not to allow your child to participate will in no way jeopardize your or your child's future relations with his/her school or Auburn University. Your child's participation or lack of participation will in no way affect his/her grades. You may discontinue participation at any time without penalty. If you have any questions, please contact Mr. Barry Scott (256-586-9402 or scottbn@mindspring.com) or Dr. William Spencer (334-844-3073 or spencwa@auburn.edu) and we will be happy to answer them. You will be provided a copy of this form to keep. For more information regarding your child's rights as a subject you may contact the Office of Research Programs, Ms. Jeanna Sasser at (334) 844-5966 or Dr. Steven Shapiro at (334) 844-6499.

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH TO ALLOW YOUR CHILD TO PARTICIPATE IN THIS RESEARCH PROJECT. YOUR SIGNATURE INDICATES YOUR WILLINGNESS TO ALLOW YOUR CHILD TO PARTICIPATE.

_____	_____	_____	_____
Parent's Signature	Date	Investigator's Signature	Date

_____	_____
Child's Signature	Date