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Development of a website to improve communication and learning

Rebecca Sue Bonheim

DEVELOPMENT OF A WEBSITE TO IMPROVE COMMUNICATION AND LEARNING

A Project

Presented to the

Faculty of

California State University,

San Bernardino

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

in

Education:

Instructional Technology

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by

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March 2004

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March 2004

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ABSTRACT

This web project was developed to address the complex issue of disseminating information to high school students via the World Wide Web. Topics addressed include: the need for greater communication among instructors, students and parents, the need to utilize Instructional Design techniques, the backwards design process in the development of web based projects, and the need to integrate Internet technology for promoting classroom instruction and learning. Findings suggest a positive response to incorporating such electronic tools and the need for further integration of such techniques in current school practices. Additionally, this project illustrates the need for design processes to be incorporated for an effective web-based communication instrument.

ACKNOWLEDGMENTS

I would like to acknowledge Dr. Baek and Dr. Leh who have assisted me immensely throughout my advanced degree and this final project. I would also like to acknowledge Shari Pate for facilitating this process. Thank you.

DEDICATION

This great accomplishment would not be possible without the unassailable love and support of my future husband. He exemplifies my beloved twenty-first century knight in shining armor. I am so grateful that he is in my life. Thank you Terry Flanagan.

LIST OF TABLES

LIST OF FIGURES

TABLE OF CONTENTS

CHAPTER ONE

BACKGROUND

Introduction

Developing effective web pages poses an innovative challenge for the educators of today's student. Because the Internet is so accessible and ingrained in student's lives, teachers who rely solely on instruction delivery within the four institutional walls do their students a grave disservice. Web pages are invaluable tools rapidly reshaping the manner in which content can be delivered.

Communication among teachers, students, parents and the community can no longer stem from the traditional educational system and its practices. The ultimate quandary therefore exists, to integrate traditional classroom practices and emerging electronic methods of instruction.

Administrators must ensure their teachers obtain the technological skills necessary to ensure student success in the 21st century. To accomplish this enormous didactic change, time-honored methods of instruction must be carefully examined and reflected upon. The essential goals of education do not change, only their methods of

delivery. Therefore, the education community must not overlook technology as a passing phase; it must embrace this novel tool and utilize it to enhance current practices.

Statement of the Problem

The problem addresses difficulties that exist when developing a website as a tool; how to increase understanding of material presented in class and awareness of pertinent school information. Adolescents are very familiar with the Internet and spend ample amounts of time communicating with their fellow classmates electronically. Yet in schools, numerous educators feel that long-established and proven teaching methods work efficiently so, no need exists for change. This static style of thinking runs rampant among many educators today who reluctantly refuse to recognize the fact that the student of today is much different than in previous years. It is a matter of educational responsibility to recognize this extraordinary change and work for integration of this tool.

Additionally, many communication gaps presently exist between public school institutions and surrounding

communities. With current school practice, parents are not promptly informed of their students' educational progress; for example, report cards are sent out two weeks after grades are due making remediation often untimely or inappropriate. Phone calls made to teachers go through a voice mail system, and then are accessed via phone when the teacher has time. Many times, important messages are not received until several days later. This causes tension for parents who need their concerns addressed quickly.

Often times, information given to students in the secondary classroom is missed or misrepresented resulting in the frustration of teachers, students and parents. Teachers can reply to parent requests promptly without checking phone messages, looking up phone numbers or, taking the time to call a parent who may be unavailable.

Moreover, when students miss school for more than a few days and want make-up work, a written homework request is required; the teachers have two days to complete the request. By the time the work is given to the parent, it is already outdated. Too often, mishandled or misplaced paperwork results in incomplete or missing assignments.

With web-based assignments, resources and information are readily available. The posting of school documents enable the online user to "see" what teachers are doing on a daily basis. Parents and students have access to these assignments therefore avoiding missed homework. Furthermore, when a parent or student needs to contact a teacher, he/she can send an email explaining the request and receive a prompt response without going through the school's unreliable phone system.

Purpose of the Project

The purpose of the project was to encompass basic instructional design principles and the constructivist viewpoint to develop an educational web page. This project also implemented the backward design process and was developed to enhance in-class instructional time. It assumed that by utilizing an electronic resource, students would be better prepared for class and have an alternate learning tool. The students who participated in this project used the calendars, instructions, and guides as enrichment to their daily classroom activity. Moreover, this web page included a research project based on the students' career interests. Integrating this

electronic content, students created a research paper, a visual aide, and an oral presentation. At the end of the course, students assessed the site using an anonymous survey; this alleviated the desire to give a false evaluation thus pleasing the instructor. The conclusions and recommendations were based on the results of this survey and the observations of the instructor. The site was adjusted according to the evaluations of the participating students.

Significance of the Project

This web site was designed to enhance traditional classroom instruction and learning. The project displayed course syllabi, monthly calendars, constructivist-based assignments, important school information and a plethora of academic resources. Students, parents and other involved persons accessed this project from the school site, or at remote locations. The accessibility of this vital information was proposed to alleviate student concerns and questions about class readings, assignments and projects. In addition, this web site increased student learning making content available at home. This website was significant to the student who may have

forgot the next day's assignments or who needed more time to understand concepts. Questions and comments about class content were posted on the web log (a page designed for threaded discussion). This method of communication alleviated the ever-present challenge of teacher-student interaction during class sessions. With an electronic forum, students had the ability to respond to each other and construct their own meaning about information presented in class. The benefits of a web page to enhance classroom learning are explored in the literature review in chapter two.

Limitations

Many limitations arose as a result of online interaction that possibly impeded the learning process as it related to instruction and content delivery. Some students accessed the site incorrectly or forgot where information was located. Although miscommunication about assignment deadlines and test dates were encountered, they did not impede learning. Another limitation of this project is that it only encompassed a synchronous method of communication. The project incorporated a weblog that contained comments made by the students. However,

students were not able to speak with each other, or the instructor, in real time. Therefore, any student questions were postponed until the instructor replied either electronically, or face-to-face. Another limitation was that the project was posted on a free hosting site. These sites profit from advertising in the form of pop-up windows and colorful boxes. So when the site was accessed, advertisements sometimes distracted the user from getting information as quickly as intended.

Definition of Terms

1. Backward Design- A method of organizing information which considers the end result first.
2. Electronically Enhanced Classroom-A traditional classroom that encompasses an electronic component.
3. Instructional Design- The method by which content is delivered in an educational forum.
4. Navigation Bars- The graphics or text in a web site that allow for ease of use.
5. Technology- Any electronic method by which communication takes place.

6. Virtual Classroom- A web page by which students can interact with Instructors and each other at the same time.

CHAPTER TWO

REVIEW OF THE LITERATURE

Introduction

Traditional classroom practices have centered on the teacher-as-knowledge provider without much consideration for the individual learner. The development of a web page must address current learning theories and established pedagogy for more differentiated instruction. This literature review establishes theories of learning, illustrates their influence on instructional design methods, explores effective design elements and identifies specific guidelines for implementation.

Theories of learning have long been established but their integration with instructional approaches in education is limited. The issue then, "is how students can best learn from the various instructional approaches adopted in the classroom, and the balance accorded to each approach" (Hung 2001). The website project addresses the three schools of thought described in chapter two and their perception of how learning takes place.

Behaviorist and Cognitive Theory

In its most fundamental form, the behaviorist school of thought stems from the notion that all learning is extrinsically initiated. The integration of external rewards and punishments can shape this observable behavior. Students generally find computers and the Internet a fascinating, and rewarding experience. "Learning therefore is a relationship between a stimulus and a response" (Hung 2001). According to the behaviorist school of thought, there are "four essential components in regards to learning: Firstly, each step in the learning process should be short and should arise from previously acquired behavior. Secondly, learning should be rewarded and reinforced regularly, at least in the early stages, as behavior is shaped by the pattern of reinforcements in the environment. Thirdly, feedback should be as immediate as possible and fourthly, the learner should be given 'stimulus discriminations' for the most likely path to success" (Semple 2000). A behaviorist believes learning, like reading for example, is directly observable and can be shaped accordingly. The website utilized this theory by giving immediate feedback in the form of information and rewarding the user with

it. Additionally, users were observed exhibiting desired behaviors such as proper navigation, typing and communication skills. The project exemplified not only the behaviorist theory of learning; it also considered the cognitive perspective on development.

Another school of thought emphasizes the fact that some learning occurs abstractly and therefore cannot be observed directly or shaped by a stimulus. According to cognitive theories of learning, the activities of a person within his environment are parts of a mutually constructed whole (Hung 2001). In addition, "learning is viewed as making symbolic mental constructions involving active mental processing on the part of the learner" (Semple 2000). Learning and thinking activities coherent with web-based projects such as cognitive tools are described in terms of individual memory storage, conceptual skill demonstration and factual knowledge. According to the cognitive theories of learning, computer technologies are cognitive learning or mind tools amplifying human abilities such as memory and processing (Semple 2000).

The last theory is newly recognized as the exemplar for designing web-based instruction.

Constructivist Theory

The constructivist school of thought extends beyond cognitive theory to incorporate the surrounding environment in which learning occurs. "One of the distinguishing features of the constructivist theory is children construct their own learning" (Semple, 2000). This pedagogy of learning assumes several issues pertaining to how individuals make meaning and construct ideas.

Assumptions of Learners

Jonassen, Kyle and Peck (1999) emphasize the following ten core aspects rooted in the constructionist perspective:

Constructivists believe that knowledge is constructed, not transmitted and results from activity.

1. Knowledge is anchored in an indexed by the context in which the learning activity occurs.
2. Meaning is in the mind of the knower therefore, there are multiple perspectives in the world.
3. Making meaning is prompted by a problem, question, confusion, disagreement, or dissonance (a need or desire to know) and so involves personal ownership of that problem.

4. Knowledge building requires articulation, expression, or representation of what is learned (meaning that is constructed).
5. Meaning may also be shared with others, so meaning making can also result from conversation.
6. So, meaning making and thinking are distributed throughout our tools, culture and community.
7. Not all meaning is created equally.

(Jonassen et al., 1999)

This framework of learning addresses an individual's perception of how he/she derives knowledge and shares experiences as a tool for cognitive development. Furthermore, constructivism recognizes that not only the knowledge and understanding children bring to learning, but that the characteristics of the learners themselves influence learning (Semple 2000). The child who doesn't understand a concept in a noisy group situation, may learn better alone in a quiet room. Consequently, the child who doesn't quite understand an issue presented through one medium of instruction in the classroom setting, may grasp it using technological implementation.

Learning Styles

In addition to theories involving learning and the environment, it has been long established that people are apt to understand concepts in specific styles. Several domains divide learning into specific areas: naturalist, intelligence; kinesthetic or bodily, spatial or visual, musical or rhythmic, verbal or linguistic and intrapersonal and interpersonal (Semple 2000). Each category requires a different method of instructional delivery and uses this criterion as a defining characteristic for instructional delivery. By utilizing behaviorist, cognitive and constructivist philosophies, a blueprint is established by which instructional design must be constructed.

Instructional Design

In its simplest form, instructional design is a term used to describe the method by which educational instruction is developed. It is a set of detailed procedures that incorporates learning theories to increase student understanding of material. By definition, instructional design is the systematic development of instructional specifications using

learning and instructional theory to ensure the quality of instruction. It is the entire process of analysis of learning needs and goals and the development of a delivery system to meet those needs and includes development, tryout, and evaluation of instructional materials and activities. "Though there are several models to developing instruction, they all share similarities in common-they all include the four elements: learner considerations, content organization, instructional strategies, and evaluation" (Zheng & Smaldino 2003). One specific process that utilizes this structure is termed backward design. This framework guides teachers to reevaluate curriculum for proliferated student understanding. Furthermore, students are motivated from a greater sense of control over their own learning.

The Backward Design Process

The logic of backward design suggests a planning sequence for curriculum (Wiggins & Mc Tighe 2001). Teachers must know what desired outcomes they expect from their students before designing instructional plans and assessments. Wiggins and Mc Tighe (2001) offer three

criteria, or filters, to utilize when selecting ideas and processes to teach for understanding.

1. Identify Desired Results
    a. To what extent does the ideas, topic, or process represent the "big idea" having enduring value beyond the classroom.
    b. To what extent does the idea, topic, or process reside at the heart of the discipline?
    c. To what extent does the idea, topic, or process require uncoverage?
    d. To what extent does the idea, topic, or process offer potential for engaging students?
2. Determine Acceptable Evidence
    a. With which tools will assessment take place?
3. Plan Learning Experiences and Instruction
    a. What enabling knowledge (facts, concepts, and principles) and skills (procedures will students need to perform effectively and achieve desired results?

b. What activities will equip students with the needed knowledge and skills?

c. What will need to be taught and coached, and how should it best be taught, in light of performance goals?

d. What materials and resources are best suited to accomplish these goals?

e. Is the overall design coherent and effective?

(Wiggins & Mc Tighe 2001)

When instructors apply these principles of design, they are more likely to address the prominent theories of learning and achieve a higher degree of student comprehension. This design is predominant in the design of web pages for student utilization. In addition, the authors outline an acronym WHERE. "This stands for where are we headed, hook the student, explore the subject and equip the student, rethink our work and ideas, and evaluate results" (Wiggins & Mc Tighe 2001). This process encourages instructors to constantly re- evaluate and revise educational instruments. The process of designing an effective, appropriate website is a dynamic process that involves constant transformation. Because

one must combine learning theory with the design process to develop effective strategies and assessments for students, the following section outlines useful lessons that stem from learning theories and instructional design elements combined.

Instructional Design and Constructivism

The principles found in backward design and constructivist approaches are ideal to facilitate implementation of multimedia as a tool for instruction. "What makes these multimedia learning environments powerful is that they present a problem that is embedded in a real-world context" (Jonasses et al., 1999). Other example include multimedia in the design of an educational informational website. From a behaviorist perspective, the students can remember rules posted on the site and the teacher may actually observe good student behavior. Cognitively, students remember strategies, rules and patterns, and "constructively, they discover the relationship between concepts" (Hung, 2001). Other multimedia tools enable users to have discourse pertaining to course material and assignments.

Instructional Strategies

A greater variety of instructional lessons and assessments allow a more diverse population of learners to achieve their educational goals. In order to didactically change, approaches must be explored that encourage different modalities of learning within the academic institution. Multimedia and online strategies that integrate learning theory are currently being researched and implemented within the academic community.

Multimedia

Multimedia represent the integration of more than one medium into some form of communication. Instructional multimedia, however, typically involve the auditory and visual modalities in the integration of media such as text, sound, graphics, animation, video, imaging, and spatial modeling into a computer system (Jonassen et al., 1999). Multimedia tools simultaneously engage kinesthetic, musical, verbal, visual, and spatial learners when incorporated into course content. Users can access information actively, and utilize multiple intelligences and learning styles. Multimedia's flexibility allows it to be tailored to encompass the

different schools of thought through content and assignments.

Learning Communities

School-based learning communities are formed when teachers and students join together to work on long term projects (Grabe and Grabe 2001). The interpersonal and intrapersonal learner relies on collaboration and dialogue to fully understand academic concepts and course information. Web communities enhance collaborative experiences and enable learners to reflect, respond, and rethink essential questions. Furthermore, in this constructivist approach, the teacher can relinquish the role of instructor to become a facilitator of information. Because students dialogue within the group to elaborate and clarify ideas, the interaction among the members defines what will be learned.

Elements of Web Design

In order to fully research the design and development of an informational educational website, other sites should be observed for functional and effective design elements. Several sites by other teachers and school districts have been explored to

complete this table of essential elements for web-page design. These ratings have been modified from Karen McLachlan's Style and Content Rating Surveys (2002) and appear in the first table below. The second table lists teacher sites alphabetically. The full rating sheets are located in the appendix section of this document. They serve as a sound basis for critiquing and evaluating web sites.

Table 1. Design Elements

Aesthetics	Is the site appealing to the eye? Do all pages have a basic style?
Browser Compatibility	Is the site compatible with all browsers including Netscape and Explorer?
Currency	Has the site been updated recently and do all links work properly?
Information	Does the author have contact information? Is the information clear about the site's purpose?
Navigation	Are navigation bars easy to use?
Multimedia	Are all graphics relevant to the site's content? Do the graphics serve a significant purpose?

Five sites developed by educators were explored to answer the questions provided above. The results are provided in the following table.

Table 2. Web Page Elements

Teacher	Aesthetics	Browser Compatibility	Currency	Information	Navigation	Multimedia
A	yes	yes	no	yes	no	no
B	no	yes	no	yes	no	no
C	yes	yes	yes	yes	yes	yes
D	yes	yes	yes	yes	yes	yes
E	no	yes	no	yes	yes	no

Legend:

A - http://www.geocities.com/Baja/Canyon/4701/sarah.html

B - http://www.geocities.com/Athens/Troy/3650/

C - http://www.geocities.com/patestuff/

D - http://home.earthlink.net/~macavinta/

E - http://www.dsusd.k12.ca.us/users/cyndif/FurrHome.htm

The results of exploring other sites illuminated the fact that many issues of design must be researched before web development occurs. In order to understand what is necessary, one must question a site's content as well as its aesthetics. An efficient site will have both ease of

navigation and usability. Additionally, the site must be content specific for its purpose.

Summary

A school's primary obligation should be to help students learn how to recognize and solve problems, comprehend new phenomena, construct mental models of those phenomena, and, given a new situation, set goals to regulate their own learning (Jonassen et al.,1999). The literature review presented in chapter two consistently supported the need for integration of multimedia and other electronic enhancements into the traditional classroom setting. Teachers should be compelled to address complicated learning styles present in students and implement strategies congruent to the predominant schools of thought. This call to augment conventional school classrooms with technology will transform the current paradigm of curriculum delivery to adjust and better meet the multiplicity of students we serve.

CHAPTER THREE

PROJECT DESIGN PROCESSES

Introduction

A Sophomore English class utilized the project website to increase student understanding of material presented in class. This project was evaluated using the qualitative method because this style of empirical research differs from its more objective counterpart. "In qualitative research, there is a tendency to include data surrounding these interactive constructs rather than to isolate individual variables for analysis" (Golez, Pollack, Vierra, 1998). The students' style of learning cannot be separated from the context in which it occurs (the website). Because this complex set of behaviors is difficult to observe and report statistically, most educators realize the value of qualitative methods in the educational research process. In addition, the data collection for this project originated from observation and participant self-report. According to Golez et al.,1998 "observational focus can be a kind of panorama, encompassing a wide range of events, or it can be a close-up, confined to specific events" (p. 187).

Although this web-based project reported evaluations from a qualitative perspective, some results are presented statistically as they apply to the final analysis and evaluation of this tool. In addition to the questionnaire itself, the International Review Board has approved the student survey, the student consent form, and the parent consent form.

Analysis

The population sample for this project was derived from one class in Cathedral City High School's attendance and registration master lists. The participants in this study had many similar characteristics including electronic access to class content, reading level, age and educational goals. Approximately thirty, highly motivated students were enrolled in the Sophomore Honors English class. They were cognizant of their individual styles of learning and exhibited those needs in the classroom. These participants knew how to type, use the Internet, email, and other basic electronic skills needed to have equal accessibility to the project.

The data collected and analyzed for this study was derived from a short student questionnaire and the

researcher's observations of the students. The survey results were reported in the statistical form, and general assumptions about the effectiveness of the project have been generated from this information. The instrument utilized for evaluation was developed specifically for this project and therefore has no history or data regarding reliability or validity of previous use. The survey is located in the Appendix section of this document.

Design

The website was designed specifically for those students, parents and teachers affiliated with Cathedral City High School. The index or home page contained a table with the website's overall content matter. This instructor taught two different English courses and both had their own link to a course syllabus. The rules, weblog, student resources, sports schedules, parent resources and a resource web page are linked to this page. Inside of the course syllabi for the Sophomore Honors class, were the daily calendars with links to other resources, online books, and assignment information. The instructional strategies outlined in chapter two serve as the basis for design and

implementation of this multimedia project. The user interface for this project includes navigation buttons and text, graphics and a page for entering questions and comments called a weblog. This particular page was created using a template associated with the web-hosting site, Tripod. Students utilized this page for entering questions and comments. The content designed for this project outlined specific instructional goals.

Instructional goals are integral to designing, implementing and evaluating the content of instructional web sites. Several goals and their objectives are listed below as they pertained to the project.

1. Goal - Students will understand the value of electronic communication.

   Objective - Students will access the site to communicate with the instructor and other classmates.

2. Goal - Students will be aware of classroom policies and procedures.

   Objective - Students will access and read classroom rules located on the website. Students will demonstrate knowledge by behaving accordingly.

3. Goal - Students will learn about their own career goals and expectations.

   Objective - Students will complete a career research web-based assignment and present their findings to the class.

4. Goal - Students will explore other cultures and gain a multicultural perspective.

   Objective - Students will complete a web-based assignment on surviving Native American tribes and present their findings to the class.

Students will understand and demonstrate the policies outlined in the electronic course outline. Students will read and follow course outlines as they pertain to the class.

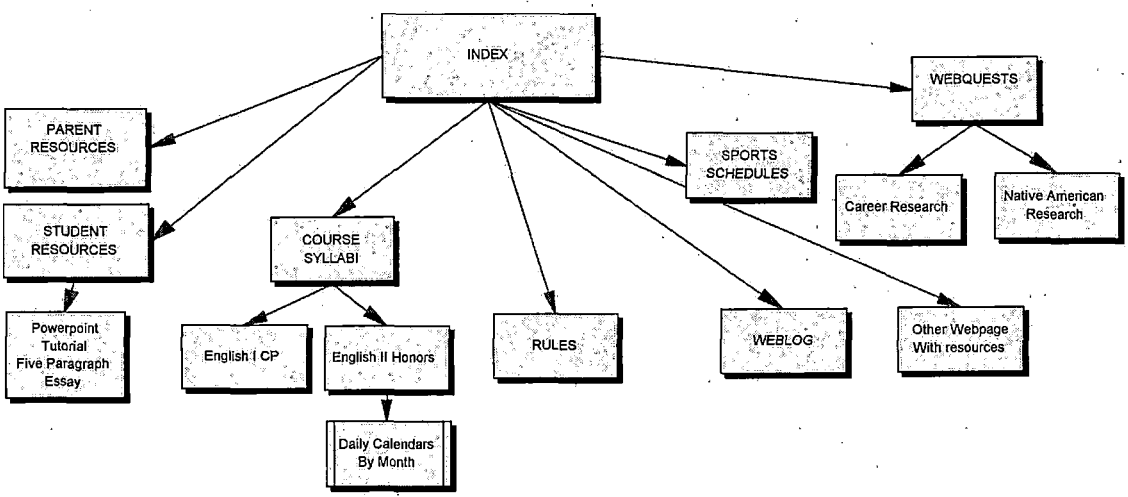

Figure 1. Concept Layout Flowchart

Development

This project was developed using the authoring software entitled FrontPage manufactured by Microsoft Inc. This program allowed the creator to design a site, add and alter pages when necessary, and maintain several pages in one organized document. No coding experience was necessary to use this authoring program.

The design of this web page was essential to user navigability and ease. The main page was simply a listing of the site's content. The background color of the index page was black and the typeface illuminated a bright blue. Similar to a printed book, the main page was the table of contents in the sense that it was

directional. However it differed from the table of contents because content is arranged spatially instead of numerically. (Lin 2002) Listed below is a flowchart illustrating the pages and navigation of the site.

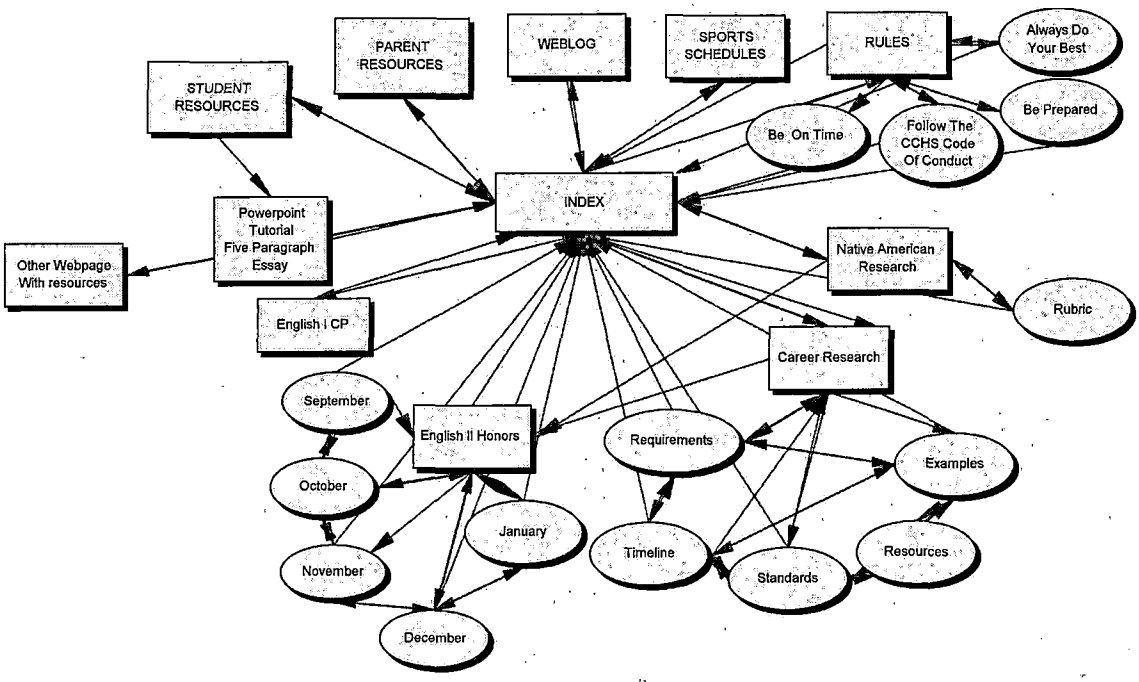

Figure 2. Content Navigation

Comic Sans was the font style utilized for the remainder of the pages in this project. Due to the content make-up of the individual pages, several font sizes utilized space better than one. The color scheme coincided with specific pages. For example, the index

page, rules, parent and student resources had a black background and bright blue typeface. Hyperlinks were colored a shade of purple that could be discerned easily against the dark and light backgrounds. The course syllabi were gray with black font, and the monthly calendars are all white with the Cathedral City Logo at the top. The documents found on the website were created by the instructor specifically to enhance the concepts presented in class. All pages linked back to the index page and the daily calendars include navigation bars with textual interface that link to other pages in the document. There were no auditory or video clips included for further instruction. A tutorial on writing a five-paragraph essay was included in the student resource section of this project. The clipart and graphics incorporated into the project come from free Internet sites.

Implementation

The timeline for this project was approximately four months beginning the first week of school. The participants in this study needed basic computing literacy skills such as typing in a web address

correctly, emailing, pointing and clicking with a mouse, and basic navigation skills acquired in a keyboarding class taken freshman year. All students were familiar with uploading documents, sending attachments via email, and communicating through the weblog, which is a type of threaded discussion.

The curriculum used to enhance the traditional classroom was derived from material presented in class. The students read a number of books, and completed assignments for the class according to the Palm Springs Unified School District's reading lists. All material was aligned to California's State Standards for grades nine and ten and are presented in the appendix section of this document. The students demonstrate state competency by passing the High School Exit Exam given in March of 2004. Additionally, a number of written and verbal exercises were completed in class to prove student comprehension of material.

Students were expected to utilize electronic calendars for daily reminders of homework assignments. Additionally, they completed two research-based projects using Internet resources and synthesized information for delivery in the form of a research paper, oral

presentation, and visual representation. In addition they typed, cited and evaluated this information. Furthermore, quizzes, tests, and other oral and written assessment tools were administered in the class to ascertain the effectiveness of content delivery. Performing a number of tasks in class and turning in assignments enabled students to excel academically.

Evaluation

The evaluation of this project had two important implications-the effectiveness of the site for enhancing learning and improving this project to better address the target population. Summative evaluations try to control variables and utilize a design that will control potentially confounding variables, so this project will be evaluated using a formative assessment. (Golez et al.,1998) Students evaluated the site on the number of times accessed, for what purpose specifically, if navigation was a problem, and if they felt the site assisted their understanding of material presented in class. A space on the assessment form was provided for comments about improving the site for future students.

The survey is located in the appendix section of this document.

The assessments identified internal problems with the site and helped improve usability. The survey results are provided in statistical form with additional information about specific comments made by the participants regarding the project and its usefulness. The results further indicate that the students primarily used the site to access specific projects and calendars.

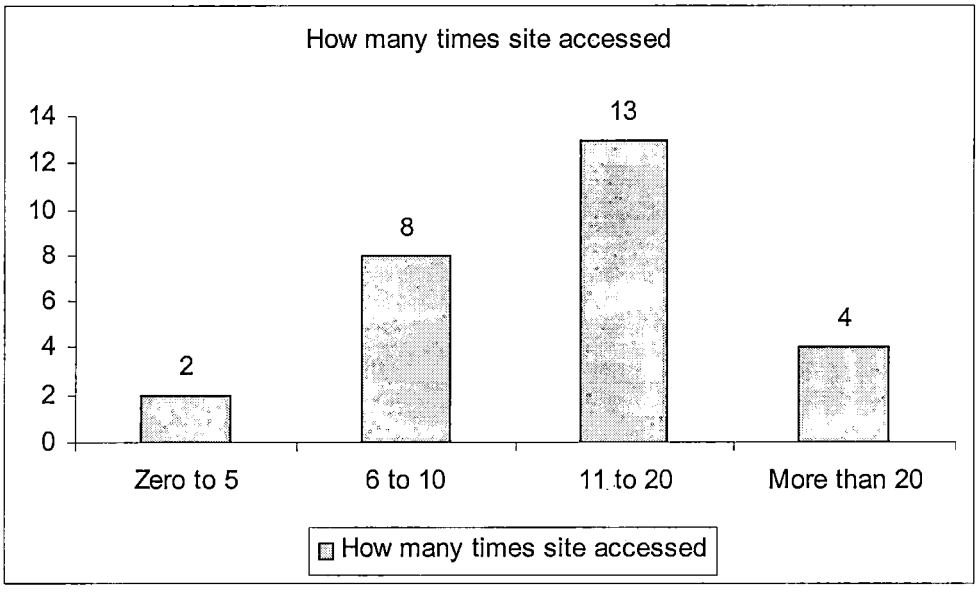

Figure 3. Survey Results Question One

Table 3. Survey Results Question Two

Site Accessibility Reported as Number of Students

Career Web	27
Course Syllabi	11
Email the Instructor	3
Games	5
Information on AP Testing	1
Monthly Calendar	27
Class Rules	4
Sports Schedules	2
Essay Tips	15
Weblog	8

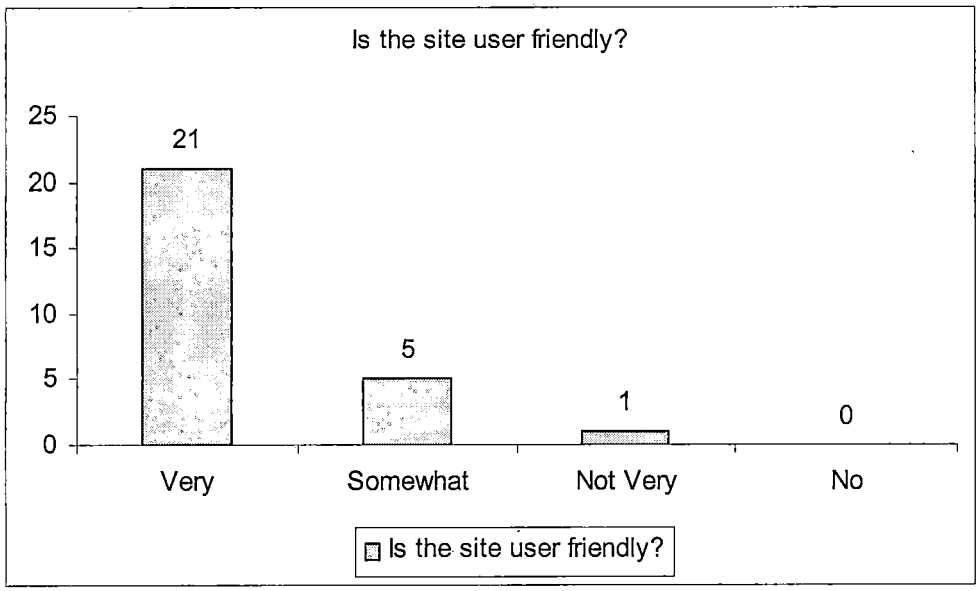

Figure 4. Survey Results Question Three

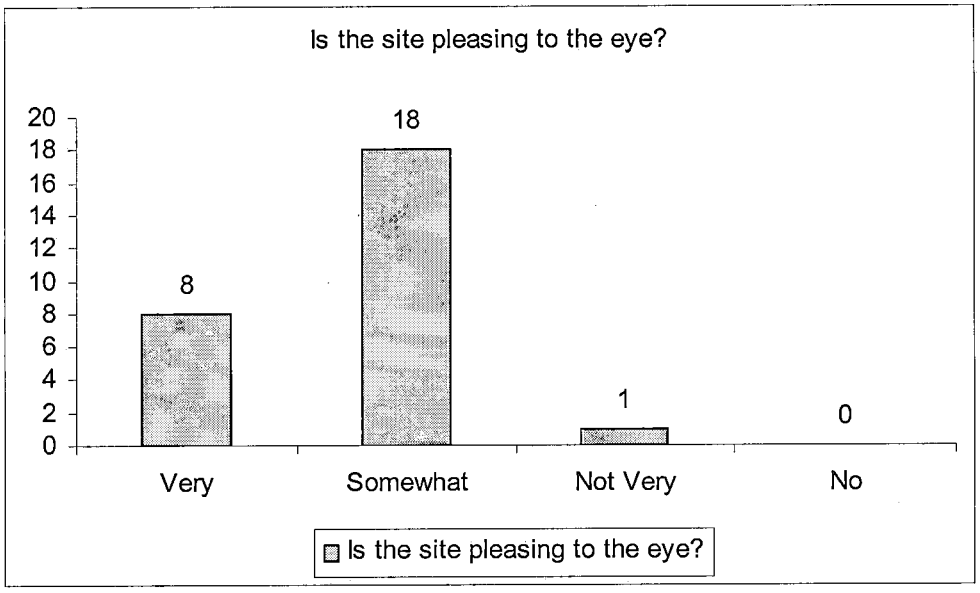

Figure 5. Survey Results Question Four

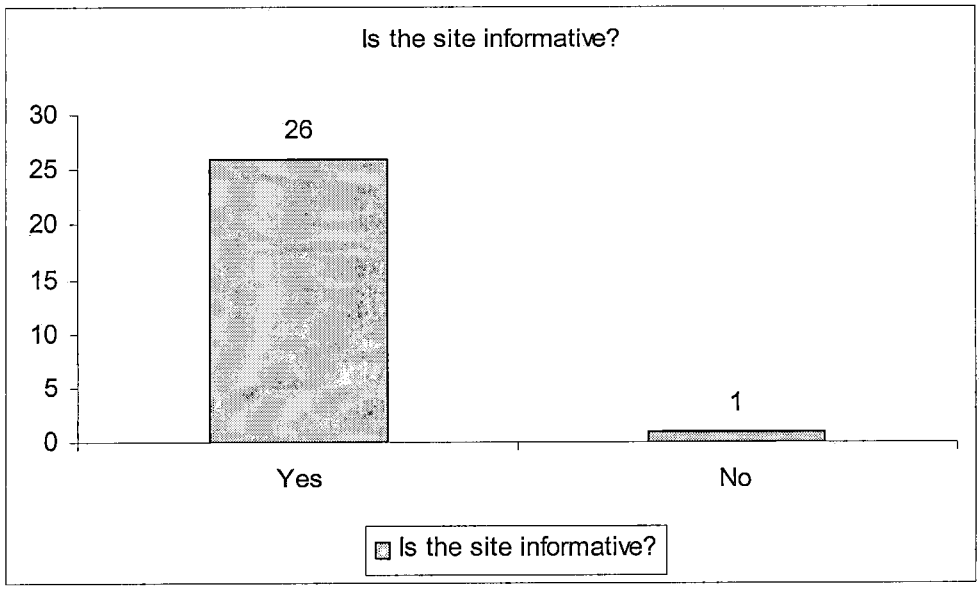

Figure 6. Survey Results Question Five

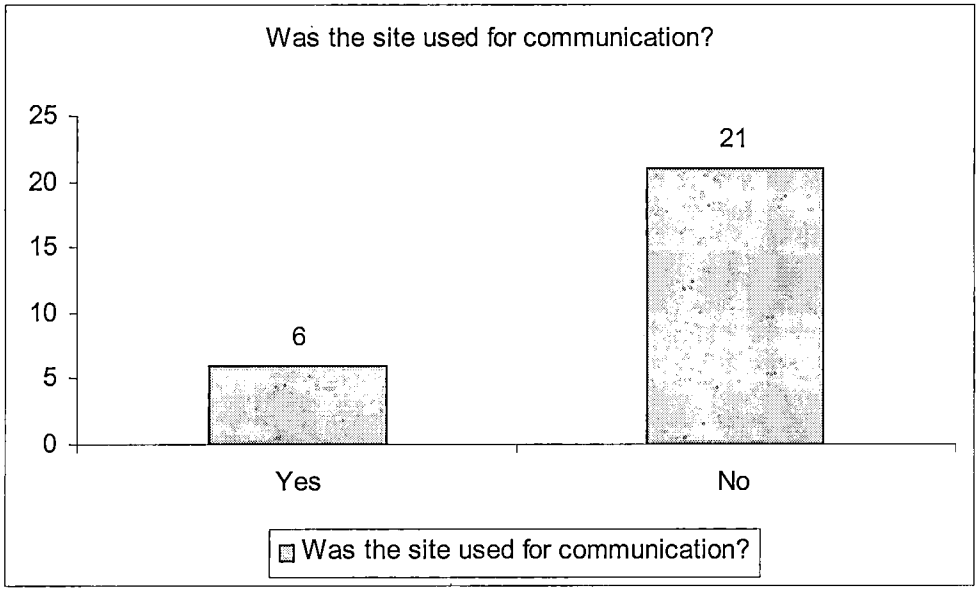

Figure 7. Survey Question Six

Summary

When developing an electronic tool such as a web page to enhance learning, several complex issues must be assessed. Learner characteristics, methods of delivery, implementation, and evaluation tools must all be considered for effective implementation. This project discusses the importance of identifying these conditions and how they relate to the final outcome a web-based environment. The project helped disseminate information among a group of students who otherwise would not have the learning opportunity. The website addressed many of the multiple intelligences as they related to learning in

chapter two of this document. The tutorial, web quests and projects addressed specific styles of the constructivist perspective. Students benefited from the accessibility of information presented.

CHAPTER FOUR

CONCLUSIONS AND RECOMMENDATIONS

Introduction

The website project developed for information dissemination and facilitation of learning was designed, implemented and evaluated by the students in a Sophomore English class. The objective of this study was to discern whether or not students would employ the website for additional clarification of concepts presented in class. The class was instructed to use the site for information gathering, assignment information, and contacting the instructor, or other students in the class. At the end of four months, students assessed the project anonymously in a written survey. Some gave additional written suggestions on the surveys. The survey resulted in some very salient issues that will be discussed in this chapter and lead to the recommendations about the site and its contents.

The implications of this study will assist the instructor and other educators to develop web based projects that The implications of this study assisted the instructor and hopefully, other educators to develop web

based projects that enhance daily classroom instruction and enable greater student understanding of concepts presented in class. Additionally, the findings of this research study may be extrapolated to better assist teachers who incorporated and electric component in their traditional classrooms.

Conclusions

As a result of the in-class survey, many conclusions were extrapolated about the effectiveness of this project:

1. More than half of all students used the website at least ten times or more.
2. All the students utilized the website for specific assignments related to the class.
3. All of the students used the website for daily/monthly calendars.
4. Almost half of the students used the site for clarification about essay writing.
5. Approximately one-third of the students used the site for course information such as the course syllabi.

6. Less than one-third of the students utilized the site for contacting the instructor through the weblog and even less for emailing the instructor.
7. Less than one-fifth of the students utilized the website for games, information on AP testing, sports schedules, or class rules.

Recommendations

Several propositions were derived from the results of the students' evaluation of this project. Concerns addressed in the surveys illuminated problems with the index, calendars, and aesthetics in the site. The recommendations resulting from the project are listed below and originated from the students' comments regarding the site.

1. The navigation of the site needed to be better organized and have less load time.
2. The site should be "more visually impressive."
3. Make sure all links work properly.
4. Update past calendars to reflect relevant information.

5. Calendars should be accessible from the main index page.
6. Incorporate Flash Animations to increase the aesthetics of the site.

Summary

The informational website project developed to promote learning and understanding in the traditional classroom benefited the students in several ways. Students felt the site was a helpful tool for gathering information, exchanging ideas and communicating and clarifying concepts. Overall, students regularly utilized the information available online, and expressed a positive attitude towards utilizing electronic aides. They were motivated to encompass new and exciting tool to increase their learning experiences.

APPENDIX A

CD OF PROJECT

APPENDIX B

STUDENT CONSENT FORM

STUDENT

INFORMED CONSENT

The study in which you are being asked to participate in is designed to investigate electronic enhancements for the classroom. In this case, electronic enhancements are defined as accessing study aids, assignments, calendars, etc., through the use of a Web page. Rebecca Bonheim is conducting this study under the supervision of Dr. Baek, Professor of Instructional Technology. This study has been approved by the Institutional Review Board, California State University, San Bernardino.

In this study you will be asked to respond to a survey with several decisions to choose from. The following survey should take about 10 to 15 minutes to complete. Your name will not be needed. You may receive the group results of this study upon completion, June 11, 2004, posted in the Administration building, at Cathedral City High School.

Your participation in this study is totally voluntary. Non-participation will not affect your grade or standing in class. You are free not to answer any questions and withdraw at any time during this study without penalty. When you have completed the survey, you may receive a debriefing statement describing the study in more detail. In order to ensure authenticity of the study, we ask that

you not discuss this study with other students or participants.

If you have any questions or concerns about this study, please feel free to contact Dr. Baek at (909) 880-5454 or myself (760) 770-0100 ext. 306.

By placing a check mark in the box below, I acknowledge that I have been informed of, and that I understand, the nature and purpose of this study, and I freely consent to participate. I also acknowledge that I am at least fifteen years old.

Place a check mark here ☐ Today's date:_____

APPENDIX C

PARENT CONSENT FORM

PARENT/GUARDIAN

INFORMED CONSENT

The study in which your son or daughter is being asked to participate in is designed to investigate electronic enhancements for the classroom. In this case, electronic enhancements are defined as accessing study aids, assignments, calendars, etc., through the use of a Web page. Rebecca Bonheim is conducting this study under the supervision of Dr. Baek, Professor of Instructional Technology. The Institutional Review Board, California State University, San Bernardino has approved this study.

In this study your son or daughter will be asked to respond to a survey given several decisions to choose from. The following survey should take about 10 to 15 minutes to complete. Names will not be needed. You may receive the group results of this study upon completion, June 11, 2004, posted in the Administration building, at Cathedral City High School.

Your son or daughter's participation in this study is totally voluntary. Non-participation will not affect your child's grade or standing in class. You are free not to give consent and withdraw at any time during this study without penalty. When your son or daughter has completed the survey, they will receive a debriefing statement describing the study in more detail.

If you have any questions or concerns about this study, please feel free to contact Dr. Baek at (909) 880-5454 or myself Rebecca Bonheim (760) 770-0100 ext. 306.

By signing on the line below, I, the parent/guardian, acknowledge that I have been informed of, and that I understand, the nature and purpose of this study, and my son/daughter freely consents to participate.

Student Name: _____

Parent/Guardian signature: _____

Today's date: _____

APPENDIX D

WEB SITE SURVEY

WEBSITE SURVEY
REBECCA BONHEIM'S
High School English Page

1. How many times have you accessed the English website?

   a. Not at all.
   b. Less than ten times.
   c. Ten to twenty times.
   d. More than twenty times.

2. For what information did you access the site? Check all that apply.

Career Web	
Course Syllabi	
Email the Instructor	
Games	
Information on AP testing	
Monthly Calendar	
Class Rules	
Sports Schedules	
Essay Tips	
Weblog	

3. Is the site user friendly?
   a. Very.
   b. Somewhat.
   c. Not very.
   d. Not at all.

4. Is the site (aesthetically) pleasing to the eye?
   a. Very
   b. Somewhat
   c. Not very
   d. Not at all.

5. Did the site help to keep you informed about assignments?
   a. yes
   b. no

6. Did you communicate with the instructor and the students using the site(email, weblog?
   a. yes
   b. no

Use this space for any comments you may have concerning the improvement of this website and its contents.

APPENDIX E

STYLE AND CONTENT RATINGS

WWW CYBERGUIDE RATINGS FOR CONTENT EVALUATION
Site Title: _____ Subject:
_____
URL: _____ **Audience:**
_____
Purpose for exploring this site:
_____
Notes on possible uses of this site and URLs for useful linked sites:
_____
_____
_____
To determine the worth of the Web site you are considering, evaluate its content according to the criteria described below.
Circle "Y" for "Yes", "N" for "No", "NA" for "Not Applicable".
Based on the total of "yes" and "no" answers and your overall observations, rate the content of this site as:
__ Very useful for my information needs __ Worth bookmarking for future reference __ Not worth coming back to
Comments:

1. First look
A. User is able to quickly determine the basic content of the site. Y N NA
B. User is able to determine the intended audience of the site. Y N NA

2. Information Providers
A. The author(s) of the material on the site is clearly identified. Y N NA
B. Information about the author(s) is available. Y N NA
C. According to the info given, author(s) appears qualified to present information on this topic. Y N NA
D. The sponsor of the site is clearly identified. Y N NA
E. A contact person or address is available so the user can ask questions or verify information. Y N NA

3. Information Currency
A. Latest revision date is provided. Date last revised_____ Y N NA
B. Latest revision date is appropriate to material. Y N NA
C. Content is updated frequently. Y N NA
D. Links to other sites are current and working properly. Y N NA

4. Information Quality
A. The purpose of this site is clear: business/commercial – entertainment – informational - news - personal page - persuasion
Y N NA
B. The content achieves this intended purpose effectively. Y N NA
C. The content appears to be complete (no "under construction" signs, for example) Y N NA
D. The content of this site is well organized. Y N NA
E. The information in this site is easy to understand. Y N NA
F. This site offers a sufficient information related to my needs/purposes. Y N NA
G. The content is free of bias, or the bias can be easily detected. Y N NA
H. This site provides interactivity that increases its value. Y N NA
I. The information appears to be accurate based on user's previous knowledge of subject. Y N NA
J. The information is consistent with similar information in other sources. Y N NA
K. Grammar and spelling are correct. Y N NA

5. Further Information
A. There are links to other sites that are related to the my needs/purposes. Y N NA
B. The content of linked sites is worthwhile and appropriate to my needs/purposes. Y N NA

Totals

WWW CYBERGUIDE RATINGS FOR CONTENT EVALUATION

1. Speed
A. The homepage downloads efficiently. Y N NA

2. Home page
A. The homepage is attractive, has strong eye appeal. Y N NA
B. You can tell where you are immediately (clear title, description, image captions, etc.) Y N NA
C. There is an index, table of contents, or some other clear indicator of the contents of the site. Y N NA
D. Site sponsor/provider is clearly identified. Y N NA

E. Information/method for contacting sponsor/provider is readily available. Y N NA
F. Copyright date or date site was established is easy to determine. Y N NA

3. Ease of navigation

A. User is able to move around within the site with ease. Y N NA
B. Directions for using the site are provided if necessary. Y N NA
C. Directions are clear and easy to follow. Y N NA
D. The links to other pages within the site are helpful and appropriate. Y N NA
E. Internal and external links are working properly (no dead ends, no incorrect links, etc.) Y N NA

4. Use of multimedia

A. Each graphic, audio file, video file, etc., serves a clear purpose. Y N NA
B. The graphics, animations, sounds clips, etc., make a significant contribution to the site. Y N NA

5. Browser compatibility

A. Site is equally effective with a variety of browsers such as Netscape and Internet Explorer. Y N NA

6. Content Presentation

A. There is sufficient information to make the site worth visiting. Y N NA
B. The information is clearly labeled and organized. Y N NA
C. The same basic format is used consistently throughout site. Y N NA
D. Information is easy to find (no more than three clicks, for example). Y N NA
E. Lists of links are well organized and easy to use. Y N NA

7. Currency

A. The date of last revision is clearly labeled. Date last revised_____ Y N NA
B. Out-dated material has been removed. Y N NA

8. Availability of further information

A. A working link is provided to a contact person or address for further information. Y N NA
B. Links to other useful Web sites are provided. Y N NA

Totals

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