Facilitating an online community among community college peer tutor trainees

Matthew Robert Ruzicka

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FACILITATING AN ONLINE COMMUNITY AMONG COMMUNITY COLLEGE PEER TUTOR TRAINEES

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

by
Matthew Robert Ruzicka
December 2005
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Approved by:

Eun-Ok Baek, Ph.D., First Reader

Sylvester Robertson, Ed.D., Second Reader
ABSTRACT

The purpose of this project was to develop a Web-based component to a four-week tutor-training course at the community college level. The principal intention of the development was to facilitate communication among the tutors so that learning could occur in a situated context.

The significance of the project is that, if successful in achieving learning objectives, it would give the tutor trainer another feasible avenue other than lecture or seminar to train peer tutors.

The project consisted of a simple Web-site linked to an online bulletin board. It was evaluated and revised three times on a three-week duration by observation of use, interview, and administration of a survey.

Even though there were indications of interaction and learning, the robustness of the online forum was limited by the technical expertise of the community college students.

The designer of this project recommends much time and work in preparing the community college student for the technical and affective demands of the online community.
ACKNOWLEDGMENTS

I would first like to thank the Roger's family, and the Mary Stuart Rogers Foundation for their support, for without it, this accomplishment would not have been possible.

Carol Shaw, you put my feet on the path. I am grateful for the support and input of the first and second readers, Dr. Eun-Ok Baek and Dr. Sylvester Robertson. Marc Drescher, through your generosity of technical support and expertise, you made my project get off the ground. Dr. Rhonda J. Rockwell, thank you for lending your talent and input. To my sister Sandra J. Lerand, I am grateful for your aid and assistance.
DEDICATION

This project is dedicated to all of my former teachers, instructors, and professors.
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CHAPTER ONE

BACKGROUND

Introduction

Within the past two decades the community colleges have expanded their roles as educational institutions in areas of remediation (Schuetz, 2002), community development (Hirshberg, 1991), and ensuring diversity in the workforce (Curry, 1988). Student services have emerged as a critical function of the community college in insuring the academic advancement of the students. A well developed tutoring program is instrumental in achieving these goals (Gier & Hancock, 1996).

Student services work toward the development of the student outside of the classroom. These services consist of counseling, assessment, financial aid, health and child care, learning assistance centers (Boylan, 1997), and specifically, tutoring as an indispensable service rendered by learning assistance centers.

Learning assistance centers offer many services including but not limited to assessment, writing labs, reading labs, computer-assisted instruction, and tutoring (Stern, 2001). Learning assistance centers offer a "sense of place" where students can learn with greater
self-reliance and self-confidence (Chaves, 2003). Central to the mission of the learning assistance center is peer-assisted learning in the form of one-on-one tutoring, supplemental instruction, and drop-in tutoring.

Boylan (1997), in citing the work of Maxwell (1985), and Casazza and Silverman (1996), finds that tutoring programs are most effective in fostering student success when well-developed tutor training programs are in place.

Statement of the Problem

At College of the Desert, in Palm Desert, California, the Academic Skills Center (a learning assistance center by definition) has experienced growth in programs, student body, and demographic-geographic distributions. Student diversity has increased, favoring those of Latin-American origin; the number of physical sites where tutoring takes place has increased; and programs have branched out. To be specific, the tutoring center at College of the Desert provides a generalized tutoring lab where one-on-one, group tutoring, supplemental instruction, and drop-in tutoring are conducted in all requested courses including but not limited to mathematics (all lower division levels), humanities, and the sciences. A writing lab housed in the Academic Skills Center on the Palm Desert
Campus is served by English tutors. The Eastern Valley center is an extension of the Palm Desert Campus. Located in Indio, California, the Eastern Valley Center provides mathematics and English tutoring. Furthermore, the college also provides services in several federally and privately funded tutoring programs that take place at various campus locations.

From a tutor trainer's and coordinator's point of view, administration and training logistics are confounded by the fact that tutors are an ephemeral human resources, changing their student schedules from semester to semester, and transferring out to other colleges. Tutors are scheduled to work around their course schedules which vary greatly from tutor to tutor. Thus, it is virtually impossible to hold a traditional seminar-type tutor training in such a way that a majority of tutors can attend.

Another collateral problem that must be solved in this training context is that the training must be carried out in a relatively short duration. The semester at College of the Desert is fifteen weeks. So the training which carries one-half of a semester credit takes place twice within the semester in the span of five weeks. Hence, the problem for the trainer is not only to get the
tutors to attend a unified tutor training, but also to put them in a context where social peer-to-peer interactions take place for the purpose of developing tutoring skills.

Purpose of the Project

The purpose of the project was to develop a web-based component to a tutor training program that is responsive and adaptable to the tutor's needs. It had to be conducive to tutor-to-tutor communication, and had to provide a context where situational cognition can take place. To be of use in the educational world, it was designed to be easy enough for the average administrator to develop and easy enough for the novice computer user to learn, while employing evaluation techniques and revisions that can occur on the short duration.

Significance of the Project

The significance of the project was that many of the logistic and pedagogical problems that plague many community college tutor trainers could be mitigated by the use of widely available technology, straightforwardly managed, revised, and implemented. These methodologies and techniques of assessment, design, development, implementation, evaluation and revision can be readily employed by any Tutorial Coordinator who has adequately
adept trainees and a basic knowledge of the use of widely available web page authoring software and electronic bulletin boards.

Limitations

During the development of the project, a number of limitations were noted. These limitations were the following:

1. There was lower than expected enrollment in the tutor training course due to external and institutional factors.

2. Short duration of the course may have hindered the formation of a more cohesive online learning community.

3. Because this was a campus-based project, extensive cooperation was needed between the Information Systems department and tutoring. Although Information Systems was quite cooperative and helpful in the case of this project, applicability to other institutions would be dependent upon the relationship the trainer has with Information Systems at the respective educational institution.
4. In addition to the project changing throughout the iterations of evaluation and revision according to the rapid prototyping model, the instrument of evaluation could not be changed, for in order to do so during the three one-week iterations of evaluation, separate institutional review board revisions would have to be made, each requiring a minimum of two weeks. Thus, according to University regulations and procedures, changing the survey during the implementation would be unfeasible.

5. To implement the online forum, for security reasons, it was necessary to host it at the one of the College of the Desert servers. Once it was hosted there, the developer had no control over design aspects of the forum.

6. The most notable limitation was the lack of computer related experience by some of the participants.
Definition of Terms

The following terms are defined as they apply to the project.

**ADDIE** - An instructional design process whereby the steps of analysis, design, development, implementation, and evaluation are used sequentially.

**ASEC** - An instructional design process whereby analysis, synthesis, evaluation, and change are employed as design steps.

**Asynchronous** - Meaning not at the same time or not in any temporal order.

**Asynchronous Electronic Forum** - An electronic form of communication whereby users can post information for the review of one or more other individuals who are members of the forum. A user is able to post or reply at any time.

**Behaviorism** - An educational theory that defines learning in terms of observable changes in behavior.

**CD-ROM** - An acronym for compact disk read only memory, i.e. It is a disk inscribed with digital information inscribed on a thin metallic layer.

**Chat** - A means of electronic communication whereby two or more people can communicate with each other at the same time.
Cognitivism - A theory in education that concentrates on the organization and taxonomy of thought processes.

Content - The actual facts, procedures, processes, and thoughts that comprise a course of study.

E-mail - An electronic form of communication whereby users can send information to specific recipients.

Embedded Programs - Programs that are contained within a Web-page.

Front-Loaded - Predetermined.

Heuristic - A method of learning by interaction, trial and error, and discovery.

Hybrid Class - A course that contains online and in class interaction and delivery.

Hypertext - A convention in Web-page navigation by which text can be linked to other Web-pages or electronic resources.

Learning Assistance Centers - Places in educational institutions that offer many services including but not limited to assessment, writing labs, reading labs, computer-assisted instruction, and tutoring (Stern, 2001).

Looping Animation - A graphic representation within a Web page that moves in a repetitive fashion.
Macro Level of Organization - On the macro level, general screen layout and positioning of content and navigational features (Dunlap, 1998).

Metacognition - Thought or reflection upon one's own thought processes.

Micro Level of Organization - Structural and organizational conventions that are used to present content within the macro structures of the Web-page.

Microsoft FrontPage 2003 - Software that enables a designer to construct Web-pages.

Multimedia - Media containing audio, video, graphics, and/or text.

Navigation - The process of retrieving or going from one Web-page or electronic resource to another.

Online Bulletin Board - See Asynchronous Electronic Forum, above.

Peer-Assisted Learning - Assistance that can take the form of one-on-one tutoring, supplemental instruction, and drop-in tutoring.

RAD - Acronym for the instructional design protocol of rapid application development.

Rapid Prototyping - An instructional design methodology by which, at very early stages of the design process, a small-scale prototype is produced that exhibits key
features of the end product. This prototype is tested with a subset of the end-users in an effort to understand the requirements of a more extensive product. The prototype is then refined and expanded in order to produce the larger-scale product (Wilson, Jonassen, & Cole, 1993).

**Retention** - The ability to retain facts, procedures, processes, and thoughts for future use.

**Scaffolding** - Providing pedagogical structures and conventions so that students can construct knowledge. The educator provides just enough structure to enable a student to learn independent of direct instruction.

**Scrolling** - The process of moving to other parts of a Web-page that would otherwise lie outside area of the video monitor screen.

**Server** - A computer connected to a network that stores information for retrieval.

**Situated Cognition** - Otherwise known as situated learning theory. In the theory, knowledge is embedded within the context in which it is used and is inseparable from the actual activity (Gieselman, Stark, & Farruggia, 2000).

**Social Constructivism** - An educational theory that describes learning as a process of negotiation of
meaning and social collaboration, whose operational objective is to share different ideas and collaborate to solve problems and build knowledge (Duffy & Cunningham, 1996).

**Synchronous** - At the same time or in a specific temporal order.

**Videotape** - A magnetic tape containing video and audio information.

**Web-Page** - An organized group of graphics and text that can be retrieved from the internet and represented on a video monitor screen.

**World Wide Web** - Abbreviated WWW, the global network of computers that share and retrieve information. It is a means of communication and commerce that is global but modular in nature.
CHAPTER TWO
REVIEW OF THE LITERATURE

Introduction

The primary goal of a technology based instructional medium should be to accomplish objectives and employ strategies that would otherwise be impractical or impossible without the technology. The goal of this project was to facilitate interaction between trainees so that reflective thinking and sharing of ideas could take place in the learning environment, a basis for social constructivist theory. This section contains a discussion of the relevant literature pertaining to tutor training, the social context of learning, and pertinent instructional design theory, convention and heuristics.

Tutor Training

Delivery of Training

Training is a process by which an employer can reinforce or condone behaviors that are conducive to the sound practices of the employees. In the developer's experience, many training sessions are traditionally carried out in a lecture or seminar format. Though there is little relevant research done in the tutoring context, there is research done on training in other contexts that
may be applicable in the tutoring context. The literature may indicate that there may be stronger means of presentation than lecture.

Lillquist, McCabe, and Church (2005) carried out a study that compared the effectiveness of traditional (lecture/video) training with that of training that provided an active (hands-on) component for the retention of hand washing procedures. Sixty-six food handlers attending training courses were included in the study and all of the participants received the same lecture/video presentation. A subset of the participants received an additional interactive training component. All participants were tested by a written test on the day of training. Two weeks after the training, 25 to 30 percent of participants from each group were retested, revealing that the participants involved in the interactive training had better test performances both on the day of training and on the two-week retest. This indicates that actual experience, as included in the hands-on training, could be more efficient in promoting retention and transference to the job setting.

Koljatic, Silva, and Varas (2004) investigated the effectiveness of two Web-based engineering courses in Chile. One of which was accompanied by a 90-minute weekly
lecture given by an instructor, the other was purely web based. Results revealed that both courses led to similar gains in content learning for students; however, the inclusion of lectures did not lead to different learning outcomes. This may indicate that lecture, in some cases, may not necessarily lead to retention of material.

Titsworth (2004) might argue that the actual execution of the lecture has a great deal to do with retention. He explored the effects of two lecture cues, immediacy and organizational statements, on students’ note taking effectiveness and learning outcomes as measured by tests. Results indicated that students recorded more details and organizational points when listening to lectures with emphasized organizational cues. They recorded more details in their notes when listening to lectures with lower levels of immediacy. The number of details and organizational points recorded in students notes were strongly related to predetermined learning outcomes. When employed efficiently, lecture did lead to positive outcomes.

Jeffries’ study (2001) may indicate that there may even be advantages to self-directed multimedia use over traditional lecture in a training context. The study compares the effectiveness of an interactive, multimedia
CD-ROM and a traditional lecture for teaching oral medication administration to nursing students. In the lecture group, a scripted lecture with black and white overhead transparencies and a videotape on medication were administered. The other group used an interactive, multimedia CD-ROM program covering the same content. Results showed significant differences between the two groups in cognitive gains and student satisfaction in favor of the multimedia group. The groups were similar in their ability to demonstrate the administration of medical dosage in a practical setting.

In contrast to Jeffries, McDonald, and Bartlett (2000) find no significant difference between the lecture method of delivery and self-directed learning via the World Wide Web in the résumé writing unit of a business communications class. Because résumé writing can be considered an academic skill, and administering medicine is an on-demand skill, context may be important when comparing delivery methods.

Current Trends in Training

When comparing traditional lecture format and computer assisted formats through self-directed multimedia presentations, there are indications that the multimedia method of delivery might be at least as effective if not
more effective than the traditional lecture method. However, with the advent of ubiquitous e-mail and the wide availability of asynchronous electronic forums and synchronous chat rooms, new possibilities in interactive training are opened.

Four years ago the developer, at the request of his supervisor, helped to setup an online bulletin board through Blackboard.com. The forum was designed to elicit discussion and share resources among kindergarten through twelfth-grade counselors throughout the three local school districts. It contained many resources that could be utilized by counselors. Despite having targeted content, and frequent e-mail requests and prompts, there was no response, nor any meaningful participation in the online environment (A. Beesaurt, Personal communication, April, 2001). So use and perceived utility are a prime point of concern; merely presenting a means to communicate does not necessarily precede its use.

D'Souza (1992) studied email as a means of telecommunication in educational contexts. In the study, D'Souza evaluated patterns of use by the students and instructors in support of a lower division information systems course. It was found that email was an ideal way to facilitate efficient communication between the
instructor and students. Furthermore, based upon student responses and observations of student transaction, D'Souza concluded that e-mail elicited discussions from some people who otherwise would have had no interaction within the physical classroom.

Even though e-mail has its obvious advantage of asynchronicity, anonymity, and timelines, it does have some disadvantages. Clarke, Butler, Schmidt-Hansen and Somerville (2004) conducted a case study at Brunel University, England, on a well established distance learning program. One of the conclusions drawn was that even though e-mail is effective for instructors in managing the course, it was not efficient for facilitating peer-to-peer interactions. E-mail by its very nature is a private correspondence, and an instructor has no way to encourage students to participate with each other if the students opt to keep e-mail addresses private. The researchers suggest the implementation of some sort of conferencing technology.

In one-to-one communications, there can be clear benefits in using e-mail; however, when students need to share ideas or interact with each other, electronic bulletin boards or forums may be an answer to increasing social construction of knowledge. King (2001) conducted a
case study in a hybrid class where an electronic bulletin board was used to augment a physical classroom for 109 professional educators at Fordham University’s Graduate School of Education, New York City. Data and personal interviews revealed both advantages and disadvantages of using this medium. The most noted advantages were flexibility of time and ease of participation in discussions; more in-depth contributions; the opportunity for shy or less articulate adults to participate in discussions; facilitation of collaboration among educators and students; the ability to engage in the dialogue asynchronously; the promotion of a sense of community; and a wider variety of relationships among classmates. The most notable disadvantages were inequality in access to technology among some of the participants; the need for technical skills in order to participate; the inconvenience of technology problems that may prevent interaction; lack of immediate response to communications; and the inability to see body language, hear intonation of voice, or the lack of emotion and spontaneity of live conversations. In order to mitigate the obstacles King makes the following recommendations to educators: obtain complete institutional technical support; spend the necessary time preparing the conference site; plan for and
assess the prior experience of the learners as some may have had limited experiences with Internet technologies; and use the bulletin board or forum as a supplement to a face-to-face class when possible. Finally the forum is justified only if it complements and does not detract from the learning experience.

There are advantages as well as some disadvantages to using the asynchronous forum. One of the disadvantages of a synchronous forum is immediacy of response. Im and Lee (2004) explore synchronous posting technologies in their study of asynchronous and real time postings. As a result of their analysis, they found that synchronous online discussion did not develop much beyond socialization, whereas postings relevant to the topic at hand dominated the asynchronous discussions. The results imply that real-time discussion is more useful for facilitating social interaction while asynchronous discussion is more useful for task-oriented communication.

Learning in Social Context

When designing an instructional medium, it is important to understand prevailing instructional theory in the modern educational context. Social constructivism and
scaffolding for the purpose of facilitating the social construction will be surveyed in the literature.

**Social Constructivism and Situated Cognition**

Social Constructivism can be defined as the educational theory that describes how learning is a process of negotiation of meaning and social collaboration. The operational objective is to share different ideas and collaborate to solve problems and build knowledge (Duffy & Cunningham, 1996). When learners are engaged in cooperative efforts and social negotiation of meaning, they are expressing what they know by explaining and reflecting on their experiences and then comparing it with that of experts and peers. Expression, reflection, and metacognition enable the construction of knowledge by allowing learners to relate the substance of the course to prior knowledge and experience and make sense of the content by analyzing, synthesizing, and evaluating others’ understandings (Gilbert & Dabbagh, 2005).

At the very center of social constructivist theory is the social or communicative aspect of learning. Technological innovations in electronic media may now make it more feasible to execute key aspects of this theory, namely peer-to-peer interaction.
An elaboration of social constructivist theory resides in the idea of situated cognition. The underlying assumption of situated learning theory is that knowledge is embedded within the context in which it is used and is inseparable from the actual activity. Individuals engaged in situated activity derive meaning with one another through the practical experience. Learning takes place as the result of participation in authentic activities. As a result of these activities, participants derive understanding about the purpose of the community, and develop a sense of belonging (Gieselman, Stark, & Farruggia, 2000).

Granello (2000) elaborates on how contextual learning applies to the field of counselor training. Five main tenets of contextual learning are identified, namely, the situated nature of cognition, the social nature of cognition, the distributed nature of cognition, problem-based learning, and authentic assessment. So, in order to nurture an environment of situated learning, the trainer must provide an arena where interaction among peers and experts can take place. Trainees should be able to reflect, relate, and react to authentic situations in a social context.
Online Learning Communities

The tenets of situated learning theory might imply that situated learning must take place in a physical environment in close contact with peers and mentors. However, as previously discussed, technology can provide the environment where contextual knowledge may be constructed by way of interactions in electronically mediated forums, e-mail, or chat rooms. A teacher-trainer should be concerned with ways to effectively mediate and cultivate such a learning community.

King (2001) addresses some technical and affective issues in relation to asynchronous forums; no pedagogical recommendations are made to elicit reflective or metacognitive response. Using sociocognitive theories as a conceptual framework in their evaluation of various software designs, Lin, Hmelo, Kinzer, and Secules (1999) identify four distinct processes which could be employed in eliciting reflection and possible meaningful interaction. They are process displays, process prompts, process models, and a forum for reflective social discourse. The significance of this for the instructional designer is that before any social discourse takes place, it is requisite that the instructional designer displays problem-solving and thinking processes, prompts students
to direct their attention to specific aspects of processes, and models thinking processes so students can compare and contrast them with their own process in action. Then the designer can provide a learning community-based forum that provides peer perspectives and feedback that can be used for reflection and metacognition.

Merely providing the forum may not be enough to elicit meaningful interaction. Landsberger (2001), citing the work of Salmon (2000), describes pedagogical tactics employed by an effective moderator. In the area of access and use, an effective moderator acts as host and communicates to students how to get access, communicates the purpose of the Web-based forum, sets the expectations for its use, and has a solid understanding of the mechanics of posting and replying. In the area of eliciting meaningful posts, the effective moderator responds to messages promptly, gives constructive feedback, encourages participation from those who are just observing and not posting, and does not allow a few to dominate the conversations. In the area of facilitating discussion, a good moderator ensures the discussion stays organized, guides the discussion, keeps the discussion on
track, links together various points, and summarizes key interactions.

Some educational designers employ an array of scaffolding strategies and theory to cultivate learning communities. Sherry (1998), in the development of a graduate course in creating instructional multimedia, employed a continuum of theory at different phases in the learning process. Her course was structured in terms of the theoretical continuum: behaviorism, cognitivism, constructivism, and an integration of the three. At the early stages, basic understanding of the software interface was introduced using behaviorist methods, stressing vocabulary and procedural rules. As the course progressed, the instructor scaffolded more structured matrices by which the students could organize and process the newly acquired techniques and procedures. As the students became adept at authoring the multimedia evaluation, peer review and production for in-class consumers took place. At the final evaluative stage, situated cognition and social learning were prevalent. Through qualitative analysis, Sherry found that modulating the duration and extent of use of the three theoretical foundations in the pedagogy might increase efficiency, output of product, and learning.
Instructional Design and Web Guidelines

In the development of any instructional material the process for planning, development, evaluation and revision is of utmost importance. Choosing an appropriate instructional design strategy will have major impact on the form that the final product takes. In fact, some may argue that an instructional medium is never really finished and that it is an ongoing and an iterative process (Peterson, 2003).

Instructional Design Models

The Dick and Carey model has been the leading behavioral instructional systems design model since it became public in 1968 (Deubel, 2003). Incorporating the processes of Analysis, Design, Implementation, and Evaluation (ADDIE), the designer starts with clear and set instructional objectives, implements the product and evaluates the product in terms of to what extent objectives and outcomes are met (Peterson, 2003). The ADDIE process has some clear advantages but some disadvantages as well.

Summerville (2002) developed an online course designed for instructional design students at the graduate level. The developer’s methodology strictly followed the linear model of ADDIE. She found that, though the
front-loaded instructional objectives were met, and students exhibited a great deal of satisfaction with the course, many students requested modifications during the implementation phase of the course. The designer adjusted to those requests. The designer concedes that the planning process was extensive and time consuming, and was well suited to a 16-week semester; however, the process would not have worked for a six-week summer session.

Nearly replicating the work of Summerville, Peterson (2003) employs ADDIE methodologies in two different contexts in a graduate level instructional design course: as a method for the development of the course and as a process for the creation of multimedia projects by the students. Peterson surveyed the students and examined their end products. She found the ADDIE model to be "a useful, simple framework for instructional design." Peterson attributes this to the notion that ADDIE provides developers with a means for identifying the user's needs. She stresses that the real strength of the process lies its duration: it is a long-term iterative process. The study implies that on the long-term ADDIE might be a developer's choice of methodologies.

Not all educators hold the linear Dick and Carey model in such high esteem. Dwight (2001) points out some
philosophical and pedagogical shortcomings of the model. At the very beginning of the design process, the learner has no say in what the instructional objectives will be. Dwight contends that, employed in its purest form, the methodology is mechanistic and does not afford the learner meaningful interaction until after the design has been implemented. Thomas, Mitchell, and Joseph (2002) point out that the model, though adequate in its inception, lacks formal development in areas of cultural context, and that cultural considerations should be considered as an input at every point in the ADDIE process.

In order to mitigate the shortcomings of the Dick and Carey linear approach, another emerging instructional design methodology merits examination. Often, some of the most influential innovations in theory and practice come as the result of cross-pollination from other disciplines. Tripp and Bichelmeyer (1990) argue that a design model that is commonly practiced in computer software development is a viable instructional design model. In making the argument, they establish that there is a difference between a natural science and an artificial science. Physics, for example, would be classified as a natural science, whereas architecture or computer science would be considered an artificial science. What
features proposed for an end product. This prototype is tested with a subset of the end-users in an effort to understand the requirements of a more extensive product. The prototype is then refined and expanded in order to produce the larger-scale product. Its advantage is that it allows for tryout of key concepts at early stages when costs are small and changes more easily made. Rapid prototyping as applied to instructional design is a methodology that allows flexibility in defining the goals and form of instruction at early stages (Wilson et al., 1993). Rapid prototyping is responsive to the learner’s needs and abilities.

The practice of rapid prototyping methodology, though practiced in industry, has also been applied to education. Lohr, Javeri, and Mahoney (2003) outline some of the advantages and disadvantages of the practice. The goal of their research was to examine the use of a rapid application development (RAD) approach in improving the usability of instructional materials for teacher candidates. In citing the development Reigeluth and Nelson (1997), the researchers adopted an analysis, synthesis, evaluation and change (ASEC) model. After examining existing materials, 11 units of instruction were prototyped, tested, modified, and retested, with the
suggested modifications being implemented over the course of three semesters. It was a large-scale study: qualitative and quantitative data were collected from 570 students, 7 instructional designers, and 4 lab assistants. Results of the study showed significant increases in usability scores during the course of the investigation. This increase in usability was a main objective; the developers found that some of the drawbacks included the need to act quickly, for hasty decisions at the prototyping stage had long-lasting consequences. As the course became more complex the designer found that her use of certain web authoring applications and selection of supporting software became a limiting factor once the demands of the sites required more complexity. Furthermore, the institutional setting did not allow for the rapid developments that were requisite in the revision processes. Their research showed that there might be a limit to the utility of rapid prototyping on large-scale projects in the institutional setting.

In contrast to the Lohr, Javeri, and Mahoney study, Jones and Richey (2000) examined the use of rapid prototyping methodologies in the business setting. The investigators studied the development of two products. Developers designed the first product to meet the needs of
the automotive industry. The resulting product was a one-day instructor-led class with an accompanying online tutorial. The products consisted of an instructor’s guide, a participants’ guide, the tutorial, and an accompanying tutorial user’s guide. The second project involved the development of a one-day instructor-led training program delivered via electronic media in the health care industry. The products were an instructor’s guide and a participants’ guide. Results revealed that the designers created products that were usable for a longer duration without revision, and were developed in a shorter time than those using traditional techniques. Furthermore, the researchers observed a high degree of customer satisfaction. Though the researchers do not give insight into why this methodology worked so well, it might be concluded that there are organizational factors that favor this methodology in the private sector.

Sell (1994) employed a rapid prototyping methodology in his Master’s thesis whereby he developed a hypermedia-based reference station at the Wright Laboratory Technical Library at Wright-Patterson Air Force Base, Ohio. Upon developing and employing the reference database, the researcher implemented an instrument of evaluation online. Sell found that deploying such an
instrument online yielded disappointing return, only nine responses in two months. The designer concluded that the design process was not flawed, but that the data collection for evaluation should be improved. The results of Sell's work may point to the fact that direct interview may be a more effective way to collect and evaluative data than an online survey.

According to Visscher-Voeman and Gustafson (2004), the ADDIE design methodology and the rapid prototyping methodology belong to two distinct design paradigms, and their use is determined primarily by the specific details of the project. In their study, the researchers collected case study data from 24 instructional designers in six different settings. The design processes they used for a specific project were analyzed and compared to four different instructional paradigms that the researchers synthesized from the literature. The four design paradigms are as follows: instrumental, communicative, pragmatic, and artistic. ADDIE falls under the instrumental paradigm, for its process is instrument driven. Design is an instrumental process that begins with the definition of specific goals and outcomes. A design is good if it meets a predetermined standard. Product consistency is the primary goal. In the communicative approach, design is a
process of communication and interaction among team members. In the pragmatic paradigm, the design process is driven by the interaction of the end user and the developer; it is an iterative process of interaction and revision. Finally, in the artistic paradigm, developers view themselves as artists depicting their own representation of a subjective reality.

Crawford (2004) proposes a radical but sensible design methodology. Similar to the rapid prototyping methodology, her Eternal, Synergistic Design Model stresses that the design process is a never-ending, non-linear but iterative process of evaluation and revision, focusing most effort on negative feedback while monitoring the positive feedback. Like the rapid prototyping model, the user of the product is involved in its development.

In contrast to previous design paradigms Jonassen (2000) proposes that design processes should be determined by what type of problem the end user is trying to solve. Jonassen classifies and sub categorizes problems according to structure, complexity, and context. Though he makes no claim to a definitive theory or process, he hints at the idea that a synthesis of several existing theories may overlap when designing educational media that have the
implicit objective of developing problem solving abilities.

Web Guidelines

When designing a web page in a hypertext environment, visual design and layout, text selection, aesthetic construction, and organization are all factors that may affect usability. Although there is not much research-related literature, instructional web page designers have published guidelines based upon their practical experience.

The primary purposes of visual design are to ensure legibility, reduce the effort in trying to interpret the message, increase the active engagement of the user, and focus attention on the most important parts of the message (Luck & Hunter, 1997).

Petrik (2000) describes major mistakes in academic web design that detract from legibility, interpretation, engagement, and focus. In relation to graphics, mistakes can be made when they are oversized or out of balance. In relation to text, dense text, text that is too small or large, and text that does not contrast with background are graphic design mistakes. Users tend to be distracted by looping animation and sound that detract from the important content of the page. Other factors that detract
from web page design are pages that require too much scrolling, too much download time, contain embedded programs or features that are application-specific, or that do not work on all workstations or browsers.

Dunlap (1998) distinguishes between macro and micro levels of organization and lays down some guidelines for each. On the macro level, general screen layout and positioning of content and navigational features are considered. Dunlap recommends using tables to create a header, body, and footer with consistent margins and borders. In the area of navigation, navigational controls should be kept in the same location on all pages. Graphics should be used sparingly and in balance in such a way as to add to content but not to distract from the message. The micro level of organization refers to structural and organizational conventions that are used to present content within the macro structures of the page. Those specific recommendations include using appropriate text size, formatting, and color. Bold, italics, or underlining should be used to draw attention to important items. One idea per page and limiting of page length is recommended to minimize scrolling. Using the principle of proximity, grouping of similar ideas with associated hyperlinks within the same table block is suggested.
The forum alone is not sufficient to constitute a learning environment in the training context. An accompanying web site with external links and management tools is required. A study by Samarawickrema and Benson (2004) examined the effectiveness of a professional development Web site for instructors at an Australian university that offers instruction on how to infuse technology into the instruction. Participants included two technical and eight academic staff members. The researchers found that the participants appreciated the site's pedagogical explanations and content, yet they suggested improvements to the Web site, including the availability of a discussion forum and addition of external links. While it is important to have pertinent material available to comment on, it is necessary to have a means by which it can be discussed.

Summary

In the process of developing a Web-based portion of a tutor training program, it is important to consider what means of communication to use, the social context, the means of evaluation and revision, and the actual physical design of the Web-pages. In the area of training, it is recommended that there be means of delivery other than
lecture, yet lecture may still have a role. The online portion should employ an asynchronous forum where participants can construct their own meaning in a social context. Yet synchronous chat rooms might be unsuited to promoting learning objectives, and e-mail should be used for management purposes and specific questions. In the area of cultivating a learning community, the trainer needs to be actively involved in eliciting response and modeling participation and processes in the forums. In the evaluation, revision, and instructional design, the trainer should have some instructional objectives in mind, yet be flexible enough to respond and make changes in accordance with student demands. Both the structural elements of ADDIE and the flexible, pragmatic, and responsiveness of rapid prototyping can be employed to insure pedagogical integrity and usability of the media. In formative evaluation, participants should be interviewed. Where physical design is considered, the pages should be clean, uncluttered, uniform, direct, and clear in order to convey the intended message. Finally, external links relevant to the objectives should be provided for review and discussion.
CHAPTER THREE
PROJECT DESIGN PROCESSES

Introduction

Even though the form of the design process resembled ADDIE in structure, its chronology, iterations, responsiveness to participant input, the process took on characteristics of the rapid prototyping model. In these respects, each participant was afforded three opportunities to be observed using the product, and was given the instrument of evaluation (see Appendix B) following the observation. As a result, changes in physical layout, content, and objectives were executed during the four-week duration of the project.

Analysis

The participants who take courses in tutor training are students in a community college program located in Palm Desert, California. A tutor-training course is also a requirement for any student employed as a peer tutor at the college. The students vary in age, background, ethnicity, and computer literacy. They are usually tutors in the areas of undergraduate lower-division mathematics, English composition, science, or foreign language. They
are required to maintain a grade point average of 3.0 or better on a 4-point scale.

This is a required course, so the students' level of self-motivation cannot be predicted. A student may be very energized at the prospect of learning more about the work or the student might view the course as a necessary inconvenience. The designer cannot assume that the specific technology to be used by students has been a part of the students' academic or life experience.

Tutor training in general should include application of general policies, interpersonal skills, role of the tutor, tutoring session behaviors, and the general objective of the tutor: to help clients to become self-sufficient.

The objectives for the course were described to the students in an in-service training seminar and also stated on the course syllabus. The original objectives in the online portion of the course were as follows:

* Understand and apply current policies and procedures of the tutoring center.
* Describe online resources available at the tutoring center.
* Describe common standards and practices in the tutoring profession.
* Describe what standards and practices are most relevant to the individual specific circumstance.
* Understand that the tutor's prime objective is to cultivate independent learning patterns in the clients.

Design

The design and development of this course took the entire winter quarter of 2005. This designer began the conceptualization process of creating a Web-based augmentation to an existing tutor training course in the fall of 2004, at which time it was offered as a traditional course consisting of four one-hour seminars or one four-hour seminar, and sixteen hours of in-service experience. In the traditional seminar, students were introduced to each other and to the operational resources of the tutoring center. They were further exposed to policies and procedures and given opportunities to practice tutoring under the supervision of faculty members in English and mathematics. Retaining the lecture portion was essential to maintain the integrity of the project (McDonald & Bartlett, 2000; Titsworth, 2004). It was important to augment the content of the traditional class
with the content of the online portion that incorporated a means of students and instructors to communicate with e-mail (D'Souza, 1992; Im & Lee 2004) and asynchronously so that a learning could occur in a social context (Clarke, Schmidt, Butler-Hansen, & Summerville, 2004; Im & Lee, 2004; King, 2001). In this forum, students were asked to discuss what should or shouldn't occur in a tutoring session.

Although the online portion of the class used the ADDIE model as the basic model of instructional design (Visschner-Voeman & Gustafsen, 2004), elements of rapid prototyping such as rapid development, flexibility of objectives, and continuous evaluation and revision were employed (Dwight, 2001; Jones & Richey, 2000; Lohr, Javari, & Mahoney, 2003; Thomas, Mitchell, & Joseph, 2002; Tripp & Bichelmeyer, 1990; Wilson, Jonassen, & Cole, 1993).

Class members were graded on the number of initial responses, follow-up postings, and on the quality of such responses, and the developer was involved in moderating and cultivating the forum (Duffy & Cunningham, 1996; Gilbert & Dabbagh, 2005; Granello, 2000; Landsberger, 2001; Lin, Hmelo, Kinser, & Secules, 1999).
The developer provided a scaffold (Sherry, 1998), by asking the students were required to post annotated external links (Samararwikrema & Benson, 2004) to resources on the Virtual Academic Skills Center and to respond in the forum by telling the other students what he or she could apply to his or her own tutoring methods to improve tutoring. Also, they were to comment on how the other tutors could improve. Furthermore, they were to include observations of some good tutor behaviors and some bad tutor behaviors. As a culminating experience, they were to write a one page tutor survival guide where they were asked to reflect (metacognition) on their learning (Gilbert & Dabbagh, 2005) and post it for peer review.

Development

This developer used Microsoft FrontPage 2003 to create the Web-site for the online portion of the class because of its modularity and plasticity (Tripp & Bichelmeyer, 1990). The site itself consists of seven pages: a “main page” containing course announcements, a course syllabus page that links to the actual document, and an assignment page that lists and links to the four assignment pages that describe the online assignment. The
web site was hosted at the Uniform Resource Locator (URL) http://faculty.collegeofthedesert.edu/mruzicka/.

All pages were linked to an online forum, Web Wiz 7.8, hosted at a College of the Desert server. Discussions were expected to occur during the duration of the course, and deadlines were emphasized.

One assignment was linked to The Virtual Academic Skills Center, a college-developed site which is an anthology of useful Web resources related to academic assistance (Nelson, 2005). Another assignment was linked to the tutor training sites at North Carolina State University, Delaware County Community College (2005), and Three Rivers Community College, Connecticut (2005). The North Carolina State University site contained video clips of model tutoring practices; the other two sites contained extensive information on current tutoring standards and practices.

The students were required to post annotated links to resources on the Virtual Academic Skills Center and to respond in the forum by telling the other students what he or she could apply to his or her own tutoring methods to improve tutoring. Also, they were to comment on how the other tutors could improve. Furthermore, they were to
include observations of some good tutor behaviors and some bad tutor behaviors.

The physical layout of the Web-site adhered to conventions as outlined by Dunlap (1998), Luck and Hunter (1997), and Petric (2000). Each page consisted of a masthead header and title, a navigation bar at the left quarter of the screen, and a footer which that was a redundant navigational feature mirroring the function of the navigation bar. The final iteration of the project contained tables with uniform borders and the main frame located to the right of the navigation bar. Pages were scaled to minimize vertical scrolling and eliminate horizontal scrolling (see Appendix B).

The color scheme, though seemingly arbitrary, was designed to be visually pleasing to the students. A tan background was chosen because it eliminated the harsh glare of a white screen. All navigation features were constructed in a deep burgundy, contrasting with the background. Information was displayed using black text. Again, colors were chosen by participants. All pages were kept down to a loading time of less than 30 seconds on a dial-up line.
Implementation and Evaluation

Implementation and evaluation were temporally inseparable processes as described by Tripp and Bichelmeyer (1990). The first iteration of the online portion of the course was posted in late February 2005. The course was designed to accommodate from 15-25 tutor trainees, but due to recruiting difficulties and conflicts in the registration policy at the institution, eight students enrolled in the section. One student dropped for health reasons and another dropped for personal reasons. The designer, instead of sampling, chose all of the remaining students as participants in the implementation, evaluation, and revision.

All participants were e-mailed instructions on entering the Web-site. Each participant was scheduled to have three one-hour appointments where the developer would observe the interaction, answer any questions, and receive feedback from the formative evaluation survey as recommended by Sell (1994). All but one participant kept their appointments.

Because the pool was so small, this developer was able to pay close attention to each participant. So the designer will take the liberty of designating a letter for each participant (A, B, C, D, E, and F). Their
participation and contribution to the development will be noted.

Participant A was a French tutor working in the language lab. He reported on the surveys that he had little experience with the Internet and online courses. During the first evaluation appointment, it was noted that he was unaccustomed to the conventions of Web-page navigation, though his keyboarding skills seemed adequate. The first exercise was designed get the user accustomed to posting an attachment to the online forum. In this first session, he needed direct instruction in how to go to the syllabus, the assignments, and the forum. Furthermore, he needed direct instructions in opening a word-processing document, saving it and attaching it to a forum posting. When printed out, the instructions bled off of the end of the sheet, making them illegible, and participant A did not like having to use the "back" button so many times to get out of the forum and back to the assignments. The designer remedied that by asking the campus Web page administrator to add a "Tutor Training Home" link to the online forum. During the second and third evaluations the same direct instruction took place but with less frequency. Participant A made no further recommendations. In the survey, A initially disagreed that the instructions
were easy to follow, but his responses to the design and ease of use of the site started at neutral and tended toward favorable at the last session. In relationship to evaluation of the learning community, his responses improved from neutral to positive (see Appendix D). As a result of the input, the designer included screen shots and lengthened the initial instructions page.

Participant B, a mathematics tutor, needed the same amount of direct instruction as participant A; however, his keyboarding was extremely slow. He also complained about the back button issue in the forum. His responses to the survey were favorable in areas of usability and visual layout. His responses were neutral with respect to interaction with the other students but improved drastically in the final evaluation. His opinion of interaction and materials also improved during the next two evaluations (see Appendix E).

Participant C, a mathematics tutor, accessed the site from his home, but could not access the forum because of incompatibilities with his computer, a Macintosh running an older operating system. He was fairly used to operating a computer, but was accustomed to the conventions used by the Macintosh operating system. For example, he would go to the upper left of the screen to close windows instead
of the upper right. His responses remained neutral with respect to the social and interactive aspects of the site but improved when with respect to the physical design and navigability of the site (see Appendix F). During his first session, he did comment that the first intended assignment, which was to review the tutor training manual and suggest changes, was too long and lacked relevancy to increasing tutoring skills. The designer agreed, struck the assignment, and replaced it with an assignment to view good tutoring practices. During the second session, he commented that he was a math tutor and not a writer and was not enthusiastic about posting, yet he posted one of the most insightful and detailed posts.

Participant D, an English tutor, reported that she had some experience online and had a computer at home and a high speed Internet connection, but she just didn't get around to logging on. She immediately pointed out some usage and grammatical errors which the designer promptly corrected. The most notable trend in her surveys was that the instructions became clearer to her as the course progressed, and that the physical layout and ease of use of the site were favorable (see Appendix G). During the second session with the designer, she commented that she did not like the incongruity of visual style and layout
between the Web-site and the forum. The site was easy to navigate and was visually pleasing but the forum was "cluttered and hard to get around in." The designer took note of this, but nothing could be done about it within the time frame of the study because design aspects of the forum were under the control of the campus Web-page administrator, in other words, the forum component lacked the plasticity as prescribed by Tripp and Bichelmeyer (1990). During the third session, participant D commented on the fact that the designer used first person when prescribing the assignment and that she felt somehow uncomfortable about it. The designer agreed and changed statements such as, "I would like..." to "You should...."

Participant E, a mathematics tutor, reported himself as being experienced in both online courses and the Internet. He needed no direct to navigate the site. He quickly and easily navigated, and posted all of his assignments. His responses to questions on usability, material, and physical layout were mostly favorable, but his response to the social aspects of communication remained neutral throughout the three iterations.

Participant F was just as skilled as participant E. She need no direct instruction at all and told the designer that she completely understood the forum and the
assignments. She only attended the first session, filled out one survey, and left early on vacation. Her responses to all of the items except for the communication aspects of the forum were favorable although she never got the chance to interact in the forum.

General patterns of posting and response were somewhat disappointing. Only participants B and E and completed all assignments and made the required responses per post. Participant D completed all of her posts except for the last assignment which was the tutor survival guide. Participant C posted all of his assignments but never responded to anyone else’s. Participant A’s posts were short, and in one of them, he expressed a preference for traditional classes. Participant B made an effort to post thoughtful responses, and he made his requisite replies. The designer noted no secondary responses or replies to replies. The designer’s efforts to moderate the forum were completely ignored, and participants did not respond to moderator prompts.

Even though interaction was limited, there was evidence within the posts that the participants’ learning was aligned with the original objectives. A few insightful postings are noted here: Participant B wrote, "However, if we are solving the problem for them, they don’t gain as
much; in fact, we don't help them developing [sic] the skill of learning. Remember we are helping them for the future." This indicates an understanding that the tutor is to cultivate self-sufficiency. Participant D wrote, "Lengthy projects, like an essay, can gradually develop with the help of a tutor. I am forming a tutoring relationship with some of the students ... and it is very satisfying watching them progress." Participant D demonstrates one of the key practices of the tutoring is cultivating a relationship. Participant E noted, "After doing the homework for this course any tutor can see where they have faults, if they took this course seriously. All tutors can improve by putting in to [sic] practice what they learn from the homework." In another response he wrote, "Howevey [sic] some take on a very authorative [sic] stance that may make a tutee uncomfortable. A few others seem to 'wing it' when it comes to an area they don’t know." Thus, participant E demonstrates an understanding of the application of sound tutoring practices.

Summary

The steps of design used in the development of this project followed the general ADDIE format, yet many of the
evaluations and revisions occurred during the implementation of the project.

The project consisted of an instructional Web-site linking to an online forum and external links. The intention of the project was to use the forum as means whereby participants could interact as a learning community in a situated context.

The participants showed a degree of satisfaction with the physical design and content of the site, yet a majority of them had a low to moderate level of experience with the Internet and online courses. Their general patterns of interaction were limited, some responses were shallow, yet evidence of learning was apparent in the postings.
CHAPTER FOUR

CONCLUSIONS AND RECOMMENDATIONS

Introduction

The purpose of the project was to develop a Web-based component to a tutor-training program where situational cognition could take place. It was meant to be adaptable and responsive to the needs of the trainees, and was intended to be conducive to tutor-to-tutor communication where trainees could examine, compare, and discuss their own practices. The measures of success in pedagogy, design and course objective achievement, as well as the shortcomings of communication were examined to draw conclusions and recommendations.

Conclusions

The Web-based tutor training was developed to facilitate community college peer tutors' knowledge and skills in various areas of tutoring while, at the same time, fostering a sense of community among the tutors who participated. The developer believes that the development, design, evaluation and revision of the project were aligned with educational objectives and theory. Yet there were shortcomings in the anticipation of participant’s skills and attitudes. The online forum lacked depth and
interaction due to an overestimation of the typical community college student’s computer skills and motivation to communicate in the online community. Furthermore, a larger number of participants might have resulted in a more robust forum.

A designer at the community college level has to assume absolutely no experience in educational technology even among the highest-achieving students. Success that was typical in the literature among university and professional students was atypical among community college students. Furthermore, a designer might expect less overall motivation from such a cohort.

Despite the shortcomings in the area of social construction of knowledge, construction of knowledge did take place. Some of the participants were able to express their achievement of the learning objectives in the online forum.

Recommendations

In order to maximize participation and communication in an online course at the community college level, the students must be given direct instruction in the use of technology in the context of a learning community. This course should have a longer duration than a month and
face-to-face interaction among instructor and students along with online interaction.

If no such course exists at the community college, then the developer must spend a considerable amount of time and effort priming the students with techniques of direct instruction and modeling of processes and interactions. In other words, an instructor cannot give online courses or assignments without preparing the students for the experience.

Other recommendations:

1. Increase the duration of an online course from one month to an entire semester.

2. Insure that a minimum number of students enroll in an online community before actually implementing one.

3. Simplify the interface of the online forum.

4. For the purpose of developing a cohort of independent online learners, the instructional designer should advocate the creation and development of college transferable courses at the high school and community college levels with the expressed intent of such student development.
Summary

The conclusions extracted from the project were that design methodologies employed in the design of this project can achieve the goals of fostering context based construction of knowledge, but only if basic skills and experience are practiced by participants first. The designer should draw from sound instructional design methodologies and design principles, advocate and develop basic skills in online communities, and respond to student input. If these recommendations are followed by the instructional designer, the learning objectives and the construction of knowledge will likely be achieved or exceeded.
APPENDIX A

CD OF PROJECT
APPENDIX B

FORMATIVE EVALUATION SURVEY
Web-Based Tutor Training
Formative Evaluation Survey
Investigator: Matthew Robert Ruzicka

Tutor Trainee #_________

We have asked you to participate because you are participating in a Tutor Training course offered at College of the Desert in Palm Desert, California. The purpose of this interview is to create a tool that will assist tutors to become skilled and informed.

1. What is your area of tutoring? (Circle all that apply.)

Math  Science  English  Social Science  Fine Arts  Foreign Language  Other__________

2. From where did you access the web site and bulletin board?

Instructional Design Questions:

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>No Opinion</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Instructions and assignments easy to understand and follow.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Before completing these assignments, I have had extensive experience</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. The site was easy to navigate.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. The lesson was relatively free of technical problems.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I found the content of the lessons to be applicable and helpful to me</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I found that my interaction with other tutors in the electronic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. As a result of the lessons, I have applied what I have learned to</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. The web page was visually pleasing, clean, and uncluttered.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Being a member of the online community was a pleasant experience.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Being a member of the online community helped me to be a better tutor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

What I liked the most about these lessons was (Use an attached sheet if necessary.):

How do you think that these lessons or their delivery could be improved? (Use an attached sheet if necessary.):
APPENDIX C

SAMPLES OF THE VISUAL DESIGN OF THE WEB-PAGES
College of the Desert Tutor Training Online Community

Main Page

Welcome

This is the College of the Desert online community portion of your tutor training. To the left are links where you will find most of the information that you need to complete the course. If you have any questions or encounter any technical difficulty using this site, please e-mail me at prof@coLlegeofthedesert.edu.

Announcements

All final postings are due Midnight, Friday, March 23, 2005.

Assignments

Click on the assignments below to receive a complete set of instructions.

Unit 1 Electronic Resources at the Academic Skills Center.

Assignment 1A: Electronic Roll Call

Assignment 1B: Virtual Academic Skills Center (VASC) Safari

Unit 2: Teaching Techniques/Other Training Programs.

Assignment 2: The Community of Tutoring Programs

Assignment 3: Create a One Page Tutor Survival Guide

Assignment 4: Your Synthesis and Peer Review

Main Page Assignments Syllabus Online Forum
APPENDIX D

FORMATIVE EVALUATION RESPONSES FOR PARTICIPANT A
Participant A Formative Evaluation Responses

The responses to the three rounds of formative evaluation are tabulated and recorded below. A “1” indicates a response in the first round of evaluations, a “2” indicates a response in the second round, and a “3” indicates a third round response.

1. What is your area of tutoring?

Math Science English Social Science Fine Arts X Foreign Language Other

2. From where did you access the web site and bulletin board? Language Lab

Instructional Design Questions:

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>No Opinion</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Instructions and assignments easy to understand and follow.</td>
<td></td>
<td>1</td>
<td>2,3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Before completing these assignments, I have had extensive experience with either the Internet or an online course.</td>
<td>2,3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. The site was easy to navigate.</td>
<td></td>
<td></td>
<td></td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>4. The lesson was relatively free of technical problems.</td>
<td></td>
<td></td>
<td></td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>5. I found the content of the lessons to be applicable and helpful to me as a tutor.</td>
<td></td>
<td>1</td>
<td>2,3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I found that my interaction with other tutors in the electronic bulletin board was helpful in strengthening my confidence and tutoring skills.</td>
<td></td>
<td>1</td>
<td>2,3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. As a result of the lessons, I have applied what I have learned to my tutoring.</td>
<td></td>
<td>1</td>
<td>2,3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. The web page was visually pleasing, clean, and uncluttered.</td>
<td></td>
<td></td>
<td></td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>9. Being a member of the online community was a pleasant experience.</td>
<td></td>
<td></td>
<td></td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>10. Being a member of the online community helped me to be a better tutor.</td>
<td></td>
<td></td>
<td></td>
<td>1,2,3</td>
<td></td>
</tr>
</tbody>
</table>

What I liked the most about these lessons was:
1. The lessons were clear and neat. I think I learned a lot.
2. The video is very helpful to improve my tutoring skills. The video gives me some input [sic] to better my relationship with other students.
3. [Participant A left the question blank.]

How do you think that these lessons or their delivery could be improved?
1. Its hard to get after reading your email. It would be great to have a better way to get back to the assignment.
2. I think that more videos will be a good learning tool for the tutors.
3. [Participant A left the question blank.]
APPENDIX E

FORMATIVE EVALUATION RESPONSES FOR PARTICIPANT B
Participant B Formative Evaluation Responses

The responses to the three rounds of formative evaluation are tabulated and recorded below. A “1” indicates a response in the first round of evaluations, a “2” indicates a response in the second round, and a “3” indicates a third round response.

1. What is your area of tutoring?

X Math  Science  English  Social Science  Fine Arts  Foreign Language  Other

2. From where did you access the web site and bulletin board? Language Lab

Instructional Design Questions:

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>No Opinion</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Instructions and assignments easy to understand and follow.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,2,3</td>
</tr>
<tr>
<td>2. Before completing these assignments, I have had extensive experience with either the Internet or an online course.</td>
<td>2,3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. The site was easy to navigate.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,2,3</td>
</tr>
<tr>
<td>4. The lesson was relatively free of technical problems.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,2,3</td>
</tr>
<tr>
<td>5. I found the content of the lessons to be applicable and helpful to me as a tutor.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>6. I found that my interaction with other tutors in the electronic bulletin board was helpful in strengthening my confidence and tutoring skills.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,2,3</td>
</tr>
<tr>
<td>7. As a result of the lessons, I have applied what I have learned to my tutoring.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,2,3</td>
</tr>
<tr>
<td>8. The web page was visually pleasing, clean, and uncluttered.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,2,3</td>
</tr>
<tr>
<td>9. Being a member of the online community was a pleasant experience.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,2,3</td>
</tr>
<tr>
<td>10. Being a member of the online community helped me to be a better tutor.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,2,3</td>
</tr>
</tbody>
</table>

What I liked the most about these lessons was:

1. [Participant B left the question blank.]
2. [Participant B left the question blank.]
3. [Participant B left the question blank.]

How do you think that these lessons or their delivery could be improved?

1. [Participant B left the question blank.]
2. [Participant B left the question blank.]
3. The message is very clear if only if [sic] following the instructions. Instruct to me is very clear [sic].
APPENDIX F

FORMATIVE EVALUATION RESPONSES FOR PARTICIPANT C
Participant C Formative Evaluation Responses

The responses to the three rounds of formative evaluation are tabulated and recorded below. A “1” indicates a response in the first round of evaluations, a “2” indicates a response in the second round, and a “3” indicates a third round response.

1. What is your area of tutoring?
   X Math  Science  English  Social Science  Fine Arts  Foreign Language  Other

2. From where did you access the web site and bulletin board?  Language Lab

   Instructional Design Questions:

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>No Opinion</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Instructions and assignments easy to understand and follow.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>2. Before completing these assignments, I have had extensive experience with either the Internet or an online course.</td>
<td>1,2,3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. The site was easy to navigate.</td>
<td></td>
<td></td>
<td>1,2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4. The lesson was relatively free of technical problems.</td>
<td>1,2</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I found the content of the lessons to be applicable and helpful to me as a tutor.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,2,3</td>
</tr>
<tr>
<td>6. I found that my interaction with other tutors in the electronic bulletin board was helpful in strengthening my confidence and tutoring skills.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,2,3</td>
</tr>
<tr>
<td>7. As a result of the lessons, I have applied what I have learned to my tutoring.</td>
<td></td>
<td></td>
<td>1,2,3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. The web page was visually pleasing, clean, and uncluttered.</td>
<td>1,2</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Being a member of the online community was a pleasant experience.</td>
<td></td>
<td></td>
<td>1,2,3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Being a member of the online community helped me to be a better tutor.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,2,3</td>
</tr>
</tbody>
</table>

What I liked the most about these lessons was:
1. [Participant C left the question blank.]
2. [Participant C left the question blank.]
3. [Participant C left the question blank.]

How do you think that these lessons or their delivery could be improved?
1. I am on a Mac and I am on a phoneline.
2. [Participant C left the question blank.]
3. [Participant C left the question blank.]
APPENDIX G

FORMATIVE EVALUATION RESPONSES FOR PARTICIPANT D
Participant D Formative Evaluation Responses

The responses to the three rounds of formative evaluation are tabulated and recorded below. A “1” indicates a response in the first round of evaluations, a “2” indicates a response in the second round, and a “3” indicates a third round response.

1. What is your area of tutoring?

Math  Science  X English  Social Science  Fine Arts  Foreign Language  Other

2. From where did you access the web site and bulletin board? Language Lab

Instructional Design Questions:

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>No Opinion</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Instructions and assignments easy to understand and follow.</td>
<td></td>
<td>1</td>
<td></td>
<td>2,3</td>
<td></td>
</tr>
<tr>
<td>2. Before completing these assignments, I have had extensive experience with either the Internet or an online course.</td>
<td>1</td>
<td>2,3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. The site was easy to navigate.</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>4. The lesson was relatively free of technical problems.</td>
<td>3</td>
<td></td>
<td></td>
<td>1,2</td>
<td></td>
</tr>
<tr>
<td>5. I found the content of the lessons to be applicable and helpful to me as a tutor.</td>
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<td></td>
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<td>6. I found that my interaction with other tutors in the electronic bulletin board was helpful in strengthening my confidence and tutoring skills.</td>
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<td>7. As a result of the lessons, I have applied what I have learned to my tutoring.</td>
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<td></td>
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<td>8. The web page was visually pleasing, clean, and uncluttered.</td>
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<td>9. Being a member of the online community was a pleasant experience.</td>
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</tr>
</tbody>
</table>
APPENDIX H

FORMATIVE EVALUATION RESPONSES FOR PARTICIPANT E
Participant E Formative Evaluation Responses

The responses to the three rounds of formative evaluation are tabulated and recorded below. A "1" indicates a response in the first round of evaluations, a "2" indicates a response in the second round, and a "3" indicates a third round response.

1. What is your area of tutoring?

X Math  Science  English  Social Science  Fine Arts  Foreign Language  Other

2. From where did you access the web site and bulletin board?  Language Lab

Instructional Design Questions:

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>No Opinion</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Instructions and assignments easy to understand and follow.</td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2. Before completing these assignments, I have had extensive experience with either the Internet or an online courses.</td>
<td></td>
<td></td>
<td></td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>3. The site was easy to navigate.</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>2,3</td>
</tr>
<tr>
<td>4. The lesson was relatively free of technical problems.</td>
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<tr>
<td>5. I found the content of the lessons to be applicable and helpful to me as a tutor.</td>
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<td>6. I found that my interaction with other tutors in the electronic bulletin board was helpful in strengthening my confidence and tutoring skills.</td>
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<td></td>
</tr>
</tbody>
</table>

What I liked the most about these lessons was:
1. The lessons to come will help my [sic] as a tutor.
2. They help you realize problems in the way you tutor. Some things you didn't know were not helpful.
3. [Participant E left the question blank.]

How do you think that these lessons or their delivery could be improved?

1. They can be improved by an easier forum layout.
2. Less technical difficulty to allow more [illegible word] for the course. (Designers note: the video player application kept crashing the lab computer).
3. None come to mind.
APPENDIX I

FORMATIVE EVALUATION RESPONSES FOR PARTICIPANT F
Participant F Formative Evaluation Responses

The responses to the three rounds of formative evaluation are tabulated and recorded below. A “1” indicates a response in the first round of evaluations, a “2” indicates a response in the second round, and a “3” indicates a third round response.

1. What is your area of tutoring?

X Math  Science  English  Social Science  Fine Arts  Foreign Language  Other____________________

2. From where did you access the web site and bulletin board?  Language Lab

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>No Opinion</th>
<th>Agree</th>
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<tr>
<td>1. Instructions and assignments easy to understand and follow.</td>
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<td>2. Before completing these assignments, I have had extensive experience with either the Internet or an online course.</td>
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<td>3. The site was easy to navigate.</td>
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<td>4. The lesson was relatively free of technical problems.</td>
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</tr>
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<td>10. Being a member of the online community helped me to be a better tutor.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

What I liked the most about these lessons was:
1. [Participant F left the question blank.]

How do you think that these lessons or their delivery could be improved? (use an attached sheet if necessary):
1. [Participant F left the question blank.]
REFERENCES


