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Designing an online support community for novice computer users

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DESIGNING AN ONLINE SUPPORT COMMUNITY
FOR NOVICE COMPUTER USERS

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
Thomas Hubbard Caswell IV
December 2004
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FOR NOVICE COMPUTER USERS

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Nov 17, 2004
ABSTRACT

Online communities are appearing on the Internet in ever-increasing numbers. This new form of sociality brings with it fresh possibilities for new forms of communication and problem solving. This project seeks to identify characteristics of successful online communities and apply them to designing and prototyping an online discussion forum where novice computer users can share computer questions and answers. Usability and sociability are identified as essential goals in the development of online communities. A user-centered design for the novice computer user discussion forum is achieved through instructional design research and methods. This includes the critical process of selecting appropriate and effective Computer Mediated Communication (CMC) software to run the discussion forum. As online communities become more user-friendly, novice computer users will have an increased ability to interact, socialize, and seek computer support using the Web.
ACKNOWLEDGMENTS

I thank my teachers for putting up with me over the years. I especially appreciate the time and effort Dr. Newberry and Dr. Baek put forth helping me to make this project as good as possible. Finally, I thank my parents - my first and very best teachers - for their love and support over the years. Your faith in me still keeps me going.
DEDICATION

The real challenge was not the MA project itself, it was doing the MA project with three small children at home. I could not have done it without the support of my wife, Camille. I dedicate this project to her, and I appreciate her dedication to our three precious, little "projects" at home.
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CHAPTER ONE

BACKGROUND

Introduction

As the number of personal computer users continues to grow so does the need for computer assistance, especially for new users. The proliferation of computer viruses and spyware online also contributes to an increased need for computer support. But fierce price competition among computer manufacturers has actually caused a decline in the quality of technical support available to consumers. In order to keep the overall computer cost down, computer manufacturers have decreased spending on customer service, including technical support. A survey of almost 30,000 computer users conducted by *PC World Magazine* showed growing frustration with computer service. Only 53 percent of survey respondents said their problem was resolved the first time they called tech support (Grimes, 2002).

While some computer companies also offer online help, the support articles are often overly technical and confusing. Company support sites are rarely designed to provide individualized help. Customers may also view
company support sites with suspicion, thinking the company is just going to try to sell them something else. For these reasons, many users prefer seeking answers elsewhere.

Beyond the manufacturer’s toll-free number and customer support Web site, inexpensive support options are limited. While some novice users may turn to a "computer friend" – an acquaintance who can help them with their computer questions, many do not have this option. Others might consider paying a professional computer technician for help. This option can be expensive, however, with many technicians charging between $40 and $80 an hour. Added to the expense is the fact that most novice computer users do not know where to find a computer technician they can trust. But as more novice computer users become comfortable with online communication they will find that they have another option for seeking computer help: electronic bulletin boards.

Electronic bulletin boards, or online forums as they are sometimes called, bridge the physical limits of time and space and provide a convenient way for people to interact. Users visiting a bulletin board can view
information about a particular topic, add their own comments, or post new questions. Electronic messages, also called posts, are usually grouped into categories, or topics. Posts within a topic are often listed chronologically. Replies to a post are usually shown beneath the original message. This is called a topic thread and makes it easy for users to view responses to a post.

Electronic bulletin boards are a rapidly growing form of online community. In general, an online community is defined as a group of people who communicate together online about a common interest. Successful online communities are usually built around a central topic or theme that is interesting and engaging to a particular audience. Depending on the target audience, topics can range from the latest technology news and gossip to discussions and predictions in soap opera world. Online groups are a convenient form of community because communication occurs asynchronously. The messages posted in most online communities are available anytime to anyone who wants to view them. Online communities, specifically electronic discussion boards, have great potential for welcoming novice computer users and helping
them feel comfortable sharing questions, problems, ideas and solutions with a large group of people they would otherwise never reach (Preece, 2000).

Purpose of the Project

This project used an instructional design process to identify significant characteristics of effective online communities. These effective elements were applied to the design of an online computer help forum for novice computer users. The purpose of this online community is to facilitate cooperative technical support while focusing on the needs of beginner computer users. Since this kind of community is primarily informational and need-based it will naturally tend to have less user retention, or "stickiness" than online communities whose purpose is entirely recreational. This is common because users tend to return to online communities they find enjoyable or satisfying. Discussion boards that are strictly informational, such as customer support forums, tend to be more impersonal and technical. Most users tend to return to these kinds of forums only when they have computer trouble and are required to do so. A major challenge will be to support sociability in unique ways
to keep users interested and satisfied with their interactions. The Web is full of online communities that have become "digital ghost towns" - places where, for various reasons, users have stopped frequenting or contributing (Preece, 2000, p. 221). A successful online computer help forum must find ways to foster a symbiotic relationship where those who ask and those who answer questions can both benefit. Ultimately, a combination of well-planned usability, pleasant sociability and helpful information are required to keep interested and involved an online community. Chapter two will look more closely at research dealing with the important motivating factors common to many kinds of online communities.

It is important to note that the purpose of this project is not to fully implement an online community, but rather to design and develop such a place using current research and instructional design principles. While a successful final implementation is the ultimate goal of the design and development process, for the purposes of this MA project the beta implementation at www.computerquestions.tk will be considered the ending point. The rationale for this decision is detailed in the Limitations section.
Significance of the Project

The primary significance of this project is its application to the design of online communities. This project built on existing research and used an instructional design process to identify key characteristics of effective online communities. It is hoped that these results may be generalized to the development of other, similar online communities in an effort to increase their chances for success.

This information also has significance as it applies to the development of an online computer help forum for novice computer users. The goal of this particular electronic discussion board is to provide cost-effective (free) online computer help for novice computer users. Designing a user-friendly forum where people can ask computer questions to those beyond their normal (offline) social circles will allow users to share common experiences and pool their computer knowledge in a way that would otherwise be impossible.

Limitations

During the design and development of the project, a number of limitations were noted. Many of them deal with
the final implementation of the computer help forum, which is beyond the scope of this project.

1. The main limitation is time. More than one study is necessary to properly identify and apply effective design principles and best practices to designing, developing, and maintaining an online community. Because online discussion forums are still a relatively new concept among mainstream computer users at this time, the long-term efficacy and sustainability of electronic discussion forums, especially among novice computer users, have yet to be been determined.

2. Another limiting factor is cost. Investment capital is required to implement and properly maintain a reliable, scalable online community. For this reason the online help forum will be considered a design prototype, and its implementation a basic model for evaluation purposes and further development.

3. Search engine visibility is often critical to the success of an online community or forum, yet it often takes several months for a new
website to be listed by most search engines. It usually requires a great deal of time and effort for a site to be listed on the first page or two of search results. Indeed, an entire industry of search engine marketing has been born of this need. While a full-scale implementation would have to address search engine marketing, this project will not dwell on this limitation.

Definition of Terms

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

1) Alternate (ALT) tags: a descriptive HTML text field that can be displayed in a browser in place of an image or other content; used with text-only browsers and by the visually impaired.

2) Computer-mediated communication (CMC): Interaction between two or more people by means of a computer network.

3) Flamer: Some who posts insults or offensive comments about another member (Preece, 2004).
4) Frames: A method of organizing HTML content on a Web page that essentially treats each region as a separate Web page. It can be problematic to navigation and print pages with frames.

5) Lurker: Someone who reads others' posts without posting anything. While the term itself has a negative connotation, lurking is a common practice and generally considered acceptable.

6) Moderator: Someone who manages an online community or Usenet group, including reviewing submissions and enforcing policies.

7) Netiquette: Recommended codes of Internet practice. For example, users should not capitalize an entire message because it is considered yelling.

8) Off Topic (OT): When the content of a post strays from the stated topic. (Some forums enforce this more than others.)

9) Online Community: A group of people who communicate together online about a common interest. Types of online communities include Usenet groups and electronic bulletin boards, or online forums.
10) Post: A message submitted on an online forum or other discussion group; also called an article.

11) Poster: Someone who submits a message to an online forum or other discussion group.

12) Sociability: The relative tendency to associate with other people. In this paper, the use of sociability focuses primarily on how to increase the quality and quantity of these interactions.

13) Stickiness: A term used to describe the likelihood of visitors returning to a Web site.

14) Thread: A more or less continuous chain of postings on a single topic.

15) Usability: A quality attribute that assesses how easy user interfaces are to use (Nielsen, 2000).

16) Usenet: A messaging system that uses a network to transfer messages organized in thematic groups.

Summary

The ease of connectivity that the Internet affords is fertile ground for the development of an ever-
expanding variety of online communities. This new form of sociality extends beyond the traditional borders of physical communities, bringing with it fresh possibilities for new forms of communication. Online forums have great potential for users seeking help with computer problems because existing questions and answers can be categorized and searched. In a large online discussion forum there is a good chance that either an answer has already been posted or someone participating in the discussion can offer a solution. The present challenge is to find ways to improve the design of online communities to make them more useable, especially for beginner computer users. This can be done most effectively by applying current instructional design research and methods. As Computer-Mediated Communication (CMC) software becomes more user-friendly, novice computer users will find they, too, have the ability to seek online support for their computer questions or problems.
CHAPTER TWO

REVIEW OF THE LITERATURE

Introduction

Two important aspects of online communication are sociability and usability. An awareness of the factors that affect the sociability of an online community is important in effectively planning and supporting such a place. The people, policies, and overall purpose an online community are all part of the sociability of that community. The components that determine the usability of an online community are equally important. Navigation, registration, feedback, and support tools are examples of key features affecting the usability of an online community (Preece, 2000). Another ingredient essential to continued improvement and support of online communities is user-centered assessment, including measuring usability and sociability. The elements of sociability, usability, and user-centered assessment can be organized and developed using an effective instructional design process which will also be reviewed in this chapter.

What is an online community? The term seems straightforward enough, but it has been used to mean so
many things that it is difficult to define. Howard Rheingold, an early pioneer of online communities, writes:

Virtual communities are cultural aggregations that emerge when enough people bump into each other often enough in cyberspace. A virtual community is a group of people who may or may not meet one another face to face, and who exchange words and ideas through the mediation of computer bulletin boards and networks (1994, pp. 57-58).

Preece (2000) presents a more general, working definition that can serve as a point of departure. Online communities consist of (1) people who interact socially, (2) share a purpose, and (3) adhere to certain policies or protocols, all while using computer systems to support and mediate their interaction (p. 10). In this paper, an online community will be defined as a group of people who communicate together online about a common interest.

Since the main purpose of online communities is human interaction, sociability is arguably the most important element. But because people must use computers to achieve online social interaction, usability is closely tied to sociability and must also be carefully
considered. This chapter will review research relevant to developing and assessing the sociability and usability of online communities.

Sociability in Online Communities

Some level of sociability is a given in any active online community. From casual text-based chatting to leaving feedback about an eBay transaction, social interaction is the underlying purpose of online communities. Yet issues dealing with online social interaction are often misunderstood or ignored by programmers rushing to roll out newer features and flashier interfaces. As Kollack (1998) puts it, "There is no algorithm for community. That is, there is no step-by-step recipe that can be followed that will guarantee a specific outcome. Building community is a fundamentally different activity than writing computer code... (p. 59)." While there may not be an empirical formula to developing sociability, research has shown certain principles and elements to be important to the process.

In his study of graphical online worlds Kollack notes that while WorldsAway is visually the least impressive, it is the most successful graphical online
world of its time. "The community succeeds not because of flashy graphics, but because it contains many of the requisite elements for a successful community... (Kollack, 1998, p.59)." While the look and feel of various types of online communities can differ greatly, Kollack (1998) suggests that there are fundamental principles governing social interaction common to all forms of community.

Successful online communities have a clear purpose. This gives the community a shared focus and provides a reason for members to belong to the community (Preece, 2000). For one particular online community of soap opera fans called r.a.t.s. (one of the earliest Usenet groups), the purpose of the community is communicated through FAQs (frequently asked questions – and answers), as well as personal orientations for newcomers including the Newbie Sponsorship Program (Baym, 2000, p. 200). Baym (2000) writes:

   In the case of r.a.t.s., the topic of soaps brings with it a purpose – interpreting – and because soaps are emotional, relational, and talk oriented, the fulfillment of this purpose ideally needs a particular type of environment, one that is
welcoming, is supportive, and allows for self-disclosure (pp. 199-200).

A clear purpose can give personality and cohesiveness to a community. For the r.a.t.s. group, the purpose was at least as important as the medium (Baym, 2000).

Sustained sociability requires people who are willing to cooperate. According to Axelrod (1984), three key requirements for the possibility of cooperation are: 1) individuals have the prospect of meeting each other again, 2) individuals must be able to recognize each other, and 3) individuals must have information about how others have behaved until now. These elements introduce a level of accountability that can be used as a basis for trust. Knowledge of these three elements within an online community increases the chances of cooperation and sharing among users; it also discourages irresponsible or inappropriate behavior.

Axelrod’s requirements for cooperation are related to the principle of institutional memory described by Godwin (1994). This principle states that knowledge of past actions facilitates trust and cooperation. This knowledge can be explicit, as with eBay’s reputation
manager. Some discussion forums and bulletin boards display the total number of user posts below a user’s screen name. This is also an attempt to give other users knowledge upon which to build cooperative discussions. Institutional memory may be implicit, as with social communities like r.a.t.s. In this case, user identities, including personality and knowledge of a particular topic, are based on their cumulative contributions to the community. In this scenario, a particular user’s identity may not be immediately obvious to a newcomer, but is gained over time (Baym, 2000).

Godwin (1994) cites several other principles important to making virtual communities work. Designers must select software that promotes good discussion. They should not impose a limitation on the length of user postings. Front-loading a discussion board or other community page with talkative, diverse people sparks interest and conversation. This is a good way to display to newcomers what the community has to offer. Hosting interest groups is another way to attract new members and provide variety for existing users. Finally, Godwin suggests letting users resolve their own disputes. It is
important to note, however, that the role of moderators and their level of involvement will vary depending on the established policies and social norms of a particular online community.

Policies are an essential component in online community governance. It is one area in particular that seems to straddle the line between sociability and usability in online communities. Preece (2001) states that policies are "the language and protocols that guide people's interactions and contribute to the development of folklore and rituals that bring a sense of history and accepted social norms (p. 349)." She goes on to point out that in addition to informal policies, more formal codes may be needed to provide community governance. Community policies can cover topics such as netiquette (recommended codes of Internet practice), acceptable communication, privacy and trust issues, rules for moderation, and copyright regulations. The codes may be democratically decided by the community or imposed by the moderator or site owner to provide legal protection (Preece, 2000, pp. 95-100). "The ideal situation for many online communities is to have developers institute unimposing by-laws that
provide just enough guidance to start the community, but that are sufficiently flexible to allow it to evolve (Preece, 2000, p. 98)."

Usability in Online Communities

Usability is the practice of simplicity, or making life easier for the user (Nielsen, 2000). While Nielsen’s usability concepts are aimed at Web sites, the concept of usability can also be applied more specifically to online communities.

As more and more online communities are integrated into Web sites, Web usability becomes increasingly important. Preece points out that, "...from the user’s point of view, the Web site and the online community are parts of the same entity, meaning that each component influences the user’s impression of the others (2000, p. 277)."

Navigation is a prime example of how users get lost or confused while trying to find what they need. Nielsen (2000) warns against using frames because they can make it confusing for users to have a reliable mental model of the site’s structure. Bookmarks also become problematic when using frames. Navigation should be intuitive and
have a consistent look and feel so that users always know where they are on the site as well as where they can go.

The design and presentation of Web pages also affect usability. Effective pages are designed to load quickly. Pages should be up-to-date. Graphics and animation should be limited to only those necessary and useful to the content of the site. Alternate tags should be included with images to aid the visually impaired and those using text-only browsers. Standard link color conventions should be respected, and the overall goal of the page should be readability and consistency with regard to the rest of the site (Nielsen, 2000).

Most online communities use some form of computer-mediated communication (CMC) software. Since many aspects of usability are built into the software, selecting the CMC application that is best suited to the needs of the community is essential. Usability for an online community involves meeting the needs of the user as effectively as possible in tasks such as downloading software, registering and logging in, communicating, finding people and information, and providing tools to support members and moderators (Preece, 2000). The creator of an online community may be able to customize some of these
features, but the initial CMC software choice will dictate much of the overall usability of the online community. Again, the guiding principle is simplicity - accomplishing the task in as few steps as possible.

While some features, such as advanced searches, are inherently more complicated, they may still be important to some users. One way to approach this is by hiding advanced features from the interface until they are selected. "Novices are best served by a constrained simple set of actions; but as experience increases, so does the desire for more functionality. A layered or level structured design is one approach to graceful evolution from novice to expert usage. (Shneiderman, 1987, p. 17)."

The main point of usability is making design and support decisions from a user-centered perspective. This is true for Web pages and it is true for online communities. Nielsen's (2000) goal in promoting usability is to "increase users' quality of life" by eliminating user frustration when working with computers (p. 7).
Assessing Online Communities

Assessment of the proposed online community is important during development, post-launch and throughout its evolution. These assessments can take many forms. Surveys, interviews, observation, metrics, data logging, and usability testing are all ways to measure the success of an online community. "Some of the same techniques used during needs assessment are also used in some kinds of evaluation (Preece, 2000, p. 301)." Reevaluating the same goals over time can show the progress or trends of an online community and can show areas that need improvement. A combination of qualitative and quantitative assessments can prove valuable for providing different perspectives.

Qualitative assessments are subjective in nature. They include surveys, interviews, and observations. This kind of data is often used to help developers learn about what members of a community like and dislike in a way that quantitative data cannot always show. Ethnographic studies of online communities are popular for this reason.

Quantitative studies are objective and collect data
that is statistically analyzed. Data logging is a way of measuring online activity quite popular with managers. But simply counting "hits" or visits to a Web site does not distinguish between real users and passers-by. Other measures, or counts, of user activity called metrics are used to quantify activity in communities (Preece, 2000). Usability testing is another way to measure the success of an online community. Shneiderman states that "ease of learning, low error rates, and subjective satisfaction are paramount because use is frequently discretionary and competition is fierce. If the users can't succeed quickly, they will abandon [it]... (1987, p. 17)."

Instructional Design

As mentioned in a previous section, a careful user analysis prior to selecting CMC software is a critical step in developing an online community. The Dick and Carey instructional design model provides a useful template that can be adapted and applied to the process of developing online communities. This model can be understood using the basic five stages of the ADDIE model - analysis, design, development, implementation, and evaluation (Prestera, 2002).
A front-end analysis is an important component of the Dick and Carey model. It is important to find out exactly what the problem is, as well as identifying all the possible ways to solve it. The solution or strategy that will produce the most effective results is one that should be chosen. After the needs assessment, an analysis of goals, tasks, users, and context is conducted in order to inform the design decisions that will follow (Prestera, 2002).

In the design phase assessments and an overall project design are created based on the objectives identified in the analysis. The assessments are used to measure the success of the online community, instructional system, or other product. In the case of online communities the assessments guide content development and user interaction goals.

The development phase consists of applying the findings and goals of the previous two phases to creating the necessary content, system, or product. For online community development this phase would involve web page development and CMC software selection and installation.

The implementation phase involves conducting pilot tests on a limited number of users. These are formative
evaluations, also known as beta tests, and modifications are made as necessary. Depending on time and other resources, implementation can be a recursive phase aimed at fine tuning the product as much as possible.

The evaluation phase is a summative evaluation that uses the assessment tools developed in the design phase to gauge the success of the product or system. Once the product has been formally evaluated it is then rolled out to its intended users.

The Dick and Carey model is particularly well suited to small projects and other situations where the instructional designer is given control over several important aspects of the project. These include the areas of needs analysis, implementation, and summative evaluation. Without a voice in these areas this model becomes ineffective (Prestera, 2002). In the case of developing an online community, bureaucracy would most likely not be a problem. It should also be noted that the formal structure of the Dick and Carey design model also has the advantage of adding a level of organization that might not otherwise be present with a novice instructional designer.
Summary

Online communities can help people to "maintain a stockpile of potentially useful contacts outside of their work group, organization, or community that can provide information, instrumental aid, and emotional support (Wellman, 1996, p. 189)." Like physical communities, online communities can evolve and adapt. They are shaped by their members, leaders, and early social policies (Preece, 2000, p. 204).

The design and selection of CMC software is an important step in forming an online community. These decisions should be made using an instructional design process. The design decisions should address Axelrod's (1984) requirements for cooperation. This includes institutional memory, name recognition, and behavior recognition. Ultimately, the choice of CMC software will determine much of how members meet and interact online.
CHAPTER THREE

DESIGN

Introduction
There are many factors that contribute to a successful online community. The Literature showed how these can be grouped into two main areas: usability and sociability. This project sought to identify elements of effective online communities and apply them to creating an online support community for novice computer users.

Analysis
A user-centered analysis was vital because the success of online communities ultimately depends on meeting the needs and wants of the target user. To determine the types of computer problems novice users commonly experience, a group of colleagues were given a computer support needs assessment (see Appendix A). They were asked to rate their level of computer experience (on a scale of one to ten, ten being an expert user). Respondents who rated their computer ability a four or lower were considered novice users for the purpose of this study. Surveys from this group were studied to see what types of computer-related needs are common to novice
computer users. On the needs assessment common computer-related tasks were listed, such as setting up a printer, putting music on a CD, and choosing a new computer. For each task users marked whether they could perform the task on their own, would need help performing that task, or would never attempt to perform the task. The two areas where respondents consistently reported needing help were detecting and removing computer viruses and buying a new computer. These subjects were addressed when creating the forum names and descriptions.

Computer repair technicians from Best Buy, CompUSA, and PC Club were interviewed to find out what type of computer support was most commonly requested by novice computer users. Each of the three technicians reported that virus and spyware problems were the most common service requests among newer computer users. This confirms and supports the findings of the needs assessment.

Another part of the analysis of this project consisted of conducting a user survey of three existing electronic bulletin boards with a sample of five novice users (see Appendix B). Elements that seemed to confuse these users were noted. Other features that contributed
to either sociability and usability were also identified.

Once the novice support site prototype was created a user task analysis was conducted on a group of novice users. A usability survey of three existing online forums was set up to learn about the likes and dislikes of novice computer users (see Appendix B). Most users seemed to value the organization of the forums, including descriptions accompanying each forum title. Readability was also a priority to the majority of the novice users. Small fonts on one forum bothered some respondents, while others commented positively about the spacing and font size of another forum. Another user wrote that a particular forum design was "easy on the eyes."

The user task analysis of the prototype revealed some concerns. The original title of the forum was "Uncle Tom's Computer Cabin." This title was unclear to users and was changed to "ComputerQuestions.tk." An explanatory subtitle and a "Welcome New Users!" forum were also created.

Design

The design of the page focused primarily on simplicity. The from the main forum index page, users can
select from several general forums which each contain more specific categories. Each forum is followed by a short explanation of what kinds of discussions are appropriate in those areas.

Attention was also paid to selecting a layout that was inviting and uncluttered. The light background and dark text of the forum enhance readability. Very few graphics were used, as they would increase Web page load times.

Forum navigation includes breadcrumb links that allow the user to easily back out of a particular forum or topic (Nielsen, 2000). A hierarchical navigation system was used as follows: forum categories > forums > topics > posts (see Figure 1). This is common in many discussion forums, and helps organize a potentially large number of posts. Organization of newly created topics is a crucial element of site management. Since users occasionally create duplicate topics within multiple categories, it is important for moderators to monitor and guide the placement and content of topics within a particular forum.
Test question...

Hey - I was trying to get rid of a certain virus...

Figure 1. Screenshot Showing Navigational Breadcrumbs

Most forums can be set to automatically "prune" themselves, deleting topics that have not received new posts for a certain amount of time. This can result in the loss of valuable information, however, so the feature was disabled. Pruning is generally not recommended for forums that store informational articles such as support sites.

Another feature important to many online forums is registration. Registration is required prior to posting information, but it is a simple, automated process and does not require a confirmation email or a waiting
period. A registration is available from every screen, so a user who decides to register after viewing several topics can do so easily from any page.

Development

The prototype for the computer help forum Web site was developed over a period of four weeks using Macromedia Dreamweaver MX 2004. The primary reasons for selecting Dreamweaver as the HTML editing tool were cost, availability, and interoperability. The Dreamweaver software is a professional-grade development tool that performs well on both Windows and Macintosh platforms. This software had already been purchased by Cal State San Bernardino as well as the Redlands Unified School District, so it was a logical choice. The CMC software chosen for the discussion board is phpBB 2.0.8. The primary reasons for this choice were software stability, expandability, usability, and cost. The phpBB software is free and is developed as an open source project. This means other developers can modify and add to the existing computer code. The open source nature of this project has led to dozens of add-on programs, which modify and expand the functionality of the existing CMC software. The
administrator's interface of the phpBB software allows the moderator or site administrator to customize user interaction in several ways. Users can be required to register or allowed to post comments as guests. For registered users the number of posts is listed with under the username. Similar to eBay's point system, this allows other users to how many messages a particular user has posted (see Figure 2). A high number of posts can add to a particular user's credibility.
Please Read This Before Posting Your Question!

Before posting your question, please make sure to perform a quick search for

www.gpspassion.com/search.php

If you are unable to locate the question you are looking for please make sure
This will help your question to be answered more quickly.

Thanks,
CQ.tk Staff

Figure 2. Screenshot Showing Username and Number of Posts

Implementation

Full implementation of this site will include a backbone of three knowledgeable moderators who each share the responsibility of monitoring and contributing to discussions on the site. This has proven effective for www.gpspassion.com, a hobbyist Web site focusing on Global Positioning Systems (GPS) devices, especially the kinds that can be used with a PDA or laptop. It should be
noted, however, that the topics discussed on this site have a very specific focus. Forums that address a wider range of topics such as the forum for novice computer users may need more moderators, especially as the community membership grows.

Evaluation

User feedback will be the primary tool used in evaluating the success of the online support community. Because user input is an integral part of online communities, user satisfaction or the lack thereof is often readily apparent in the posts. A “Contact Us” link is also available on each page. In the future, a User Survey link will solicit more formal feedback from users.

Metrics are another way to measure growth and track progress at regular intervals. Once the site is released to the general public, a weekly comparison of server logs will be used to measure and monitor site traffic. These logs can be used to estimate the number of unique visitors for a given period of time. This number can be compared to site traffic totals to show how many times the average user is returning to the Web site.
Summary

This project sought to incorporate elements of effective online communities in the design of an online support community for novice computer users. A user-center approach was used to assess the needs of novice computer users. Several online communities were reviewed by novice users to arrive inform the final software decision. Once a prototype was developed, usability tests were conducted and adjustments were made to better meet user needs. Full implementation will require scalability and regular monitoring to increase the chances of success. The final trick to a successful online community is moderating online communities in such a way that is enjoyable, engaging, and attracts new users. Moderators who are knowledgeable and at the same time charismatic and fun-loving can have a significant impact on the success of an online community.
CHAPTER FOUR
CONCLUSIONS AND RECOMMENDATIONS

Introduction

While there is no way to guarantee the success of an online community, usability and sociability are both essential elements that must be addressed. Sociability can be influenced through carefully crafted policies and well-planned community moderation. Both sociability and usability can be achieved through user-centered design.

Needs assessments, interviews, and user surveys all play an important part in driving the design process? In this project, these user-centered methods were used to inform the design of an online discussion forum for novice computer users. These tools established a need, provided parameters for development, and assessed the effectiveness of the overall project.

Conclusions

This was an exciting and interesting learning experience. One of the major challenges was to keep from forming preconceived ideas about how the final product should look. In a user-centered development process it is important to avoid making assumptions about the user’s
needs without testing or verifying those ideas through needs assessments or other methods. Accurate user assessments can prevent needless backtracking by correctly identifying target users and defining their abilities and needs within the context of the project.

Another important lesson learned from this project is the importance of allowing ample time for iterative testing of the prototype in the development phase. This is the stage where a project can go from good to great if enough time is allotted for fine tuning with user task analyses. In the online discussion forum developed for novice computer users, the prototype was modified several times as a result of iterative user task analysis. This included observing multiple sample users selected from the target audience. These users were given specific tasks to perform using the discussion forum. Their actions were then recorded and studied to identify areas of weakness. These areas were then addressed and adjustments were made. As the user task analysis cycle is repeated, new results should confirm that previous design flaws have been corrected. They may also reveal new usability issues that need to be addressed. In this way, the prototype improves to better meet the user's needs.
Recommendations

Planning and developing an online community is best done using a sound instructional design process such as the Dick and Carey model. Internet visitors can be unpredictable, and there are no guarantees of success; however, a user-centered design process that focuses on goals of usability and sociability will increase the chances of creating a viable online community.

As Nielsen (2000) repeatedly states in his book, *Designing Web Usability*, on the Web the user is king. Users can always go elsewhere, and they often do. Nielsen argues that creating a Web site that is not user-centered is pointless because there are so many other user-friendly sites competing for attention. This is also true of online communities. Most users seem to want transparent Computer-Mediated Communication software, meaning they do not want to have to worry about how to make it work. User task analysis can be an effective tool in revealing the rough edges of a particular design or prototype. The choice of CMC software is critical because it often determines much of the design and features in an online community. The needs of the target user should be considered here and at every stage of the design process.
Sociability is another aspect of online community that deserves careful planning and attention. The interactions among members of an online community are shaped by the people, purpose, and policies of that community. Moderators should support and enforce community policies, seeking member input as much as possible. The ideal moderator will be as friendly and sociable as he or she is knowledgeable about the topic. Most online communities do not run themselves. Carefully crafted policies and helpful moderators can make the difference between a vacant "digital ghost town" and a thriving online community (Preece, 2000, p. 221). Once the online community is in place, the success or failure is often determined by the personality and chemistry of the participants, especially the moderator. Humor and clever use of language can make the difference between a thriving, engaging, fun-loving online community and one that is rarely visited.

Summary

In order to achieve the ultimate goal of effective communication in an online community, a designer must take into account the needs and abilities of the target
users. Online communities should be developed with a dual focus on sociability and usability. These two ideas were researched and applied in the design of an online discussion forum for novice computer users. The Dick and Carrey instructional design model was used to assess the needs of beginner computer users and design and test a prototype to meet those needs. User surveys were helpful in selecting appropriate Computer Mediated Communication (CMC) software for the site. An iterative user task analysis cycle proved effective in refining the interface and improving the overall usability of the discussion forum prototype. By identifying and improving upon the best practices of existing online communities, designs will become more user-friendly and participants will have an increased ability to interact, socialize, and seek support online.
APPENDIX A

COMPUTER SUPPORT NEEDS

ASSESSMENT
Computer Support Needs Assessment

I am doing this survey as part of my MA project to learn about the computer support needs of computer users. I would very much appreciate it if you would take a couple minutes to tell me about the kinds of things you might want help with on the computer. You must be at least 18 years of age to take this survey. Your name will not be used, and all survey information will remain anonymous. Thanks for your time!

___ 1. First of all, where would you rate yourself on a scale of 1 to 10, 1 being a beginner computer user and 10 being an expert computer user? (Write the number in the blank on the left.)

___ 2. (Y/N) Can you usually set up a computer without help? (i.e. plug in all the cables and wires, hook up a printer, etc.)

3. For the following items, mark a check (√) if you can do it on your own, mark NH if you would try doing it but would probably need help or advice first, and mark an X if you would not attempt it on your own at all.

___ Checking for viruses on your computer
___ Removing viruses from your computer
___ Adding more memory
___ Adding a new hard drive
___ Buying a new computer
___ Connecting a printer
___ Making a web page
___ Putting music on a CD

4. What other types of computer problems or questions have you had?

5. Who do you usually ask for help with you computer-related questions?

___ 6. (Y/N) Would you ask your computer-related questions on an online message board if you knew of such a site? Why or why not?
APPENDIX B

ONLINE FORUMS SURVEY
Name __________________

Online Forums Survey

I am doing this survey as part of my MA project to learn about the usability of different web forums. You do not have to know a lot about forums. In fact, it is better if you don’t know much about them. You must be at least 18 years of age to take this survey. No personal information will be used in the research process. Thanks!

**Directions:** Please visit the following 3 forums, play with them for a few minutes, and comment on the things you liked or disliked about each one. (I don’t care about the topics of each forum; I mainly want to know which forum design is more comfortable and useable for you. Which forum did you like best? What made the best one better than the other two? What was easy or hard to understand about how to use one or more of the forums? (Try to be as specific as you can in your answers.)

1. [http://www.computerhope.com/cgi-bin/yabb/YaBB.cgi](http://www.computerhope.com/cgi-bin/yabb/YaBB.cgi)
   Likes?

   Dislikes?

   Likes?

   Dislikes?

   Likes?

   Dislikes?

Any other thoughts or comments about web forums? Would you use a web forum to ask computer-related questions? Why or why not?
APPENDIX C

ONLINE FORUM EVALUATION
Name ____________________

Online Forum Evaluation

I am doing this survey as part of my MA project to learn about the usability (usefulness) of a new web forum that is being developed. You do not have to know a lot about forums, but you must be at least 18 years of age to do this evaluation. No personal information will be used in the research process. Thanks for your help!

Directions: For each assignment, list in order the pages or icons you clicked on until you found the needed information. It may take you up to 5 clicks to find the correct information, but if it takes more than five clicks, simply indicate that on the fifth line. Please make any comments about how difficult or easy it was to complete the assignment and any suggestions you might have about information that was left out, but that you feel might be necessary, but that was not included.

1. Go to http://www.computerquestions.tk/

2. Find the page where you would register as a new user. (Start at the home page.)
   Click 1:
   Click 2:
   Click 3:
   Click 4:
   Click 5:
   Other Comments:

3. Where would you go on this site to post a question about a virus problem you were having? (Start at the home page.)
   Click 1:
   Click 2:
   Click 3:
   Click 4:
   Click 5:
   Other Comments:

4. Where would you go to find out about spyware? (Start at the home page.)
   Click 1:
   Click 2:
   Click 3:
   Click 4:
   Click 5:
   Other Comments:

Any other thoughts or comments about this site? What could make it better? Would you use this web forum to ask computer-related questions? Why or why not?
REFERENCES


