Portal Help: Helping People Help Themselves Through Animated Demos

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1. Introduction

> "The unprecedented growth of interactive computing applications has led to a heightened interest in the ease of use of computers" (Bergman & Keene-Moore, 1985)

When the above was written in 1985, the majority of people had little or no contact with computing machinery. Seventeen years later personal computers are a pervasive aspect of our society and, in those intervening years, have grown exponentially in number, power, and complexity. These trends have served to wrestle computing away from the expert user and land the burden squarely on the non-expert user (Selfe et. al., 1992). At the same time, the learning curve for even simple computing has become much higher, "because even the most user-friendly software systems are not always easy to use" (Covi & Ackerman, 1995). This dichotomy of increased functionality with a burgeoning group of novice users has created a breakdown between system and user. Often a program or system will present a myriad of powerful options which user's have no way to conceptualize, much less employ. (Carroll & Mckendree, 1987) One solution offered to this problem is an online help system (OHS). An OHS is a help function that is delivered electronically via a chosen interface. OHSs can create a bridge between the system and the user, allowing for a fuller exploitation of the technology (Silveira et al. 2001).

Online help systems have traditionally received scant research and development attention (Randall & Pederson, 1998). Often OHSs have been modeled on their paper counterparts, to the degree that in many cases they are simply a user manual with some rudimentary search and browse capabilities (Turk & Nichols, 1996). As computing has grown in complexity, the learning curve for these systems has greatly increased. Correspondingly, access and manipulations of OHSs should increase as well. Various avenues for OHS interfaces have been explored such as, hyperlinking, context aware or intelligent systems (Aaronson & Carroll, 1987), question answering (Sebrechts, 1991; Carroll & McKendree, 1987a) and animated help (Sukaviriya 1988). While these attemps have gained solid ground, we have yet to see a system that, in the words of Silveira, can "really help the user understand what the application means and what the users need to do with it." (Silveira et al., 2001, pg. 31) It seems possible that with further study "interactive computer technology…will provide its own learning environment [and] training will be an integral part of any computer application." (Sebrechts & Swartz, 1991, pg. 293).

2. The Need for Help in the Electronic Information Environment

Electronic information environments are relatively new and thus our experience is not yet great in building, using, and evolving these environments in any application area. Working in these environments requires three kinds of expertise: the application domain; information seeking, management and use; and technology. To work effectively, people must be comfortable about the terminology, organization, and relationships in the application domain. For example, to work effectively in a university domain, people need to understand the concepts of classes, semesters, syllabi, dormitories, alumni, and a host of other attributes of academic life. To work effectively, people must be able to read and understand materials, articulate questions, evaluate responses, organize materials in a variety of media, and apply information in original ways. To continue the university environment example, people must be able to read critically, participate in face-to-face and remote discussion, and formalize data and notes into coherent arguments and interpretations. To work effectively, people must be able to use computers, telecommunications networks, and various acquisition and display devices as well as the multitude of software, middleware, and user interfaces that link these physical components to the domain and information resources. Since having the optimal combination of these skills and abilities for every problem situation is beyond the scope of modern mortal existence, electronic information environments must provide various kinds of support to the on-demand, self-serve nature of environments such as the WWW.

What makes these demands especially heavy is the current state in which the WWW is a mainly self-serve environment. Unfortunately, the WWW has not yet even adopted traditional help support let alone evolved a systematic research and development tradition. This paper aims to stimulate such research by outlining approaches and demonstrating one promising technique appropriate to the WWW environment. We focus on animated help for a WWW portal application. In the next section, various approaches for OHSs are reviewed. A case study of OHS

for a portal system is then presented, which includes the introduction of the portal system, design rationale, and the OHS design activities and results.

3. Approaches to Help

There are a variety of approaches to the challenge of online help, among which are: tutorials, frequently asked question (FAQ), reference, mediated assistance, customized on demand, and animated demonstration. These are discussed below.

3.1 Tutorials

The tutorial is a method through which the user of a software application may obtain help on features or functionality of the software being used. The tutorial method involves a set of demonstrations that are pre-planned and designed to guide a novice user through tasks in an application. These demonstrations may be in the form of printed steps, a series of pictures, an audio description of activities or a video demonstration. Generally, the user is mainly a passive actor in the tutorial method, advancing the material when comfortable that the topic being displayed has been mastered (self-guided) or when proficiency has been demonstrated (interactive tutorials). Careful design is required on the part of the tutorial creator to maintain the user's interest while sufficiently presenting well-organized content. This is especially challenging in interactive tutorials where complex feedback and branching patterns are required to anticipate user responses.

The tutorial method of help is especially beneficial for activities that proceed in a linear manner where actual demonstration of the features are required. This method is less effective in casual applications where user interaction is limited in duration. Depending on the task orientation of the user, the time to complete the tutorial (or for any online help) must be in line with the anticipated time to complete the task. The learning takes place without direct user interaction with the application. This lack of parallelism with the application requires users to remember tasks and then be able to repeat them, placing a relatively high cognitive burden on the user in direct relationship with the length of the tutorial. Little, if any interaction with the user is possible to determine comprehension. A final difficulty with the tutorial method for online help is in maintaining the currency of the tutorial in a rapidly changing application environment (Garcia, 2000, Reiman, 1996). Clearly, the time and effort required to use a tutorial mitigates applicability, especially for WWW services that are infrequently and/or casually used.

3.2 Frequently Asked Question (FAQ) Services and AnswerGardens

Frequently Asked Question (FAQ) lists arose as a Usenet phenomena that were gradually integrated into WWW sites (Ng'ambi, 2002). FAQs reflect techniques developed in information service settings such as library reference desks and business customer service centers where common responses are actively managed and made available for common requests. At their conception, FAQ's were generally unordered lists of commonly asked questions, with subsequent answers. Their power to quickly supply relevant answers, without having to resort to more elaborate help systems was tempered by the fact that, as they grew in size, their ease of use became increasingly more frustrating. Over time, research has been performed to mitigate this problem, most notably work done by Ackerman on the Answer Garden (Ackerman et al. 1990, Ackerman et al. 1996, Ackerman et al. 2000). This work began to address the three main issues involved in innovative FAQ design; accumulating the data, storing the data and providing efficient means to access the data. Various approaches to these problems have been concerned with capturing answers and questions from both experts and novices, allowing users to create new questions as well as answers, using a tree structure to store and access data and using data mining or subsequent information recovery techniques to anticipate information retrieval issues. The most recent work, seeks to cast FAQ's as a way to store institutional/organizational memory (Ackerman et al, 2000; Ng'ambi, 2002)

FAQ's are a powerful way to store and deliver information. As rudimentary question and answering systems, they have the ability to easily answer repetitively asked questions, as well as growing to encompass novel question occurrences. Because the questions and answers are "grown" from the user population, FAQ's are able to accurately model common system/user breakdowns and provide information well conceived to the problem (Ng,ambi, 2002). This ability, coupled with the fact that they are unlimited in size, give FAQ's robustness when it comes to providing online help that cannot be ignored.

While FAQ lists can be used effectively, they are often utilized without much success (Ng,ambi, 2002). Often FAQ's are unorganized lists of information that are bewildering to navigate. Also, if the information in an FAQ list

has grown past a certain size, even search and browse capabilities will not reveal answers unless questions are similarly worded. Because environments change over time, "weeding" the garden or FAQ set is also a challenge. There is also the stark fact that, if an FAQ is unused, it will be a "fallow" garden, one unable to provide help in any situation. It is clear that the information FAQ's can capture is very useful, what still waits to be seen is if the interfaces employed will allow that information to be retrieved quickly and accurately.

3.3 Reference

Another important approach to online help rooted in active self-help is online reference. Reference has several manifestations ranging from online reference manuals to phone/email/chat services (considered separately below). Operating manuals have long accompanied equipment of all kinds and creating such manuals occupies a large body of technical writers, culminating in today's hardware and software manuals that resemble multi-volume books and may fill entire CD-ROMS. The key elements of good reference manuals are organizing content for easy access and use through rich Tables of Contents, multiple indexes with alternative vocabularies, alternative entry points, illustrations, and hyperlinks—many of the elements of what is called information architecture in WWW environments. The key to using a reference manual lies in mapping the need onto the best instruction. This requires significant expertise, something that novice users do not have. This is the well-known vocabulary problem of creating queries for documents in a collection—the information seeker must know what to name their 'need' with respect to the application at hand. Taylor (1968) long ago identified four stages of need articulation (visceral, conscious, formalized, and compromised) and reference librarians and other customer service professionals are trained to help people express their needs through careful questioning and feedback. It is no wonder that using a reference manual without a human intermediary is problematic. Thus reference materials are best utilized by relatively expert users who need to look up or learn a very specific function within a larger, well-understood environment.

3.4 Mediated assistance (email, chat and moo)

Electronic mail systems and the more comprehensive groupware or CSCW (computer-supported cooperative work) systems provide users with problem-solving assistance and peer support in a collaborative computer-mediated community.

Users can obtain solutions to their problems through both one-to-one and group collaboration. However, literature about virtual help desks claims to solve customer's questions on the first call between 50% and 90% of the time (AGNIC, 1994). The figures for those giant companies with vast support staffs, such as Apple and Microsoft, are even, at or below the bottom end of that range. The main reasons are two-fold: broad breath of supported "topics" and lack of homogeneity of the customer base. Furthermore, these issues can be compounded by the fact that, not all emails received by a virtual help desk will be read and even when they are read and replied to, these responses are not immediate but are often delayed. Chat rooms and moos allow for live textual communication, but the success of these methods often relies on a tenuous decontextualized transfer of information. Technical problems arise when trying to connect to a network of peers and even when connections are made there have to be knowledgeable and helpful recipients on the other end. Communicating by text brings a host of problems, including inability to describe the problem situation and a lack of situational understanding. Issues of trust and clarity may compound the help need situation. If the problem statement can be clearly described, textual communication may offer a clear path to solution, but often, for a myriad of issues, there are alternative methods of online help that are more effective.

3.5 Customized on demand/Knowledge-based help systems

Knowledge-based help systems are based on user models, which are defined as models that systems have of users that reside inside a computational environment (Fischer, 2000). They are one promising approach to equip machines with some human communication capabilities. In addition to the traditional explicit communication channel connecting the computer and human, knowledge-based architectures for human computer interaction have explored the possibility of an implicit communication channel. The implicit communication channel supports communication processes that require the computer to be provided with a considerable body of knowledge about problem domains, about communication processes, and about the agents involved.

The challenge in an information-rich world is not only to make information available to people at any time, at any place, and in any form, but to reduce information overload by making information relevant to the task-at hand and to

the assumed background knowledge of the users. Knowledge-based help systems can address these issues. In the context of this field, researchers have developed two approaches—adaptive and adaptable systems. The adaptive system dynamically adapts itself to user data, usage data, and environment (Fischer, 2000; Kobsa & Wahlster, 1999). Encarnacao & Stoey (1999) have developed the Object-Oriented Intelligent Multimedia Help System (ORIMUHS) under the aspect of portability. In ORIMUHS two different strategies—global user modeling and local user modeling—were realized for modeling the user's knowledge in order to consider the different situations in which user support might be required or requested. Empirical user studies conducted within a medical application system strongly indicated that the provided user support was adapted to a satisfactory degree by all users: beginners, advanced, and expert users. In the other approach, the adaptable system changes under explicit user control (with substantial system support) (Fischer, 2000). It provides users with more control of the system. Of course, users must be willing and able to manage this control.

One danger of knowledge-based help systems is dealing with user models containing wrong, outdated, and inadequate information. Even with excellent user modeling, help systems might lead participants to inappropriate or confusing answers, if the models cannot be applied adequately. The other danger is that it is possible for the user to tire of being interrupted in an untimely manner and therefore ignore any subsequent useful information. Other issues involve avoiding misuse of user models and protecting users' privacy.

3.6 Animated demonstrations

Another kind of on-line help is animated demonstrations, which use a different medium: animated graphic devices, from those textual or static graphic based on-line help. Animated demonstration was defined by Palmiter & Elkerton (1991) as real-time instantiations of computer-based procedures. It was considered as the most direct way for novices to learn the basic functionality and steps necessary to perform procedures within the graphical user interface environment (Shneiderman, 1983). The common assumption about the animation used in instruction is that it facilitates comprehension, learning, memory and inference (Morrison & Tversky, 2000), however, it can also generate mimicry and very superficial learning (Atlas, Cornett, Lane & Napier, 1997) and some evidence even shows that people often have difficulties in accurately perceiving and conceiving real-life animations (Kaiser, Proffitt & Whelan, 1990). Generally, the benefits of animations for learners of user interfaces are still unclear (Shneiderman, 1997) and empirical data produced from the studies of learning effectiveness of animation demonstration are inconsistent (Rieber, 1990). Rieber, et al (1991) did a comparison study to examine the effects of different levels of visual elaborations (animated graphic, static graphic, and no graphic) on adult application learning in a computer-based science lesson. No significant results were found in this study when the static and animated visuals were added to the text. Palmiter et al. (1991) compared the efficacy of learning computer-based tasks by using animated demonstrations, procedural textual instructions and combination of demonstrations and spoken text. It was found that the demonstration groups were faster and more accurate for learning the procedural tasks, but, interestingly, seven days later the text group was faster and as accurate when performing identical and similar tasks. It seems that the retention issue needs to be addressed more fully. The results in Harrison's (1995) comparison study suggested that using visual instruction in on-line help, either still graphic or animated, enabled the users to perform more tasks in less time and with fewer errors than those users who didn't have visual instruction, but there was no significant difference between the performance of subjects in the still graphic conditions and the animated conditions.

Wetzel, Radtke, & Stern (1994) did a brief review on the instructional effectiveness of animation. They suggested that the effectiveness of animation in instruction appears to be confined to younger learners and using animation to illustrate or present content, by itself, is relatively less effective than other uses (four uses of animation were identified by Rieber (1990): directing attention, presenting information, enhancing practice, and cosmetic appeal). Bétrancourt & Tversky (2000) reviewed research on computer animation in education, human-computer interaction and psychology and concluded that computer animation is not a panacea in itself, but it can improve users' performance and attitude under certain circumstances. They also summarized five possible factors that could influence the effectiveness of animation: the content to be animated, the level of interactivity, objective of animation, design of animated interface, and individual differences.

Morrison and Tversky (2000) proposed two possible reasons for the lack of benefits from animation. One reason is that animations are difficult to perceive, the other is that animated events are often conceived of as sequences of discrete steps, which do not match the continuous characteristics of animation. Hence, two principles were suggested for successful animated graphics: the apprehension principle and the expression principle. Unfortunately,

the authors do not give detailed descriptions of these two principles. In addition, by reviewing the previous animation studies, Rieber (1990) presented three design recommendations for the use of animated visuals in instruction: 1. Animation should be incorporated only when its attributes are congruent to the learning task. Visualization, motion, and trajectory were three attributes considered to be brought by animation. 2. When learners are novices in the content area, they may not know how to attend to relevant cues or details provided by animation. 3. Animation's greatest contributions to CBI may lie in interactive graphic applications.

Even though the results from different studies of animation often conflict in terms of its' learning effectiveness compared to still graphics and textual instruction, considerable empirical data suggest that animation instruction would lead to better learning performance when accompanied with auditory information. Mayer and Anderson (1991) found that the student group who were given both animated and auditory descriptions about the operation of a bicycle tire pump performed better on the tests of creative problem solving than those only given animated description and those only given the auditory description. Baggett (1984) examined the temporal relationship between visual and auditory information in depth. In the study, subjects viewed a film with both visual and narrative components in one of seven versions: visuals presented 21, 14, or 7 seconds before narration; in synchrony with narration; or 7, 14, or 21 seconds after narration. Results demonstrated that the scores of recalling the names given in the films were highest immediately and after 7 days for two groups: the synchrony group and the group shown visuals 7 seconds before narration.

Based upon the promising results of past research and the improving technical conditions in the WWW environment, a set of animated demonstrations were created for a specific WWW service. In the following section, we present a case study of OHS implementation for the UNC portal.

4. Case study

4.1 Portals as Information Services

One emerging approach to providing Internet services is what is known as web portals. Web portals can generally be characterized as one stop information gateways that pull together disparate sources and personalize their look and content to the individual. But, due to the emergent nature of these systems, many individual definitions differ. Portals are usually broken into two types, horizontal and vertical. Horizontal portals aggregate a wide variety of services and diverse information sources, such as news, chat, email, and usually provide categorized information. Vertical portals attempt to bring together all content and services for a specific setting (such as a business) or topic (such as a medical illness). Most portals allow users to uniquely identify themselves. This allows for context specific delivery of content and services (often based on "roles"), for individual customization, and for the integration of authentication across systems ("single sign-on"). [pointers to IBM, Oracle, SAS]

4.2 The MyUNC Portal

The University of North Carolina at Chapel Hill is in the first phase of creating a portal for students, faculty, staff, alumni, and visitors. The MyUNC portal supports customized integration of world, sport, local and other news from many providers and thus shares some characteristics of a horizontal portal. However, it is primarily a vertical portal, in that it has as a goal integrated access to information and services for the University as an organization. For instance, students can enroll in classes, check grades, buy textbooks, and see what library books they have checked out. Faculty can download class rolls, check their benefits, and put readings on reserve.

After some research into available products, only three existing portal software systems had the scalability to fit the needs of such a large institution as UNC-Chapel Hill. One of these systems is from Oracle, which was already site-licensed for the University and thus would require no additional expense. Because of its robust nature, and its availability, Oracle was chosen for the portal project. The Oracle system, while robust and quite functional, has a very confusing user interface for adding, deleting, and moving what are called "portlets" (small chunks of a web page that provide either information or access to services). Because of the inherent complexity of a portal, the wide range of users who will eventually use it, and the user interface issues inherent in the Oracle system, the MyUNC portal is ripe for value added help.

4.3 Rationale for animated demo implementation

In our portal help design, we could have implemented several kinds of help discussed above, but we chose to implement the animated online help. The motivation behind this decision is that we want to test the users' learning

performance with the animated demo compared to other kinds of existing help in the portal system. Additionally, animated demos are ideal for a setting where users wish to accomplish a task quickly and correctly, but do not have to perform the task often or with regularity. It was also decided that animated demonstrations were the closest asynchronous interface to direct human contact. Without the benefit of a live human communication channel (face to face, chat, phone etc.) animated demos can provide direct audio and visual guidance. This is thought to directly mimic how help might be delivered in a real-time human to human situation. If targeted correctly, animated demonstrations should provide a rich help experience, but it should also be acknowledged that animated demonstrations will not answer every help need. The demonstration interface is proficient for more simple, beginning user needs and will probably cease to be useful in more unique and complex help situations.

4.4 Design activities

The literature suggests that animations may be well suited to task-oriented help. Thus, the animated demo help implemented in the UNC portal is task-oriented, meaning that each demo demonstrated the procedures needed to complete a specific task. It was decided that the animation would include both an video and audio track. While video is informative, we wanted to pack as much useful information into the demonstration as possible. The addition of audio was extremely helpful and provides the user with a separate channel from which to receive more information.

The MyUNC portal is accessed by logging in with a username and password. After login, users are taken to the main MyUNC page. This page contains various 'stock' or 'individualized' pieces of information that can be arranged to best suit the individual accessing the portal. Each of these pieces of information is contained within a portlet, a small window that displays information drawn from various resources. These portlets can be arranged according to a hard coded template that all portal pages share. This template allows portlets to be placed in 1-4 columns and moved up or down or across columns depending on preference. At the top of the main MyUNC page there various tabs, depending on your profile, that allow other pages to be accessed. These can include, student, faculty and staff tabs. When these tabs are chosen, a new page is displayed with correspondingly different portlets. Some pages have within tab tabs available for access as well, for example under the student tab there are within tab options of, Academics, Student life, Finances etc… A header area at the top of the page allows for quick linking to most areas of the site including a customization option.

Five tasks were chosen for implementing the demo help:

- finding a value (e.g., what books do I currently have checked out from the library)
- adding a portlet
- deleting a portlet
- moving a portlet
- rearranging a portlet

Details for each demo are described below. Each section includes a description of the help situation, a short 'script' and a screen shot of the opening frame from the final animated demo.

1. Check Library Holdings Tutorial

The library holdings video demonstrates a quick reference approach to finding out whether the library has a book. This particular application is an example of a task-oriented function likely to be used by a large number of students. Novice users of the portal wishing to accomplish specific tasks may benefit from tutorial help targeted at common functions, such as this. The short duration of the tutorial help session (15 seconds) provides all of the information needed to accomplish the activity without losing the attention of the viewer. Experienced portal users may be acquainted with newly developed functionality in a simple manner with only a minimal time investment. Providing quick, task oriented tutorial help may also prove useful as new features are introduced to the portal.

Video script:

- Start at the Main MYUNC Portal.
- Mouse over to the student tab and click it.
- Position cursor over the Academics tab and move the mouse horizontally until you reach Libraries – click.
- On next screen, move mouse downwards to the "Renew" button and click

- Show library holdings window.

2. Add a portlet
The short animated demo is to demonstrate how to delete a portlet from a page window. The task of deleting a portlet is useful for the user to customize the entry page to include the content that appeals to them and to remove content that does not
.
Video script:
- We'll be adding a portlet to the middle column
- Click on "Customize"
- In the middle column select the "add portlet" icon
- Choose a portlet folder
- Select the portlet, notice it appears on the right
- Click "OK"
- It has been added to the middle column
- Click "close" and you will see the portlet

3. Delete a portlet
The short animated demo is to demonstrate how to add a portlet to a window. The task of adding portlet is useful for the user to customize the entry page to include the content that appeals to them.

Video script:
- To delete a portlet, click the "customize" link
- Select the check box beside the item you wish to delete, and click the delete button.
- Click "yes" to confirm
- Click the close button to go to the front page
- The portlet has been deleted

4. Arrange a portlet
The short animated demo is to demonstrate how to arrange a portlet within a column in a window. The task of arranging portlets is useful for the user to customize the entry page to organize the content in a useful manner.

Video script:
- Move a portlet in a column by selecting "Customize"
- Select the "Arrange" icon above the column in which the portlet resides
- Select the portlet you wish to arrange and move it up or down using the arrows buttons to the right
- Select "OK" when the order is correct
- Select "Close"
- The portlet is now at the top

5. Move a portlet
The short animated demo is to demonstrate how to move a portlet from existing window to another window. The task of moving a portlet is useful for the user to reorganize the different portlets as they appear in his front page.

Video script:
- Click the customize link on the up right corner of the front page
- On the new web page, check the checkbox beside the portlet name you want to move
- Click the “move portlet” button
- On the new web page, check the window you want the portlet move to
- Click the “move” button
- Click the “close” button on the upright corner to go back to the front page

4.5 Design constraints

Research dictates several design goals for animated demonstrations. They should be information rich, to get the job done, but brief enough for users to sit through. There is evidence that exceedingly long "help" is often discontinued prematurely. Other desirable attributes for an animation are motivated by the MyUNC Portal's method of delivery, distribution via the Internet to web browsers. File size and file type become increasingly important in this environment. We wished to make the files as small as possible (without severely degrading video quality) so that there is not a long wait for the files to be delivered. The files, also, needed to be delivered in a format that most web clients could handle.

Another set of constraints relate to consistency. There were five tasks to demonstrate, and we felt that each animation should be as similar as possible. To create such an environment we agreed to use:

- The same version of the same browser (Internet Explorer). We additionally agreed to configure the browser the same way (which toolbars would be in use).
- The same windowing environment and display resolution (Windows, 800 x 600)
- The same starting point with regard to the configuration of the customizable portion of the MyUNC Portal environment (we agreed to use the default configuration and all work with adding/moving/deleting the same portlet).
- The same person to perform the voice-over.
- The same vocabulary to describe actions, visual cues, and areas of the Portal software.

4.5 Design Plan

Once we had identified the constraints associated with our pilot project, we sketched out a plan for video production. In the pre-production period we divided the processes and performed them in this order:

- screen capture of the help actions being performed
- editing of that captured video
- creation of audio script
- generation of voiceover
- merging of audio and video
- distillation of web-ready file.

Generating a script for an audio track, when based in envisioning the task to be described (prior to actually performing that task), invariably led to excessively lengthy scripts. As the aphorism goes, a picture is worth a thousand words. Writing something that will be used in isolation usually involves explaining things that are more easily seen. We were creating video. In this case the audio was meant to enhance, not duplicate, the information in the video. Having video to watch as one worked out the voice-over was very helpful, and reduced the written/verbal content considerably.

It also makes sense, by and large, to edit the video before doing the voice-over, or indeed writing the script. As with most any Internet work, there are times when data is being downloaded or screens are being repainted. Given the goal of brevity, both for ease of use and to keep file size down, editing out long pauses was extremely important.

Other video attributes can add to overall informativeness. Title, for instance. The name of the link, the title and or/file name, helps give context to the demonstration that does not necessarily have to be repeated in the demo itself. Edits, such as highlighting a link to be followed or an area of the screen can also dramatically reduce the amount of explanation to be done as well as significantly easing the cognitive load of having to follow a small 'canned' demonstration. For example, rather than say, "Click on the oddly shaped "add" icon, leftmost of the three in the upper left corner of the second column in the middle of the screen," a red box can surround the link, flash twice, and the voice-over can state, "click the 'add' icon for this column."

We determined that the initial video should be captured at a high resolution, preserving the full screen and using no compression for the file. We would then edit the video as necessary. Once the video was edited to remove wasted time, to improve "flow," and to visually highlight portions of the process, the team would write and create the audio portion. The end product was smoother when the script was read in real-time while the video played and edited

accordingly. All videos and scripts were sent to the team member who was to do the voice-over. He captured each script as a separate audio file.

Once the audio files were generated, the next step was to integrate audio and video (while maintaining the integrity of the video). The final step was to export a version of the completed demonstration at reduced screen size, using compression, and in a format appropriate for Internet distribution. Initially, we thought each of these tasks might be done with separate software packages, including a video capture software package, a video editing package, an audio package, and finally some tool to export the final, reduced size, product. We actually found a product, Camtasia (http://www.techsmith.com/), which performed all these tasks very effectively and easily. The team did use a separate audio package, as the project member who read the voice-overs was remote from the video-editing site. Nonetheless, the Camtasia product made it very easy to integrate the sound, and it even provided an editor that was simple to use to add video effects (such as highlighting portions of the screen). We exported the files at half their original screen size, with a reduced color palate, and using audio and video compression. The production files were exported in the Flash format, one that is commonly supported in most web browsers, and for which a plugin is freely available at (http://www.macromedia.com/software/flashplayer/).

Once all the files were created, a web page was developed from which a user can launch the demonstrations. The actual animations can be found at http://ils.unc.edu/hci_projects/portal_help/. The portal development team at UNC-Chapel Hill was very receptive to this form of help and intends to integrate the animations into their current tutorial (which is a written document with still screen captures.) One of the developers has said, "I have been working on the portal project for quite some time. This help facility is good. We've struggled with how to teach people how to customize, but we always come back to having someone just show you. And that's what this does..."

Our hope in the above research and design was to further the general and specific ideals of online help. By tackling the overall idea of online help, we focused on parsing and learning individual instances of how online help can be rendered to the individual user. This study lead us to investigate best practices for online help delivery and suggested an area of specific research. The MyUNC Portal was rolled out at an opportune time and advantage was taken of its relatively simple help system. A course of action was designed and followed, resulting in animated demonstrations for five simple tasks that are possible within the MyUNC Portal. While the specific design rationale and workflow was productive, the more interesting work came in examining how online help has grown in fits and starts resulting in its current tender state. The issues involved in mapping effective methods of help over problematic systems and reaching users with a minimum of fuss were numerous and detailed. Our stab at shining light into this dark corner was in hopes that we could help users "to correct misconceptions about the way the application works, to grasp the rationale of designers, and have insights for novel situations in which to work productively with the application" (Silveira et al. 2001). We have some optimism that these very task-oriented animated help examples will inspire practice. The UNC portal design team has reacted positively to the technique and are considering incorporating them into the help system for the portal.

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