

**An Assessment and Evaluation of Submitting Online Proposals Through the Sponsored
Programs Web Site and RamPoint Portal**

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Abstract

An Assessment and Evaluation of Submitting Online Proposals Through the Sponsored Programs Web Site and RamPoint Portal

Colorado State University's Spring 2006 JT661 Information Design class undertook the task of evaluating the process of online proposal submission via the Sponsored Programs Web site as well as the RamPoint Portal. Research questions included (1) What specific tasks do users have the most difficulty completing? (2) What specific tasks do users have the least difficulty completing? (3) What is the most-liked aspect of the Web site? (4) What is the least-liked aspect of the Web site? (5) What is the most common complaint about the Web site? (6) What is the most common praise about the Web site? (7) How does the usability of the Web site compare to the guidelines outlined by NCI? (8) How does the usability of the Web site compare to Section 508 – Accessibility guidelines established by the I.T. Accessibility & Workforce Division, U.S. General Services Administration and adopted by CSU?

The class used two methodologies: (1) usability testing of the Web site, including protocol analyses, direct observation and an attitudinal questionnaire (n=14) and (2) heuristic assessment – a review using the National Cancer Institute's Research-Based Web Design & Usability Guidelines (www.usability.gov).

After reviewing the analyses, observations, questionnaires and NCI guidelines, the class made 21 suggestions for improving the Web site: 1. Provide easily accessible Help, Search and Sitemap options; 2. Provide users feedback on their location within the site; 3. Define acronyms & abbreviations, avoid jargon; 4. Locate all forms in one area; 5. Modify the homepage in length and number of options; 6. Make sure each page and pages across the site are consistent visually: a. Put important options at the top of the page, b. Put important items in the same place on all

pages, c. Use appropriate page lengths (users do not like to use scroll bars), d. Information should be black text on a contrasting background, e. Only capitalize the first word in lists; 7. Only use attention-attracting features when necessary; 8. Make sure links are obvious and that users know if the link is internal or external; 9. Have link names match the headings of their destination pages; 10. Use open rather than drop-down lists; 11. Label push/submit buttons clearly; 12. Allow for data entry rather than using the find option; 13. Make optional data entry fields distinguishable from required fields; 14. Standardize task sequences; 15. Ensure the Web site is accessible for users with disabilities (color-blindness); 16. Ensure that the label specifying the date format is near its corresponding field; 17. Do not use color alone to convey information; 18. Ensure the homepage looks like a homepage; 19. Provide glosses/tool tips to help users select correct links; 20. Ensure that non-clickable items do not display cues of clickable items; 21. Use labels and concepts that are meaningful, understandable and easily differentiated by users.

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Introduction

The Colorado State University (CSU) Research Tab on the RamPoint site is critical for facilitating streamlined, accurate, and useful research proposal information exchange from faculty researchers. Any difficulties encountered while using the Web site negatively impacts both University administrative management of research proposals and the faculty users of the Web site. In the following report, we provide a comprehensive, but not exhaustive, evaluation of the Web site's usability. We also make suggestions for improvement based on the results of the study.

According to the "Introduction to Sponsored Programs," CSU "equates research with focused intellectual investigations and considers it essential to all disciplinary fields, including the humanities, social sciences, business, and the arts." Further, one of the major administrative objectives of Sponsored Programs is to serve "Colorado State University faculty and staff in research initiation through assistance in identifying funding opportunities and with the submission of proposals, as well as in the administration of the University's funded projects with contractual arrangements" (Sponsored Programs, 2006). Clearly, a well-designed online mechanism for submitting and circulating research proposals is pivotal toward achieving these stated goals, especially in the area of proposal submissions.

The present study evaluated the creation of a new research proposal, including setting up an individual researcher profile and providing preliminary proposal information. Although the RamPoint Portal presents a wide range of information and resources, study participants worked from the Research tab, specifically within those pages required for creating a new proposal. Clarity of the steps and functions required to submit a new proposal are crucial for promoting

and enhancing faculty productivity and satisfaction when working on research proposals integral to the economic strength and intellectual reputation of CSU (see Figures 1 and 2).



Figure 1: Screen Shot of RamPoint Research Tab

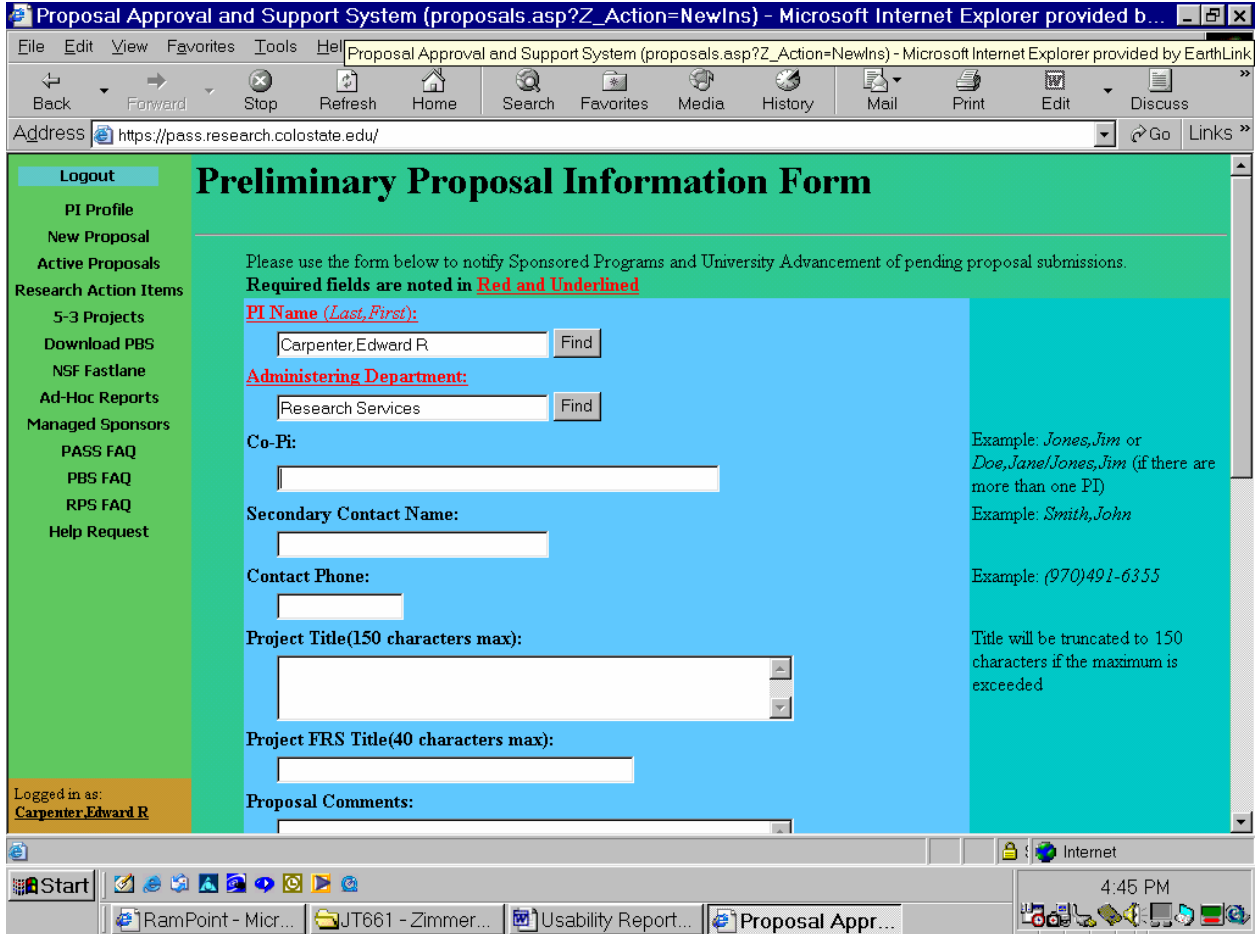


Figure 2: New Proposal Page - Online Preliminary Proposal Information Form

Intended Audience

Average users of the Web site will be faculty and graduate students from diverse cultural and socioeconomic backgrounds, with ages typically ranging from 20 to 65 years old. Most users will be familiar with the Internet, Web sites and PDF files. The primary audiences of the Web site include:

- Faculty and staff from various CSU Departments
- Currently enrolled graduate students at CSU who assist with research

Research Questions

The purpose of the usability study was to determine what difficulties and problems users might encounter when creating proposals using the Research Tab on the RamPoint Web site.

The following research questions guided the study:

- What specific tasks do users have the most difficulty completing?
- What specific tasks do users have the least difficulty completing?
- What is the most-liked aspect of the Web site?
- What is the least-liked aspect of the Web site?
- What is the most common complaint about the Web site?
- What is the most common praise about the Web site?
- How does the usability of the Web site compare to the guidelines outlined by NCI?
- How does the usability of the Web site compare to Section 508 – Accessibility guidelines established by the I.T. Accessibility & Workforce Division, U.S. General Services Administration and adopted by CSU?

Methods

The study was conducted by members of the JT661 Information Design class at CSU. Usability tests were performed to assess the effectiveness of the Sponsored Programs Proposal Approval and Support System Web site and the RamPoint Research Web site at Colorado State University. The National Cancer Institute's Research-Based Web Design & Usability Guidelines along with the Federal Web Accessibility Standards and Colorado State University Web Accessibility Standards were utilized for the assessment.

Usability Testing

Usability is a measurement of the quality of a user's experience when interacting with a Web site, product, or system. Usability includes a combination of items that affect the user's experience such as ease of learning, efficiency of use, memorability, error frequency and severity, and subjective satisfaction (National Cancer Institute, 2006).

Usability testing includes various methods of having users experiment with a Web site or system. Testing involves participants performing a variety of tasks on a Web site or system and observers take notes as participants speak aloud and complete the assigned tasks. Usability testing includes gathering data on what the users do, the errors that they make, when they become confused and how long they take to perform tasks. The goal of this testing process is to find out what problems users will have so specific problems can be fixed (National Cancer Institute, 2006).

The class recruited 14 participants affiliated with CSU for usability testing of the Web site. Ten participants were faculty members from the Journalism & Technical Communication, Sociology and Anthropology departments. One participant was a staff member from the Morgan Library. The remaining three participants were graduate students in the Journalism & Technical Communication program. The participants signed a usability assessment consent form (see Appendix A) and an honorarium receipt record. After completing the study, participants were given a debriefing form and a \$20 gift card to the CSU Bookstore for participating.

Participants were given a set of 10 tasks to perform on the Web site. The tasks were designed to replicate the online research proposal submission process and were created by JT661 Information Design Professor Don Zimmerman (see Appendix B). JT661 Information Design class members observed the participants as they completed 10 tasks. Participants were asked to

speaking aloud as they attempted each task so that problems encountered could be easily recorded. The participants were observed, video-taped, and timed while completing the assigned tasks.

After completing the test, participants were given a usability questionnaire, created by JT661 Information Design professor Don Zimmerman (see Appendix C). It consisted of five sections. Section one sought participants' assessment of the Web site. Section two asked participants about their experience with the Web site and the tasks' levels of difficulty. Section three inquired about participants' past experience with the CSU Sponsored Programs Web site, RamPoint, and the Human Subjects Web site. Section four asked participants about their past experience with personal computer use, the Internet, downloading Adobe software and Adobe PDF files, installing software and hardware, and filling out applications and forms online. Section five asked participants about their past experience with submitting printed proposals, submitting proposals online, and using other online systems for proposal submission.

The National Cancer Institute's Research-Based Web Design & Usability Guidelines

The National Cancer Institute's Research-Based Web Design & Usability Guidelines were created to assist Web developers in creating and maintaining more usable Web sites (National Cancer Institute, 2006).

JT661 Information Design class members created suggestions for the Sponsored Programs Proposal Approval and Support System Web site and RamPoint Research Web site after conducting the usability tests and consulting the guidelines.

Federal Web Accessibility Standards & CSU Web Accessibility Standards

The Federal Web Accessibility Standards were created to ensure that federal agencies' electronic and information technology be accessible to people with disabilities (National Cancer Institute, 2006). The Colorado State University Accessibility Standards were created to ensure that all members of the community, including those with disabilities, have access to university information (CSU Accessibility, 2006).

JT661 Information Design class members compared the Federal Web Accessibility Standards against the Colorado State University Web Accessibility Standards for recommendations regarding the Sponsored Programs Proposal Approval and Support System Web site and RamPoint Research Web site.

To conduct a successful usability examination of the Sponsored Programs Proposal Approval and Support System Web site and RamPoint Research Web site, the JT661 Information Design class members concluded that incorporating the methodologies mentioned above would result in a thorough and complete usability overview.

Results**Usability Testing**

Fourteen individuals participated in the protocol (think aloud) analysis. Participants were faculty, staff, and graduate students from the Journalism Department, Anthropology Department, Sociology Department, and the Colorado State University Library.

Eighty percent of participants use their personal computers a great deal, with an average of over 17 years computer experience. All participants have at least moderate experience using the World Wide Web, however fewer people have experience installing computer software and

hardware. Most participants feel comfortable downloading PDF files, and all have some experience filling out applications or forms online (see Table 1).

Table 1: Usability Participants' Computer Experience (n=14)

	Percentage							Mean ± SD	Mean Years±SD
	None		A Great Deal						
Expertise	1	2	3	4	5	6	7		
A. Using a personal computer	0	0	0	21.4	0	42.9	35.7	5.9	17.07
B. Using the World Wide Web	0	0	0	14.3	7.1	42.9	35.7	6.0	9.21
C. Personally downloading Adobe's Acrobat Reader Software	0	7.1	21.4	0	28.6	14.3	28.6	5.07	5.31
D. Downloading PDF files for information	0	7.1	0	7.1	21.4	35.7	28.6	5.64	6.21
E. Installing software	7.1	21.4	0	21.4	14.3	7.1	28.6	4.5	11.5
F. Installing hardware	30.8	15.4	0	23.1	15.4	7.7	7.7	3.31	8.86
G. Filling out applications/forms online	0	0	0	21.4	35.7	14.3	28.6	5.5	7.14

Tasks

Only one task, adding keywords to the SP-1, was completed by 93% of the participants without help, while more than 50% of participants were able to complete Tasks 1-8 with assistance. Despite these high completion rates, 75% of the tasks were not completed by anywhere from 7% to 42% of participants. Additionally, 7% to 79% of participants required help on Tasks 1-8, while no task was completed without at least one participant needing assistance. Average task completion time ranged from 65 sec. to 394 sec. (see Table 2).

Table 2: Protocol Analysis Task Completion and Times (n=14)

Task	Description	% of participants completing task without help	% of participants not completing task without help	% of participants completing task with help	% of participants not completing task with help	Range of times required to complete tasks in seconds	Average time required to complete task in seconds
1	Check Researcher Profile information/ Add Investigator Designee	14%	7%	57%	21%	90-629	265
2	Create a PASS number	29%		71%		230-630	394
3	Download PBS spreadsheet and SP1	29%	21%	50%	7%	60-320	185
4	Download the HS100 form	21%	21%	29%	21%	55-382	200
5	Complete the SP1 online	14%	7%	79%		50-660	378
6	Add keywords to SP1	93%		7%		26-224	65
7	Attach Excel Spreadsheet	43%	36%	21%		10-253	79
8	Complete and Submit SP10 and SP12 forms			79%	21%	23-272	103
9	Find Help with EID*						
10	Determine eligibility of Principal Investigators*						

* Insufficient participants completed tasks to generate data.

The protocol analysis demonstrated particular user problems with the Web site. Participants were least successful in downloading the H-100 form and attaching the Excel spreadsheet. Participants required the most assistance while completing the SP-1, completing and submitting the SP-10 and SP-12 forms, and creating a PASS number (see Table 2).

Optional Tasks 9 and 10 were attempted by four and six participants respectively. Participants gave various explanations of how to solve these tasks. Several participants used various help, search, and FAQ areas to try and solve Task 9. Two participants said they would leave the Sponsored Programs Web site to attempt Task 10, while the other participants gave a variety of responses (see Appendix D).

Participants' Satisfaction Survey

After completing the tasks, participants completed questionnaires regarding their use of the Sponsored Programs Web site, RamPoint Portal and other Web sites (see Appendix C).

Results indicated that participants had used the CSU Sponsored Programs Web site infrequently in the past (mean=2.46±2.03). While the site was considered somewhat useful (mean=4.82±1.72), participants did not believe that the Web site provided adequate enough directions to submit proposals online (mean=2.91±1.30). Six participants had previously encountered difficulties while using the CSU Sponsored Programs Web site, including challenges with navigating through the site, signing forms, submitting proposals and finding information (see Table 3).

A limited number of participants had past experience using RamPoint (mean=3.08±2.15), with four users having experienced difficulties with this Web site. Three of the participants could not find information, while one had trouble completing online signatures for forms. A higher number of individuals had previously used the Human Subject Web site (mean=4.08±2.02), and considered it to be extremely useful (mean=6.22±.67). Only one participant indicated having trouble with this Web site, as two unreadable consent forms were encountered (see Table 3).

Regarding proposal submission, two participants had previously submitted proposals online, with one participant having submitted one proposal, and one participant having submitted two proposals through the CSU Sponsored Programs Web site. Participants asked for help while filling out the forms online an average of 2.5 ± 0.71 times. Two participants indicated they had submitted printed proposals, one having submitted two proposals and the other having submitted 10. Participants asked for help an average of 4.0 ± 1.41 times. Three participants had used other online systems to submit proposals including NSF Fastlane, Fast track and Microsoft Word attachments. These systems were considered easy to use because they were well-formatted, intuitive and logical, did not contain too much information per page, and were more readable than a Sponsored Programs research proposal (see Table 3).

When answering open-ended Question 1 about the CSU Sponsored Programs Web site, six participants disliked the Web site (see Appendix E). They noted being confused with terminology and assumed information, and being intimidated by the site's complexity. On the positive side, one participant felt the site had relevant information. Three participants commented that the site had a lot of information in one location. Two participants felt that once they became accustomed to the site it would become very useful. Two participants liked the color used as well as the use of white space. One participant liked the ability to submit information electronically. One participant liked having the links accessible on the left hand column on the home page.

In response to Question 2, dislikes of the Web site, one overwhelming complaint was that the site was too busy and cluttered (especially the portal page), and presented too much information for participants. This, as well as links, labels and terms that were not obvious, made searching and finding information difficult. Another complaint was about the color scheme, which made it difficult to focus. Two participants felt that navigating the site was frustrating for

the inexperienced user. One participant felt that several buttons did not provide appropriate feedback and the site should include a glossary. Three participants felt that there should be a directed flow of navigation because the links were not obvious, and the site was not intuitive. One participant felt that the “boxes” of information should be better organized.

When expressing which sections of the Web site were most difficult to use (open-ended Question 3), the participants found that most of the Web site’s sections were difficult and confusing. Finding and setting up the SP-1 seemed to be the most difficult task, since participants could not locate this online form and did not have prompts to help fix mistakes. Additionally, all participants found navigation of the site extremely difficult. The process of adding a designee was also a problem. One participant felt that there was no uniform design, the links were not easy to distinguish and there were too many colors used. Two participants felt that the terminology of the site was confusing.

In response to open-ended Question 4, eight of the 14 participants could not complete the assigned tasks because they could not find information or the correct forms to fill out. One participant indicated that he/she could only complete the tasks with assistance. Participants felt they could not complete the tasks for a variety of reasons. Three participants felt that they were not familiar with the terminology used. Four participants indicated that they could not find the right information and relevant forms. One participant had problems with submitting forms online, and another had a hard time using the links to get information.

Open-ended Question 5 asked participants if there were irritating aspects of the Web site that did not lead to significant problems. Most participants again found the navigation difficult and stated that the site was overwhelming, cluttered and contained too much information. The colors were an issue as well, particularly the neon colors. Several participants noted that the site

assumes they are comfortable with terminology and entering information (it is picky about dates and inserting names/files, but does not troubleshoot when information is entered incorrectly.)

Two participants commented that they disliked the “+” signs used in the Regulatory Compliance section for drop down menus. One participant disliked the automatic filling in of information, and that some links were on the left-hand column, while some were on the top. Another participant didn’t feel comfortable searching for information because he/she felt completed information may be lost.

For Question 6, regarding changes that could make the Web site easier to use, most participants suggested that Sponsored Programs needed to look for ways to redesign the site. Three participants felt that the homepage should be simplified and stated they would have liked to have a glossary of terms. Additionally, participants believed feedback on successful form completion would be helpful. One participant suggested putting all important links on the left-hand column, while another wanted the links and labels to be labeled according to the forms they contain. Three participants commented that they would like a step-by-step guide or to have the site have a more directed flow.

In Part II of the satisfaction survey, participants were asked to rank a series of 33 questions about their experience with the Sponsored Programs RamPoint Portal. Rankings were on a scale of 1 to 7 where 1= strongly disagree, and 7= strongly agree. Questions covered a variety of information such as Web site function, structure and individuals’ feelings toward interactions with the site.

Overall, more participants were dissatisfied with their experience using the site than were satisfied with it (see Table 3). Nearly all users felt that the links between the pages were difficult to understand. Most felt overwhelmed by the large amount of information presented in the text,

and all felt they could not easily find the information they needed. Nearly all participants felt lost while navigating the site. Nearly 79 percent found the site confusing to use and found the information difficult to understand. The majority of participants found they made many errors. All the participants experienced some frustration while navigating through the site and found it difficult to use, and the majority found it difficult to read. The majority of participants (over 70 percent) felt that if they were submitting a proposal through the Sponsored Programs Web site, it would not provide all the necessary information.

Most of the participants found the site poorly written and uninteresting to use. Over 90 percent felt the site design was unattractive and over 70 percent found the colors displeasing. Most found the layout of the site was difficult to follow. They also felt that diagrams and graphics did nothing to help their experience.

All participants would prefer to submit proposals online rather than print proposals. The pages on the site loaded quickly and the font was not too difficult to read. Most found that the words on the screen were legible. Most participants would prefer reading information on PDF files. The majority agreed that the Sponsored Programs Web site was at least moderately helpful (see Table 3).

Table 3: Web Site Satisfaction Survey Results (n=14)

	Percentage							Mean \pm SD
	Strongly disagree				Strongly agree			
	1	2	3	4	5	6	7	
Satisfied with experience on site	14.3	14.3	21.4	28.6	7.1	14.3	0	3.43
Links between pages hard to understand	0	0	7.1	14.3	42.9	14.3	21.4	5.29
Could easily correct errors	7.1	7.1	28.6	21.4	21.4	14.3	0	3.86
Diagrams and graphics enhanced info on site	0	33.3	22.2	44.4	0	0	0	3.11
Text has too much info	0	8.3	16.7	16.7	16.7	8.3	33.3	5
Site's left-hand navigation was helpful	7.7	7.7	15.4	15.4	23.1	15.4	15.4	4.46
Words on screen were legible	0	14.3	7.1	14.3	7.1	57.1	0	4.86
Site confusing to use	0	0	21.4	0	21.4	14.3	42.9	5.57
Info easy to understand	14.3	21.4	42.9	0	7.1	14.3	0	3.07
Site layout easy to follow	35.7	14.3	21.4	14.3	14.3	0	0	2.57
User never felt lost	21.4	42.9	14.3	14.3	7.1	0	0	2.43
User felt overwhelmed	7.1	14.3	14.3	14.3	7.1	35.7	7.1	4.36
Few errors made	14.3	28.6	14.3	28.6	0	14.3	0	3.14
Pages loaded quickly	0	7.1	0	7.1	7.1	42.9	35.7	5.86
User found site easy to use	42.9	14.3	28.6	14.3	0	0	0	2.14
User found site easy to read	14.3	14.3	7.1	28.6	21.4	14.3	0	3.71
User not frustrated	35.7	28.6	14.3	21.4	0	0	0	2.21
Site is well-written	0	7.7	23.1	46.2	23.1	0	0	3.85
Site not interesting to use	0	14.3	14.3	42.9	14.3	14.3	0	4
If submitting proposal, site info would be helpful	14.3	7.1	14.3	21.4	28.6	14.3	0	3.86
Site has too much information in PDF files	0	9.1	36.4	18.2	9.1	9.1	18.2	4.27
Prefer to print then read Web pages	21.4	28.6	14.3	14.3	0	21.4	0	3.07
Prefer to fill out print proposals	30.8	38.5	15.4	15.4	0	0	0	2.15
Links are inconsistent	0	9.1	18.2	36.4	9.1	0	27.3	4.5

Heuristics

National Cancer Institute Guidelines

The guidelines developed by the National Cancer Institute (NCI) can be used as a checklist when assessing features of an existing Web site. These guidelines, based on research findings, allow Web site reviewers to base their decisions about modifications on the most recent research (NCI, 2005). The guidelines were used in a heuristic evaluation of the Sponsored Programs RamPoint Portal.

A review of the Web site against the guidelines revealed problem areas. Most importantly, the site needs to include an easily accessible help function, a search option, and have links that provide definitions and descriptions clarifying concepts or jargon. Similarly, the site needs to define acronyms and abbreviations. The homepage needs to look like a homepage and should be modified so that only the major options are available and if possible, the page is only one screen in length. In general, visual consistency needs to be upheld within and between pages:

- All pages need to be organized so that there are levels of importance (from top to bottom)
- Important items are placed consistently across pages.
- Page lengths are appropriate.
- Attention attracting features are used only when necessary.
- Only the first word in lists should be capitalized.
- Information should be presented as black text on a contrasting background.
- Color alone should not be used to convey information.
- All labels and concepts used should be meaningful, understandable, and easily differentiated by users.

Since this site contains a large amount of information, it is important to include a sitemap and give users feedback on their location within the site. It would also be helpful to have task sequences standardized throughout the system.

Several problem areas were found regarding links, lists and data entry on forms. It is important that the site has consistent cues to tell individuals an item is clickable, that it provides glosses or tool tips to identify clickable links, and to inform users if a link will move them to a different location on the same page or to a new page. Similarly, link names need to match their destination pages. Additionally, open lists rather than drop-down lists should be used to display a list of options and push/submit buttons need to be labeled clearly.

In areas where entering information is required, optional entry fields should be distinguished from required fields. Most often, this can be accomplished by including an asterisk (*) after the field name of a required field. If this method is used, include a note somewhere on the page explaining that all field labels followed by an asterisk are required. Direct data entry fields, rather than find or browse options, should be used to increase the speed of entering information. Also, make sure that each data entry field is near the box to which it corresponds. These findings demonstrate potential areas for revision of the Web site.

Accessibility Review

The U.S. Federal Government and other organizations provide guidelines for making Web sites accessible for people with different disabilities:

- CSU's guidelines: <http://www.colostate.edu/Depts/ATRC/resource.htm>
- Section 508: <http://www.section508.gov/>
- W3C World Wide Web Consortium: <http://www.w3.org/WAI/>

The Web site "Cynthia Says" was used to obtain accessibility reports for the RamPoint home page and the PI Profile page (www.cynthiasays.com, run 5-5-06):

1. <http://rampoint.colostate.edu>

- 508 Standards, Section 1194.22(a): *A text equivalent for every non-text element shall be provided (e.g., via “alt”, “longdesc”, or is element content).* PASSED.
- 508 Standards, Section 1194.22(d): *Documents shall be organized so they are readable without requiring an associated style sheet.*

Document uses external timesheets, in-line style information, or header style information.

- 508 Standards, Section 1194.22(1): *When pages use scripting languages to display content, or to create interface elements, the information provided by the script shall be identified with the functional text that can be read by assistive technology.*

WARNING: SCRIPT element(s) are found in document and NONSCRIPT element is not.

2. <https://pass.research.colostate.edu>

- 508 Standards, Section 1194.22, (a) *A text equivalent for every non-text element shall be provided (e.g., via "alt", "longdesc", or in element content).*

Rule: 1.1.5 - All FRAMESET elements will be checked for the NOFRAMES element.

FAILURE- Outermost FRAMESET Element at Line: 1, Column: 1

Conclusion

Overall, the Sponsored Programs RamPoint Portal provides reasonable usability for site users, however there is still significant room for improvement. The following suggestions are based on the finding from the usability testing, NCI guidelines, and accessibility review:

- 1) Provide easily accessible Help, Search and Sitemap options
- 2) Provide users feedback on their location within the site
- 3) Define acronyms & abbreviations, avoid jargon
- 4) Locate all forms in one area
- 5) Modify the homepage in length and number of options

- 6) Make sure each page and pages across the site are consistent visually:
 - a. Put important options at the top of the page
 - b. Put important items in the same place on all pages
 - c. Use appropriate page lengths (users do not like to use scroll bars)
 - d. Information should be black text on a contrasting background
 - e. Only capitalize the first word in lists
- 7) Only use attention-attracting features when necessary
- 8) Make sure links are obvious and that users know if the link is internal or external
- 9) Have link names match the headings of their destination pages
- 10) Use open rather than drop-down lists
- 11) Label push/submit buttons clearly
- 12) Allow for data entry rather than using the find option
- 13) Make optional data entry fields distinguishable from required fields
- 14) Standardize task sequences
- 15) Ensure the Web site is accessible for users with disabilities (color-blindness)
- 16) Ensure that the label specifying the date format is near its corresponding field
- 17) Do not use color alone to convey information
- 18) Ensure the homepage looks like a homepage
- 19) Provide glosses/tool tips to help users select correct links
- 20) Ensure that non-clickable items do not display cues of clickable items
- 21) Use labels and concepts that are meaningful, understandable and easily differentiated by users

1. Provide easily accessible Help, Search, and Sitemap

When responding to open-ended questions, participants stated that they left tasks uncompleted because they could not find information or the correct forms to fill out. In addition, task performance was worst on Task 4 where participants had to find the H-100 form. NCI Guidelines 2.3, 17.1 and 7.7 state that users need to be provided with assistance, a search option, and a sitemap. These three functions should be available on the main research page, in an area where they can be clearly seen, and should be made easy to use. It might be wise to provide a help function that also gives a general overview of the proposal submission process as several participants stated problems due to lack of knowledge in this area. If possible, help functions should be available on all pages users may access and be context-sensitive to the current page. For example, on the

PI profile page, it would be helpful if the help link defined what a PI profile is and why the user needs to create a PI profile.

2. Provide users feedback on their location within the site

NCI guideline 7.1 states the importance of telling individuals where they are in the Web site. In response to the second open-ended question two participants found the site frustrating for the inexperienced user. Overall, the participant survey also reported that users felt lost while using the Web site. To improve site navigation, link names need to match the headings of their corresponding pages. In this way, the user knows that the link he/she just clicked is related to the page displayed.

The site needs to provide users with a history trail that tells them where they are in the site and gives them links back to previous pages. A “go home” link should also be provided on each page which sends users back to the main research page. This button should be put in a highly visible area.

3. Define acronyms and abbreviations, avoid jargon

In response to the second and sixth open-ended question users stated the need for a glossary of terms. Additionally, the need for help on Task 8, and the low performance on Task 4, both involving undefined forms, indicates that lack of comprehension about the forms’ purpose. NCI guidelines 15.1 and 15.5 suggest that all acronyms and abbreviations should be defined and that jargon should not be used if possible. Terms could be defined using a number of methods:

- A glossary on the main page that users can reference when they don’t understand terminology or why they should be filling out a certain form.

- Tool tips on labels or fields, so that the full name or explanation of an item appears when the user moves the mouse over the field label.
- Field labels could be made into links such that when the linked field label is clicked, a popup provides an explanation of the field and the data that should be entered there.

The NCI guidelines suggest using these methods to clarify jargon:

- A definition of each form field in a context-sensitive help function.
- Acronyms could be replaced by their extended names, but an explanation of the field should still be available.

4. Locate all forms in one area

As determined by the poor performance on Task 4 and the help requirement on task 8, users appeared to have particular problems locating forms. In response to open-ended question 3, users stated that the most difficult task was finding and setting up the SP-1 form, partially because participants could not locate this form online. Locating all forms in one central location would allow users to access forms more effectively.

5. Modify the homepage in length and number of items

Three participants had trouble starting Task 1 because they could not find the PI Profile link on the Web site. In fact, 57 percent of participants required help with this task. In response to open-ended Question 2, several participants stated that the site was too busy and cluttered and that it presented too much information. NCI guidelines 5.3 and 5.9 iterate that only the most important options should be presented on the homepage, and that this page should be no more than one screen long (i.e. should not require use of the

scroll bar) if possible.

At the present time, the page has multiple frames, with each containing multiple pieces of information. The number of frames should be decreased and only key information should be put inside each frame. If possible, frames could be converted to links and information could then be accessed through the appropriate link. Either of these modifications would greatly decrease the amount of information on the main page and result in a significantly shorter page.

6. Make sure each page and pages across site are consistent visually

Participants reported that the site was not easy to use, was confusing to use and the layout was not easy to follow. In response to open-ended Question 2, participants complained about the color scheme of the site. In response to open-ended Question 3, participants state that navigation of the site was difficult, while one participant again commented on site color. In response to Question 5, participants stated that the site was overwhelming, cluttered and contained too much information.

NCI guidelines state that a Web site should be designed so information on a page is arranged hierarchically by level of importance from top to bottom. Important information should be located in the same place across all pages. Additionally, pages should be of an appropriate length and not require scrolling unless absolutely necessary. Pages should be similar to their paper counterpart. The guidelines also state that text should be black on a high-contrast background, and that, when lists of items are used, only the first word of each item should be capitalized.

7. Only use attention-attracting features when necessary

In the participant survey users reported that there was too much text. Additionally, three

participants had trouble locating the PI Profile to initiate Task 1. Participants answering open-ended Questions 2 and 5 expressed complaints about the color-scheme of the site.

Overall, users complained of information clutter when using the site.

NCI guideline 12.7 states that attention-attracting features should be used only when appropriate. The site has multiple distractions on the main research page: various size fonts, colored links, bold areas, colored headers and colored backgrounds to give some examples. In addition, pop-ups also have multiple colors of background and text. These items all call attention to themselves and tend to cause the user to try to focus on multiple items simultaneously. These pages need to be simplified so that only truly important features stand out.

8. Make sure links are obvious and users know if a link is internal or external

In the participant survey users reported that links between pages were hard to understand.

In response to open-ended Question 2 users state that link labels and terms were not obvious, which made looking for and finding information a challenge. Another participant stated, in response to open-ended Question 3, that the links were not easy to distinguish from other text. NCI guidelines state that it should be clear to users when a link will move them to a different place on the same page or to a new page. This can be done by making external links a different color from internal links, or by placing each link type under a section heading that identifies its type (external or internal). The guidelines also state that links should provide “consistent clickability cues.” The links on the Web site need to be color-coded so they are all the same, and so all links stand out as links. In addition, a pop-up message can be activated to inform the user where the link is

going. It would be especially helpful to indicate to a user that he/she is leaving the site, perhaps by listing the URL of the site underneath the link.

9. Have link names match their destination pages

In the survey, users stated that the site layout was not easy to follow and they felt lost.

As stated previously, users reported several times and in several ways that navigation of the site was difficult. NCI guidelines state that link names and destination page titles should be the same. Presently, several pages have headings that do not match the link name that goes to those pages. Links and page headings should be checked for consistency.

10. Use open rather than drop-down lists

NCI guidelines state that open-lists are the preferred way of displaying list information.

Two participants commented that they did not like the “+” used in the Regulatory compliance section. Both types of lists are presently used on the homepage, which is confusing to many users. The use of the expanding (“+”) and contracting (“-“) signs were unclear to users because they did not realize that clicking the “+” would display the list options and that clicking the “-” sign would hide them. This problem could be solved in a number of ways:

- Convert all lists to open-lists
- Have links to the options that would be contained in the list
- Change the + sign to a label that is more intuitive, like “click here to view options” or “click here to expand list”

An additional problem occurred because the “-“ did not consistently appear when a list was open.

11. Label push/submit buttons clearly

The NCI guidelines state the need for clear labels on all push buttons. It would be helpful for the “find” and “browse” buttons to have descriptions stating that the user must click on them first to insert names or files. Additionally, three participants mention that the “insert” button, used to attach the Excel spreadsheet was confusing. They state that “attach” would have been more appropriate terminology.

12. Allow for data entry rather than using find boxes

When trying to add the “designee,” four participants encountered problems when trying to add the designee by name. Similarly, users encountered difficulties when entering sponsor information. Often users would type in the information rather than using the find button. They would then become frustrated when they were forced to use “find” and the information was not readily available.

13. Make sure optional data entry fields are distinguished from required fields

NCI Guideline 13.1 states that in areas where data entry is necessary, required fields need to be distinguished from optional fields. One way to do this would be to put an asterisk (*) next to all required fields with a footnote explaining the meaning of the symbol. The current Web site identifies required fields by underline and color, making the required fields indistinguishable from links.

14. Standardize task sequences

NCI guideline 2.5 states that a Web site should “allow users to perform tasks in the same sequence and manner across similar conditions.” The highest failure rate was on Task 4, downloading H-100 form, and the most help was needed on Tasks 2 and 5, creating a Pass number and filling out the SP-1 online, respectively. These results indicate that

participants had problems finding and filling out forms. Standardizing the process for finding and downloading forms, and for filling out online forms, would allow users to learn a few basic processes that apply to most of necessary procedures.

15. Ensure the Web site is accessible for users with disabilities

We evaluated Sponsored Programs to determine level of accessibility, and found that the end-user can alter screen color, font size, and font styles to their preferences. We could not determine whether content may be successfully converted via Voice Recognition Software for the blind, vision-impaired, or other end-user needs that preclude reading.

16. Consider Many User Interface Issues

Guideline 1:8 of the NCI Guidelines covers considering as many user interface issues as possible during the design process. The usability tests demonstrated that many users had difficulty filling in the text and date form fields due to the strict syntax of the database. They were also daunted by the amount of information on both the profile page and the RamPoint research portal page. Links, labels and terms were not obvious. Users also had trouble with the (+) and (-) dropdown menu system featured on the RamPoint Research Portal page, as most users tried to click the text as they would click a normal link rather than the (+) and (-) items. Ensure that the label that specifies the date format is near the field with which it corresponds.

17. Do Not Use Color Alone to Convey Information

Ensure that all information conveyed with color is also available without color. Most users with color deficiencies have trouble seeing colors in the green portion of the spectrum. The main content and navigational areas of the page both utilize a green

colored background. Users with color-blindness may have difficulty discriminating the two green colors and do not notice that the navigational menu and main content area are different sections (See NCI Guideline 3:4).

18. Ensure the Homepage looks like a Homepage

Users expect the homepage to allow them to access the most-used and significant forms on the site. They also expect a link to the site map and a search option to be located on the homepage. One user used the search function to try to locate forms. On Task 5, 79% of participants required help locating the SP-1 to complete the task. If a search option were provided, users could search for items they can't locate in menus. Researchers M.A. Katz and M.D. Bryan (2003), indicate that if a menu does not contain an item that the user interprets as similar in meaning to the sought-for item, users will often use the search function to locate the item.

Ensuring the homepage looks like a homepage is Guideline 5:2. This means that the most-used cases in the proposal process should be considered and included in a logical order on the homepage. Possible cases include "Create an SP-1," "Create a New Proposal," "Edit an Old Proposal" and "Check Submitted Proposal Status." Using these items' ordering will suggest the path investigators should follow when creating and submitting a proposal and verifying that proposal's state. Add a search option on the homepage for users to efficiently find information they seek when navigation through menus fails.

19. Provide glosses/tool tips to help users select correct links

Glosses or tool tips are the short phrases that are displayed when the user places the mouse over the link. According to NCI Guideline 7:10, the gloss should provide a

preview of the page behind the link. Forty-two percent of participants strongly agreed that the Web site was confusing to use, and 27.3% of users found links on the website inconsistent. Adding glosses on links will probably decrease this confusion.

20. Ensure items that are not clickable do not display cues of clickable items

The required fields on the Preliminary Proposal Form display cues of clickable items (they are underlined and are a different color than surrounding text.) Based on guideline NCI Guideline 10.2, these required field headings could be easily mistaken for links. It is suggested that required fields be indicated by an asterisk (*) following the field label, and that the red underlining on the required fields be removed.

21. Use link labels and concepts that are meaningful, understandable, and easily differentiated

Some participants did not know what a PI Profile was or why they had to create one. Others wanted to know what SP-1 stood for. Thirty-five percent of participants agreed that the links between pages were difficult to understand. These link labels should either not be displayed as acronyms or provide glosses that display the full term.

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Appendix B: Protocol Analysis Tasks

Assume that you are developing a proposal to fund a research project and you will be submitting it to the Colorado Institute of Technology. To submit the proposal, you will need to use the RamPoint Portal to access Sponsored Programs and supporting organizations.

As background, assume you're in the College of Liberal Arts. Team 3 at Sponsored Programs provides support for faculty in the College of Liberal Arts. If you encounter any problems and would like help in solving them, tell usability team the name and phone number of the administrative assistant on Team 3 that you would call.

Beginning with the RamPoint Portal, click on the Research Tab and then carry out the following activities.

1. First you will need to set up individual researcher profile.
 - a. Check to see that the information is correct:
 - Phone number
 - Home Department
 - E-mail address
 - Investigator designees:
 - Add Linda Stapel.
 - Give her all permissions to sign documents for you.
 - Update
2. Now create a Pass Number for a new proposal that you will be submitting.

Here's the information you'll need to set in motion the new proposal process and obtain a PASS number:

PI: Edward Carpenter

Administering Department: Journalism & Technical Communication

CO-PI: Mickey Mouse

Contact Phone: 491-5674

Project title: DEZ JT661 Test Exploring factors influencing adoption of technology

Project FRS TITLE (40 Characters Max)

DEZ JT661 Test Exploring factors influencing

Proposal Comments: This submission is part of the JT661 usability testing of the Research Tab for faculty submission of proposals. Contact Ron Splittgerber, if needed.

Sponsor: Colorado Institute of Technology

Follow the directions. If needed, use the following information:

edcar@lamar.colostate.edu

\$49,999

This project will investigate the factors that influence faculty's adoption of information technology. Specifically, we will be conducting focus groups, in-depth interviews, and surveys.

Managed: Yes

Deadline: 1 May 2006

Deadline type: Receipt

Program Target Area: ?

Guidelines needed? Yes

Then save the file Preliminary proposal information & write down the PASS number provided. Write it down.

3. To prepare the necessary paper work for internal review and to calculate your budget, download the PBS spreadsheet and SP1 to draft the information that you will need to have the proposal processed by the CSU system.

Name the file with your initials_pbs.xls; example:

Dez_pbs.xls

Save it under

My Documents/JT661_Spring_2006

4. Assume the research project will require clearance through CSU's Human Subjects Committee (Institutional Review Board). Starting from the RamPoint, download the Human Subjects HS100 form. Assume that you will be using students in your research project, download the appropriate HS100 so that you can fill it out when submitting your SP-1.

Name the file with your initials_HS100.doc; example:

DEZ_HS100.doc

Save it under

My Documents/JT661_Spring_2006

TURN TO THE NEXT PAGE

5. Using the printed SP-1 for information, complete the SP1 online

PASS NUMBER:	It should come up automatically	
Prior Project # 53	N/A	
Deadline date:	May 15, 2006	
Principal Investigator:	Edward Carpenter	
Administering Department:	Journalism & Technical Communication	
Require Coop Extension Personnel:	No	
Interdepartmental:	Yes	
Sponsor:	Colorado Institute of Technology	
Project Title	Test JT661 Project	
Research Type:	Basic	
Entire project period:	January 1, 2007 to December 31, 2009	
Direct Costs:	\$45,695	
F&A Costs:	\$ 3,695	F&A Rate: 8%
F&A Base	Select Total Direct Cost	
Total Costs:	\$49,390	
CSU Cost Sharing	Select "None"	
CSU Cost Share	0	
Direct Costs	0	
Program Income Source:	Leave blank	
CSU Cost sharing	Leave blank	
Split F&A Costs	Yes	
(Download SP12)		
Wavier F&A	No	
Central equipment sharing	No	
Potential conflict of Interest form	Yes	
(Download and print the SP10)		
Non-CSU Personnel	No	
Additional space	No	
Subcontracts	No	
Consultants	No	
Meets off-campus definition	No	
RCO Animals	No	
RCO Humans	Yes	Leave columns to right blank
RCO Infectious agents	No	
ROC Human fluids/tissues	No	
RCO non-exempt rDNA	No	
ROC Exempt r DNA	No	
RCO Radioactives	No	
RCO Controlled substances	No	
(Drugs)		

Once, you've completed entering the information, save the electronic SP1.

TURN TO THE NEXT PAGE

6. Once you've completed the SP-1, then add the key words to the SP1. Use the following key words:

Technology
Adoption
Teaching

7. Now attach the Excel Spread sheet,

JT661_test_CIT_Proposal.xls

8. How would you complete and submit the SP_10 and SP-12 forms to Sponsored Programs?

If you have time, answer the following questions:

9. If you needed help with your EID, click on the link that you think will provide you the needed information and tell us why you selected that link.

10. Suppose you had a friend who was not a CSU employee and they wanted to be a principal investigator on a project, where would you look to determine who is eligible to be principle investigators? Tell us where you would click and why.

Appendix C: Web Usability Post-Questionnaire

Part I: Assessment of the Web Site

Based on your Web site session today, please answer the following questions in the spaces provided.

1. What do you like about this Web site?

2. What you dislike about the Web site?

3. Which sections were the most difficult to use? Why?

4. Were you able to complete the assigned tasks?

Yes No

4a. If no, why do you feel you were unable to complete the tasks?

5. Were there any aspects of the Web site that you found particularly irritating, although they did not cause major problems?

6. What changes would make the Web site easier to use?

Part II. For each of the following items below, please tell us how much you agree or disagree with each statement. Use a 1 to 7 scale where 1 = Strongly disagree and 7 = strongly agree. If the question is not applicable, circle NA. Please circle your responses.

	Strong Disagree				Strongly agree		
1. I was satisfied with my experience using the Web site. NA	1	2	3	4	5	6	7
2. I found the links between pages hard to understand. NA	1	2	3	4	5	6	7
3. I could easily correct any errors I made while using the Web site. NA	1	2	3	4	5	6	7
4. The diagrams and graphics enhanced the information in the text. NA	1	2	3	4	5	6	7
5. The text has too much information-- it makes it hard to understand the topic. NA	1	2	3	4	5	6	7
6. The site's left-hand navigation was helpful. NA	1	2	3	4	5	6	7
7. The words on the screen were legible (easy to see). NA	1	2	3	4	5	6	7
8. I found the site confusing to use. NA	1	2	3	4	5	6	7
9. I found the information easy to understand. NA	1	2	3	4	5	6	7
10. The site layout was easy to follow. NA	1	2	3	4	5	6	7
11. I never felt lost when using the site. NA	1	2	3	4	5	6	7
12. I felt overwhelmed when using the site. NA	1	2	3	4	5	6	7
13. I made few errors when using the site. NA	1	2	3	4	5	6	7
14. The pages loaded quickly. NA	1	2	3	4	5	6	7
15. I found the site very easy to use. NA	1	2	3	4	5	6	7
16. I found the site easy to read. NA	1	2	3	4	5	6	7
17. I was not at all frustrated when using the site. NA	1	2	3	4	5	6	7
18. I found the site to be well-written. NA	1	2	3	4	5	6	7
19. The site was not interesting to use. NA	1	2	3	4	5	6	7

20. If I submitting a proposal, the information provided on the Web site would help me. NA	1	2	3	4	5	6	7
21. The site has too much information in .pdf files. NA	1	2	3	4	5	6	7
22. I prefer to print and then read Web pages. NA	1	2	3	4	5	6	7
23. I would prefer to fill out print proposals NA	1	2	3	4	5	6	7
24. I found the links to be inconsistent. NA	1	2	3	4	5	6	7
25. The font (typeface) was hard to read. NA	1	2	3	4	5	6	7
26. The font (typeface) was too small to read. NA	1	2	3	4	5	6	7
27. I could easily find the information I needed. NA	1	2	3	4	5	6	7
28. The site design is attractive. NA	1	2	3	4	5	6	7
29. The colors are pleasing. NA	1	2	3	4	5	6	7
30. If I was submitting a proposal, the Sponsored Program's Web site would provide all the information I would need. NA	1	2	3	4	5	6	7
31. I prefer reading information online rather than downloading .pdf files and then reading the printed file. NA	1	2	3	4	5	6	7
32. Printing pages was easy. NA	1	2	3	4	5	6	7
33. I found the links in the left-hand box on the Sponsored Programs' Web site helpful. NA	1	2	3	4	5	6	7

Part III. Using Web sites.

1. How frequently have you used the CSU Sponsored Programs Web site in the past? Please circle your response.

Not at all 1 2 3 4 5 6 7 Very frequently

1B. If you have used the Sponsored Programs' Web site, how useful was it?

Not at all useful 1 2 3 4 5 6 7 Very useful

1C. Please indicate how strongly you agree or disagree with the following statement:

The Sponsored Programs Web site provided enough directions so that I could easily submit the proposal online. Please circle your response.

Strong disagree 1 2 3 4 5 6 7 Strongly Agree

2. Have you encounter any past difficulties using the Sponsored Programs' Web site?

__ No __ Yes 2a. If yes, please describe: _____

3. How frequently have you used RamPoint in the past? Please circle your response.

Not at all 1 2 3 4 5 6 7 Very frequently

1A. If you have used the RamPoint, how useful was it? Please circle your response.

Not at all useful 1 2 3 4 5 6 7 Very useful

4. Did you encounter any difficulties in the past when using RamPoint?

__ No __ Yes 2a. If yes, please describe. _____

5. How frequently have you used the Human Subjects Web site in the past? Please circle your response.

Not at all 1 2 3 4 5 6 7 Very frequently

5A. If you have used the Human Subjects Web site, how useful was it in helping you prepare the needed paperwork?

Not at all useful 1 2 3 4 5 6 7 Very useful

6. Have you encountered any difficulties in the past when using the Human Subjects Web site?

__ No __ Yes 2a. If yes, please describe. _____

IV. Computer Experience

1. In column A, please enter the number of years of experience you have had with each hardware or software product. In Column B, please indicate your expertise using a 1 to 7 scale where 1 = none and 7 = a great deal. Please circle your responses.

	Column A Years	Column B None							A Great Deal
			1	2	3	4	5	6	7
a. Using a personal computer	___		1	2	3	4	5	6	7
b. Using the World Wide Web	___		1	2	3	4	5	6	7
c. Personally downloading Adobe's Acrobat Reader software	___		1	2	3	4	5	6	7
d. Downloading .pdf files for information	___		1	2	3	4	5	6	7
e. Installing software	___		1	2	3	4	5	6	7
f. Installing hardware	___		1	2	3	4	5	6	7
g. Filling out applications/forms online	___		1	2	3	4	5	6	7

Part V. Background Information

1. Have you submitted any proposals online?

___ No (GO TO Q2) ___ Yes. 1A. If yes, how many have you submitted through the CSU Sponsored Programs Web site? _____

1B. When filling out the forms online, how often did you call seeking help. Please circle your answer.

Not at all							A great deal
1	2	3	4	5	6	7	

2. Have you submitted regular printed proposals?

___ No (GO TO Q 3) ___ Yes. 2A . If yes, how many have you submitted through the CSU Sponsored Programs? _____

2B. When filling out the forms online, how often did you call seeking help. Please circle your answer.

Not at all							A great deal
1	2	3	4	5	6	7	

3. Have you use any other online systems to submit proposals?

No Yes. 3A. Please describe them. _____

3B. What made them easy to use? _____

Thanks for your help.

Appendix D: Researcher Observation Summaries

Task 1: Three participants had a hard time finding the “PI Profile” link. Once in the right place, two participants did not notice the right side scroll bar. One participant found the amount of color on the screen distracting and did not like the light colored scroll bar.

Four participants tried to add designee by name, but the program prompted an error message that stated it couldn’t find the designee. One participant felt that he/she had added the designee, but when he/she got the error prompt assumed that the designee didn’t exist. He/she did this process 3 times until he used the find command. However, the program still didn’t recognize the designee because the participant typed in the first and last name (which was not how the program recognized the designee). Another participant faced the same problem twice before succeeding.

One got confused about terminology (“proposal permission” but found explanations further down the page.

One participant tried to type a name in the Investigator Designee field without clicking the “Find” button first. After clicking the “Find” button, could not find Linda Stapel as the designee. This participant, as well as another, didn’t know that there shouldn’t be a space between first and last name in form field.

Task 2: Three participants did not know how to what a PASS# was or how to create a PASS #. One tried to read about it on help. Two participants said they initially were looking for a link that was labeled “Create Pass#.”

Two participants had problems entering dates and were given an error message that they had entered the dates in incorrectly. One participant suggested a prompt or example should be included for proper format for entering dates.

One participant noticed that the Autofill of information was incorrect in places and was “irritating.”

Three participants initially typed in information and were given an error prompt that said they had to use the “find” button to add that information. One participant was frustrated that he/she couldn’t just type in info, and if he/she did the program acted like info was not there and made him/her find it. The participant felt that there should not be an option, the program should either require typing the info or hitting a “Find” button.

Many participants had a hard time with entering the sponsor information because the program prompted them to find the information instead of typing it in.

One participant felt there were too many tasks to go through on this screen, and missed a few fields, which prompted an error message. One participant felt that he/she had lost track of where there were because of the amount of pop-ups. Another commented that he/she didn’t like the pop-up messages.

Many participants had a hard time with entering the “Sponsor” information because the program prompted them to find the information instead of typing it in.

One participant wasn’t sure if he/she needed to click the “Find” button in order to add a sponsor to the “Sponsor” field. Another participant tried to type acronym in “Sponsor” field but the field would only accept fully typed version.

Task 3: One participant commented that page design was busy. Another commented that there were too many menu items on the toolbar.

Many participants had trouble finding the SP1 form. Two didn’t know what the form was and felt that they didn’t know where to go because of their unfamiliarity of the SP1.

Three participants went to the “create SP1” tab, but realized that creating the form and downloading the form are different, so they backed out of the screen or were instructed that it wasn’t the right screen. One participant saved the SP1 but didn’t know where he/she saved it.

Three participants were not familiar with a PBS spreadsheet and expressed questions about how they would know how to download one. One participant went to the “PBS FAQ” tab and reviewed information about the PBS but called the information boring.

Task 4: Almost all participants had a hard time completing this task. Several had to be instructed to go to RamPoint to find the form. One felt there should be instructions to help find Human Subjects. Two commented that they wouldn’t go through RamPoint to do this task. Another tried to search for “Institutional Review Board,” which did not produce results. This participant gave up.

One participant first looked in “Research Resources” on RamPoint box and then found it in Research Offices box.

Two participants noted that they didn’t like the “+” sign that is clicked on to get the pull down menu. One commented that they would have preferred arrows.

Task 5: Almost all participants had trouble finding the SP1 form. One participant clicked on a link that was labeled with SP1 but didn’t find the online SP1 that was required. One participants tried to find the form in the “my documents” section of the his/her computer. One participant tried to use the CTRL F function to search for the SP1, but that function would not work on the site which frustrated the participant. He/She felt the SP1 should be found in the same place as the PBS and went all the way back to RamPoint to find it. When told how to get to the proper place, the participant felt that there is no way he/she would know that was where to go.

Once participants were instructed to the correct SP1 file, they noticed discrepancies between the written instructions and what was appearing on the screen. Four participants noticed that the date (which was automatically filled in) in the online SP1 was not what they previously entered. This caused one participant to back out of the screen thinking they were in the wrong place. One participant tried to go back to a previous task, thinking the date error was his/her own doing but was unsuccessful.

Participants also reached error messages when entering data that had to be formatted a specific way. Entering dates was a common task that caused the error message and one participant commented that a prompt which laid out how to correctly enter dates would be helpful.

When prompted to download the SP12 and SP10 forms, several participants did not know what to do with them and how to get back to the SP1 form.

One participant accidentally hit a key that took him out of the SP1 form, and when he returned, none of his information had been saved. He felt it would be beneficial if information was automatically saved when it was entered.

Task 6: Most participants had no problems completing this task. Two participants tried to use other buttons, but eventually found the “add keyword” button. Many, however, did comment that they did not like having to add the keywords one-at-a-time. One participant felt that there should be more spaces provided to add several keywords at once. One participant did try to add all words at one time, using string format (commas between each word) and it was reported that this did result in adding all the keywords at one time.

Task 7: Three participants were not sure which button to click to attach the excel file. They all mentioned that the label “insert” was confusing and felt it should say “attach” instead. One participant backed out of the screen because of his confusion about the “insert” button. Three participants felt it easiest to click the “browse” link when looking for files, as they mentioned confusion on the “explanation of file” and “category” fields that they could fill in to find a file. One participant couldn’t find the excel file, so he attached a different one but added it twice.

One participant did not use the “browse” link, but instead unsuccessfully tried to type in the name of the excel file several times and eventually gave up.

One participant did not see the link to add a file and went back to the RamPoint portal and didn’t find it there. He/she then went back to the proposals tab and found correct tab.

Task 8: Several participants weren’t sure what the SP12/10 forms were or if they had seen them before (even though they were supposed to download each in a previous task). Of those who had previously downloaded the forms and printed them, one participant was unsure how to submit the forms because he/she had printed them.

Three participants wanted a search function to find the forms. One tried to use the CTRL F function to search for the forms, which didn’t produce results.

One participants said that he/she wanted to see a link that was labeled “Downloads.” The participant decided that she would go back to “My Documents” on the computer (off of the site where she saved the previously downloaded forms) and download from there.

Another participants felt a section such as “definitions” or “glossary” would be helpful for the terms.

“Have I completed it?” Didn’t know how he could tell if it was in there database, because there was no way to confirm it. Went to “my documents” and proceeded to add the SP10 and SP12 to the active proposal. Said he would call to confirm the files were there.

One participant felt that the site was designed for people who had a lot of experience with proposal submission and commented that he/she was “irritated” with the task.

Two participant felt the forms, once downloaded, should be able to be attached it like he had done in a previous task where he/she attached an excel file.

Said that she would do the SP12 online but couldn’t remember where to look for the SP10. Commented that definitions or a glossary to help her find it would be helpful. Went back to RamPoint to look for the forces and went back to the Research tab and found conflict of interest form.

One participant No. went to “Active Proposals” and clicked “Create Sp-12.” But he/she wasn’t sure where to find the SP-10 form.

Task 9: One participant went to the RamPoint and used the CSU search function to find the information.

One participant went the help request in PASS, but couldn’t find the information and commented that he/she would probably go back to the homepage to find EID information.

One participant commented that he/she would click the “Help/Request” link in RamPoint.

One participant clicked the “PASS FAQ” link and then tried the “PBS FAQ” link. After trying these, the participant tried the “Help/Request” link and then gave up.

Task 10: Two participants said they would go off the Sponsored Programs site to find this information. One went to the CSU search function but didn't find it there and indicated he or she would go to human subjects. The other participant said they would go to RamPoint to look for the proper information.

One participant went to the "Regulatory Compliance," "Research Offices," "Human Research Handbook" and would also try regulations and guidelines.

One participant first tried the "PI Profile" link and didn't find the information. He/she then went to "Forms and Policies" link but didn't find it there. Ultimately, the participant said would call phone numbers on Sponsored Programs contact list.

Appendix E: Participants' Open-ended Responses

Part I: Assessment of the Web Site

1. What do you like about this Web site?

P1: ? Seems like once you become familiar with it, it could be very useful.

P2: Very confusing – I don't.

P3: Very little. Too much information is assumed, beginning with terminology like “channels.” It is an intimidating site which communicates that Sponsored Programs is a hugely complex bureaucracy.

P4: The ability to submit information electronically

P5: Generally has information that is relevant.

P6: Nothing

P7: Fairly quick, intuitive – first time always rough on these, though I've used some of it previously.

P8: The portal looks “clean” because of the font and lack of images. I like the colors in the PASS system.

P9: Theoretically, it's supposed to speed up proposal approval.

P10: Not much! Links to PASS FAQ, Help Request perhaps. Having all links accessible in the left column on the homepage.

P11: A lot of white space and clearly defined boxes/compartments based on subject matter. Colors used – nice contrasts.

P12: Almost nothing.

P13: RamPoint Research page is large, a lot of material. Three columns format is cumbersome.

P14: A lot of info in one location.

2. What do you dislike about the Web site?

P1: Currently, I'm not familiar with how to navigate through site so it's frustrating to find what you want.

P2: Colors were not conducive to long periods of focus. Things are everywhere and labels are not obvious to the forms they contain.

P3: There should be a terms glossary. Several buttons did not give feedback, like the insert file button. Overall, too much info. It needs an area which introduces the user to the process. I had no sense of the process as a whole, which impeded my ability to solve problems.

P4: Too many menu items and the navigation isn't obvious.

P5: It's too busy

P6: Everything

P7: Couple of non-obvious links – to HS100 for example. Could have much more directed flow for setting up a basic proposal – pop up IRB, SP 1, etc.

P8: The portal page, while it looks “clean,” also looks busy and cluttered. There is a lot of information on it and searching for what you want is difficult.

P9: The 1st page is dense.

P10: Automatically filling in info from form that was incorrectly formatted (e.g. Stapel, Linda vs. Stapel, Linda C.) Having to open one dialogue box to locate the link to the next task (location of link NOT obvious.)

P11: At first it seemed a little overwhelming due to the volume of info (it's a long Web page), but I quickly became comfortable with it. One other problem is the “Research” subheading on too many boxes – makes it (initially) hard to determine one box info from another.

P12: Presumes information only known to the experienced user.

P13: Not intuitive.

P14: Need to organize the “boxes” of information. For example, “Research News,” “ My Research,” “Regulatory Compliance” and “Sponsored Program Resources.”

3. Which sections were the most difficult to use? Why?

P1: Research Proposal forms; design issues; can’t really determine what links are easily or how to use them; many colors going on; no uniform design.

P2: I can’t discern between any – I found them all confusing.

P3: The terminology was unfamiliar. I was unsuccessful in inserting attached files. I finally figured out that most of the relevant info was in one place.

P4: Creating PASS means creating new proposal. These should both say one or the other.

P5: Finding the SP-1 form. Adding designee.

P6: All of them – very difficult to navigate, not at all intuitive

P7: HRB

P8: The navigation for PASS on the left side does not always clearly indicate where something can be found. Sometimes one has to guess.

P9: Setting up the proposal because there aren’t a lot of prompts to help you when you make a mistake.

P10: Clicking on the links to the various forms SP-1, 10, and 12. Location of links, which links to click on NOT obvious.

P11: The Active Proposal page was the most difficult for me to use. I felt confused about where to link while trying to follow some of the task instructions.

P12: To me it was an undifferentiated mass. I can’t ever identify “sections.”

P13: Finding SP-1. Available on both green proposal page and left column of RamPoint.

P14: Nothing was really difficult, but the location of some items was not easy to determine.

4. Were you able to complete the assigned tasks?

P1: No

P8: No

P2: No

P9: Yes

P3: No

P10: No

P4: Yes

P11: Yes with help

P5: No

P12: No

P6: Yes

P13: No

P7: Yes

P14: Yes

4a. If no, why do you feel you were unable to complete the tasks?

P1: Research proposal tasks – I’m unfamiliar with terminology and what the forms are.

P2: I couldn’t find all of the right forms.

P3: I could not discover what SP-10 was. A search returned no hits.

P5: Couldn’t find relevant needs

P8: It is not always clear where to find information. I did not find anything about an EID. I could not locate a form (SP-10). Also, some information to be input did not correspond to blanks on the PASS project form.

P10: #9 – I assumed I should be able to fill in and submit forms online, but in fact, I was expected to print out and submit hardcopies.

P12: Vocabulary not consistent between instructions and Web site. Web site and pages often not searchable.

P13: Not familiar with process details.

P14: I had a problem with determining how to access the info in the boxes. To me a “+” sign doesn’t indicate additional menu items.

5. Were there any aspects of the Web site that you found particularly irritating, although they did not cause major problems?

P1: You couldn’t click on the word to link to a page – you had to click on the “+”??? Also, clicking on certain links brought you outside of RamPoint.

P2: The section with the neon colors.

P3: Too much irrelevant info and buttons (for my purpose) and not enough germane to my task. The site assumes a level of familiarity with Sponsored Programs processes. I haven’t worked with SP Office before, so I am a novice.

P4: Why do you need to print the SP-10? Should be able to fill and send it through the site.

P5: No way to change information I thought was incorrect.

P6: Too many separate windows. Too cluttered. Poor choice of colors. Home page too confusing.

P7: Finding above stuff.

P8: When using PASS, I was not comfortable searching for information. For some reason, I felt as though I was going to get lost or lose information I’d already put in the form. I would say I only felt as comfortable as I did because I’ve used PASS before.

P9: The little things the system assumes you know, e.g., type last name only of co-PI.

P10: Autofilling blanks on form (I prefer to type them in myself.) Dialogue boxes opening in small windows (kept having to click on icon to increase size.) Some links in left column, some on top (put them all in left column.)

P11: Some parts were just not intuitive for first time users. I think the second time around I would have a much easier time.

P12: I navigated this extensively while using the site.

P13: The attachment of documents was not consistent as it would be in a Microsoft application. “O” line was especially confusing.

P14: The “+” for a drop menu, but once I understood, it wasn’t a problem.

6. What changes would make the Web site easier to use?

P1: Design issues - do usability and see how people use site and what the major problems are and do revisions as necessary. (question: entire RamPoint site?)

P2: It needs to be way more simplistic; labels should be labeled according to the forms they contain.

P3: Some basic info for novice of SP and its web site. A glossary of terms would be helpful. I found the interface clumsy, counter-intuitive and too often did not give me back info on whether I was successful in completing tasks

P4: Step-by-step processes. Not so many pop-up windows.

P5: Simpler

P6: Total redesign.

P7: Directed flow noted above.

P8: Improve information, navigation, graphics. Make more interesting visually. The RamPoint research tab simply has too much information on it.

P9: Make the 1st page less dense, use a nav/menu bar more.

P10: Put all important links in left column on homepage versus having to click on several links sequentially. Be able to fill out and submit forms electronically.

P11: Maybe a step-by-step for first time proposal users, like WebCT has with its “WebCT How-Tos” link.

P12: Take it out of the hands of sponsored programs. They are famous for presuming that other people know their arcane vocabulary.

P13: More help on the preliminary proposal information form page.

P14: See #2

Part III: Using Web sites.

1. How frequently have you used the CSU Sponsored Programs Web site in the past? Please circle your response.

P5: I haven't submitted a proposal; I sign off on them. N/A

2. Have you encountered any past difficulties using the Sponsored Programs' Web site?

- | | |
|---------|----------|
| P1: N/A | P8: Yes |
| P2: N/A | P9: Yes |
| P3: N/A | P10: N/A |
| P4: N/A | P11: N/A |
| P5: Yes | P12: Yes |
| P6: N/A | P13: N/A |
| P7: Yes | P14: Yes |

2a. If yes, please describe:

- P5: It hasn't worked.
- P7: Early signature form use (last year, okay now)
- P8: It was difficult to navigate and find information I needed.
- P9: I had trouble figuring out how to submit a proposal for signatures.
- P12: Can't remember.
- P14: Just finding info. But more complete info has been added over the years.

4. Did you encounter any difficulties in the past when using RamPoint?

- | | |
|----------------|----------------|
| P1: Yes | P6: N/A |
| P2: Yes | P7: No |
| P3: N/A | P8: Left blank |
| P4: No | P9: No |
| P5: Left blank | P10: N/A |

P11: Yes

P13: No

P12: No

P14: Yes

4a. If yes, please describe:

P1: Logged on and decided to use regular Colostate Web site instead because I was familiar with where info was located on Colostate's site.

P2: I can never find anything!

P11: At first a little difficult to follow due to page clutter

P13: Tested it only. Never use it.

P14: Completing the signature (SP-1)

6. Have you encountered any difficulties in the past when using the Human Subjects Web site?

P1: No

P8: Left Blank

P2: N/A

P9: No

P3: No

P10: No

P4: No

P11: Left blank

P5: Left blank

P12: No

P6: No

P13: Yes

P7: Left blank

P14: No

6a. If yes, please describe:

P13: Two (unreadable) of consent form all online. Janelle said to (unreadable) one.

Part VI: Background Information.

1. Have you submitted any proposals online?

P1: No

P4: No

P5: No. Other people do this for me – have been doing it for as long as NSF has had it online.

P10: No

P11: No

P12: No

P13: No

P14: No

2. Have you submitted regular printed proposals?

P1: No

P12: Yes. Submitted two, didn't fill out the forms online.

P4: No

P13: No

P10: No

P14: Yes. Submitted 10

P11: No

3. Have you used any other online systems to submit proposals?

P1: No

P8: No

P2: No

P9: Yes

P3: No

P10: No

P4: No

P11: No

P5: Left blank

P12: No

P6: No

P13: Yes

P7: Yes

P14: No

3a. Please describe them:

P7: Fast track

P9: NSF Fastlane

P13: Fill in forms; also system using Word attachments.

3b. What made them easy to use?

P7: Well formatted, intuitive

P9: They were logical and not too much per page. Also, through trial & error, I figured them out. I also call our Sponsored Progs office for help.

P13: Less (unreadable) than a sponsored research proposal.