Sakaibrary User Testing Report

Client: Digital Library
Website: Sakai prototype – Citation List & Research Guide Tools
Contact: Jon Dunn
Consultants: Tara Bazler, Jae Kim, Sean Connolly
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Executive Summary

In June 2008, a usability study of the Citation List and the Research Guide tools was conducted with eleven participants. Feedback was obtained from undergraduate, graduate, and faculty participants. Many participants felt the tools might be helpful to them; however, most users had some difficulty initially determining how to use the tools. Users with extensive previous experience with Oncourse accomplished tasks much easier than those with little or no Oncourse experience.

A number of usability issues were observed during the study. Participants had a great deal of trouble determining how to initially create the citation list and research guide resources. Participants also exhibited a great deal of difficulty understanding the organization of content within the site. This difficulty was compounded by perceived inconsistency in what pages were displayed as a result of the user's action. For example, clicking a link in the left hand navigation did not always result in the same page being displayed. Terminology used for various actions caused confusion. For example, the difference between 'edit details' and 'edit citation list' was not clear, nor was the difference between 'copy' and 'duplicate' in the 'actions' dropdown. Many participants looked for a 'search' option in order to find citations – participants did not associate 'edit citation list' with their goal of searching for citations.

Many participants were frustrated that clicking on the citation list name on the resources page provided them with a 'view only' page. Participants felt they should have the option of editing the list, or at least a link directly to edit mode from the screen that currently is view only. Several options to resolve this issue where considered by UXG consultants. However, the options caused new issues that were deemed more problematic than the original issue.

Some difficulty observed during the sessions may have been due to the nature of the tasks given. For example, the first task asked users to create a citation list and name it "anthropology". It did not make sense to several participants to create an empty list and so 'searching' for citations was their main goal. In addition, without more information concerning the research guides, it was difficult for participants to develop a mental model of what they were supposed to be creating.

This report describes the purpose and methods of the study, and provides a summary of the observations made from each testing session. Recommendations are made for the Sakaibrary team to consider as they continue to refine the interface in order to better meet their users' needs.

Study Details

Purpose of Study

The Sakaibrary team is in the process of developing new functionality that will be incorporated into Sakai to aid users in completing library related tasks. The primary new tool is a citation list that allows users to create a resource listing bibliographic information. Users can add information to the list manually or by using search tools such as Google Scholar or the federated search tool. Another new piece of functionality under development is the Research Guides. This feature allows faculty and librarians to create a guide and include various types of resources for student use. Types of information include instructions for specific assignments, tips and tools, reading lists, etc.

The Sakaibrary team would like to determine if users understand the new tools and if they are able to easily navigate and accomplish basic tasks. In order to obtain feedback, the User Experience Group (UXG) of Indiana University conducted user testing in June 2008.

Method

Usability testing methodology [1] was used to evaluate the website. This approach involved having authentic users perform authentic tasks using the system, while evaluators observed and recorded their actions and comments. Users were asked to perform a think-aloud protocol[2] to help the evaluators understand their behaviors and gain insight into the design of the website. Sessions were performed on an individual basis with each session lasting approximately 1 hour and 15 minutes. Participants were tested at the UXG usability lab in the Wrubel Computing Center and all sessions were recorded using Morae software (TechSmith). Following the last session, qualitative and quantitative data were analyzed and summarized and recommendations for redesign were made.

Participants

Undergraduate students, graduate students, librarians, and faculty were recruited for testing. The goal was to recruit a sample of 15 participants including 4 librarians, 4 faculty members and 7 students (3 undergraduates and 4 graduates). A total of 11 participants were tested with demographics as shown in the table below. The UXG was not able to recruit 4 faculty members and one student participant cancelled on the last day of testing and was not replaced.

Profile	Undergraduate	Graduate	Librarians	Faculty	Total
Male	1	2	0	1	4
Female	1	2	4	0	7
Total	**2**	**4**	**4**	**1**	**11**

Procedures

Participants were read an introductory protocol at the beginning of the testing session (see **Appendix 'A'** for script) and asked to read and sign two consent forms. The first consent

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[1] Dumas, J. S., & Redish, J. C. (1993). *A practical guide to usability testing*. Norwood, NJ: Ablex.

[2] Ericsson, K. A., & Simon, H. A. (1993). *Protocol analysis: Verbal reports as data* (Revised ed.). Cambridge, MA: MIT Press.

form (see **Appendix 'B'**) is a standard consent form indicating the participants' understanding of what will be expected of them during the session and their willingness to participate. The second consent form (see **Appendix 'C'**) is a video release form indicating the participants' awareness that the sessions are videotaped and granting their permission for the video to be used in the evaluation and reporting of results. Participants were given a copy of the consent forms for their records.

Tasks were presented to the participants one at a time and tasks were recorded as either 1) success with ease, 2) success with difficulty, or 3) failure to complete the task. Success with ease included those tasks that were completed on the first or second try. Success with difficulty included tasks that participants adequately completed but more effort and persistence was needed. For example, trying numerous paths to locate necessary information before finding the correct screen. Failure to complete a task was given if the participant gave up on the task or failed to locate the correct information. In some cases participants may have been satisfied that they completed the task; however, the correct information was not located or portions of the task were not completed.

Following the session, participants were asked to complete the System Usability Scale (SUS) questionnaire. Student participants were given a $20 Borders gift card provided by the Sakaibrary team. Student participants then completed a Compensation Receipt Form confirming that they received the gift card (see **Appendix 'D'**).

Sessions were performed using the Windows XP operating system on a Dell, Pentium 4, 3.80 GHz computer. The first six participants were instructed to select the browser they felt most comfortable with and the options included Mozilla Firefox, Internet Explorer 7.0, Opera and Safari (for windows). Use of Internet Explorer caused some display issues and errors so the final 5 participants were presented with the site in Firefox and were not given their choice of browser.

Tasks

The Sakaibrary team developed a list of tasks for testing based on key functionality associated with citation lists and research guides. UXG consultants reviewed and refined the tasks in order to create appropriate scenarios for user testing. Tasks were presented to participants one at a time in sequential order. See the 'Tasks & Task Performance' section below for task descriptions.

Results

The results of the study have been divided into three sections:

1. Tasks & Task Performance (e.g. successes and failures)

   Tasks are listed and the number of participants experiencing successes and failures are noted.

2. Observations and Recommendations

   The results of the study are presented in a table format. The table includes three columns of information: *Observations*, *Interpretations*, and *Recommendations*. Each column is described in more detail below:

- *Observations* – an objective description of participants' actions and comments during a session. This column also includes UXG consultants' observations.

- *Interpretations* – a proposed explanation for participants' observed behaviors and justification for recommendations based on known design principles and rules.

- *Recommendations* – suggestions for maintaining aspects of the current design that work, changing aspects that are problematic, and considering alternative possibilities for presenting information to the user.

The data within the table are organized into categories that represent the major types of issues raised during the study. The issues include:

- *Navigation* –Items concerning the users' ability to maneuver throughout the site are presented here.

- *Screen Layout & Design* – Items concerning the placement of elements on the screen, use of screen space and opportunities for modifying items to increase user understanding of presented information. Items concerning the organization of information within the site are also included.

- *Terminology* – Items concerning the wording of headers, page titles, links, and site information that may hinder the users understanding of the site and what it offers.

- *Consistency* – Items that may cause user confusion due to inconsistent use of wording, placement, functionality, etc.

- *System/Feature Functionality* – Items concerning tools and/or functionality offered on the site.

- *System/Browser Issues* – Items noted by UXG consultants that do not appear or function as expected.

3. System Usability Scale and Post-session Questions

The results of the satisfaction questionnaire are presented. Participants' comments are included.

Tasks & Task Performance

The tasks are listed below in the table. The table also shows how many participants received each type of score for task performance. A score of 'Success with Ease' is given when the user easily locates the appropriate data, following an efficient path. A score of 'Success with Difficulty' is given when the user locates the appropriate data, but only after following numerous links/paths or a very inefficient path. A score of 'Fail' is given when the user is not able to locate the information specified by the task. It should be noted that a participant might fail a task even if they feel they have successfully completed the task. For example, in some cases, participants feel that they have found the appropriate information and so end the task without actually locating the correct answer.

The scores for tasks 0-4 are out of a total of 11. Scores for tasks 5-13 are out of 10.   One participant had significant difficulty using te system and only completed logging in and the first 4 tasks within the allotted time.

Tasks

#	Task	Score (out of 9)		
		Success with Ease	Success with Difficulty	Fail
0	Login to the Sakai site using the following userID and password: UserID: **uiuser** Password: **uipassword**	11	0	0
1	You need to create a new citation list for a paper you are working on. Using the Sakai site provided, create a new list and name it 'Anthropology".	4	5	2
2	Add three citations to your new list using the 'Search Library Resources' option. Search with the keyword 'Liberia' and limit the search to 'Anthropology'. After adding the three citations, save the list.	5	4	2
3	After reviewing one of the citations, you decide it is not relevant to your work. Remove a citation from your list.	11	0	0
4	You must have at least three citations in your list, so you decide to use 'Google Scholar' to look for a third citation. Using 'Google Scholar', repeat your search using the keyword 'Liberia' and add a citation to your list. Save your new list.	6	2	3
5	Review your citations and see if any of them provide access to the full text of the article.	10	0	0
6	You notice that the date is displayed incorrectly on one of your citations. See if you can change the date. In addition, the list is currently arranged by title but you would like it listed by author. Find out if you can change the order citations are displayed. Save any changes you make.	8	0	2
7	You read an article that you would like to add to your list. Using the following data, add a new citation to your list.	10	0	0

Title:	Weaving, Textile & Costumes from West Africa		
Type:	Journal article	**Author:**	Sigrid Mount
Journal:	African Arts	**Year:**	1976
Volume:	10	**Issue:**	1
Start Page:	76	**End Page:**	76

8	You would like to create another list with the same citations in it. Create a copy of your list and name it "More Readings."	6	3	1
9	You would like to create a research guide for your group. Go into the Research Guides tool in Sakai, and create a new research guide with the title "Anthropology."	3	4	3
10	You want your guide to have three sections as described below and on the following cards: First section: • Title: Description • Section Content: Pertains to the study of cultures, art and people in modern and ancient times as well as the evolutionary aspects of these topics.	7	2	1
11	Second section: • Title: Journal Indexes • Section Content: A link to AnthropologyPlus: http://www.libraries.iub.edu/scripts/countResources.php?resourceId=444333	8	0	2
12	Third section: • Title: Citations • Section Content: The Anthropology citation list that you created earlier. Save the guide.	7	1	2
13	You realize that AnthroSource would be a better resource than AnthropologyPlus. How would you change the link information to point to the URL listed below? http://www.libraries.iub.edu/scripts/countResources.php?resourceId=1854915	7	0	2

The graphs below show the percentage of participants receiving a score of 'Easy' (green), 'Hard' (light blue), or 'Fail' (red) for each task.
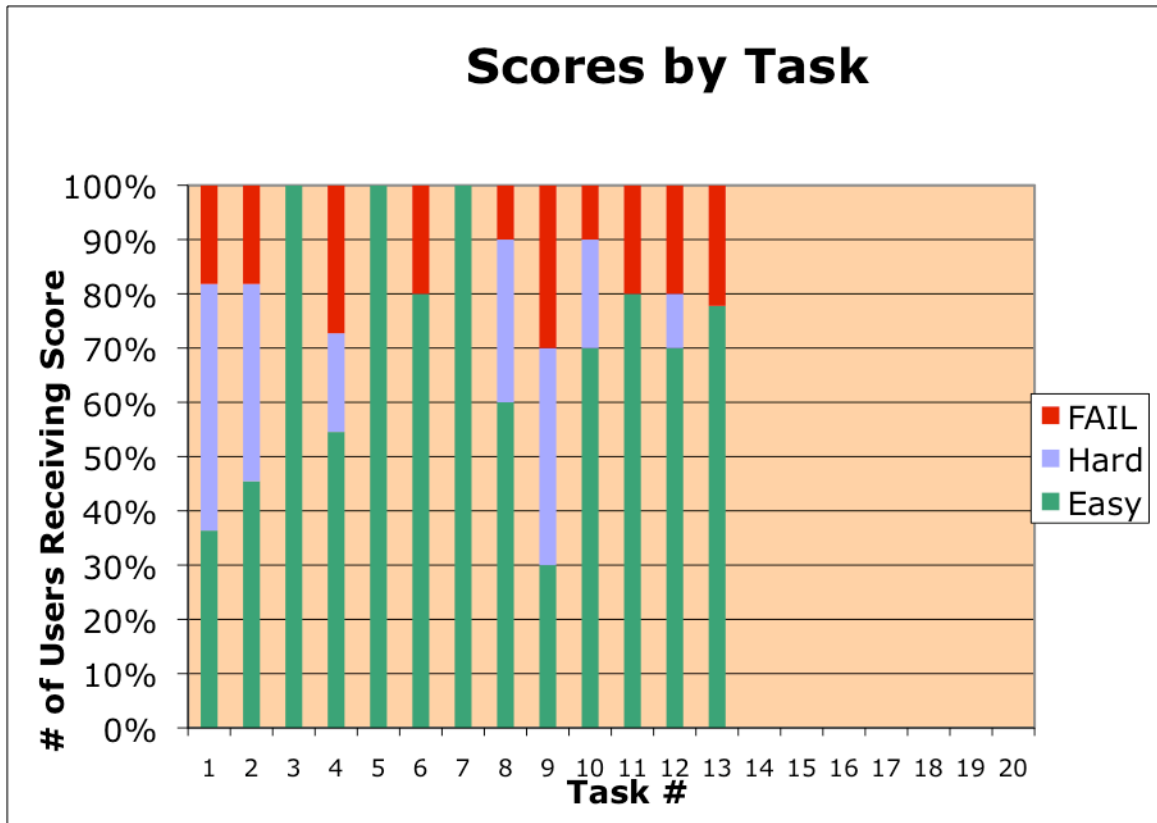
Although most participants completed tasks 1 and 2, the majority of participants spent a great deal of time figuring out where things were located and how the functionality worked. The average time on task for tasks 1 and 2 was 5 minute 37 seconds and 7 minutes 56 seconds respectively. Most of the other tasks had an average completion time from 1-3 minutes. Users that had more experience with Oncourse were able to accomplish tasks much quicker and more accurately than participants with little or no previous experience with Oncourse.

Observations and Recommendations

Navigation		
Participants frequently had a great deal of difficulty locating the homepage of a section after drilling deeper into the section. For example, participants in the 'Resources' section would click a link in the main content ('Upload-Download Multiple Resources', 'Permissions', 'Options'), or begin editing an item and then use the left navigation options to continue exploring the site. When they would return to the 'Resources' section, the resources homepage would not be displayed. The user had no idea what had happened to their list of resources or how to locate it again. In several cases, the facilitator had to get the user back to the section homepage in order to continue with the session.	The system 'remembers' where the user was when they leave a section and takes them back to that lower level page when they return to the section. Linking to different pages within a section from the left navigation is very confusing to users. This issue will be especially problematic for new users who have not developed a good mental model of the system and who are exploring the system to see what functionality is available. Users are unlikely to understand that they have arrived at a lower level page within the section.	1. Always link the items in the left navigation to the homepage of the associated section. 2. Do **not** take the user to a lower level page within the section from the main navigation.

On many screens, the only way to return to the section homepage is to use the 'reset' icon next to the section title, or to use the browser back button. The link associated with the section was not active so users would purposefully select another option in the left navigation to try and reactivate the link. Unfortunately, due to the issues described above, participants were unable to return to the section home.	The 'reset' icon looks like a standard screen 'refresh' icon, so users are unlikely to click this in order to return to the section homepage. See **Appendix 'E'**.
	Using the browser 'back' button may cause data loss and/or other issues in the system.
		3. Remove the 'reset' icon.
		4. On all lower level section pages (every page within a section other than the section homepage):
		   • Link the section title to the homepage of that section.
		   • Reactivate the section link in the left navigation and link to the section homepage.

On the homepage of the 'Resources' section, navigational links are presented directly below the screen title. When the user clicks one of the links, some or all of the horizontal navigation options disappear. See **Appendix 'F'**.	The horizontal navigation items look like sub-sections of the 'Resources' area and should be available from each of the sub-sections. The lack of navigational options from some of the sub-sections further exacerbates the problem of returning to a section homepage described above.	5. Display the horizontal navigation links on all sub-sections.

Observations	Interpretations	Recommendations

Screen Layout & Design

Participants had difficulty creating an empty citation list and giving it a title. After locating and clicking the 'add citation list' in the 'add' dropdown, the user is taken to a search screen. The only options available (other than searching) are 'Edit Citation List' and 'Cancel Citation List'. If the user clicks 'Edit Citation List' s/he is taken to a screen with the following three options: 'Finish', 'Add Citation to List', and 'Cancel Citation List'.	The workflow process for creating and naming an empty list is not clearly presented to users.	6. When the user creates a new list, take them to the 'Edit Details' screen and allow them to enter a title and any other optional data they want to include. 7. Provide the following options on the 'Edit Details' screen: 'Search & Add Citations', 'Save & Return to Resources', and 'Cancel'.
Many participants had difficulty adding citations because they were looking for a 'search' tool. After discovering where the search was located, most users were able to find the search functionality again. However, several participants had repeated difficulty understanding the organization of the citation list functionality.	Users are unlikely to initially associate 'Edit Citation List' with their goal of searching for citations to add. Within edit mode, users also bypassed 'Add Citations to List' thinking this was where they needed to go to enter citations they had already found.	8. Add an option to the 'Actions' dropdown on the 'Resources' screen labeled 'Search' or 'Search & Add Citations'. 9. From the above link, take the user directly to the 'Add Citations' page with the search options. 10. Change the button label on the 'Edit Citation List' screen from 'Add Citations to List' to 'Search & Add Citations'.
On the 'Resources' screen, the root folder icon is always displayed as a closed folder.	Users will not understand that items displayed below the folder are actually contained in the folder if the fold looks closed. Users may also repeatedly click on the icon to try and open the folder. Common web convention is to display a closed folder if the contents are not listed and an open folder if the contents are being shown.	11. When the contents of a folder are displayed, use an open folder icon.
When a new research guide is created, it is given the title 'Untitled Guide' until the user edits it. When the user click on the title to view the guide, the title is displayed "Untitled (click to edit)". Participants did not understand why the system did not respond to their click.	The '(click to edit)' text should not be displayed on the view only screen. Users following the directions will become frustrated when the system does not respond to their clicks.	12. Remove the '(click to edit)' text in the title bar when in display mode.

Observations	Interpretations	Recommendations
When citations are displayed within the Research Guide or when a participant views a citation list, both the article title and the IU-Link text link to IU-Link.	It is not necessary to provide two links to the IU-Link screen. Providing two links to the same information will frustrate users that take time to click both links only to find they go to the same information.	13. Retain the 'IU-Link' link under the article information. 14. Do not link the article title. Display the title as plain text, using bold font. See **Appendix 'G'**.
Participants did not see the instructions on the Google Scholar screen that explain how to import items into the system.	The screenshot of the search results (used for instructions) blends in with the Google Scholar interface and users are not aware that it is instructions for use.	15. Highlight the instructions by: • Displaying the heading in larger, bold font. • List the 3 instructions vertically rather than horizontally. • Refer to the screenshot in step number two, so users will know where to locate the import link. • Circle the 'Import into Oncourse' link in the screenshot. 16. Display the screenshot at a smaller size so it is clearly an image and not part of the actual Google Scholar interface. See **Appendix 'H'**.
When looking for the link to full text on the IU-Link screen, participants were confused by the multiple links presented. In some cases, multiple links to 'article' were displayed and it is unclear what the difference is. See **Appendix 'I'**.	IU-Link presents a number of links (in some cases) under headings 'Links to content' and 'Resource'. Although the additional links may be helpful to some users, providing an obvious link directly to the full text would help the majority of users find what they are looking for.	17. Provide a clearly marked link to view the full text of the article below the 'Full text is available via the following' header. 18. Continue to provide the additional links currently offered. Display them below the full text link with a header such as 'Additional Resources'
Terminology		
Participants did not understand the difference between the 'copy' and 'duplicate' features in the 'Actions' dropdown list(s) on the 'Resources' screen. When participants selected 'copy' they were unable to determine what the system did, how to access the copied item, or what their next step should be. Several participants thought the 'copy' feature just didn't work. In addition, when the user selects 'duplicate', the resulting object is titled 'copy of <title>'.	The distinction between 'copy' and 'duplicate' is not clear. In addition, labeling the duplicated object as 'copy of…' compounds user confusion. The system should assist the user in completing their task by leading them to the next step.	19. If both 'duplicate' and 'copy' are necessary, change the labels so they better indicate the differing functionality. 20. If the user selects' duplicate', label the new object 'duplicate of…'. 21. For features such as 'copy' and 'move', provide a pop-up window to guide the user to a next step. Within that window, allow the user to specify where to 'move' or 'copy' the item to.

Observations	Interpretations	Recommendations
The term 'delete' is used on some screens (for example research guides) and the term 'remove' is used on others (in the 'Actions' dropdown on the 'Resources' screen).	Although both terms are clear, one term for this functionality should be decided upon and used throughout the system. Users will understand the system more easily if the same functionality is labeled the same throughout the system and different functionalities have different labels.	22. Use the term 'delete' consistently throughout the system.
Consistency		
When using Google Scholar in the citation list tool, the instructions state "2. Click "Import into Oncourse"", the screenshot shows "Import into Sakai", and the actual search results states "Import into Oncourse".	Providing instructions and examples that are consistent with how the system actually works will help users learn more quickly.	23. Provide consistent labels throughout the system and make sure the 'Help' text, screenshots, and instruction use the same labels the user will see when completing the task.
In the 'Research Guide', the screen that opens when participants clicked 'Add Citation List' is titled 'Edit Citation List'. Similarly, the following screen (citation list selection screen) is titled 'Add Citations'.	The screen title should match the label of the link clicked and the user's goal – in this case, 'Add Citation List'. Providing screen titles that closely match link labels and associated tasks will help to avoid confusion and increase user confidence in the system.	24. Change the screen titles on the pop-up windows to 'Add Citation List'.
System/Feature Functionality		
After a user selects 'Import into Oncourse' from the Google Scholar search results, they are taken to a screen with the options 'Back to Google Scholar' and 'Close Window'. Many participants did not understand that the citation had already been added to their list and were hesitant to go back to the results or close the window for fear of losing their citation.	The 'citation saved to "<title>"' text is frequently missed by the user. The users' eye is drawn to the buttons, which act as a focal point on the page and the options provided do not suggest that the citation was saved. Displaying the confirmation message in close proximity to the action buttons may increase the likelihood that users will see it.	25. To highlight the confirmation message: • Change the text to 'Citation Added to <title>'. • Increase the font size of the 'Citation added..' text. • Display the 'Citation added…' message directly above the buttons. See **Appendix 'J'**.
Participants were surprised that they did not get a confirmation message when they deleted a research guide.	Confirm all actions that will result in the user losing data. This will help prevent errors, as well as giving the user a sense of confidence in exploring the system.	26. Provide a confirmation screen when the user clicks the 'delete' link next to a research guide. Give the user the option to proceed with or cancel the process.

Observations	Interpretations	Recommendations
Participants repeatedly clicked on the citation list title to edit the item.	Users are likely to expect to open and edit the list by clicking on the item name. In addition, requiring the user to return to the resources screen, open the dropdown, and select 'edit citation list' is a cumbersome process. Providing a shortcut to edit mode from the view only page introduces other problems, such as having multiple edit windows open for the same document. Opening the list in the existing window would be problematic for users that may want to view a list while working on something else in the system.	27. Although this was somewhat frustrating to users, no change is recommended due to complications that would arise from possible 'fixes'.
Participants where unsure what the system did or what their next action should be after selecting 'copy' or 'move' from the 'Actions' dropdown list on the resources page.	When the user's action does not produce any obvious results, the user is likely to assume the functionality did not work – as in the case of 'copy'. Likewise, when the action has an effect, but it is not clear what the next step is (as in 'move'), users are likely to be frustrated.	28. Provide a pop-up window that will allow the user to specify the location to copy or move the item to. Allow the user to rename the item.
Participants frequently went to the 'Help' section if they did not know how to accomplish a task. Participants were frustrated that 'research guides' could not be found in the 'Help' section.	Users will rely on the 'Help' section when they cannot figure out how to accomplish their goals.	29. As development of the new research guide tool continues, be sure to include appropriate help documentation in the 'Help' section.
In the 'Research Guide', a 'cancel' option is not given after clicking on the 'New Guide' link.	The system should allow the users to cancel rather than forcing them to create an unwanted object and then delete it.	30. Provide a 'cancel' button on the 'Create Research Guide' screen.
When the user initially creates a new research guide, the only option available is labeled 'add guide'. Participants did not understand how to save the guide they just created.	Users are likely to interpret the 'add guide' button as a feature to add another research guide rather than as a means to save the guide they are currently editing.	31. Change the 'add guide' label to 'save'.
After a guide is saved and the user goes in to edit the content, the only option available is 'update guide'.	Users may make mistakes when editing and want to cancel their changes. Using clear, simple, consistent labels for features will help users understand the functionality.	32. When the user is editing an existing guide, provide the options 'save' and 'cancel'.

Observations	Interpretations	Recommendations
Although the title bar on the research guide is clearly marked 'click to edit', many participants had a great deal of difficulty giving their guide a title.	In some cases, the system did not respond to the user clicking on the title bar and so the user did not understand what was wrong or what they were supposed to do. In other cases, users clicked below the title bar and entered a title in the text area that appeared. They then were confused as to why the guide was still untitled after updating.	33. Be sure the system responds appropriately to user actions. 34. Continue to provide the 'click to edit' text for all untitled guides (when in edit mode). 35. When the user initially creates a new guide, open the new guide screen with the title field active so the user can immediately enter a title.
Adding a citation list to the research guide is a confusing and cumbersome process. When adding a citation list to a research guide, the citation list selection screen displays the 'Add' dropdown list that interacts with the 'Resources' section. After the user selects a citation list to add to the research guide, they are taken to a screen with instructions: "Select an existing resource or add a new one. Click "Continue" when done." A list of other items is displayed but no actions can be taken on any of these items. The options available to the user are 'remove', 'continue', 'cancel' and 'X'.	Allowing the user to create a new resource from within the screen where a citation list is selected causes confusion and makes the task more complex than necessary. After selecting an item, it is confusing to the user to see instructions asking them to select. The list of other items in the user's folder is unnecessary and gives the impression that additional actions can or should be taken. It is unclear what the difference is between 'remove', 'cancel' and 'X'. The terminology does not help the user differentiate between the features and all three options are not necessary.	36. Remove the 'add' dropdown from the citation selection screen. 37. Consider adding another option to the 'add' dropdown displayed when a user clicks 'add new item' in the research guide. Provide the option to 'create new resource' and take the user to a screen with options for creating a new citation list, text page, HTML page, etc. 38. After the user selects an item, display a simple confirmation screen with the item title and the actions 'Continue', 'Back', and Cancel'. See **Appendix 'K'.**
It would be helpful if the items in the research guide could be rearranged after they were created.	Users are likely to want to rearrange items. Providing a simple method for reordering the items would save users time and help them accomplish their goals more efficiently.	39. Provide functionality so that users can drag and drop items to new locations within the research guide.
Participants did not understand how to remove items that appeared when they clicked between/below items previously added to the screen.	Although clicking a different location or saving the guide and coming back in eliminates these items, users do not understand the functionality and are unhappy that an extra, unwanted item is displayed.	40. Consider provided a 'delete item' option in the 'add…' dropdown menu.

Observations	Interpretations	Recommendations

System/Browser Issues		
In the 'Research Guide' edit mode, the mouse cursor changes to text mode in some active areas. Specifically, this behavior can be seen when the mouse hovers over a section heading, or is placed in between the research guide items to activate the blue bar.	The mouse cursor should change to the active state so users know they can click on the section to initiate an action.	41. Update the code so that the active areas of the page will initiate the active mouse cursor.

System Usability Scale
Post-test Satisfaction Ratings

Raw SUS scores are adjusted as follows:
* Questions 1, 3, 5, 7, and 9: adjusted score = raw score – 1
* Questions 2, 4, 6, 8, and 10: adjusted score = 5 – raw score

Calculating an individual's total SUS score for an application:
* The sum of the adjusted scores is multiplied by 2.5 to yield an overall score in the range of 0 – 100.
Higher total SUS scores indicate greater overall satisfaction with the website.

Satisfaction User Survey (Raw score by SUS question)	1 strongly disagree					5 strongly agree					Median	Mean
1. I think that I would like to use this system frequently.	4	3	3	4	2	2	4	5	1	4 2	3	3.09
2. I found the system more complex than necessary	1	1	2	2	4	5	3	1	4	3 4	3	2.73
3. I thought the system was easy to use.	4	4	4	5	2	1	3	5	1	4 2	4	3.18
4. I think that I would need the support of an experienced person to be able to use this system.	3	2	2	2	5	4	2	1	5	1 3	2	2.73
5. I found the system visually appealing	2	4	4	2	1	3	3	5	1	4 3	3	2.91
6. I thought there was too much inconsistency in this system.	2	3	1	4	3	4	4	1	3	2 4	3	2.82
7. I would imagine that most people would learn to use this system very quickly.	5	2	4	4	1	1	3	3	1	3 2	3	2.64
8. I found the system very confusing to navigate.	3	4	2	3	5	1	4	1	5	2 4	3	3.09
9. I felt very confident using the system.	2	4	3	5	1	5	3	4	1	4 2	3	3.09
10. I needed to learn a lot of things before I could get going with this system.	2	4	2	1	4	4	4	1	5	1 3	3	2.82
Satisfaction User Survey (total adjusted SUS scores by participant)	**SUS Score (0-100)**											
Participant 1	65											
Participant 2	57.5											
Participant 3	72.5											
Participant 4	70											
Participant 5	15											
Participant 6	35											
Participant 7	47.5											
Participant 8	92.5											
Participant 9	7.5											
Participant 10	75											
Participant 11	32.5											
Median	**57.5**											
Mean	**51.82**											

Median and mean SUS scores of 57.50 and 51.82 respectively represent below average scores for a system. Following the recommendations made in this report could help to improve user satisfaction when the changes are implemented.

Satisfaction Questionnaire – Post-Test Questions

The table below shows participants' responses to the three SUS post-test questions. Participants wrote their responses on the SUS form and they are included here verbatim.

Q1 – What do you consider the most valuable aspect of the system?	
P1	It seems to be very efficient. Though I overlooked a few minor things that ended up talking a lot of time, for the most part, the system is fast, importing articles/citations from Google Scholar, flipping citation lists into research guide folders, it would save me a lot of time.
P2	Easy interface to library databases, online resources and ease of adding lists, creating lists
P3	Helps organize resources and makes it very easy to integrate hard copy and internet-based sources.
P4	Ability to direct students to exact sources (could replace a lot of old photocopies on eReserve and in readers). Direct links to search tools for building lists & to IU Link for full text
P5	??? I guess being able to import citation lists if I was doing internet research/searching for bibliographical data/books to read. Its nice to be able to save citations.
P6	Its capability to create resource lists, links, research guides - given a lot of practice.
P7	The ability to search and create a list right in Oncourse is great! And having ways to first click on a citation makes it fast.
P8	Access to library resources! Research guide - ease of editing content
P9	0
P10	I found the citation list to be a very quick way to find many articles using one keyword. I would be interested to see how many of those articles would be relevant resources if I was going to use this option to do research for a paper or project.
P11	It's probably a pretty secure system - and on the web - unlike endnote. The library is also looking at "" and "", So I am not sure what we can do better in-house other than possibly a more stable environment rather than hosted via a 3rd party
Q2 – What is the biggest problem with the system?	
P1	For me, the biggest problem was locating a search function. Personally, I don't associate editing or adding to a a citation list with searching, but that could be cleared up in moments by an instructor or manual.
P2	Hard to figure out how to get into resource guides at first - should be one of the help topics. Not sure I ever really figured out how to manage building my own research guide (how to connect text & links to a particular section heading)
P3	Getting used to the way things are laid out and not knowing what to expect at first.
P4	Inconsistency of editing metaphors - some things open up like a document and must be saved, while others behave like a directory with changes saved instantly (live edits).
P5	Hard for me to get started. Once I'd created a list or guide, it was pretty easy to figure out how to edit or revise it…most of the time. Getting started, I didn't think many of the buttons were helpful and I didn't feel like there was enough information on the screen.
P6	Navigation is unclear
P7	Some of the problems with this resource are inherent to Oncourse. The folder systems are not intuitive until you work with Oncourse a lot. In general, some well-placed help for creating a research guide will make it more valuable.
P8	Full text access is unknown at the time citations are selected.
P9	Terminology: new, no definitions or explanations, odd usage - for ex. 'edit' means 'open'. Very difficult to navigate: I get to one place and cannot figure out how to get somewhere else. I wonder whether using one basic page design with drop menus that use the same list of options would be better.
P10	I didn't have any significant problems with the system. It took me a little while to find the research guide, but I think after a few uses the system would be very easy to follow.
P11	It seems to be in conflict with already existing products that many people use like endnote & other bib citation managers.
Q3 – Additional comments about the system:	
P1	Even though it took me a while to figure out how to navigate through the site, a lot of the functions look great and would save a lot of time. The research group section could be a little easier to edit, but overall, I think I would use this system.

P2	It would be helpful for my work to have an easy way to upload search results or a new citation list into endnote so that I would work offline.
P3	The way the system is set up, it requires exploration to learn how to accomplish tasks, which can create some stress, but all in all helps the user to better understand the system.
P4	I picked Firefox because that's what I have to use with Oncourse on my mac (and since it was Sakai, I figured it might have the same problems). Normally I use Safari (2.0 on OS X 10.5), but I've had problems with Safari and Oncourse. Difference between "research guide" & "Citation List" wasn't obvious at the start - now that I have created an example, it is. Can you have more than one research guide on a site? I would guess I could just add another copy to the tool.
P5	Based on today, I would probably never use it. As an English grad student, I can make citations, for example, much faster on my own in Word. English majors are old-fashioned though.
P6	0
P7	I like the Google import but did not see the instructions for import. Make those stand out more because this is very nice. The research guide could be useful to students if it were named something else on their section.
P8	The color/simple layout is great.
P9	Why??? If you want to have a library functionality in Oncourse, why not add links to existing library systems? And why require the same design for everything when that one design may work well for some things, adequately for others, and poorly for still others? Personally I dislike integrated systems. I prefer separate systems, each designed for it's own particular function. If something like this is implemented, I would use only the library specific part and move what I find into the appropriate independent resource.
P10	I liked how the research guide and citation list could be combined. I would be interested in using a resource like this on any research paper.
P11	We haven't looked (in this session) about how well citations can be output to papers & what citation formats are supported. It's a lot to manage & we should take advantage of good stuff already out there. Maybe host some existing programs locally. But I'm not sure it's worth building these from scratch. Also using databases outside of their native vendor supplied interfaces means you typically lose a lot of functionality in search & services.

Appendices

Appendix A – Testing Protocol Script

Participating in Usability Sessions

Thank you for agreeing to participate in this usability study. Before we begin, I will briefly go over what a usability session consists of, what will be expected of you, and what our goals are in conducting this study.

The first thing that I want to make clear is that **we are testing the application and NOT you**. If you find errors or if you have any difficulties with the application, it is very likely that other people visiting the site will also experience those same difficulties. We will use this information to better understand how we might try to improve website.

During the Session:

1. **Tasks:**

   You will be asked to perform a **series of tasks** using the Sakai site. The tasks are structured to determine if the most important information and features of the site are easy to locate and use. We ask that you try to accomplish the tasks without assistance, as if you were at home trying to find the information on your own. This gives us a better idea of the things that work well or the difficulties people experience. Anytime during the session, if you find yourself thinking that you would quit the task, use help, contact someone for assistance, or visit another site to accomplish your goal, please let us know.

2. **Test Facilitator and Observers:**

   One member of the User Experience Group will act as the facilitator assisting you in getting started and answering any questions you may have. Another member of the User Experience Group will observe and take notes. Representatives from the Sakaibrary team may also be present to observe the session and take notes.

3. **Think Aloud Protocol:**

   To help the observers understand the way you use the application, you will be asked to **"think aloud"** as you complete the tasks. This simply means that we ask you to talk about what you are doing, what you are looking for, clicking on, wishing you could find, etc. In other words, any task-related thought that comes into your mind we would like for you to share aloud. Some people find this easy right away, while others need to be reminded a little. It may seem a bit odd to talk about every step that you are dong, but it really helps the observers understand how the application is working.

After the Session:

1. **User Satisfaction Questionnaire**

   The user satisfaction questionnaire is a short questionnaire that asks you about a few general aspects of the system. It will only take a few minutes for you to complete.

2. **Questions**

   If you have any further questions for the facilitator or members of the Sakaibrary team (if available), you will have the opportunity to ask them at that time.

Appendix B – Participant Consent Form

Participant Consent Form

The purpose of this usability study is to evaluate the design of specific features within the Sakai system. We are interested in determining if people can accomplish common tasks and easily find information using this site. The session will not 'test' you or your ability, rather the session will test the system to provide information on areas that might be improved. Please be advised that there are no risks associated with participation in this session.

During this session, you will be asked to complete some tasks using the Sakai site and fill out a user satisfaction questionnaire. As you complete the tasks, members of the User Experience Group will observe and take notes. In addition, the session will be captured on video for future review. The session will last no longer than one hour and fifteen minutes.

If for any reason you are uncomfortable during the session and do not want to complete a task, you may say so and we will move on to the next task. In addition, if you do not want to continue, you may end the session and leave at any time.

Approximately 15 people will participate in this study. Results from all sessions will be included in a usability report to be presented to Sakaibrary team. Your name will not be included in the report nor will your name be associated with any session data collected.

If you wish to speak with someone about your participation in this study, or if you feel you were not treated as described above, please contact the User Experience Group manager at 812-855-4499.

I, _____, have read and fully understand the extent of the study and any risks involved. All of my questions, if any, have been answered to my satisfaction. My signature below acknowledges my understanding of the information provided in this form and indicates my willingness to participate in this user testing session. I have been given a blank copy of this consent form for my records.

Signature:_____   Date:_____

Appendix C – Video Release Form

Video Release Form
The signature below indicates my permission for University Information Technology Services User Experience Group of Indiana University to use video footage recorded during the usability session conducted for

The Sakaibrary team, June _____, 2008,

in which I served as a participant.

My name will not be reported in association with session results nor will my name be included on the video footage. This video footage may be used for the following purposes:

- Analysis of research and reporting of results
- Conference presentations
- Educational presentations
- Informational presentations

I will be consulted about the use of the video recording for any purpose other than those listed above.

There is no time-limit on the validity of this release nor is there any geographic specification of where these materials may be distributed.

This release applies to video footage collected as part of the usability session listed on this document only.

I have been given a blank copy of this release form for my records.

Name (please print):		Date:	/	/
Signature:				
Address:				
Phone:		E-mail:		

Appendix D – Compensation Receipt Form

Compensation Receipt Form

The signature below indicates my confirmation that I have received from the User Experience Group, the compensation promised for my participation in the Sakaibrary usability session conducted on:

June _____, 2008,

Compensation for this session was provided by the Sakaibrary team and consisted of a $20 Borders Gift Card for students. I affirm that I am a student (graduate or undergraduate) and so am eligible for this compensation.

I have been given a blank copy of this receipt form for my records.

Name (please print): _____ Date: _____/_____/_____

Signature: _____

User Experience Group – 812.855.4499
University Information Technology Services, Indiana University

Appendix E – Refresh Icon & Page Navigation

The first icon shown above is taken from Sakai and can be found next to some screen titles in the system (Ex. Resources, Research Guide). The second and third icons are the 'refresh' icons used in Internet Explorer and Mozilla Firefox respectively. The last two icons are additional examples of icons used to represent 'refresh' online.

The accepted convention for the 'refresh' functionality is to allow the user to update the page they are currently on – it does not take the user to a different page. Refresh is commonly used to:

- Update static pages with the most current data available from the server
- Redisplay the page in its default manner (typically used by users who have changed the page in some manner and want to restore the initial layout/data values of the screen).

As can be seen in the images above, the Sakai icon is very similar in appearance to the 'refresh' icons used on many websites and users are likely to believe this is a 'refresh' icon for Sakai. However, the functionality provided on the Sakai site is to take the user to the homepage of the section they are in, navigating away from the current screen. If the user clicks on the icon, they are unlikely to understand what the intended functionality is. In addition, since users are likely to assume this is a refresh button, it is unlikely that any users will click on this to navigate to the section homepage.

Remove the icon and let users click on the 'Resources' link in the left navigation, as well as the 'Resources' screen title to return to the section homepage.
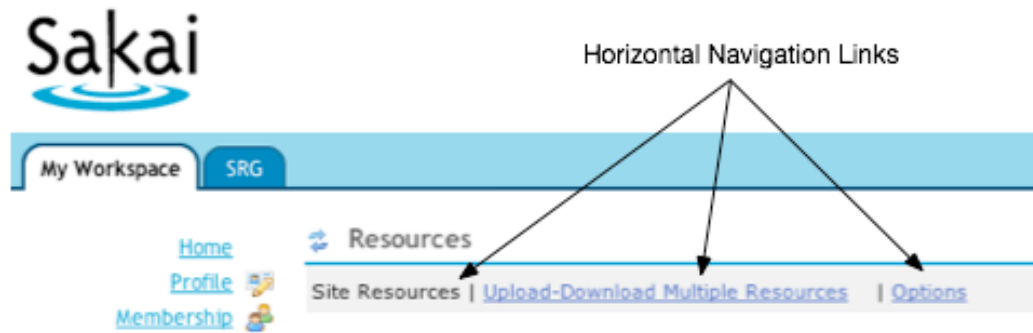
Appendix F – Horizontal Navigation

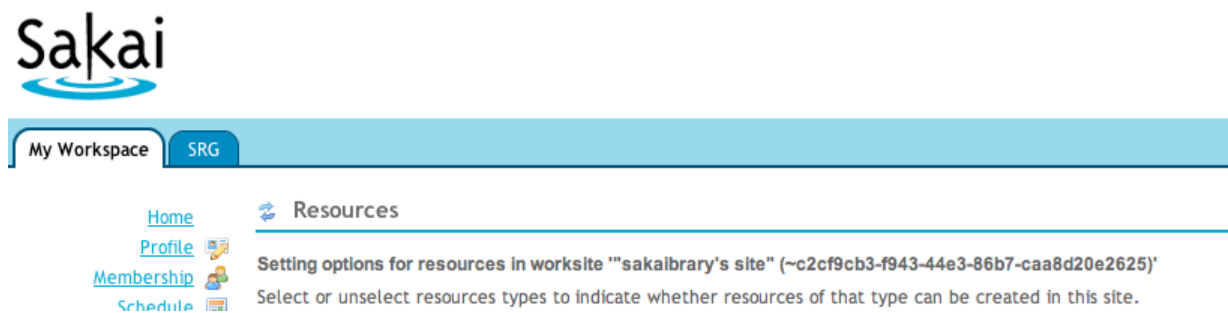**Figure 1:** Main 'Resources' Page

Figure 2: 'Options' Screen in the 'Resources' Section

Figure 1 shows the top portion of the homepage of the 'Resources' section. The user is presented with horizontal navigation links to 'Site Resources' (disabled), 'Upload-Download Multiple Resources' and 'Options'. If the user clicks on the 'Options' link, the horizontal navigation is no longer available (see figure 2). There is no obvious method for returning to the section home or the 'Upload…' screen.
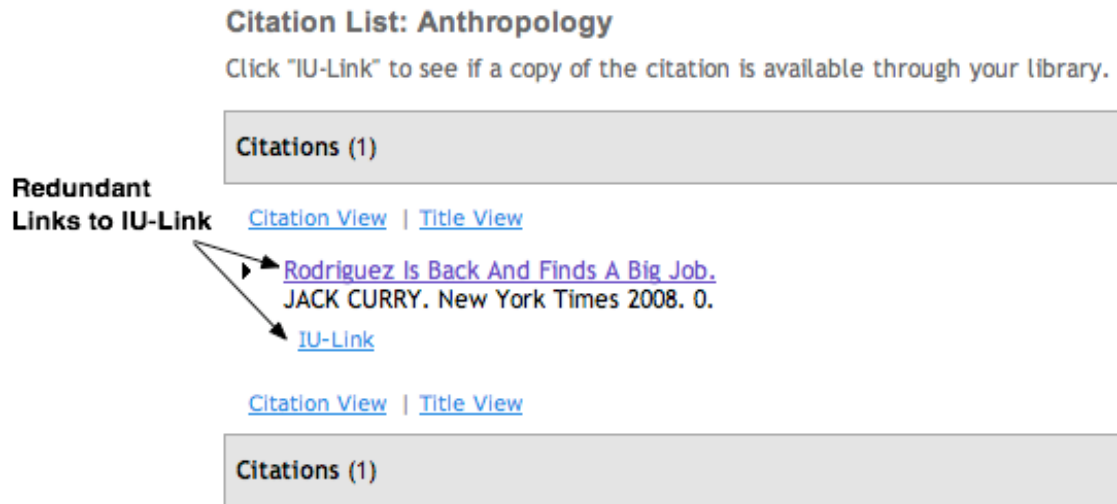
Appendix G – Citation List Links

Citation List: Anthropology

Click "IU-Link" to see if a copy of the citation is available through your library.

Citations (1)

Redundant Links to IU-Link

Citation View | Title View

▶ Rodriguez Is Back And Finds A Big Job.
JACK CURRY. New York Times 2008. 0.

IU-Link

Citation View | Title View

Citations (1)

Figure 3: Citation Listing as Currently Displayed in Sakai

Citation List: Anthropology

Click "IU-Link" to see if a copy of the citation is available through your library.

Citations (1)

Citation View | Title View

▶ **Rodriguez Is Back And Find A Big Job.**
JACK CURRY. New York Times 2008. 0.

IU-Link

Citation View | Title View
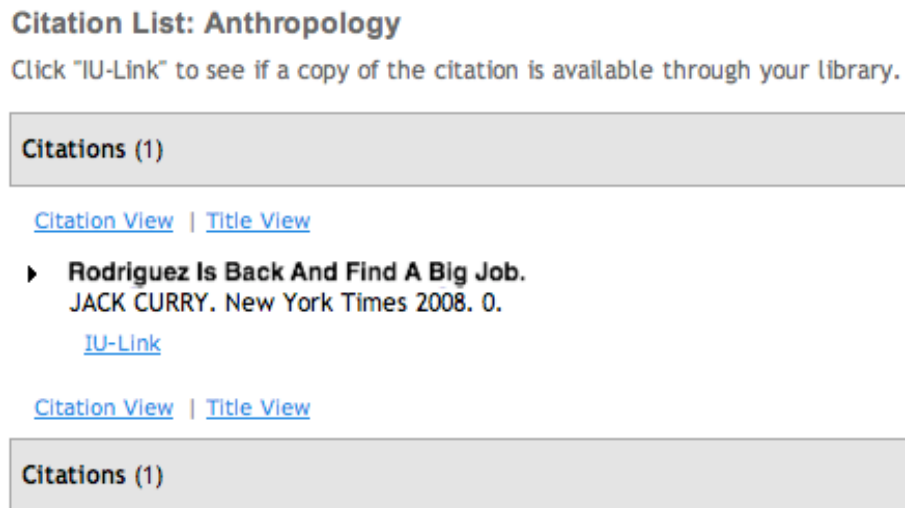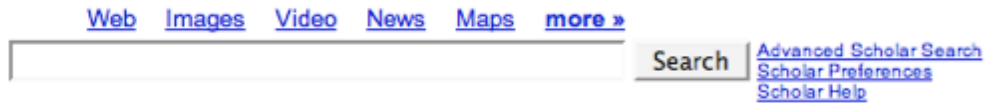
Citations (1)

Figure 4: Suggested Method for Displaying Citations

Figure 3 above shows the current method for displaying citations in the citation list. Both the article title and the 'IU-Link' link take the user to the IU-Link entry. Redundant links are unnecessary and will frustrate users that click both only to find the same information. Figure 4 shows the recommended display that retains the 'IU-Link' link and presents the title in plain text using bold font.

Appendix H – Google Scholar Importing Citations Instructions

Many participants missed the instructions for importing citations into Oncourse and so had difficulty completing the task. The screenshot above shows the Google Scholar search screen with the following changes to help highlight the instructions:

- The instruction heading, 'Importing Citations into Oncourse' is displayed in larger, bold font.
- The three instructions are presented in a vertical list rather than a horizontal list.
- The text instructions are accompanied by the number icons used in the screenshot.
- The screenshot is presented in a smaller size so that it doesn't look like the actual interface.
- 'Import into Oncourse' in the screenshot has been circled to help the user locate the link.

Appendix I – IU-Link Full Text Information

Fulltext is available via the following

Coverage	Links to content		Resource
1962 - 11/18/2006	Article	Journal	JSTOR Biological Sciences Collection
1955 - 6 months ago		Journal	Freely Accessible Science Journals
1962 - 6 months ago	Article	Journal	PubMed Central
01/01/1955 - present		Journal	Rockefeller University Press
	Article		Article via CrossRef

The multiple links listed in the full text section of IU-Link confused participants looking for the full text version of articles. User confusion is exacerbated by multiple links with the same label. In the example shown above, 3 links labeled 'Article' and 4 links labeled 'Journal' are displayed. Users are unlikely to know which link is most relevant and/or if there is any difference between the target pages of these links.

Providing a clearly labeled link (ex. 'View Full Text') to guide users to a full text version would help users find the information they need. Display the 'View Full Text' link by itself, immediately under the 'Full text is available…' header. List the remaining links in a section below the full text link with a header labeled 'Additional Resources'.

Appendix J – Citation Added Confirmation Screen

Type	Journal Article
Author(s)	Anderson, J.R.
	Williamson, E.A.
	Carter, J.
Article Title	Chimpanzees of Sapo Forest, Liberia: Density, nests, tools and meat-eating
Journal Title	Primates
Year	1983
Volume	24
Issue	4
Pages	594-601

Citation added to "My Citation List"

Back to Google Scholar	Close Window

After clicking on the 'Import into Oncourse' link in Google Scholar, a confirmation screen is displayed to the user. Many participants were confused and did not know which button to click in order to assure they did not lose their selected item. Participants missed the confirmation message and were afraid that 'Close Window' would result in the loss of their citation. The screen mock above shows the same information with the following changes:

- The confirmation message was changed to 'Citation added to "<list title>"
- The confirmation message is displayed in black, bold font to help draw the users' attention
- The confirmation message is displayed directly above the action buttons, which are a focal point on the page.

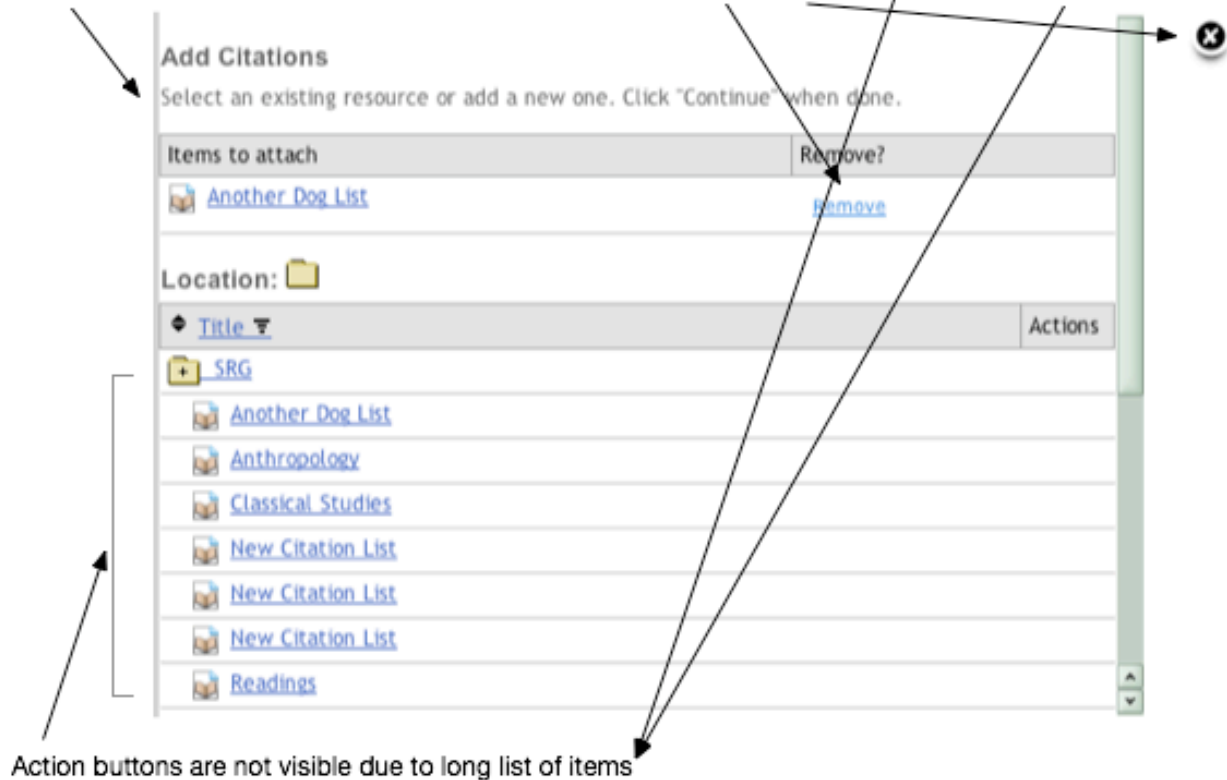## Appendix K – Research Guide: Add Citation List Confirmation Screen

Figure 5: Current confirmation screen in Sakai

The screenshot above shows the current confirmation screen provided to users after a citation list is selected to attach to a Research Guide. Several usability problems are apparent in this page including:
- The instructions displayed on the page are not relevant to the screen.
- Even though the user cannot select an additional item, the list of items are shown. If this list is long, the action buttons are pushed out of view.
- The user is presented with four options on the page including: 'Remove', an 'X' icon, 'Continue', and 'Cancel'. The options confuse users expecting to just confirm the action or cancel. Providing both the 'X' and 'Cancel' is not necessary. In addition, many users are likely to see 'X', 'Cancel', and 'Remove as essentially the same function.

The mock screen below shows a simplified version of the confirmation screen with the following changes:
- The instructions have been updated to reflect options on the screen.
- The 'X' icon and the 'Remove' link have been removed.
- A 'Back' button has been added to allow the user to return to the previous screen and select a different list.
- The list of items has been eliminated, since it serves no purpose on this screen and may result in pushing the action buttons off the viewable area of the screen.

Figure 6: Recommended confirmation screen