

Heuristic Evaluation

Kresge Library Website Evaluation

Assignment #6

SI 622: Evaluation of Systems & Services
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Executive Summary

In order to ascertain any usability problems we use the heuristic evaluation method. It is a very effective method that doesn't require users involvement since user testing is expensive. This method doesn't only provide the areas of problems but also the area of success. It shows both the key strengths and the key weaknesses of the site. In this study we play the role of the users in different scenarios for different functions in order to discern any key usability issue. The key usability issue ranged from aesthetics to content and structure. We used different heuristic category to identify such usability issues such as visibility of website, user control and freedom, privacy, and help and documentation.

We found different usability problems in the website and we suggested some solution to each problem. For example, in aesthetics we found that visual cues are not well incorporated and maximized. For that reason, we provide different solutions that would solve this issue such as using unified and appropriate colors, and reorganize the homepage.

Also, we notice that the site content is redundant and overwhelming. Although the library webpage is text-rich, it is not informative. The text-heavy webpage create a confusion and misleading situation to the user. For this problem we recommend rubbing out unnecessary text. The important thing is the amount of information not the amount of text.

In addition, the structure of the site is a key element in the usability testing. A key issue that we found is that menu and item titles are not descriptive. They are no clear distinction between the different options. Novice users will find the website headings unintuitive. As a result, we need to redesign the headings.

On the other hand, the site does success in certain areas. The icons and menu are logically designed. From the title, users can find what they are looking for. Also, users' privacy is protected very well. The access to the website is controlled and provided only to certain population of the community.

Overview

Kresge Business Administration Library website has some usability problems. Heuristic evaluation method will help us to identify such problems. This method will help us on characterize those problems since we will analyze every feature of the website. The test will be done by each member of the group. Each member of the group will focus on two different areas.

Through this heuristic evaluation, we find some of the usability problems that occur in the website. Also, this evaluation helped us in finding some solution for these problems. In order to better understand what kind of problem the users face while using the website, we test the site through different areas. This document reviews our areas of analyze, key problems, proposed solutions, success areas.

Methodology

In order to identify usability problems for the Kresge Business Administration Library (Kresge) website, a heuristic evaluation was undertaken. The evaluation was designed and performed by a group of five individuals, each of who addressed a major usability issue based on Nielsen's¹ established heuristics list. The evaluation was performed by following a detailed scenario (See Appendix C) based upon a persona (See Appendix D) that was previously created. The evaluative process provided insights into key usability issues that ranged from aesthetics to content and structure.

Initially, the group divided up a checklist based on Deniese Pierotti's² heuristic checklist. Although Pierotti's checklist was designed for system applications and not specifically for website evaluations, it was initially believed to be a positive resource for the purposes of appraising the website. The checklist was edited and tailored to suit the specifications of the Kresge website and members of the group completed their respective portions of the heuristic set by following the scenario. While the exercise provided some valuable feedback it was determined that it was not sufficient, or entirely appropriate, for the Kresge website. As a second measure, an additional checklist was employed and the website was reevaluated. The latter checklist is based off of a design that focuses specifically on library websites. Designed by Roslyn Raward³, the checklist is tailored to address issues commonly occurring in academic library websites as well as highlighting unique attributes and user behavior. By combining the findings from the latter checklist with the former, the group was able to reinforce and confirm their initial findings and provide a meaningful heuristic evaluation of the Kresge website.

The top-level categories of the Pierotti checklist followed Nielsen's convention and include the following:

No.	Heuristic Category
1	Visibility of Website Status
2	Match Between Website and the Real World
3	User Control and Freedom
4	Consistency and Standards
5	Error Handling and Prevention
6	Recognition Rather than Recall
7	Flexibility and Minimalist Design
8	Aesthetics and Minimalist Design
9	Help and Documentation
10	Skills
11	Pleasurable & Respectful Interaction with the User
12	Privacy

¹ http://www.useit.com/papers/heuristic/heuristic_list.html

² <http://www.stcsig.org/usability/topics/articles/he-checklist.html>

³ <http://alianet.alia.org.au/publishing/aarl/32.2/full.text/raward.html>

Raward's checklist has four overarching categories: (1) Finding the Information; (2) Understanding the Information Organization of the Site; (3) Supporting User Tasks; and (4) Presenting the Information Display and Download Speed. Both of these checklists provided a useful foundation for our checklist but would not have been sufficient as standalone pieces due to currency and applicability.

The checklists were completed by assigning two evaluative measures. The most simple measure was based on whether or not the item was addressed on the website (Yes, No, and N/A.) The second measure was a scale that ranked the severity of the problem if it existed, as seen below:

Rank	Description
0	Does not pose a usability problem
1	Tertiary usability problem; addressable as time permits
2	Minor usability problem; low-level priority
3	Major usability problem; high-level priority
4	Severe usability problem; immediate action needed

The tailored checklists combined with the rating scale and notes with specific examples and screenshots are the basis of the group's findings for the heuristic evaluation. While problems arose in the course of performing the evaluation, a best effort was made to correct and adjust to the issues in order to successfully complete the evaluation and provide constructive feedback.

Findings

Specific Problem Areas

Problem #1 - Menu and item titles are not descriptive

Detail:

There are several areas where the headings and titles do not accurately reflect the outcome, or provide clear distinctions between options. In other words, the headings may be intuitive only for familiarized users and librarians but not novice users. Some examples are “Collections” and “Research Tools”, “Library Services” and “About the Library”, or “Course Materials” and “Course Reserves”. Also, the heading “By Topic” under Collections seems to link to the database, but the heading does not tell users this; users would feel confused at the first moment.

Proposed solution:

Identifying the appropriate vocabulary set and building a taxonomy that is repeated throughout the website is needed for consistency and ease of use. A redesign of headings could be very helpful. Perhaps a Database heading with the various search tools and quick links available are needed here. Since the database is a highly used feature, access to some database features could be highlighted on the homepage (instead of giving overwhelming but complete lists). Mapping is a significant problem with the Kresge site. User testing and industry comparison should be done to determine appropriate headings, titles for pages, and groupings.

Problem #2 - Visual cues are not well incorporated and maximized

Detail:

The website uses very few colors, which is good in the sense that it is not overwhelming. However, color is not being used effectively to convey meaning about the hierarchical organization of the website. First, the color does not correspond to common expectation. For example, *Need Help?* is in red, which demonstrate the case of urgency and danger. Additionally, the blandness of textual distinctions tends to muddy the display; there is a significant amount of text with very little emphasized, so the terms become a sea of undistinguished text. This is due both to too much text on the webpage and the lack of visual segmenting through colors and separation. (See Figure 1.)



Figure 1: Text-dense and color bland homepage does not convey important areas

Proposed solution:

Adding bullets in front of the links under the categories in the left menu (*In the Spotlight*, *About the Library*, and *Need Help*) can increase menu's legibility. Also, using unified and appropriate color to highlight the categories would help improve the website's consistency. Re-organizing the homepage layout and carefully choosing appropriate highlight color are needed.

Problem #3 - Content is redundantly and overwhelmingly provided

Detail:

Information redundancy can mislead or confuse users. For example, the headings and sub-menus in the main menu are showing twice on the homepage (See Figure 2). Additionally, Most of the library web pages are text-heavy and not informative. While good use of white space is incorporated, the overwhelming amount of content in each section makes it difficult to easily and quickly identify the needed information. Formatting content from general/simple to specific/complex is not often employed (See Figure 3).



Figure 2: Same headings and sub-menus are redundantly displayed

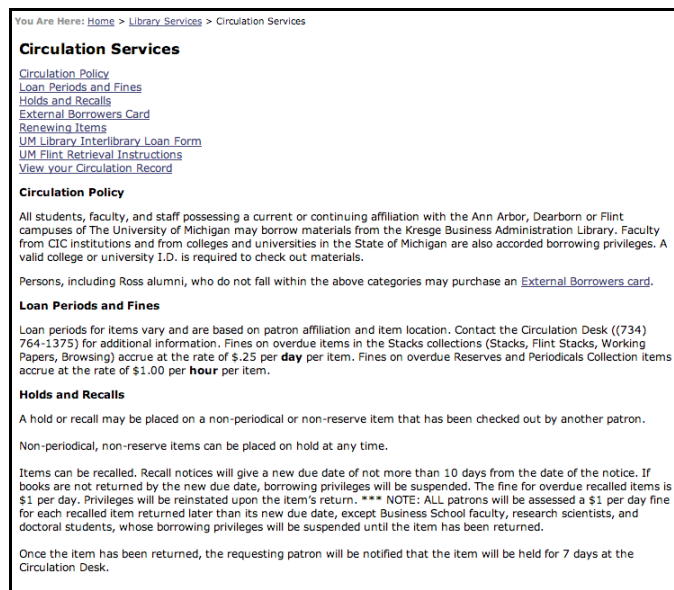


Figure 3: Example of overwhelming mass of content on the library web site

Proposed solution:

Providing more concise and simple instructions along with levels of granularity should make it user-friendlier. Addressing user habits by weeding out unnecessary text is needed. To provide rich information effectively and efficiently, there is need to incorporate a greater white space to text ratio in order to allow pages to be more readable.

Problem #4 - Users have little control over the environment

Detail:

There are several areas within the site that limit the control of the user in traversing the environment; the following addresses several of these issues.

One limitation is there are no options for users to use advanced navigation to maneuver the site; i.e. tab through list items or press quick keys (keyboard shortcuts) to reach destinations. The navigation menu at the top of most pages is helpful to users in providing backwards navigation. However, this simple path does not always indicate users' actual behavior. For instance, when links take the user to a catalog search result (such as *Collections > Ross Video Archive*, which yields the mapping: "*Home > Search Catalogs > Kresge Library Catalog*").

Another limitation identified on the website refers to the navigation of online forms. On the few occasions that forms are used, tabbing from one field to the next is only partially effective. Additionally, there is no indication as to what fields are optional or required. Often little or no cues are given to users that a link may direct them away from the Kresge website or to a restricted area allowed only accessible by Ross students and faculty.

Lastly, even though the library website includes a Site Index, it does not provide the same types of information as a Site Map. The Site Index only provides an alphabetical listing of top-level sections and does not incorporate the visual and relational constructs of a Site Map.

Proposed solution:

First, a set of pre-define shortcuts which are similar to Windows PC/Mac users should be available using the web site. Or, a feature could be added to the homepage named "created shortcuts" for the conveniences of users' access. This is not only a convenience but also a necessary measure in complying with accessibility standards and accommodating text-only browsers and mobile devices.

Furthermore, a Site Map providing a visualization of how pages relate to one another is strongly recommended to be incorporated into the web site. It can act as a tool to help users retrace their exploring paths. That means, the map path located between the desired content and main menu should indicate what users actually did and how they arrived at the current web page. An ideal Site Map that can provide current information about the web site is supposed to be designed to update automatically as the website expands and contracts.

In addition, specific labels, or the use of informative icons, for the links that may direct users away from the Kresge site or that are access-restricted use should be applied. For example, using a lock icon to represent restricted access or a globe to indicate an external website are commonly used icons on the Internet and would therefore be meaningful, by convention, for the user.

Success Areas

Success #1 - Icons and menu are logically designed

The icons are stable and familiar to a certain degree. Also, the order of menu choices is very logical to the user. Users can find what they are looking for from the title. Those titles are sequenced as follow: the user wants to know where to find the information (*Research Tools*), the user can look for the information in a certain resource (*Collection*), and if he/she can't find the information they ask the library help (*Need Help?*).

Success #2 - Users' privacy is effectively protected

The Kresge Business Administration Library website utilizes a university-wide system called Kerberos and iMpac system that manages users access to restricted areas of websites. Kerberos is linked to staff, faculty, and student accounts and provides access only available to that population of the community, while iMpac is a password-protected Intranet only for current Ross School staff, faculty, students and alumni. It is successful in both providing and restricting access according to the status of the person utilizing the online resources. The university manages Kerberos and Ross incorporates the Kerberos login access with iMpac to indicate who shall receive access to their online resources and who shall not.

Conclusion

For this report, we conducted a heuristic evaluation of the Kresge Business Administration Library website. We used two heuristic checklists for a comprehensive look at the site, touching areas such as the content, format, visibility of the website status, recognition rather than recall, aesthetics, pleasurable and respectful interaction with the user and help documentation. Furthermore, we each identified major problem areas and proposed possible solutions for those problems.

Of course in each area we were able to find success cases. However, we found major problem areas that should be addressed as soon as possible. For example, the website has a vocabulary problem. The menu and link titles are not intuitive, and may be confusing to users. Also the content on the website is overwhelmingly redundant. Visual cues are not intuitive to users, meaning that the color and graphical components of the website causes confusion. We also noticed that users have little control over the website.

For each of these problems, we proposed solutions in hopes of strengthening its overall appearance and structure and creating a user-friendlier environment. As a professional website with hundreds of visits per day, it should provide a sound structure and strong visual appeal. In addition, as a business library website, it should provide content that's structured in a way that students and researchers can have a more pleasurable experience while searching for their own information needs. We hope this heuristic evaluation provides the Kresge Business Administration website a good sense of which areas need improvement to enhance overall user satisfaction.

References

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Appendix A: Heuristics Checklist A

Source: <http://www.stcsig.org/usability/topics/articles/he-checklist.html>

Severity Rating Definition

- 0 Does not pose a usability problem
- 1 Tertiary usability problem; addressable as time permits
- 2 Minor usability problem; low-level priority
- 3 Major usability problem; high-level priority
- 4 Severe usability problem; immediate action needed

1. Visibility of Website Status

The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.

#	Review Checklist	Yes	No	N/A	If Yes, Severity (0 – 4)
1.1	Does every page include a descriptive title or header?	X	O	O	0
1.2	Is there a consistent icon design scheme and stylistic treatment across the website?	X	O	O	1
1.10	Is there visual feedback in navigation menus or dialog boxes about which choices are selectable?	X	O	O	1
1.11	Is there visual feedback in navigation menus or dialog boxes about which choice the cursor is on now?	O	X	O	
1.25	Is the menu-naming terminology consistent with the user's task domain?	X	O	O	1
1.29	If users must navigate between multiple pages, does the website use context labels, menu maps, and place markers as navigational aids?	O	X	O	
	Site map included?	O	X	O	2
	Stand out on the page?	O	X	O	1

Note: Headers and item titles are not descriptive and intuitive only to users. For users who do not use Kresge quite often or are new users, some headers look like they provide similar information but they do not; for example, *Collections* and *Research Tools*, *Library Services* and *About the Library*, or *Course Materials* and *Course Reserves*. Furthermore, the library web site does not include a Site Map but only a Site Index. Site Map can help users be aware that where they are when exploring the web site, while Site Index can provide glossary information to help users understand some professional vocabulary. To improve usability of a complex library website, a well-designed Site Map should be taken into account.

2. Match Between Website and the Real World

The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.

#	Review Checklist	Yes	No	N/A	If Yes, Severity (0 – 4)
2.1	Are icons concrete and familiar?	X	O	O	2
2.2	Are menu choices ordered in the most logical way, given the user, the item names, and the task variables?	X	O	O	3
2.3	If there is a natural sequence to menu choices, has it been used?	X	O	O	2
2.6	Do the selected colors correspond to common expectations about color codes?	X	O	O	3
2.12	Do menu choices fit logically into categories that have readily understood meanings?	X	O	O	3
2.13	Are menu titles parallel grammatically?	X	O	O	1
2.14	Does the command language employ user jargon and avoid computer jargon?	X	O	O	2
2.15	Are command names specific rather than general?	X	O	O	1
2.16	The site index acronyms are avoided where possible?	X	O	O	3
2.17	The site index is brief and informative?	O	X	O	
2.18	Is website information in correct sequence?	O	X	O	

Note: The icons are stable and familiar to a certain degree. Also, the order of menu choices is very logical to the user. Users can find what they are looking for from the title. Those titles are sequenced as follow: the user wants to know where to find the information (Research Tools), the user look for the information in a certain resource (collection), and if he can't find the information they ask the library help. The color does not correspond to common expectation. For example, *Need Help?* is in red, which demonstrate the case of urgent and important. The site index is not brief neither informative. It is very dense and has no explanation about each link.

3. User Control and Freedom

Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.

#	Review Checklist	Yes	No	N/A	Problem Severity (0 – 4)
3.4	When a user's task is complete, does the website wait for a signal from the user before processing?	X	O	O	0
3.8	Can users cancel out of operations in progress?	O	X	O	1
3.10	Can users reduce data entry time by copying and modifying existing data?	X	O	O	0
3.12	If menu lists are long (more than seven items), can users select an item either by moving the cursor or by typing a mnemonic code?	O	X	O	4
3.13	If the website uses a pointing device, do users have the option of either clicking on menu items or using a keyboard shortcut?	O	X	O	4
3.14	Are menus broad (many items on a menu) rather than deep (many menu levels)?	X	O	O	1
3.15	If the website has multiple menu levels, is there a mechanism that allows users to go back to previous menus?	X	O	O	1
3.17	Can users move forward and backward between fields or dialog box options?	X	O	O	2
3.21	Can users easily reverse their actions?	X	O	O	1

4. Consistency and Standards

Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.

#	Review Checklist	Yes	No	N/A	Problem Severity (0 – 4)
4.1	Have industry or company formatting standards been followed consistently in all screens within a website?	O	X	O	2
4.2	Has a heavy use of all uppercase letters on a screen been avoided?	X	O	O	1
4.3	Do abbreviations not include punctuation?	X	O	O	0
4.4	Are integers right-justified and real numbers decimal-aligned?	O	O	X	
4.5	Are icons labeled?	O	O	X	
4.6	Are there no more than twelve to twenty icon types?	O	O	X	
4.8	Does each page have a title?	O	X	O	2
4.9	Are vertical and horizontal scrolling possible in each window?	X	O	O	0
4.10	Does the menu structure match the task structure?	O	X	O	1
4.11	Have industry or company standards been established for menu design, and are they applied consistently on all menu screens in the website?	O	X	O	1
4.12	Are menu choice lists presented vertically?	X	O	O	0
4.14	Are menu titles either centered or left-justified?	X	O	O	0
4.18	Are field labels and fields distinguished typographically?	X	O	O	0
4.22	Are attention-getting techniques used with care?	X	O	O	2 (not used enough)
4.23	Intensity: two levels only	O	X	O	1
4.24	Size: up to four sizes	X	O	O	1
4.25	Font: up to three	X	O	O	2
4.27	Color: up to four (additional colors for occasional use only)	X	O	O	2 (not enough perhaps)
4.30	Are there no more than four to seven colors, and are they far apart along the visible spectrum?	X	O	O	2
4.32	Have pairings of high-chroma, spectrally extreme colors been avoided?	X	O	O	0
4.33	Are saturated blues avoided for text or other small, thin line symbols?	X	O	O	0
4.39	Are menu choice names consistent, both within each menu and across the website, in grammatical style and terminology?	O	X	O	4
4.40	Does the structure of menu choice names match their corresponding menu titles?	O	X	O	3
4.51	Are high-value, high-chroma colors used to attract attention?	O	X	O	2

5. Error Handling and Prevention

Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action.

Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution.

#	Review Checklist	Yes	No	N/A	If Yes, Severity (0 – 4)
5.1	Is sound used to signal an error?	O	X	O	
5.5	Are error messages worded so that the website, not the user, takes the blame?	O	X	O	
5.7	Are error messages grammatically correct?	X	O	O	
5.8	Do error messages avoid the use of exclamation points?	X	O	O	
5.9	Do error messages avoid the use of violent or hostile words?	X	O	O	
5.10	Do error messages avoid an anthropomorphic tone?	X	O	O	
5.11	Do all error messages in the website use consistent grammatical style, form, terminology, and abbreviations?	X	O	O	1
5.15	If an error is detected in a data entry field, does the website place the cursor in that field or highlight the error?	O	X	O	
5.17	Do error messages suggest the cause of the problem?	X	O	O	
5.20	Do error messages indicate what action the user needs to take to correct the error?	X	O	O	1
6.3	Is the menu choice name on a higher-level menu used as the menu title of the lower-level menu?	X	O	O	2
6.4	Are menu choices logical, distinctive, and mutually exclusive?	X	O	O	2
6.13	Does the website intelligently interpret variations in user commands?	O	X	O	
6.14	Do data entry screens and dialog boxes indicate the number of character spaces available in a field?	O	X	O	
6.15	Do fields in data entry screens and dialog boxes contain default values when appropriate?	O	X	O	

7. Recognition Rather Than Recall

Minimize the user's memory load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.

#	Review Checklist	Yes	No	N/A	Problem Severity (0 – 4)
7.1	For question and answer interfaces, are visual cues and white space used to distinguish questions, prompts, instructions, and user input?	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	
7.2	Does the data display start in the upper-left corner of the screen?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	0
7.4	Are all data a user needs on display at each step in a transaction sequence?	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	
7.5	Are prompts, cues, and messages placed where the eye is likely to be looking on the screen?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	2
7.6	Have prompts been formatted using white space, justification, and visual cues for easy scanning?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	2
7.7	Do text areas have "breathing space" around them?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1
7.8	Is there an obvious visual distinction made between "choose one" menu and "choose many" menus?	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	
7.11	Is white space used to create symmetry and lead the eye in the appropriate direction?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	2
7.12	Have items been grouped into logical zones, and have headings been used to distinguish between zones?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	2 (Logical is a stretch)
7.14	Have zones been separated by spaces, lines, color, letters, bold titles, rules lines, or shaded areas?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	0
7.15	Are field labels close to fields, but separated by at least one space?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	0
7.17	Are optional data entry fields clearly marked?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	4
7.21	Are size, boldface, underlining, color, shading, or typography used to show relative quantity or importance of different screen items?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	3 (lacking)
7.22	Are borders used to identify meaningful groups?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1 (lacking)
7.23	Has the same color been used to group related elements?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	2
7.24	Is color coding consistent throughout the website?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	0
7.25	Is color used in conjunction with some other redundant cue?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	0
7.26	Is there good color and brightness contrast between image and background colors?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	0

7.27	Have light, bright, saturated colors been used to emphasize data and have darker, duller, and desaturated colors been used to de-emphasize data?	X	O	O	2
7.28	Is the first word of each menu choice the most important?	O	X	O	2
7.29	Does the website provide <i>mapping</i> : that is, are the relationships between controls and actions apparent to the user?	O	X	O	3

8. Flexibility and Minimalist Design

Accelerators -- unseen by the novice user -- may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.

#	Review Checklist	Yes	No	N/A	If Yes, Severity (0 – 4)
8.2	Does the website allow novices to use a keyword grammar and experts to use a positional grammar?	X	O	O	0
8.14	On menus, do users have the option of either clicking directly on a menu item or using a keyboard shortcut?	O	O	X	

9. Aesthetic and Minimalist Design

Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

#	Review Checklist	Yes	No	N/A	If Yes, Severity (0 – 4)
9.1	Is only (and all) information essential to decision making displayed on the screen?	X	O	O	3
9.2	Does the top level fit on one screen?	X	O	O	
9.3	Is there visual appeal?	X	O	O	
9.4	Are all icons in a set visually and conceptually distinct?	O	O	X	
9.5	Have large objects, bold lines, and simple areas been used to distinguish icons?	O	O	X	
9.6	Does each icon stand out from its background?	O	O	X	
9.7	Are meaningful groups of items separated by white space?	X	O	O	1
9.8	Does each data entry screen have a short, simple, clear, distinctive title?	X	O	O	3
9.9	Are field labels brief, familiar, and descriptive?	X	O	O	2
9.10	Are prompts expressed in the affirmative, and do they use the active voice?	O	O	X	
9.11	Is each lower-level menu choice associated with only one higher level menu?	X	O	O	3
9.12	Are menu titles brief, yet long enough to communicate?	X	O	O	3
9.13	Are there pop-up or pull-down menus within data entry fields that have many, but well-defined, entry options?	X	O	O	0

Note: 9.1 All information present, but redundant

9.7 Title of pages inconsistent

9.8 Category labels fairly covers its sub level links/information

9.10 Some sub links associated with multiple high level links

9.11 Some sub titles confusing and not enough context

10. Help and Documentation

Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.

#	Review Checklist	Yes	No	N/A	If Yes, Severity (0 – 4)
10.3	Do the instructions follow the sequence of user actions?	X	O	O	2
10.6	If menu items are ambiguous, does the website provide additional explanatory information when an item is selected?	O	X	O	
10.7	Are there memory aids for commands, either through on-line quick reference or prompting?	X	O	O	1
10.8	Is the help function visible; for example, a menu item labeled HELP?	X	O	O	3
10.9	Is the help website interface (navigation, presentation, and conversation) consistent with the navigation, presentation, and conversation interfaces of the application it supports?	X	O	O	2
10.10	Navigation: Is information easy to find?	O	X	O	
10.11	Presentation: Is the visual layout well designed?	O	X	O	
10.12	Conversation: Is the information accurate, complete, and understandable?	X	O	O	
10.13	Is the information relevant?	X	O	O	2
10.14	Goal-oriented (What can I do with this program?)	X	O	O	1
10.15	Descriptive (What is this thing for?)	O	X	O	
10.16	Procedural (How do I do this task?)	O	X	O	
10.17	Interpretive (Why did that happen?)	O	X	O	
10.18	Navigational (Where am I?)	X	O	O	1
10.20	Can the user change the level of detail available?	X	O	O	1
10.21	Can users easily switch between help and their work?	O	X	O	

11. Skills

The website should support, extend, supplement, or enhance the user’s skills, background knowledge, and expertise ----not replace them.

#	Review Checklist	Yes	No	N/A	If Yes, Severity (0 – 4)
11.6	If the website supports both novice and expert users, are multiple levels of detail available.	X	O	O	3
11.12	When the user enters a screen or dialog box, is the cursor already positioned in the field users are most likely to need?	O	X	O	
11.14	Is the method for moving the cursor to the next or previous field both simple and visible?	O	O	X	
11.15	Has auto-tabbing been avoided except when fields have fixed lengths or users are experienced?	X	O	O	0
11.16	Do the selected input device(s) match user capabilities?	X	O	O	0
11.17	Does the website correctly anticipate and prompt for the user's probable next activity?	X	O	O	3
11.18	Format consistent throughout the site?	X	O	O	3

Note:

11.6 Not catered towards novice users

11.17 Breadcrumbs not intuitive; inconsistent use of style

12. Pleasurable and Respectful Interaction with the User

The user’s interactions with the website should enhance the quality of her or his work-life. The user should be treated with respect. The design should be aesthetically pleasing- with artistic as well as functional value.

#	Review Checklist	Yes	No	N/A	If Yes, Severity (0 – 4)
12.1	Is each individual icon a harmonious member of a family of icons?	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	
12.2	Has excessive detail in icon design been avoided?	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	
12.3	Has color been used with discretion?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
12.6	Has color been used specifically to draw attention, communicate organization, indicate status changes, and establish relationships?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	2
12.8	Are typing requirements minimal for question and answer interfaces?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	
12.9	Do the selected input device(s) match environmental constraints?	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	
12.13	If the website uses multiple input devices, has hand and eye movement between input devices been minimized?	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	
12.16	Are the most frequently used function keys in the most accessible positions?	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	

Note: Color is not being used effectively to convey meaning about the hierarchical organization of the website. Throughout the website, color is used primarily, if not solely, as an aesthetic, graphic component. Use of color to indicate position in hierarchy, status, or other meanings has not been employed. While it is not necessarily required or imperative, building visual context to related sections or groupings on the site may be helpful for users to better understand the structure and material relationships on the website, thus making their use of online resources more successful.

13. Privacy

The website should help the user to protect personal or private information- belonging to the user or the his/her clients.

#	Review Checklist	Yes	No	N/A	If Yes, Severity (0 – 4)
13.1	Are protected areas completely inaccessible?	X	O	O	
13.2	Can protected or confidential areas be accessed with certain passwords.	X	O	O	
13.3	Is this feature effective and successful.	X	O	O	

Note: The Kresge Business Administration Library website utilizes a university-wide system called Kerberos that manages user access to restricted areas of websites. Kerberos is linked to staff, faculty, and student accounts and provides access only available to that population of the community. It is successful in both providing and restricting access according to the status of the person utilizing the online resources. It is managed by the university and not the Ross School of Business, though Ross has some input into who shall receive access to their online resources and who shall not.

Note: Non-consecutive numbers coincide with the original ordering of the STC heuristics checklist. Numbering was retained in order to have a method to backtrack and compare the two versions. Non-numbered items were brought in from a second heuristic checklist, which is provided in Appendix B.

Appendix B: Heuristics Checklist B

Source: <http://alianet.alia.org.au/publishing/aarl/32.2/full.text/raward.html>

Severity Rating Definition

- 0 Does not pose a usability problem
- 1 Tertiary usability problem; addressable as time permits
- 2 Minor usability problem; low-level priority
- 3 Major usability problem; high-level priority
- 4 Severe usability problem; immediate action needed

#	Review Checklist	Yes	No	N/A	Severity Ranking (0-4)
1. Finding the Information					
1.a	Does the site include staff contact details?	X	O	O	0
1.b	Are services clearly stated?	O	X	O	3

While there is a section for library services, it is not very user-friendly as it is text heavy without a lot of valuable information provided. Researching what people would expect to find in this section, instead of what is presented, would help to make it a more meaningful and used section of the website. It would be helpful if the top-level category, "Library Services," had a landing page with a brief description of what would be detailed in the subtopics. The subtopics currently handle administrative or logistical information about using the library resources and do not spend much, or any, time explaining the use or benefits of said resources.

1.c	Is there a purpose statement?	O	X	O	1
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Although there is no purpose statement, it is unlikely that one is needed. It can be expected that if the website had such a statement that traffic to the page containing the statement would be low. It is apparent in the nature of the website what it's purpose is.

1.1 Index					
1.1.1	Index included?	X	O	O	
1.1.2	Entries in alphabetical order?	X	O	O	
1.1.3	Secondary and tertiary entries included?	O	X	O	1

The Site Index provides an alphabetical listing of primary resources on the website. It does provide links to collection topics, from which users can find related resources. It may provide more meaningful context to build in a relational table in the Site Index that addresses these additional resources instead of having to follow the link. However, since this is addressed elsewhere (and more prominently) in the website, it would be a low-level priority.

1.2 Site Map			
1.2.1	Site map included?	O X O	3
1.2.2	Links in site map correct?	O O X	
1.2.3	Headings within page labeled correctly?	O O X	
1.2.4	Capitalization, spelling and punctuation correct?	O O X	
1.2.5	Acronyms avoided where possible?	O O X	
1.2.6	Headings (choose one page at random)	O O X	
1.2.7	Brief and informative?	O O X	
1.2.8	Stand out on the page?	O O X	
1.2.9	At least one heading on every page?	O O X	
1.2.10	Accurately reflects tasks or information?	O O X	

The website does not include a Site Map. It may be inferred that because a Site Index is provided that this is the reason for omitting a site map. However, a Site Index and Site Map provide different types of information. The latter provides a visualization of how pages relate to one another. If a user is struggling to recreate a previous search path, a Site Map can act as a tool to help them retrace his/her steps. It is strongly advisable that a Site Map be incorporated into the website. If the Site Map can be designed to update automatically as the website expands and contracts, the more useful and current it will be.

1.3 Searching

1.3.1	Is a search tool of the site included?	X O O	
1.3.2	Choose the topic 'How do I borrow books?'	O O X	
1.3.3	Was this topic easy to find?	O X O	4

The search tool, which is displayed prominently on the home page, provides several ways to search. A user can search, “In our catalog,” with “Find.It.Fast!,” “On Our Site,” and with Google. A user can also search from a selected list of databases. Unfortunately, the search tool does not follow the user’s expected task process. It has become convention that after entering a query into a text box hitting the Enter key should be sufficient for submitting the query to the server. However, is the user does so it refreshes the page and not only is the query not performed, the string in the text box is lost. Instead, users are required to click on one of two “Go” buttons in order to perform their search. Addressing this usability issue would improve the user experience by leaps and bounds.

Additionally, performing the simply query, “How do I borrow books,” returned no meaningful results. Supporting natural-language queries and using more user-oriented vocabulary and semantics on the website would also improve the usability of the search tool feature.

1.4 Currency of Information

1.4.1	Is the date of the last update indicated?	O	X	O	
1.4.2	Is it included on every page?	O	O	X	1
1.4.3	Is new information indicated in some way?	X	O	O	
1.4.4	Is there a 'What's New' Page?	X	O	O	

The Kresge Library website does not include “last updated” indicators on the bottom of each page. This is a useful indicator of how current and relevant the information is. On the other hand, for information that does not change frequently, it may give users the wrong impression about the accuracy of the information as well as the ongoing maintenance of the website. For this reason, adding such a feature should be at the discretion of the site administrators and what they believe is best.

The website does have a “In the Spotlight” section under which is a link to a news blog where information on new features is posted. Unfortunately, the blog link is only available on the home page of the website. It may provide more meaning and usefulness to incorporate the blog content into the homepage or otherwise display it more prominently. If the homepage were to feature regularly updated blog entries that related to the website’s resources as well as the library’s activities, it would signal to users that the website is an extension of the library (a living organization) and that both are active and changing. It would also give immediate access to changes, developments, and new features on the website, which would be helpful in trying to familiarize students with all that is available to them for coursework and research.

1.5 Finding an Answer

1.5.1	Choose a simple fact - can a user find it?	X	O	O	
1.5.2	Can the user find the answer in 2 minutes?	O	X	O	

Used the Course Materials vs. Course Reserves query from the Scenario. Labels are confusing as it is not entirely clear how they distinguish from one another. Additionally, the layout and access to course materials is not immediately obvious from the results page.

1.6 Authority of Information

1.6.1	Are links to outside resources reliable?	X	O	O	
1.6.2	Are links to outside resources appropriate?	X	O	O	
1.6.3	Are resources current?	X	O	O	
1.6.4	Are links to other resources suitable?	X	O	O	

External links are either to University of Michigan webpages, the umbrella Library website, or to purchased/subscribed-to databases. In each case the resources are relevant and appropriate.

1.7 Comments Page

1.7.1	Can comments be made about the site?	X	O	O	
1.7.2	Is it possible to get feedback?	X	O	O	
1.7.3	Is it possible to ask questions?	X	O	O	
1.7.4	Is it possible to get help?	X	O	O	

The library staff has done a good job providing multiple channels for students to request help or seek out documentation online. In all likelihood, regardless of the success of the website, these tools would be required. However, it may prove that they are less often utilized if changes to the content and structure of the website are amended to support user tasks and skill levels.

1.8 Responsibility for Page

1.8.1	Is it clear who has responsibility for the page?	X	O	O	
1.8.2	Are phone, fax, or postal address included on the top page?	X	O	O	
1.8.3	Are contact details, such as email, included on each page?	X	O	O	

2. Understanding the Information Organization of the Site

2.a	Are headings user friendly?	O	X	O	3
2.b	Are headings jargon free?	X	O	O	
2.c	Are headings intuitive?	O	X	O	3
2.d	Heading levels appropriate to level of detail?	O	O	X	

2.e	Headings task based?	O	X	O	3
2.f	Structure of lists parallel?	O	O	X	
2.g	Each paragraph has main idea?	O	X	O	3
2.h	Presentation moves from general to specific?	O	X	O	3
2.i	Presentation moves from simple to complex?	O	X	O	3
2.j	Limited to appropriate and necessary topics?	X	O	O	
2.k	In correct sequence?	O	X	O	
2.l	Procedures task oriented?	O	X	O	

As mentioned previously, while the headings may be intuitive to librarians, they are not so for students and novice users. Identifying the appropriate vocabulary set and building a taxonomy that is repeated throughout the website is needed for consistency and ease of use. The term “Collections” does not immediately invoke meaning for novice users nor does it adequately distinguish itself from “Research Tools.” Headings, content, and structure are often times not task-oriented but rather service/feature oriented. Formatting content from general/simple to specific/complex is not often employed. Webpages can be text heavy and not informative. Simplifying content and providing different levels of detail will make it more user-friendly.

2.1 Style and Text

2.1.1	Style conforms to the desired style?	X	O	O	
2.1.2	Active and passive voices used appropriately?	X	O	O	
2.1.3	Second person used appropriately?	X	O	O	
2.1.4	Present tense predominates?	X	O	O	
2.1.5	Reading level acceptable?	X	O	O	
2.1.6	One-sentence paragraphs used sparingly?	X	O	O	
2.1.7	Sentences simple but not terse?	X	O	O	
2.1.8	Is scanability good?	O	X	O	3
2.1.9	Is text simple, concise, clear?	O	X	O	3
2.2.1	New terms highlighted and defined when first used?	O	X	O	1
2.2.2	Consistency of terms used?	X	O	O	1

2.2.3	First occurrences of abbreviations follow spelled out words?	O	X	O	1
2.2.4	Level of technical terms appropriate to audience?	O	X	O	2

Many of the instructional pages are text-heavy and make it difficult to easily and quickly identify the needed information. Providing more concise and simple instructions along with levels of granularity, should make it easier for users. Additionally, users are becoming more and more impatient with searching the Internet. If they cannot locate what they are searching for in under 30 seconds (or likely less time) they likely to move on to another page. Addressing user habits by weeding out unnecessary text is a high-level task.

3. Supporting user tasks (Interactive tasks)

3.a	Are reply forms shorter than one page?	X	O	O	
3.b	Are forms easy to follow?	X	O	O	

3.1 User Questions

3.1.1	Are Frequently Asked Questions (FAQ) included for the site?	O	X	O	2
3.1.2	Are Frequently Asked Questions (FAQ) provided at a task level?	O	X	O	2
3.1.3	Are Help Screens included at a task level?	O	X	O	2

The website does not provide a FAQs section. It is not a very urgent problem since most FAQs pages are not helpful for users just by the nature of their construct. It would be better to address questions/problems in a more meaningful way but building it into the content of the website.

4. Presenting the Information Display and Download Speed (Choose 3 Pages at Random)

4.a	Home page displays within 10 seconds with a 33.6 modem?	X	O	O	
4.b	If not, is there feedback indicating the delay?	O	O	X	
4.c	Is each page size under 70k?	O	X	O	1
4.d	Are graphics under 25k in size?	O	X	O	1
4.e	Are 'alt' statements included if graphics are turned off?	O	X	O	3
4.f	If more than 5 graphics on a page, are they 15k or smaller?	O	X	O	1
4.g	Is there visual appeal?	X	O	O	
4.h	Is there advance notice before downloading large files?	O	O	X	
4.i	Are thumbnail pictures at least 2.5x5.0 cm?	O	O	X	

4.j	Do the pages display on an average sized screen?	X	O	O	
4.k	Does the top level fit on one screen?	X	O	O	
4.l	Does the page work on different browsers?	X	O	O	
4.m	If image maps are used are redundant text links provided?	O	O	X	
4.n	If frames are used does each frame have a heading?	O	O	X	

4.1 Disability Access

4.1.1	Does the page provide a text equivalent for every non-text element?	O	X	O	3
4.1.2	Is information conveyed with color also available without color?	O	O	X	
4.1.3	Are documents organized so they may be read without style sheets?	X	O	O	

The website does not provide alt text for all graphic content. It does for many, but most notably, there is no alt text for the bottom of each page, which is one big block of graphics-based text for links and contact information. Most pages, with the inclusion of graphics, exceed 70k. This is no longer a major area of concern since most users have faster connections. It may become more important to address these concerns as mobile devices become more commonly used, but that is a matter for another day.

4.2 Links

4.2.1	Is there at least one link on every page?	X	O	O	
4.2.2	Are links unbroken?	X	O	O	

4.3 Navigation

4.3.1	Are there clear navigation tools included on all pages?	X	O	O	
4.3.2	Is there Navigation back to home page?	X	O	O	
4.3.3	Is there Navigation up and down within a page?	X	O	O	

4.4 HTML Format (Choose one page at random)

4.4.1	Is standard HTML code used?	X	O	O	
4.4.2	Has metadata been used?	O	X	O	2
4.4.3	Is the page HTML error free?	O	X	O	3
4.4.4	Are width and height attributes included on all images?	X	O	O	
4.4.5	Are width and height attributes included on all tables?	O	O	X	

The website is not W3C compliant for transitional HTML markup. Metadata is used sparingly.

4.5 Text Format

4.5.1	Format consistent throughout the site?	X	O	O	
4.5.2	Figures and tables aligned correctly?	X	O	O	
4.5.3	White space used effectively?	O	X	O	3
4.5.4	Information presented in readable blocks?	O	X	O	2
4.5.5	Major topics begin on separate pages?	X	O	O	
4.5.6	Are sentences complete within web screen?	X	O	O	

There needs to be a greater white space to text ratio to make the pages more friendly and readable. The home page as numerous links (many redundant from top dropdown navigation.) This can be intimidating for new and novice users. While the design of the page has attempted to create sections of related content, it is still busy and not immediately obvious what is occurring on the page.

4.6 Mechanics (Choose 5 pages at random)

4.6.1	Are spelling, grammar and punctuation correct?	X	O	O	
4.6.2	Printing?	X	O	O	
4.6.3	Do all the text and graphics print on A4 paper?	O	X	O	

The website does not have a print stylesheet and so printing can be problematic when pages are printed on multiple sheets and unwanted graphics are printed as well.

Appendix C: Scenario

It is the second week after the Spring Break. This morning Kent has a summer internship interview with Walt Disney Corporate Strategy and Business Development Group (WDC) at 11:00 am. Although this position is a consulting intern in a non-consulting company, he wants to prepare well because he has already got another interview with McKinsey & Company next week. Kent finishes his breakfast early and goes to Kresge databases to find out more information about the consulting industry and WDC.

At the log in page, he finds himself unable to log in. There is an error page that reads, “Authorization Failed. User [kturner] Not Found in database of iMPact Users.” He is puzzled by the message since he did not see this before, but he thinks he might enter the wrong unique name and password because he does not always get up so early to do his homework. He tries again and successfully gets access to the Ross Business School intranet, which provides him unlimited use of Kresge resource.

Kent only used the databases once or twice before to look up company profile and industry survey, but he is not sure where to find info about WDC. Kent spends a few minutes on exploring the Kresge homepage and find *Database Finder* under the *Research Tools* heading, and then clicked to try this out. Kent is a little annoyed with too much text on the library homepage. More badly, unfortunately, he does not have much luck there. The database does not retrieve any of the search terms he tried: WDC info, WDC consulting group, WDC Strategy group, company information.

Kent feels he has wasted enough of his time, and immediately sends an email to Nancy Karp, a Kresge librarian he knows with a focus on Marketing. Then Kent goes directly to Walt Disney web site to look up general company information. Luckily Nancy replied Kent within 10 minutes. She suggested Kent to use *A-Z Database Listing* and try either the *WetFee.com*, *Vault Online Career Library* or *Thomson Research* database to find the information. From there, Kent is able to find the information he needed about WDC. He finally gets a good stock of insights about what working for WDC Strategy Group might be like. Undoubtedly, he performs quite well in the interview.

After completing the interview, it is already noon. Kent goes to Starbuck to review his schedule while having something to eat. He finds out he has a class for the course *Designing Persuasive Communication* from 3-6pm. Also, the professor assigned an article named *Ethics and international marketing* and the material was available electronically at the Kresge Library website. Usually professors put things like this up on Ctools course site. Because the unhappy experience he had this morning, Kent feels a little annoyed that he has to use the Kresge website again.

Kent opens the web browser *Firefox* and typed *international marketing* into the search box on the Kresge homepage. After hitting “Enter”, the page only refresh a bit and the search box clears by itself. On the second try, he clicked on the *Go* button instead and this retrieves six results. However, none of these is the required reading. Kent has no choice but gets back to the Kresge homepage by

clicking the Kresge logo on the top of that page and tries to find whether there is another way to find that article. He notices that there are two categories look like what he wants: *Course Materials* and *Course Reserves* under the *Library Service* category. He cannot tell the differences between “materials” and “reserves” so he just clicks the two links one by one. From *Course Materials* session, Kent only finds a full screen of instruction about how to order the course materials but not get access to from the library web site. Then he has to back to Kresge homepage and tries the *Course Reserves*. He finds that he could choose searching *by course* or *by instructors*. This time he dose not want to go back and forth again between this category page and retrieved result page but gets nothing desired back, so he opens *by instructors* link in a new tab and tries to search in two methods together. He first enters the course number MKT407 in *by course* search box and hits “Enter”, then enters the professor’s name in the search box on *by instructors* page. It is the best experience Kent has in using Kresge today, because the same result is retrieved in the two search boxes within a short time. He clicks on the call number link next to *Net Library* on the *by course* page, but this trying just refreshes the page. By now Kent is a little irritated that it was so time-consuming to look up only one article. Due to the reading is required and he has almost get it, he reads over the page and finally realizes there is a link to *preview* or *check out* the book from *Net Library* above the listing of each copy of the book available at Kresge. Kent feels the un-straightforward interface and unclear menu structure of the library website leave him an awful impression. He decides not to use the Kresge later until it is necessary or required.

Appendix D: Persona



Background

Kent Turner is a 20 year-old sophomore from Cincinnati, Ohio. He is a full-time marketing student at the Ross School of Business. Although not currently employed, he enjoys staying involved by participating in student groups such as UMBSA and the Marketing MBA Club. He likes living on-campus due to his tight daily schedule. Kent spends a lot of time studying and attending classes, seminars, and attending organization planning meetings and events. Most of his course assignments are case-study or case-analysis, so he doesn't have many long papers to write. Kent uses a Lenovo T60 E series laptop with high-speed, wireless Internet access at home and around school. When he has spare time, he enjoys reading, running, and playing with his cat Mable.

Comfort Levels

Computers

MMM

Internet

MMM

Online Research

MM

Web Usage

Kent first started using computers in elementary school. He is comfortable with most common applications, but he takes his computer to the shop for maintenance and repairs and often calls a buddy for complicated installations. He typically spends between three and four hours online daily—mostly studying, researching companies, and socializing with friends.

Online Research

Kent likes using Google and Wikipedia to research the latest marketing news and cases. Kent is hoping to get an internship at a top consulting company this summer and often uses databases such as Vault and Monster to find information about companies and preparing for interviews.

When researching online, Kent sometimes uses the Kresge website and other campus libraries websites. However, he often finds the interfaces confusing and time-consuming. Kent wants a website to be simple and straightforward so he can efficiently locate the information he is seeking. When Kent can't find something on Google or at the Kresge website, he usually emails one of the Kresge librarians for help.