

Project Cover Sheet

MTagger Usability Evaluation

Cognitive Walkthrough and Heuristic Evaluation

Project

MTagger is an online social bookmarking tool using “tags” within MLibrary at the University of Michigan. The cognitive walkthrough was deployed as a narrow evaluation of this interface’s ability to facilitate learning and problem solving; the heuristic evaluation was an exhaustive evaluation of this interface’s features to determine a broad range of issues related to usability.

Committee & Members

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Report Date: May 2008; Last Revised: June 2008

Objectives

The goal for these evaluations was to reveal a preliminary set of issues pertaining to the usability, functionality and aesthetics of MTagger and to facilitate prioritizing further benchmarks.

Methodology

Method – Cognitive Walkthrough Evaluation (Matt Schultz) and Heuristic Evaluation (Jacob Solomon)

Dates of study: May 2008

Results & Analysis

Twelve significant problems were identified related to terminology, iconography, cumbersome login authentication, inconsistency of features, and a variety of others.

Recommendations

Conduct surveys and interviews of library users in order to gain a clearer understanding of search behavior in MTagger. Perform “guerilla” tests and full scale usability tests to evaluate issues of user type, terminology, and integration.

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Executive Summary

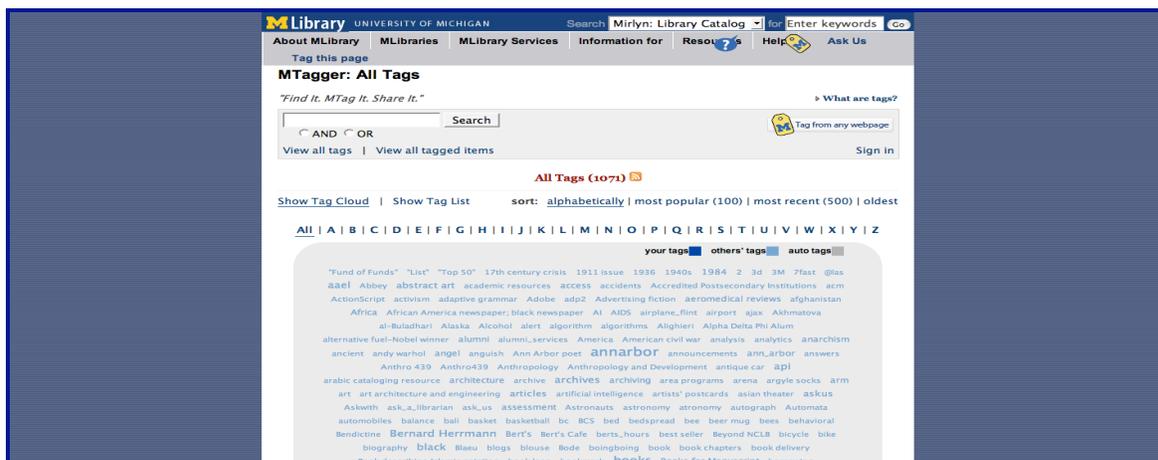
The Usability Working Group at the University of Michigan Library has chosen MTagger, the recently implemented online social bookmarking tool, as its Summer 2008 university digital resource to be evaluated. The goal of evaluating MTagger is to optimize its usability, functionality and aesthetics both for University students, faculty and staff, as well as for those outside of the university who find its features helpful for their various purposes.

As a preliminary measure to help the UWG identify a broad range of issues related to MTagger, two Usability Interns (Jacob Solomon and Matt Schultz) conducted a set of formal evaluations on the system. Their findings may be used to guide the prioritization of further usability benchmarks. These evaluations consisted of a cognitive walkthrough and a heuristic evaluation.

The purpose of this report is to briefly detail the range of usability issues identified during the course of these two evaluations and to offer some potential recommendations or steps for further consideration. The findings listed throughout this report are not intended as final verdicts on the priority of these issues, merely to stimulate discussion and focus the UWG on determining what subsequent usability methods will best serve the larger goal of improving MTagger for its users.

In total, the combination of the cognitive walkthrough and the heuristic evaluation revealed at least 12 significant issues related to MTagger's usability, functionality, and aesthetics. These ranged from problems with terminology, iconography, cumbersome login authentication, inconsistency of features, and a variety of others that will be detailed in full throughout the body of this report. In light of these findings, the UWG has a documented range of problem issues around which to prioritize further evaluations.

Introduction



MTagger was launched in February 2008. Like many other social bookmarking tools, MTagger allows users to assign keywords to web pages using language that makes sense to them. Tags and the items they describe can be searched and seen by other MTagger users.

MTagger is both a resource collection and resource discovery tool. It aims to provide a way for users to collect web pages and resources for personal organization and retrieval. When an item is tagged, it also facilitates other users in the discovery of materials often obscured by the many silo type structure of the library resources.

Unlike other tools, MTagger offers tag "collections," which enable users to search or navigate to similarly tagged items within just the catalog, digital image collections, etc. While tags themselves allow people to serendipitously find items in other collections, the "collections" highlight the library's broad resources.

Methodology

A cognitive walkthrough was performed on MTagger for this preliminary stage of assessing the interface's potential usability issues. A cognitive walkthrough is a narrow assessment of a system's ability to handle a user's unfamiliarity with its features in the pursuit of their specific goals. Under this evaluation, the interface is scrutinized for how well it cooperates with a user's inherent problem solving skills. For this reason, what is of greatest consideration is the user's personality and goals, as well as the system's terminology and ability to provide the user with feedback concerning their progress in navigating the interface (Wharton, et. al., 105-141).

The evaluator (Matt Schultz) created three fictitious (yet likely) users whose identities tried to encapsulate the little that is known about current and potential users of MTagger. These representative users were then assigned goals that both took into consideration the existing features of MTagger, but furthermore simply prioritized the needs of the user

regardless of the system's ability to meet them. In addition, these goals were fashioned in such a way that they could strategically reveal any and all major issues related to the primary features of Searching and Browsing tags and collections. For each user goal, the evaluator then documented the "actual" steps/actions that a user would execute to achieve a "successful" goal. At each step/action four questions were considered:

- 1.) Will the user be trying to achieve the right (intended?) effect?
- 2.) Will the user notice that the correct action is available?
- 3.) Will the user associate the correct action with the effect trying to be achieved?
- 4.) If the correct action is performed, will the user see that progress is being made toward solution of the task?

The evaluator observed breakdowns and deviations from the actions for each user in the pursuit of their goal, and detailed a brief summary of those issues that arose for that user. At the conclusion of running each representative user through their actions and goals and noting the breakdowns, a Final Summary of issues related to usability, functionality and aesthetics was compiled. The representative users, their goals, action steps and summary breakdowns can be found in Appendix A.

Concurrently, a heuristic evaluation was performed on the MTagger system in order to extract violations of established usability standards. MTagger was evaluated according to the ten usability heuristics defined by Jakob Nielsen (these are listed in Appendix B). The evaluator (Jacob Solomon) performed over one hundred separate tasks using MTagger and took notes of the strengths and weaknesses of the system in performing the tasks and satisfying the heuristics. Some tasks were chosen in order to test a specific heuristic. For example, the evaluator purposefully made errors to test the "Control and freedom" heuristic that demands that mistakes are easily undone. Other tasks were performed out of curiosity or merely out of the expectation that such a task would be commonplace or useful to users.

The evaluator assigned a score of 1, 2, or 3 to MTagger based on its satisfaction of each heuristic. A score of 1 meant that MTagger had critical problems satisfying the given heuristic. A score of 2 meant the heuristic was satisfied to some extent but not perfectly. A score of 3 meant that MTagger satisfied the heuristic at a level acceptable to the evaluator. The scores were then used to prioritize further discussion and evaluation by the authors of the most pressing issues in MTagger. In addition to the heuristics, notes were taken separately about issues not covered by the heuristics but nonetheless seemed significant to the evaluator. These notes are also contained in Appendix B.

Both evaluators then proceeded to share, compare, and contrast the various findings that emerged from their separate evaluations. After much discussion, it was clear that these two complementary examinations—the narrowly-focused cognitive walkthrough and the exhaustive heuristic evaluation—worked very well to surface the twelve following issues.

Issues and Recommendations

Issue #1:

The tag cloud presents the option to search for tags. Clicking on the link does not bring up a search box, but instead changes the text to “+All tags & items +Collections.”



Entering a phrase and clicking [go](#) takes the user to the search results, but selecting a collection and/or a tag and clicking [go](#) merely takes the user to an MTagger page with a search box and a list of results for a tag or a collection, while a query still needs to be entered. This step is unnecessary and potentially distracting.

Once users leave the current page and enter MTagger by clicking [Collections](#), they are presented with new information (an entirely new web page and a list of all items in the selected collection or tag) yet they have not yet entered a search query. This distraction leads to the user having to recall search goals, which may have left short term memory. This is a violation of Nielsen’s “Recognition versus recall” heuristic. It also violates Nielsen’s “Aesthetic and minimalist design” heuristic by providing unrequested information.

Recommendations:

Clicking “Search tags…” should take the user directly to a clean MTagger search page, incorporating drop down menus, bubbles, or another mechanism to allow the user to pre-sort results. This page should be minimalistic with links to other options such as tag clouds or browsing.

Issue #2:

When a search is performed, the user is given a list of items with the ability to “toggle” results on and off from specific collections. This sorting function is not well expressed by the term “toggle” followed by x’s used to close collections. Nielsen explains that “the system should speak the users’ language, with words, phrases and concepts familiar to the user, rather than system-oriented terms.”

“Toggle” may not be understood by all users. Terms such as “SPO” and “Image Class” may also be unfamiliar to users, with no easy resource available explaining these collections. The cognitive walkthrough confirmed the challenge of this piece of the interface.



Recommendations:

Replace the word “Toggle” with “Show/Hide.” Replace the x on each icon with “hide,” and include “show” when the collection is closed.

Issue #3:

“Help and documentation” is a crucial usability heuristic for which MTagger has a few minor flaws. First of all, it does not give a definition for one of the important terms used throughout the interface: *collection*. The help document explains “What can be tagged,” but does not label this list as collections. When listing the existing collections, it does not

match the titles of each collection with the labels which will be used at other points in the interface. Scholarly Publishing Office is described in the help documentation, yet its acronym SPO is used in other parts of the system.

Recommendations:

Include a definition of a *collection* in the help document. List the acronym SPO in parentheses after “Scholarly Publishing Office.” Use the term “Image Class” in the help documentation instead of “Digital image collections.”

Issue #4:

Novice users or those unfamiliar with tagging are unlikely to discover motivation or quickly find explanation of the benefits of tagging from the help documentation. If the user clicks [About MTagger](#), they are taken to a paragraph that only explains the benefit of tagging as a service to others, not to themselves.

Research on the Amazon.com tagging system has found that there are other significantly more powerful motivations for tagging. (Zollers, 2007) Tagging only for the benefit of others seems unlikely to elicit the level of participation needed to sustain a critical mass of tags needed to make tagging realize its potential.

Recommendations:

Inclusion of the personal benefits of tagging at the beginning of the help document, as well as further study of motivations for tagging is recommended. Furthermore, application of generative theories to explore potential additions or adjustment to MTagger in order to elicit higher participation based on motivations is also suggested.

Issue #5:

During the cognitive walkthrough many of the representative users were required to login and authenticate their access in order to begin making use of the MTagger features. It was immediately revealed that the panel that opens up to walk the user through the login process, and handle the tag application, was not sized appropriately to facilitate immediate username and password entry.



Recommendations:

This particular problem was tested within Internet Explorer, Safari, and Firefox web browsers and evidenced itself. To the degree to which the system handling the MTagger view files can be adjusted to determine a larger frame, this update will facilitate the user's intention to carry out the intended action.

Issue #6:

During the cognitive walkthrough one of the representative users was not affiliated with the University of Michigan and was required to establish a "Friend Account" in order to make use of the MTagger features. When the login authentication window (same as above—user clicks on [create one now](#)) appeared, the process of setting up the "Friend Account" was cumbersome (detailed instructions displayed below), involving many steps.

Examples: "occult fiction" wom?n e-Journals and Newspapers Research Guides

http://www.itd.umich.edu - ITCSDocs: How to Set Up a Friend Account for Gu... phies

weblogin: ITCSDocs: How to Set Up a Frie...

Central Services at the University of Michigan

Search for documents: Search

How to Set Up a Friend Account for Guest Access to U-M Computing Resources

S4316 • February 2007

This document tells how to set up a U-M guest computing account—called a Friend account.

Table of Contents

- [What is a Friend Account?](#)
- [How to Set Up a Friend Account](#)
- [Using Your Friend Account](#)
- [Getting a Friend Account Authorized to Use a Service](#)
- [Changing Your Friend Password/If You Forget Your Password](#)
- [Frequently Asked Questions](#)
- [Additional Resources](#)

What is a Friend Account?

A Friend account is basically a U-M guest computing account. It allows someone who does not have a U-M username and UMICH Kerberos password to

Information Journals library homepage library search

mlibrary news research

zotero

University Library, University of Michigan
Comments?
Last Updated: 08:09 AM EDT on Monday, Apr

https://friend.weblogin.umich.edu - University of Michigan: Friend A...

weblogin: University of Michigan: Friend A...

UNIVERSITY OF MICHIGAN WEBLOGIN

REQUEST A FRIEND ACCOUNT::

To request a Friend Account, enter your e-mail address. Your e-mail address will be used for login ID.

Your e-mail address:

Please note: Friend account creation and login require that your browser accept "cookies." browser's documentation or help system for assistance enabling cookies.

By using this service you agree to adhere to [U-M computing policies and guidelines](#).

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University of Michigan-Dearborn, MI 48129 USA 313-592-5000
University of Michigan-Flint, MI 48902 USA 810-762-3000

friend.weblogin.umich.edu zotero

Upon submitting a request by the user then had to close down the login window, and navigate away from MLibrary to their e-mail account. Unless the user has configured their browser to tab windows appropriately it becomes tedious to re-locate the item that they desired to tag. Furthermore, they then have to start the login process all over again.

Recommendations:

It seems counterproductive to create an affordance for outside users

(particularly prospective students) to experience MTagger, but then require so much effort for them to begin making use of those features. Perhaps the designers of MTagger can bring it to the attention of U-M Computing to encourage the streamlining of the "Friend Account" process, perhaps doing a more explicit job of explaining why it is valuable for the user to go through the time and effort, as well as allowing the process to start and complete within the original login window, and then continuing onward to the tagging features.

Conversely, the MTagger team could create a more dedicated guest account option that is strictly for MTagger.

Issue #7:

A similar issue is encountered when a user is employing the “MTag From Any Webpage” feature on a webpage outside of the MLibrary collections. Clicking on the bookmark label opens the login window, and then proceeds to provide the user with the tagging features. This is all very similar to Del.icio.us. In both systems the user is not given the option of re-directing to their account after applying the tag, despite the fact that the user may desire to work one of two ways: they may want to continue surfing the Web, or they may desire to organize their new tagged bookmark.

The image shows two browser windows side-by-side. The left window is Del.icio.us, displaying a form for tagging a bookmark. The right window is MTagger, displaying a form for tagging a webpage. Both forms have a 'Done' button. A red circle highlights the 'Done' button in the MTagger window, and a red arrow points from it to a text box that reads: "There needs to be more flexibility for the user to handle their collection behavior!".

Recommendations:

When the user is about to press the “Done” button to submit their tag(s), it might be appropriate to have two options available for submitting: “Submit and Continue Surfing the Web” and “Submit and Continue to MTagger Account”. The first option would merely close the window, and the second would re-direct to the user’s MTagger account.

Issue #8:

The “MTagger: All MTags” page within the architecture of the MTagger system is the page which is returned as a top result by performing a Google search on “MTagger”. Despite the fact that this particular page offers the entire range of options for searching, Browsing or accessing your account details it is not clearly identified as the MTagger home page interface. Furthermore, as users are encountering the Tag Clouds available throughout the MLibrary collections there are no links available for them to access an

MTagger Home Page. This is a basic feature provided by most distributed information architectures.



Recommendations:

The terminology on the MTagger: All Tags page should merely be re-worded to express that this particular page is the central hub for making use of the full range of tagging features. In addition, access to this page should be provided in the various tag clouds.

Issue #9:

There is an issue of consistency between tagging items from MLibrary, Image Class, SPO, and Mirlyn. All MLibrary web pages have the MTagger logo in the top right corner and a tag cloud in the bottom left. Users can tag MLibrary pages from both these locations. In Mirlyn, however, only a tag cloud at the bottom is present. Users accustomed to tagging from the top right icon may not see or think to tag from the tag cloud, especially since many Mirlyn, SPO and Image Class pages require scrolling to make the tag cloud visible. Nielsen's consistency heuristic has been overlooked.

The tag cloud is not visible without scrolling

This logo should appear here

Recommendations:

Display the MTagger logo, as well as “Tag this page” text, to all collections of the library which can be tagged by MTagger.

Issue #10:

During the cognitive walkthrough, one representative user was specifically seeking any online articles that other contributors to MTagger may have “tagged”. Unfortunately, the only option the user has for prioritizing their search in the present version of the system is to “toggle off” all the other collections and retain the “Other” category. They then have to manually sort through each tagged item to locate the desired item type.

U-M Libraries Search [view/tag item]

http://www.engin.umich.edu/search/query?restrict=library_public&q=things
 In collection: Other
 Tagged As: things (1)
 Tagged By: bertrama

PJ Scout (Jobs by E-mail) - NationJob.com Careers, Work & Employment opportunities [view/]

<http://www.nationjob.com/aviation>
 In collection: Other
 Tagged As: **Not Tagged**
 Tagged By: **No Taggers**

The Foundation for Child Development: Improving child well-being and promoting educational success by Third Grade [view/]

<http://www.fcd-us.org/>
 In collection: Other
 Tagged As: child care (6) PK-3 (1)
 Tagged By: spelak

It is not clear what types of sources/documents these are (i.e. research papers, abstracts, websites, online journals, etc)

Recommendations:

It might be helpful to encourage some sort of document type selection at the time of creating and applying tags to a particular item, and then subsequently display this information at the results level.



Currently Mirlyn employs an icon schema for various things like books, digital resources, etc. in the catalog results display. Allowing the user to designate their material type by some similar selection of various icons corresponding to the range of different sources one might encounter when employing the MTagger service, would make sifting through these results more efficient.

Issue #11:

The cognitive walkthrough revealed that users with narrow search goals can become distracted by the size and intrusiveness of a large tag cloud in the search interface of MTagger. Users who have not entered the system with the intention of browsing may be enticed to do so by the tag cloud, lowering the speed and efficiency of their search. This violates the minimalism heuristic by providing unnecessary information.

The screenshot shows the MTagger interface with a search bar and a large tag cloud. A red box highlights the text: "The excessive amount of information is distracting to users with focused, narrow search goals". The tag cloud contains a wide variety of tags, including "Fund of Funds", "Laf", "Tag 50", "17th century", "1011 issue", "1026", "1040", "1054", "2", "34", "3M", "7net", "@las", "886f", "Abbey", "abstract", "academic", "news", "accidents", "Accredited Postsecondary Institutions", "amb", "Admission", "advisem", "adaptive", "grammar", "Adobe", "adgc", "Advertising fiction", "aeromedical reviews", "alphabetists", "Africa", "African", "America", "newspaper", "black", "newspaper", "AI", "AIDS", "airplane", "flint", "airport", "ajar", "Abkhaz", "al", "Buladhari", "Alaska", "Alcohol", "alert", "algorithm", "Alighieri", "Alpha Delta Phi", "Alum", "alternative fuel", "Nobel winner", "alumni", "alumni_services", "America", "American", "civil war", "analysis", "anachronism", "ancient", "andy", "washol", "angel", "anguish", "Ann Arbor", "paet", "Binnabor", "announcement", "ann", "labor", "anawes", "Anthro 430", "Anthro430", "Anthropology", "Anthropology and Development", "antique", "car", "API", "arabic", "cataloging", "resource", "architecture", "archive", "ARCHIVES", "archiving", "area", "programs", "arena", "argyle", "evoker", "arm", "art", "art", "architecture", "and", "engineering", "art266", "artificial intelligence", "artist", "journalist", "Asia", "thatcher", "artlist", "Adelphi", "ask_2", "library", "ask", "our", "assessment", "Athabasca", "athletics", "atonomy", "atroph", "Automata", "automobile", "balance", "ball", "ballet", "ball", "be", "BCS", "bed", "bedspread", "bee", "beer", "mag", "beer", "behavioral", "Bendix", "Bernard", "Heimann", "Berle", "Berfs", "Cafe", "bett", "beep", "bestseller", "Beyond", "NCLB", "biopile", "like", "biography", "black", "Blau", "blags", "blouse", "Bede", "being", "being", "book", "book", "chapter", "book", "delivery", "Book", "describing", "Islamic", "painting", "book", "loan", "bookmak", "DOORS", "Books", "for", "Manuscript", "borrowing", "borrowing", "limits", "bottle", "bottle", "Brandis", "Brazil", "brilliant", "buddhism", "buddhist", "economical", "Burr", "Shahing", "Facility", "building", "house", "building", "science", "building", "system", "bureaucracy", "bus", "routes", "bus", "schedules", "butterflies", "butterfly", "buttnes", "C++", "cafe", "call", "number", "map", "campus", "campus", "bus", "CIE", "careers", "carpet", "CERAGU", "cathedral", "cellular", "automata", "chapters", "in", "books", "Charlemagne", "chat", "checking", "out", "books", "Chem", "Book", "chemistry", "CHILD", "Care", "China", "Christian", "printed", "opac", "es2000", "enme", "circulation", "station", "station", "printer", "vitality", "management", "station", "software", "City", "of", "Detroit", "slap", "classics", "dob", "library", "climate", "change", "yepand", "coffee", "coffee", "mag", "cognition", "Cognition", "Culture", "Cognitive", "Science", "of", "Religion", "cok", "collaboration", "cellar", "collections", "college", "Colliers", "magazine", "Columbia", "colonial", "comb", "comm211", "commentary", "communications", "communism", "community", "informatics", "communes", "bus", "comm_studies", "complexity", "compos", "computational", "linguistics", "computer", "computer", "applications", "computers", "computing", "Concept", "of", "Soul", "Concept", "of", "Soul", "2", "conferences", "Conflic", "cong", "congress", "congressional", "record", "constraint-based", "literature", "construction", "consumer", "health", "content", "information", "contemporary", "Russian", "literature", "content", "content", "inquiry".

Recommendations:

System designers should examine tagging systems such as de.licio.us, Flickr, or Dogear, which each use different approaches to this problem, and determine a more appropriate mechanism for MTagger. De.licio.us employs a cloud of only recent or popular tags, Flickr provides a sample cloud, and Dogear uses a slider to control the scale of the cloud. (Millen, Feinberg, Kerr, 2006) Further study and discussion of these or potentially other tagging systems should lead to a plan for correcting this flaw in MTagger.

Issue #12:

When a user creates a tag for the first time, or chooses a previously defined tag that has not been frequently applied to various items, the readability of that tag is at a very low level. This evidences itself both at the individual (or item record) page level in the tag cloud, as well as at the MTagger: All tags page within the all-inclusive tag cloud. At the individual page/item level tag cloud this has the potential of failing to communicate to the user that their applied tag has been added to the collection of tags. On the “All Tags” page it tends to produce a high level of eyestrain upon the user as there are often numerous small tags that are grouped very closely together, and there exists a lack of contrast between the tag and the background colors.

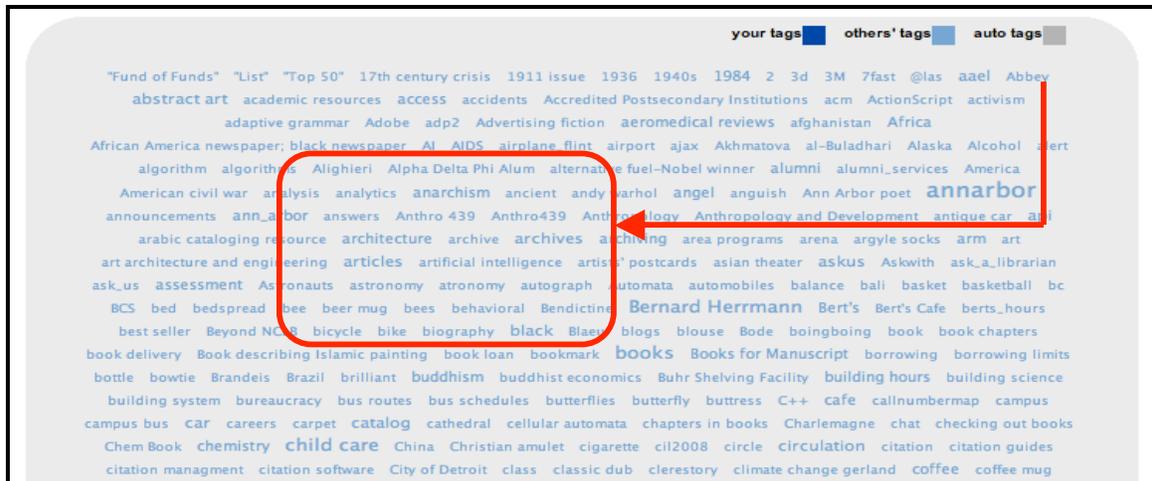
	0521006317 (pbk)
Location	Art Architecture & Engineering - Basement N 6494 .A2 G631 20
Location	Fine Arts N 6494 .A2 G631 2001 i
Location	Shapiro Undergraduate N 6494 .A2 G631 2001 i
Link to this page	http://mirlyn.lib.umich.edu:80/F/?func=direct&doc_number=0042

TAG THIS PAGE  What is a Tag?

abstract art

View this item in MTagger

Text is not readable or distinguishable enough!



Recommendations:

We recommend that when a tag is added to a tag cloud at the individual page or item level that it be displayed slightly larger even if it does not have a high rate of application amongst all users. Furthermore, the user might benefit from having his recently applied tag change state more dramatically immediately after being applied so as to unmistakably communicate to the user its new addition. At the “All Tags” page, it is imperative that some new feature be implemented to allow the user to re-size the smaller tags. Is the lack of contrast an issue? If so, perhaps changing the background color would help?



Summary

MTagger has successfully employed a tagging system which is useful and powerful, and lacking in any severely inhibiting usability problems. The usability issues presented should not be viewed independently of each other, and discussion of the resolution of these issues should take into account the impact on all usability issues and the system as a whole rather than focused resolution of each issue point-by-point. Some of these issues may have resolutions which can be implemented independently of the other issues; however, many of these issues cannot be addressed without affecting the way in which other issues are resolved.

From the results of the analyses, two broader issues have emerged which may determine further courses of action. Firstly, several of the issues presented here relate to the process of searching within the MTagger system. The process of, motivation for, and efficiency of searching in MTagger require more detailed examination. It is possible that the searching functions of MTagger need to be given a new design direction. To acquire some feedback along these lines a combination of a distributed survey, as well as interviews, and literature reviews related to search behavior and tagging motivation seems to be in order. Clearer understanding of tagging search behavior will allow for more focused thinking and the development of a strong, unified searching system in MTagger.

Secondly, MTagger is an application meant to facilitate users' web and information-seeking behavior. The relationship between tagging in MTagger and users' motivations, capabilities, and behavioral characteristics is a crucial consideration for the design of such a system. Many of the issues reflect a disharmony between the usability of MTagger and the Web related behavior of various user types. Establishing fluidity in the way various users understand and use MTagger in the context of all their Web and information-seeking activities is crucial to the success of the tool. For gathering further information along these lines, it seems essential to perform several rounds of paper-prototype "guerilla tests", as well as eventually implementing full scale usability tests running recruited users through several well designed tasks. These evaluations will help guide the UWG toward deeper consideration of the primary user group(s) likely to make use of MTagger.



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16th Annual World Wide Web Conference
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Appendix Materials

Appendix A: Cognitive Walkthrough Evaluation

Four Questions to be Considered:

- 1.) Will the user be trying to achieve the right (intended?) effect?
- 2.) Will the user notice that the correct action is available?
- 3.) Will the user associate the correct action with the effect trying to be achieved?
- 4.) If the correct action is performed, will the user see that progress is being made toward solution of the task?

Evaluation 1: (Browse/Search)

User & Goal:

Monica Torres is an undergraduate Art History major at the University of Michigan who wants to locate three UM Library resources for her term paper research and tag them with the keyword “abstract art” so that she knows how to relocate them swiftly for future reference and see what others add to the list later on.

Her previous experience with tagging has been on Facebook where she is familiar with tagging her friends’ photos, and with Flickr in tagging her own photos. She has not used tags in any academic manner before, so this will be new for her.

Action Script:

- 1.) Go to the MLibrary homepage
- 2.) Choose Mirlyn Library Catalog
- 3.) Type “abstract art” into keyword text input/click “Go” button
- 4.) Choose one selection (i.e. number 14 “Abstract Art” by Mel Gooding)/click link
- 5.) Go to “Tag this Page” icon and label (hover over highlights label and turns cursor to hand)/click icon or label
- 6.) Login with Kerberos username/password

- 7.) Agree to terms of use
- 8.) Type in “abstract art” in the Tag(s) field/click “Done” button
- 9.) Observe the addition of the tag “abstract art” in the Tag Field at the bottom of the Mirlyn record for the Mel Gooding book
- 10.) Click on Results List at the top header to return to Search Results
- 11.) Choose another selection (i.e. number 38 “Abstract expressionism: the formative years; a digital resource)/click link
- 12.) Check MBooks and Google Books Online to determine viewing permissions
- 13.) Return to “Tag this Page” icon and label/click on icon or label
- 14.) Type in “abstract art” in the Tag(s) field/click “Done” button
- 15.) Observe the Tag Field at the bottom of the record for any change of state to the keyword
- 16.) Repeat steps 10-15
- 17.) Click on the keyword “abstract art” to verify that the three selections are accounted for
- 18.) Logout of MTagger interface

Problem Findings:

One major breakdown for this particular user occurs at the outset of the MLibrary home page. Because “tagging” is in their agenda, they may immediately notice the MTagger Tag Cloud at the bottom of the page and assume that this affords an easy way of combining their Search for various items on “abstract art”. Because this feature only allows the user to Search previously tagged items, they are unknowingly limited in their Search from the beginning. Though they think this may be a viable re-prioritizing of their task it ultimately prevents them from achieving their goal.

If the user goes about conducting their Search for “abstract art” in the expected fashion of performing a keyword Search off the MLibrary home page, everything seems quite intuitive until they reach the item results page. At this point, the MTagger features could stand to be positioned at the same level of reading for the item record, implying a better association. Regardless, the features on the MTagger cloud are very intuitive and inviting, and the terminology is fairly clear.

There is a breakdown at the opening of the frame for the login window, as it obscures the text input, which is the next desired action. This is an obstruction that could be remedied by expanding the window size. Nevertheless, the sequence of actions after logging in, and carrying them out in the context of the frame is very step-wise and simple for the user—revealing progress toward the goal.

One other breakdown at the end of applying a tag keyword to the item is that it does not display at a very high level of readability. On the other hand, the change of state in the Tag Cloud is obvious and communicative of progress.

Clicking on the tag itself displays all the items which have been tagged with that keyword, and at a very central point invites the user to add this tag word to an RSS Reader so that they can do precisely what it is that they set out to do—which is expand their access to sources on “abstract art”

Evaluation 2: (Search)

User & Goal:

Jason Simmons is a first year MSI graduate student in Social Computing who is searching for recent online articles concerning Web 2.0 technologies. He is becoming more Web 2.0 savvy thanks to the program and has enjoyed making use of Del.icio.us and Flickr.

He cannot stand the MLibrary catalog system but acknowledges it as an adequate resource for much of his research needs. He has heard about MTagger having the ability to bookmark any web pages (even those outside of the UM Library collections), and wants to see if it can both help him get closer to recent articles, as well as contend with his use of Del.icio.us.

Action Script:

- 1.) Google “MTagger”/click on UM Library: “UM Library: MTagger: All Tags”
- 2.) Type in “Web 2.0” in the Search box
- 3.) Choose highlighted “Web 2.0” Search result
- 3.) Toggle off the results from MLibrary, Mirlyn, Image Class, and retain SPO and Other (no results listed in these collections under Web 2.0)
- 4.) Drag “Tag From Any Webpage” icon per instructions to the Bookmarks Bar

- 5.) In Browser Search Box type “Web 2.0 articles, 2008”
- 6.) Click on “Web 2.0 Predictions for 2008”
- 7.) After reviewing the web page, click on the “MTag This Page” in the browser bookmark bar
- 8.) Type “Web 2.0” in the Tag(s) field
- 9.) Return to “MTagger” through Search History
- 10.) Click on “Tag This Page” dropdown menu in the upper right header and choose “All Tags”
- 11.) Click on “W” in the alphabetical Browse list/alternatively scroll down through the Tag Cloud to locate “Web 2.0”
- 12.) Click on “Web 2.0” link
- 13.) Confirm that the online article that was tagged is present and active
- 14.) Toggle off the results from MLibrary, Mirlyn, Image Class, and retain Other to verify that the item displays as an outside resource

Problem Findings:

One thing that may need to be taken into consideration for a user of this type is that their priority features of Search for items related to the subject of “Web 2.0”, and the “Tag From Any Webpage” option are somewhat distracted away from by the massive Tag Cloud. Flickr uses a sample cloud and Del.icio.us merely provides the user with seeing “popular”, “recent” and a “hotlist”. The Tag Cloud may draw this user away from their more narrow focus into Browsing.

Given that the aesthetics of the page are those of the MLibrary interface, the Search functionality should communicate more clearly that the user is performing a search on the “tags” and not upon the collections per se.

This user represents an interesting challenge to the MTagger feature. His previous experience is through Del.icio.us, which does not categorize tagged items by their type. But because MTagger is being implemented in the context of an academic library, it is embedded in a context given to performing research according to various document types. There is something of a confusion of expectations that can occur for users of this kind. Search features in the previous context of the MLibrary clearly display for the user what type of document they are looking for. Using the Tagging interface is intended to provide a user with a broad range of indiscreet sources—leading the user on to fresh and unanticipated ideas. It becomes difficult for a user to understand what sorts of collections

are associated with certain document types. Users have to haphazardly and very manually toggle on/off the collection de-limiters and see what sorts of results it retains. There is no doc-type displayed for the user at the level of the tag description.

Locating the “Tag From Any Webpage” feature is clear and intuitive enough and follows the metaphor of Del.icio.us, which this user is familiar with. Similarly to Del.icio.us, the “MTag this page” function walks the user through a login and a tag application process. In both applications however, it would be an improvement to allow the user to either return immediately to the page that they have just tagged, with a small update message conveying that this page and tag has been added to your bookmarks, as well as allowing the user to re-direct directly to their MTagger account to manage their new tag. This facilitates a more faceted and flexible use of the system for this savvy user.

Evaluation 3: (Browse)

User & Goal:

Cynthia Steinem is a Washtenaw Community College student finishing up her Associates Degree with high hopes of proceeding on to the University of Michigan to obtain a degree in Russian Studies. She loves what she has heard about the campus and learning community and wants to get familiar ahead of time with navigating through the university’s library resources.

As she peruses the Mirlyn catalog and various other resources she notices this “MTagger” feature and wants to see how this is implemented. Specifically, she would like to tag an item with a keyword that others have used to see how many other resources fall under that tag.

Action Script:

- 1.) Google “University of Michigan Library”/click on link
- 2.) Choose “Mirlyn: Library Catalog” under “Resources”
- 3.) Choose “Browse” in the upper header
- 4.) Select “Subject begins with...” and type “Russian literature” in the text input field
- 5.) Choose “Russian literature” (with +100 holdings)
- 6.) Choose a selection (any one will do)
- 7.) Navigate to the “Tag This Page!” icon and label

- 8.) Choose the “create one now” option under the “Need a Login ID?” section within the pop-up window
- 9.) Choose the “Others” option under the new list menu that is displayed
- 10.) Read the Help menu concerning setting up a Friend account for accessing the UM services
- 11.) Click on the link provided within the Help menu for requesting a Friend account/enter an e-mail address
- 12.) Reply to e-mail invitation and create a password to go along with your e-mail username login
- 13.) Choose the “login page” option on the verification page for the Friend account creation/enter username and password
- 14.) Using Search History or tab, return to the record desired for tagging and re-click on “Tag This Page” icon
- 15.) Re-enter username and password/click “Login”
- 16.) Read the “Terms of Use” message, click agree, and press the Submit button
- 17.) Click on the highlighted text “contemporary Russian literature” under the “Others Tagged This:” section/click Done
- 18.) Click on the tag “contemporary Russian literature” within the Tag Cloud
- 19.) View the items that have also been tagged “contemporary Russian literature”

Problem Findings:

As with the first representative user, the immediacy of the MTagger features on the MLibrary home page holds the potential of enticing the user, particularly given this user’s level of curiosity, one step away from a fuller and more accurate depiction of the library’s resources. In this respect the MTagger features end up inadvertently impeding on the user’s original goal, which was to get a broader sense of the library’s resources.

If the user is patient and chooses amongst the variety of options which make themselves immediately available on the MLibrary home page, we might envision them desiring to Browse the Mirlyn Catalog. Aside from the set of Browse features not being more immediate—despite the availability of display space—it is readily accessible. Subsequently, it is very easy to isolate a Search result and encounter the MTag option by clicking into an individual item record.

The problem for the user becomes having to create a Friend Account in order to take advantage of the tagging feature. The instructions at the login page are not entirely explicit as to what a Friend Account is. The entire process of having to read through how to set up a UM Friend Account is tedious, involving a great deal of back and forth between UM pages and your individual e-mail account. When all is said and done, unless the system handles tabbing effectively, or unless you have your Browser configured appropriately to tab, then you are somewhat forced to re-map your way back to the item that you had originally intended to tag, and start the process all over.

Summary Findings:

- 1.) It is possible, though not of major severity, that a user will inadvertently assume that the tagging interface at the Library gateway is a viable access point for encountering the rest of the collection—users conducting a Browse approach or even a loose Search, might find themselves off task or end up re-prioritizing their task. (User 1 & 3)
- 2.) Though the MTagger feature is fairly conspicuous on every page, it may make sense at the level of the item record to place it alongside the record itself to invite quicker use, as well as bring it into closer proximity with some of the higher level navigation features. (User 1 & 3)
- 3.) The frame panel for the Login action does not open widely enough for the user to immediately begin inputting their information—not a severe problem, but bothersome nonetheless. (User 1-3)
- 4.) A change of state occurs in the Tag Cloud when the first tag is input, but this newly added tag word is not at a very high level of readability. (User 1 & 3)
- 5.) The Tag Cloud feature on the All MTags page is somewhat overwhelming and distracting on the page—alternative tagging sites like Del.icio.us and Flickr use grouped tags. This Tag Cloud potentially entices a user with narrow goals in mind to get off task. (User 2)
- 6.) The Search tool may need to be more explicit with regard to communicating to the user that they are only Searching within tags, and that their Search does not apply to all the collections themselves. Search, in the context of an online library, could easily become misleading for someone doing research. (User 2)
- 7.) It is not very clear what sort of document a tag is related to—nor is the user able to bundle his/her tags under a self-defined type as they are in del.icio.us. (user 2)
- 8.) The toggle status on the buttons might need a “show/hide” designation applied to them rather than an “x”, and the label terminology is not at all clear for things like “Image Class”, “SPO” and “Other”. (User 2)

9.) When using the “MTag From Any Webpage” feature, the login and tag applicator should have two submit options, one to re-direct to the “View Your Tags” page and one that provides a message that your tag has been added and permits you to keep searching the Web (User 2).

10.) Guest “taggers” do not have clear indication at the point of Login as to precisely what a Friend Account is. (User 3)

11.) The creation of a Friend Account is tedious (taking sometimes as long as 10 minutes) and unless the system or the user sets his/her browser for efficient tabbing, returning from the login process to your original record is very cumbersome. (User 3)

Appendix B: Heuristic Evaluation

Scale: 1-3

1: Inadequately satisfies the heuristic, needs attention

2: Imperfectly satisfies the heuristic

3: Satisfies the heuristic very well, with no present need to seek modification.

Nielsen’s Heuristics

Visibility of system status

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

MTagger score: 3

Comments: System uses the turning circle to indicate that the system is processing, or relies on the browser’s icon when loading web pages. This is adequate for a Web based system, so there is no urgent need to make modifications based on this heuristic.

Match between system 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.

MTagger score: 1

Comments: The system uses the word “toggle” to mean filter or sort results according to collection. This may be problematic. “Toggle” may not be standard vocabulary for many

users. Webster defines *toggle* in this context to mean “to switch between two options.” This is consistent with the action taken by clicking on one of the icons for a collection (entries from a collection can be either open or closed), but it insufficiently describes why this may be useful. The “Mlibrary” collection is listed first, and if the user experiments with this option by closing this collection, they will only get feedback if there are items from the Mlibrary collection listed under the given tag. Also, “SPO” is an acronym which may be unfamiliar to some.

But there also needs to be better explanation of what the difference is between *collection*, *tag*, and *item*. Users are expected to make this distinction when searching for tags at the very beginning, before they may know what each term means.

In the help doc, the term “favorite aggregator” may be unfamiliar or confusing.

Tagging is a metaphor, but it isn’t clear exactly what for (this is true of all tagging systems, not just MTagger). The logo of a little tag is good, but there is not a corresponding metaphor for retrieving tags. Why should people search tags instead of basic search? Is there a way to help users make the connection between tagging and the real-world community of individuals who tag things? Users should know that by searching through tags, their searches get results based on what people are actually reading or using, more up-to-date than the catalog’s subject lists, and that they can take advantage of this to see what the people they trust are using for their work or interests.

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.

MTagger score: 2

Comments: “Undoing” tags is easy and clearly marked within one’s personal MTagger page, but it is not clear how to undo a tag directly after tagging something. The user must find their way back to their own collection of tags in order to delete a tag, with nothing guiding them or instructing them about how to delete a tag before they get back to their own page. Undoing other actions, such as correcting typos, is not as straightforward. The system does not allow for easy “redo.” The fact that MTagger opens in a popup window allows for easy “emergency exit” by just closing the window.

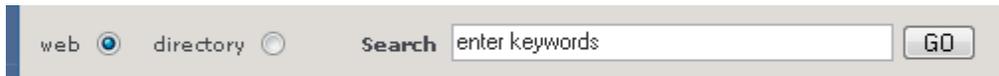
Consistency and standards

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

MTagger score: 2

Comments: One point of inconsistency is that in some instances, tag clouds show a tag followed by the number of items with that tag in parentheses, and sometimes there are no parentheses following tags. The redundancy is good; it would be better if it were always present.

In a tag cloud where it says “search tags,” when you click on that link, the words change to “+all tags and items +collections.” This is confusing because the word search has disappeared and the expected search box hasn’t come up. And the novice won’t understand what is meant by “all tags and items” or “collections.” Make this more consistent with a web standard which brings up a search box, with bubbles which can be selected underneath that say “all tags and items” or “collections.” Example:



Since collections must be searched in a different way, when the user clicks collections, the drop down menus should appear.

Error 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.

MTagger score: 2

Comments: Gives a confirmation option when the user wants to untag something. “Errors” are hard to make or hard to determine because there are no immediate consequences for anything. Users could make a typo when tagging, but other types of errors, such as navigational errors, are difficult to make. Could typos be prevented by allowing the browser’s spell-check to check spelling?

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.

MTagger score: 2

Comments: Same minor problem as in “consistency and standards,” when the user clicks “search tags...” in the tag cloud, the word search disappears and is replaced by the type of search. The word search should remain visible. When searching in a specific collection from the tag cloud, user should not be taken to a new page with a list of tags from that collection. They should be able to search directly from the tag cloud just like when searching tags. By loading a new page with a long list of items, you are confusing the user (who may misinterpret the list as a results list and think they made a mistake), and by moving to a new info rich page, you test the short term memory of the user to remember what they were trying to do or what they wanted to search before being presented with so much new info.

Flexibility and efficiency of use

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.

MTagger score:
Comments

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.

MTagger score: 2

Comments: When searching by collection, a list of all results from the chosen collection is presented before the user has actually entered a query. This excess information has not been requested and is potentially confusing. Users should be given a link to “browse collection” rather than having all results listed without specific request.

Help users recognize, diagnose, and recover from errors

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

MTagger score: 3

Comments: I only encountered one error message which was clear and precise.

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.

MTagger score: 2

Comments: One issue is that there is a “help” drop down menu across the top of the library’s menu bar, which is separate from the “MTagger” help menu. The top right is the expected region for a help button, so it may be possible that users become confused when seeking help about MTagger but only find the library’s general help documentation.

On the FAQ page, “About MTagger,” the opening paragraph states “MTagger is a resource discovery tool. Its goal is to help users of the University of Michigan Library find items and collections they previously didn't know about. When you tag an item (a web page), you are helping other, future, users of library find that resource.” Some of the literature suggests this isn’t really enough motivation on its own to encourage tagging. You might need a more personal motivation.

Other comments: Tagging is a little bit of a problem for usability because tagging is not a task which occurs in entirety in one sitting or at one time. The goal of tagging is to spend a little extra time now in order to save time later. It's hard to evaluate usability of the MTagger system as a whole because the user is only going to do half the task at a time. There are no immediate consequences for making mistakes when tagging initially. But if users make mistakes or don't use tags efficiently to begin with, they will have a hard time later when they come back to use the tags to find what they are looking for later. Since the task of tagging has no immediate end result or sense of closure, it will be harder for users to learn from initial mistakes.

Multi-word tagging: As a user I came across the question of when two separate words by commas or not. For example, should I tag something as "Russia, literature" or "Russian literature?" What is going to be more beneficial to me and to others in the future?

Glitch: I tagged an item "Soviet fiction" then tagged another item "Soviet Fiction" and tried to change "Soviet fcition" in *Manage tags*, and afterwards both tags were missing from my tag cloud and list of tags.