Usability Study of Web Indexes at an Academic Institution

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Presentation Overview

- Why Study User Behavior?
- Prior Research
- State of Web Indexes
- Research Methodology/Results
- Where Do We Go From Here…
Why Study User Behavior?

• To see if users' expectations are the same as indexers'

• Investigate problems and challenges of Web-based indexes
Prior Research

Only a handful of academic studies have been dedicated to index usability.

- Carol Hert's (2000) study published in JASIS focuses on Web index usability.
State of Web Indexes

• There are a relatively small number of Web indexes.

• Web indexes lack consistency in structure, style, and even in name!

• Indexes are often Site Maps.

• Search & Browse are the most common techniques. What about the index!?!
Structure and Style

- **FedStats** (btb index)
- **ColorCoded** (btb index)
- **DocBook** (xml/xsl generated)
- **e-Book**
Study Overview:
Research Question

Do back-of-the-book style indexes on library Web sites improve user precision and speed for finding information?
Study Overview:
Specific Questions

- If a library Web site contains an index, will users utilize the index?
- Do users know what a Web site index is?
- Do library Web site indexes increase the speed with which users find information?
- Do library Web site indexes help users find information?
Methodology:
Index Selection Criteria

Based on Browne & Jermey’s application of Nielson's usability heuristics.

- Visibility of system status. Make sure the link to the index is visible.
- Consistency and standards.
- Flexibility and efficiency of use.
- Aesthetic and minimal design.
- Help and documentation.
Indexes Selected

- [home page][index]
- [home page][index]
Sample

- Pilot study: 20 participants
- Voluntary participation, solicited from university library users and other UAF students, faculty, and staff.
Software

Sessions were recorded using Camtasia Studio, a product that records your computer monitor's screen, mouse movements/clicks, and audio.
Methodology: The Actual Session

- Participants viewed each Web site in random order.
- For the 1st site, any method of navigation was allowed.
- For the 2nd site, only the index was allowed.
- For each site, participants were asked the same three questions.
Questions

Questions were asked in random order.

• For how long can an undergraduate keep a book checked out?

• Does the library have any job openings?

• Who would you contact if you wanted to give books or money to the library?
Exit-Interview Questions

- Have you ever used an online index, like the index you just used?
- Which method of finding information do you think you were you most successful?
- Did you know what an index was before this study?
- After this study, are you more likely to use an online index? If so, in what situations would you use the index?
What is it called?

• Site Index
• A-Z Index
• A-Z
• About the Library A-Z
Demographics: Status

![Bar chart showing the percentage distribution of different statuses: Faculty, Senior, and Staff. The chart indicates that Staff has the highest percentage, followed by Senior, and Faculty has the lowest percentage.]
Demographics: Age
Demographics: Education

- HS Grad
- Getting BA/BS
- Have BA/BS
- Have MA/MS

Percent of population in each category.
Demographics: Web Expertise

![Bar chart showing the distribution of web expertise levels: Beginner, Intermediate, and Advanced.](chart.png)
Demographics: Web Use

![Bar Graph]

- **Daily**: The highest usage, significantly higher than weekly or monthly.
- **Weekly**: Moderate usage, but lower than daily.
- **Monthly**: The least frequent usage among the three.
Results:
Task Success Overall

![Bar chart showing task success overall with a significant majority of successes.](chart.png)
## Results:
### Task Success by Condition

<table>
<thead>
<tr>
<th>Condition</th>
<th>Success</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Start Anywhere</td>
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<td>44</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>Start with Index</td>
<td>1</td>
<td>50</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>94</td>
<td>102</td>
<td></td>
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</table>
## Results:

### Time on Task: Overall

<table>
<thead>
<tr>
<th>Success</th>
<th>Mean</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>2:26:01</td>
<td>8</td>
</tr>
<tr>
<td>Yes</td>
<td>0:26:12</td>
<td>94</td>
</tr>
<tr>
<td>Total</td>
<td>0:35:36</td>
<td>102</td>
</tr>
</tbody>
</table>
# Results:
## Time on Task: Overall

<table>
<thead>
<tr>
<th>Success</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>2:26:01</td>
<td>8</td>
<td>0:54:28</td>
</tr>
<tr>
<td>Yes</td>
<td>0:26:12</td>
<td>94</td>
<td>0:25:34</td>
</tr>
<tr>
<td>Total</td>
<td>0:35:36</td>
<td>102</td>
<td>0:43:05</td>
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</table>
## Results:
### Time on Task by Condition
(Successful searches only)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Mean</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Anywhere</td>
<td>0:32:13</td>
<td>44</td>
</tr>
<tr>
<td>Start with Index</td>
<td>0:20:55</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td>0:26:12</td>
<td>94</td>
</tr>
</tbody>
</table>
## Results:
### Time on Task by Condition
(Successful searches only)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Anywhere</td>
<td>0:32:13</td>
<td>44</td>
<td>0:27:46</td>
</tr>
<tr>
<td>Start with Index</td>
<td>0:20:55</td>
<td>50</td>
<td>0:22:25</td>
</tr>
<tr>
<td>Total</td>
<td>0:26:12</td>
<td>94</td>
<td>0:25:34</td>
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</table>
# Results: Click Counts

<table>
<thead>
<tr>
<th>Condition</th>
<th>Failure</th>
<th>Success</th>
<th>Total</th>
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</thead>
<tbody>
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<td>Number of Clicks</td>
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<tr>
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<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>94</td>
<td>102</td>
</tr>
</tbody>
</table>
# Click Counts by Condition

(Successful searches only)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Mean</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Anywhere</td>
<td>2.41</td>
<td>44</td>
</tr>
<tr>
<td>Start with Index</td>
<td>1.30</td>
<td>50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1.02</td>
<td>94</td>
</tr>
</tbody>
</table>
Click Counts by Condition

(Successful searches only)
Order/Learning Effects

• Since the index task was always second, it’s possible that people learned something about the questions, so performed better on the second task.

• To find out whether learning effects mattered, a “between subjects” design is needed.
Results

Do library Web site indexes increase the speed with which users find information?

Yes, for people were successful in completing a task:

• The average time to success when instructed to start with an index was 20.5 seconds.
• The average time to success when not instructed to use the index was 32 seconds.
Results

If a library Web site contains an index, will users utilize the index?

- None of the participants optionally used the index.
- 1 out of 17 used the Site Map as their first method of information finding.
### User Opinion of Web Indexes

<table>
<thead>
<tr>
<th>Positive Feedback</th>
<th>Negative Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;A-Z index let me see everything at once.&quot;</td>
<td>Participant &quot;gets nervous&quot; when using web indexes.</td>
</tr>
<tr>
<td>&quot;So many bad indexes.&quot;</td>
<td>&quot;Not satisfactory.&quot;</td>
</tr>
</tbody>
</table>

**Training Issues**

Can we train students to use an online index?
Results

Do users know what a Web site index is?

• All participants said they knew what a Web site index is, but do they really know what an index is?
Results

Do library Web site indexes help users find information?

- Inconclusive. However, several of the subjects said they were looking for a specific term in the index, and then clicked a different term.
Conclusions

• Results from this study show that an index improves the speed with which users find information on a Web site.

• However, in a naturalistic setting, users did not optionally use the index to find information.
Where Do We Go From Here?

How do we get the user to choose the A-Z index as a starting point of navigation?

- More user testing of placement of the "A-Z index link."
- Develop simple standards that non-indexers can use.
- Look into alternative ways of indexing Web pages. Anchor tags are "dead." We need to be involved with the development of DTDs.


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