Usability Testing of Digital Libraries: The Experience of Eprints

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Theoretical Framework

Usability

- «The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use» (ISO 9241-11, 1998)

- «Ease of use, prolificacy and the extent of satisfaction it provides to its users» (Joo and Lee, 2011, p. 524)

Usability Testing

- Signifies a process of systematic evaluation by using human-computer interaction (Reeves, Apedoe and Woo, 2005, p. 28)

- An important tool for the development of virtual systems such as interface design (Ferreira and Pithan, 2005, p. 314)

- Interface level usability studies
  - search, navigation, browsing and interaction are overall accepted in evaluating digital libraries (Saracevic, 2000, p. 364; Chowdhury, Landoni and Gibb, 2006, p. 667)
Theoretical Framework II

• It is not a requirement for professional laboratories for usability tests (Reeves, Apedoe and Woo, 2005, p. 28-29)

• A test with 5 participants can reveal many of the problems (app. 80%) (Nielsen, 2000)

Formal Usability Test

• Used frequently to evaluate digital libraries (Joo and Lee, 2010, p. 525)

• A "watch-learn" approach based on the pre-prepared tasks

• Think aloud protocol (Tiryaki Ersen, 2004, p. 41).
Publications Digital Archive of Hacettepe University Department of Information Management
http://bbyeprints.hacettepe.edu.tr
Methodology

• Purpose
  • Measuring the usability of Digital Archive of Hacettepe University Department of Information Management

• 5 volunteers from different backgrounds

• Method: Formal Usability Test
  • Pre-questionnaire
  • Execution of tasks
  • Think aloud protocol
  • Post-questionnaire
## Profile of Participants

<table>
<thead>
<tr>
<th>Users</th>
<th>Age</th>
<th>Education</th>
<th>Computer/Internet Use Level</th>
<th>EPrints/DL use</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>21</td>
<td>Undergraduate Information Management</td>
<td>Inadequate</td>
<td>Digital Library</td>
</tr>
<tr>
<td>S2</td>
<td>31</td>
<td>Graduate Information Management</td>
<td>Inadequate</td>
<td>Digital Library</td>
</tr>
<tr>
<td>S3</td>
<td>35</td>
<td>Undergraduate</td>
<td>Inadequate</td>
<td>-</td>
</tr>
<tr>
<td>S4</td>
<td>29</td>
<td>Post-graduate</td>
<td>Inadequate</td>
<td>-</td>
</tr>
<tr>
<td>S5</td>
<td>36</td>
<td>Graduate</td>
<td>Inadequate</td>
<td>-</td>
</tr>
</tbody>
</table>
Usability Testing Questions/Tasks

1. Gain full Access to an article on bibliometrics, published in year 2012
2. Sign up to the Digital Archive
3. Find the article by Bülent Yılmaz with topic: Social Communication and Libraries
4. Access a chapter of a book that has been published in 2010 and list its author
Right & Wrong Answers by Subjects (Users)

<table>
<thead>
<tr>
<th>Questions</th>
<th>User</th>
<th>Right Answers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S1</td>
<td>S2</td>
</tr>
<tr>
<td>q.1 Full access an article</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>q.2 System sign-up</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>q.3 Listing articles</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>q.4 Listing authors</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Right Answers</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
TaskCompilation Durations (sc)
AVG Task Compilation Durations (sc)

<table>
<thead>
<tr>
<th>Tasks</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full access an article</td>
<td>126</td>
</tr>
<tr>
<td>System sign-up</td>
<td>167</td>
</tr>
<tr>
<td>Listing articles</td>
<td>122</td>
</tr>
<tr>
<td>Listing authors</td>
<td>71</td>
</tr>
</tbody>
</table>
Number of Clicks for Completing Tasks

- Full access an article
- System sign-up
- Listing articles
- Listing authors

Lines representing different groups (S1, S2, S3, S4, S5) show the number of clicks for each task.
### Opinions of Users about Digital Archive

<table>
<thead>
<tr>
<th>Questions</th>
<th>Opinions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hard</td>
</tr>
<tr>
<td>Finding a source</td>
<td>1</td>
</tr>
<tr>
<td>Utilization and learning</td>
<td>1</td>
</tr>
<tr>
<td>Adequacy of assistance/guidance in searches</td>
<td>2</td>
</tr>
<tr>
<td>Visual features (color, fonts etc.)</td>
<td>0</td>
</tr>
<tr>
<td>Menu arrangement</td>
<td>0</td>
</tr>
<tr>
<td>Language</td>
<td>1</td>
</tr>
<tr>
<td>Speed</td>
<td>1</td>
</tr>
<tr>
<td>Access features</td>
<td>0</td>
</tr>
<tr>
<td>System errors</td>
<td>0</td>
</tr>
</tbody>
</table>
Qualitative Findings

Search features are unsatisfactory

Terminology and language are difficult to understand

Activation messages are delivered to the spam folder

Membership process is too difficult
Results

- The rate of completion of tasks were high, except for a question about sign up.

- Users had spent less time for finding an article or an author and more time for signing up.

- The question regarding signing up into the system had showed a higher number of clicks.

- System interface and menus were reviewed as being average.

- Language of system, its speed and features are convenient.

- Access features of the system are easy to remember.

- Inadequacy of search features

- Inapprehensible terminology

- Defining activation mail as spam
Suggestions

System Sign Up
- Spam Problem
- Mail content should be short and clear

Search Features
- Should be improved

Terminology
- Should be clearer
- Should be easy to understand
- Menu Labels should be more related

Usability test should be repeated later on. The findings from the tests should be taken into account and the system should be revised in regards to these findings.
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