Usability Evaluation of Clinical Guidelines on the Web Using Eye-tracker

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“Systematically developed statements to assist practitioner and patient decisions about appropriate healthcare for specific circumstances” [1]

Motivation

- Publishing guidelines on the web \( \rightarrow \) Improves accessibility

To investigate

- User experiences (perception and objective success) in finding answers to clinical questions
- Measuring users performance

with different clinical guidelines published on the web
Number of mouse clicks

number of tries using search-function
Selected websites

- Legehandboka.no: 600000
- Helsebiblioteket.no: over 2000,000
- Helsedirektoratet.no: 1000,000
- Oncolex.org: 400,000
- UpToDate.com: 23 million (monthly)
  (90% of academic medical centres in the United States more than one million clinicians in 174 countries rely on UpToDate)
Tobii Eye-tracker
Case study

Scenario 1 → Scenario 2 → Scenario 3 → Scenario 4 → Scenario 5

T1 T2 → T1 T2 → T1 T2 → T1 T2 → T1 T2

Recording 1 → Recording 1 → Recording 1 → Recording 1 → Recording 1

Recording 2 → Recording 2 → Recording 2 → Recording 2 → Recording 2

Visualization Visualization Visualization Visualization Visualization

Semi-structured interview

Statistics

Tables

Charts
Methods

Voluntary 5\textsuperscript{th} and 6\textsuperscript{th} medical students

Pre-test questionnaire

Scenario-based (lung, bowel, prostate, breast, and colon)

Semi-structured interview
Results: Pre-test questionnaire

- No particular medical experience
- Some had experience using the websites
Results: Objective success rate VS. users’ perception of success rate
Results:

Task completion time

<table>
<thead>
<tr>
<th></th>
<th>Geometric Mean (second)</th>
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<tbody>
<tr>
<td></td>
<td>T1</td>
</tr>
<tr>
<td>Legehandboka</td>
<td>115.29</td>
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<tr>
<td>Helsebiblioteket</td>
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<td>Helsedirektoratet</td>
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<td>32.46</td>
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<tr>
<td>UpToDate</td>
<td>104.69</td>
</tr>
</tbody>
</table>
Results:

Number of mouse clicks & using search-function
1. Users looked for the navigation bar as a first choice when searching.

2. No navigation bar = ‘back’ button.

3. No navigation bar = Struggle in identify their current position.

4. Redirection to other webpages was challenging.

5. Preferred navigation bars to search functions.

6. Prefer to use UpToDate for self-education.
Task completion time
users with prior experience versus users without experience
Task completion time
Only users without prior experience

Increase speed with practice?
Conclusion

- Shorter task completion time
- Less use of the search function
- Less number of mouse clicks

Higher user satisfaction
Conclusion

Users’ perceived success rate was not reliable

Evaluation of guideline websites

presentation format
Layout
navigation bar
search function
usability