Adapting Learning Measures to Evaluation of Exploratory Search Interfaces

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Measuring Learning: Bloom’s Taxonomy

- Knowledge
- Comprehension
- Application
- Analysis
- Synthesis
- Evaluation
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Exploratory Search as Learning

- Information-seeking is a two-step process
  - Exploratory search to define boundaries
    • Corresponds to Synthesis
  - Focused search to retrieve items
    • Corresponds to Evaluation
Learning in Exploratory Search Interfaces

If exploratory search involves learning, how can interfaces support this learning? (not exhaustive)

- Scratchpads or workspaces
  - Terry & Mynatt, 2002

- Enhanced “Back” button and history functions (including annotation)
  - Hightower et al., 1998
  - Jones et al., 2001
  - Capra & Pérez-Quiñones, 2003
  - Komlodi, 2004

- Expansion of search to include local documents
  - Dumais et al., 2003
Learning vs. Usability

- Can learning measures be used to evaluate exploratory search interfaces?
  - Tasks created using Bloom’s Taxonomy guidelines for synthesis/evaluation
  - Compare between subjects using new interface vs. control
Evaluation Issues

- Controlling for reading comprehension skill
- How should subjects formulate responses?
  - Paragraphs invite writing skill effects
  - Concept maps not deep enough
- Other variables
  - Time spent -- is it useful in this context?
  - Perceived level of effort
- Evaluation of responses
  - Just researcher?
  - Researcher + domain experts?
  - Inter-rater reliability
How does Learning Differ from Usability?

- Depends on how we define usability . . .
- Ability to measure learning would get beyond issues of how easy an interface is to use to how much it helps with complex information tasks.
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