User-centered Navigation Re-Design for Web-based Information Systems

Michael Hahsler, Department of Information Business, Michael.Hahsler@wu-wien.ac.at
Bernd Simon, Department of Information Systems, Bernd.Simon@wu-wien.ac.at

Vienna University of Economics and Business Administration

Presented at the AMCIS 2000
Aim - The Project

Create a new navigation structure for the university’s home page.

• Organize web objects
• Hierarchical classification scheme/directory structure
• Existing classification schemes (NAICS, ACM)
• Development of a custom hierarchical directory structure with user participation
Rational for User Participation

• **Increased usability** - the structure developed reflects the way users would organize information.

• **Reduced subjectivity** - the influence of the developers and interest groups is kept to a minimum.

• **Higher level of acceptance** - user participation in the design process results in a higher level of acceptance of the final web design.
Roadmap for Re-design

First part is based on Fuccella and Pizzolato, ITG Newsletter 1998
Re-Design of the logic Structure

- Audience definition
- Web objects identification
- Card sorting
- Category identification
- Category evaluation
- logic Model

Re-design of the logic structure
Re-Design of the logic Structure I

• **Audience definition** - find target groups.
  - Traditional market research data
  - Log file analysis
  - User surveys

• **Web object identification** - what information is needed/available?
  - Top-hits list from log file analysis
  - User survey
  - Analysis of search engine queries (missing objects)
  - Time restrictions: Selection of representative objects
Re-Design of the logic Structure II

• Card sorting - case studies to understand the users’ concept of how information should be organized.
  − Group cards into sets and name the sets
  − Appr. 100 cards take 30 minutes
  − 5 to 10 users per target group
Re-Design of the logic Structure III

- **Category identification** - the project team compiles a preliminary logic structure.
  - Identify categories needed plus structure
  - Specify category labels
  - Provide accurate category description (maintenance handbook)
Re-Design of the logic Structure IV

• **Category evaluation** - do the category labels and descriptions reflect the users´ concept?
  
  - User survey: Provide the users with the category structure and ask them where they would expect to find several web objects in this structure.
  
  - Consensus rate >70% (Fuccella and Pizzolato)
  
  - Low consensus rate: Categories and descriptions are inappropriate. Go back to category identification.
Prototype Implementation

- Logic Model
- Model representation
- Model visualization
- Usability testing
Prototype Implementation I

- Model Representation - directed acyclic graph.
Prototype Implementation II

• Visualization - e.g. multilevel overview
Prototype Implementation III

• Usability testing
  – Expert review, 5-8 users per group identify 80% of usability flaws.
  – User test
  – See literature.
Lessons Learned

- Audience definition
- Web objects identification
- Card sorting
- Category identification
- Category evaluation

Re-design of the logic structure
Lessons Learned I

• Audience definition
  - If user groups exhibit fundamentally different needs (students, staff members), divide the navigation structure.

• Web object identification
  - Top-hits lists from log files are often misleading (technical and organizational reasons).
  - We used the user survey for the category evaluation also to verify the top hits list.
Lessons Learned II

• Card sorting
  - We used too many cards (120) which took longer than 40 min.
  - We only used printed cards.
  - We had 20 users (10 students, 10 staff) to sort cards; they made quite different suggestions.

  - Better: Use computer based tools; if possible web-based tools (no installation) to get a bigger sample
  - Use random or stratified sample to reduce needed time.
Lessons Learned III

• Category identification
  – The more users do card sorting, the more difficult is category identification.
  – Use many users for card sorting (web-based) + support category identification with cluster analysis tools as opposed to the case study approach.

• Category evaluation
  – We surveyed 1,140 users (929 students, 182 staff, 21 unidentified) to verify classification for about 120 web objects (online questionnaire).
  – For most web objects consensus rate was significantly below 70%.
Usage for E-Commerce Sites

• Find or improve a usable structure for:
  – Services offered by companies to its employees.
  – Many different products/services offered by B2B and B2C sites.
  – Services and Information offered by a broker.