On Search Powered Navigation

Motivation

• Main components of exploratory search:
  
  **Query-Based Searching**
  
  lets users dig in deep by controlling their actions to focus and find just the information they need.
  
  **Browsing-Based Navigation**
  
  helps users get an overview of the existing information and to decide which content is most important.
  
  **Search Powered Navigation**
  
  lays the ground for a better navigation of the users, enabling them to explore better content.

Research Questions:

**RQ1** What is the effect of search powered navigation on user behavior in different types of exploratory search tasks?

**RQ2** Does empowering navigation with search improve user experience in different types of exploratory search tasks?

Experimental Setup

• Descriptive user study
  
  – Asked 16 participants to do exploratory search tasks on Dutch parliamentary debates from 1994 to 2014, once by means of the pure navigational system and once using the system with SPN.
  
  – 14 search tasks:
    - Broadtopic tasks: supposed to be addressed by a diverse set of debates and there is no concrete answer to them.
    - Broadtopic tasks: supposed to be addressed by a small list of debates.
    - The participants were each given two broadtopic and two focusedtopic tasks. They had to complete one broadtopic task and one focusedtopic task using the original system, and the two remaining tasks using the system with SPN.
    - In total, we had 56 search sessions.

Does SPN Improve User Experience?

• The average number of loaded entities, speeches or their content is generally lower for the system with SPN compared to the original system in both types of tasks.

• Users skip loading the intermediary data when their navigation is facilitated by search.

• We assessed the quality of the search results by asking two experts in the Dutch political domain to rate set of relevant speeches and summaries retrieved by the users.

• Users were more successful in the broadtopic tasks compared to the focusedtopic tasks, regardless of the search system. However, the search functionality improved the quality of the results in both tasks significantly.

Case Study System: WikiCat Browser

• **WikiCat Browser** is a search system developed for exploratory search to browse and investigate parliamentary debates from a particular point of view.

  – It projects the parliamentary speeches to the Wikipedia’s categorial structure, based on Wikipedia named entities mentioned in the parliamentary speeches.

  ![WikiCat Browser](image)

Effect of SPN on User Behavior

• Users could move back-and-forth across the hierarchy. We capture their navigational behavior by counting their level jumps and level visits across all sessions:

  – **broadfirst:** In the original system, the users tend to explore the nodes at one level (high percentage of zero level jumps) and then choose one of them to go to the next level.
  
  – **deepfirst:** In the system with SPN, the users quickly descend in the hierarchy based on the timeline and then back track a lot (high percentage of negative level jumps).

  According to the distribution of level visits, SPN encourages the users to quickly narrow down their search space and deepen their exploration path.