

Information Seeking Behavior in Learning Domain (Position Paper for 2011/SIGUSE)

Makiko Miwa (The Open University of Japan miwamaki@ouj.ac.jp)

In the era of knowledge economy, we are expected to learn continuously all through our life. With the availability of today's networked information environments, we often use Wikipedia and other Internet-based information resources to obtain basic knowledge on unfamiliar topics to attain our ever-changing learning goals. Thus, studying exploratory search behavior and developing systems/services to facilitate "learning by searching" are very important research issue.

We have been trying to capture the exploratory search processes on the Web using think-aloud protocol analysis, content-analysis of post-search interviews while watching video-captured search processes with eye-movements, as well as comparing cognitive maps drawn before and after the search.

Our main research questions are:

- (1) How people learn through the exploratory search processes, and
- (2) How can we capture dynamically changing knowledge structure during the exploratory search processes. .

Through data analysis, We have developed several taxonomies including a taxonomy of knowledge modification and a taxonomy of knowledge utilization patterns in order to identify the dynamically changing searchers' knowledge structure during the exploratory search processes. Our tentative findings are:

- ✓ The level of familiarity with the topic of the search differentiates the search processes. If the topic is unfamiliar, people begin their search with learning topics. If the topic is familiar, or when they formulate the focus of their search, people gather information or information sources which help attain their task goals.
- ✓ Information encountering may lead to a temporal deviation from the forgoing search. When people encounter unexpected but interesting information not directly related to their initial search task, their search temporally deviate from the initial task goal, or lead to some changes of their task goals.
- ✓ Watching a video-captured screen shifts with eye movements during the search process helps searchers recall their thoughts and feelings at the moment.
- ✓ Modification of the knowledge structure between pre-search and post-search can be captured by comparing concept maps drawn before and after the search.

We need further analysis to capture the knowledge modification patterns during the search processes by comparing the new concepts appear in the post-search concept maps and the searchers browsing behavior of each of Web pages they accessed.