Promoting User Engagement and Learning in Amorphous Search Tasks

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ABSTRACT

Much research in information retrieval (IR) focuses on optimization of the rank of relevant retrieval results for single shot ad hoc IR tasks. Relatively little research has been carried out on user engagement to support more complex search tasks. We seek to improve user engagement for IR tasks by providing richer representation of retrieved information. It is our expectation that this strategy will promote implicit learning within search activities. Specifically, we plan to explore methods of finding semantic concepts within retrieved documents, with the objective of creating improved document surrogates. Further, we would like to study search effectiveness in terms of different facets such as the user's search experience, satisfaction, engagement and learning. We intend to investigate this in an experimental study, where our richer document representations are compared with the traditional document surrogates for the same user queries.

Categories and Subject Descriptors:H.3.3[Information Search and Retrieval]: search process, H.5.2[Information Interfaces and Presentation]: Interaction styles
Keywords: interactive IR; learning; engagement.

1. RESEARCH PROPOSAL

Searching information on the web has become an indispensable part of our daily activities. From finding answers to our daily questions to satisfying our curiosity, and increasingly, for educational purposes. We look towards the web to learn about different topics through MOOCs, wikipedia, and general web content. At present, search engines are optimized for look-up tasks and not for activities that require more sustained interactions with information. Current IR systems are not generally configured to support long search sessions [2]. We would anticipate that, in a longer session, a user might benefit from having the results change dynamically based on their engagement and interactions.

In our work we plan to explore the relationship between complex search tasks and the manner in which information is presented to the user to enable more active engagement and improve learning. As noted in [1], there are several factors which play an important role in learning such as a) *prior knowledge*, b) *coherence*, c) *motivation* and d) *knowledge actualization*. We want to focus on the coherence aspect in our research. The main question we will investigate in our work is: *How can search results be presented with respect to document content to improve user engagement?*

Our ultimate goal is to improve user engagement with retrieved information. It is our expectation that understanding document similarities and differences at a semantic level can help us to create better document surrogates (e.g. in terms of document summaries, topics, visualisations) which may in turn improve user engagement.

Li and Belkin [3] propose a faceted approach for conceptualizing search tasks. Following this categorisation, Jian et al. [2] investigate two facets of search tasks: product and goal. The product of a search task can be factual or intellectual and the goal of a search task can be either specific or amorphous. Thus they study four different types of task: known item (factual + specific), known subject (factual + amorphous), interpretive (intellectual + specific), and exploratory (intellectual + amorphous). We plan to adopt their categorization in our study of supporting and enhancing user engagement, focusing on known subject, interpretive and exploratory tasks. It is our hope that the content representations proposed in our research will form the basis of mechanisms to support more engaging search experiences in future search engines.

Acknowledgments: This work is supervised by Jennifer Foster and Gareth J.F.Jones. This research is supported by Science Foundation Ireland (SFI) as a part of the CNGL Centre for Global Intelligent Content at DCU (Grant No: 12/CE/I2267).

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SIGIR'15, August 09-13, 2015, Santiago, Chile.
ACM 978-1-4503-3621-5/15/08.
DOI: http://dx.doi.org/10.1145/2766462.2767848.