Exploiting social chatter to support inspiration and serendipitous discoveries

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1. Introduction

In the proposed research, we are motivated by an increasing challenge, in the field of information systems design that is to help users discover surprising and useful information for the solution of complex creative tasks. A plethora of information channels are available, such as traditional search engines, email communication and social networks. Nevertheless, traditional search engines focus mainly on information retrieval technologies rather than providing novelty, diversity and serendipity in information discovery. This study extends previous work in exploring whether implicit use of social chatter in information seeking activities can enhance the potential for novel, diverse and serendipitous encounters supporting creative outcomes. Our system has been developed as a type of informational query-based system with an emphasis on exploratory search [Marchionini 2006] that exploits the social chatter generated with microblogging services, to help users get inspired, while working on creative assignments.

2. Approach

The aim of this study is threefold: (1) to extract, process and present to the user cues from the social chatter related to her search intent (2) to use social information as a guide for easier exploration of available information spaces, (3) to better exploit diversity of content and media for increasing the potential for serendipitous encounters.

We developed Creative User centric Inspirational SEarch (CRUISE) with the main objective to support search for inspirational resources during creative tasks. The tool combines search and browsing functionalities with concepts coming from social and diversity-aware search, involving the human in an iterative information seeking loop. In this section, we briefly describe how the tool interface design addresses our three research questions.

2.1 Data Processing and Exploration Model

CRUISE uses a set of terms typed by the user to query Twitter for the most recent popular tweets. After filtering and data cleansing processes have been applied to the retrieved tweets, a word cloud is generated, similarly to a folksonomy based model. For the weighting of the terms, the formula of (Term Frequency – Inverse Document Frequency) is adapted. Moreover, frequent phrases are visualized with bigrams generation. CRUISE injects terms into the word cloud, which are derived from tweets by specific and influential twitter accounts, represented in a different color. CRUISE enables users to manipulate the terms of the word cloud that results in a new set of resources to be presented to the user among which, she is able to browse. Using a slider the user is able to adjust the depth of the search space, which is directly related to the terms’ popularity; they can drill down into the word cloud to reveal terms, previously hidden due to their low frequency in relation to other terms in the word cloud.

![Figure 1. CRUISE funnels social chatter into an information seeking service](image)

Whilst exploring the word cloud, users are able to add any of the terms into the ‘explore query’ as shown in Figure 1. The ‘Explore query’ path is then used to query external information sources such as Bing and Flickr or private information found in a company’s intranet, such as portals, intranets, etc. Users are presented with diversified results using the canonical version of Maximal Marginal Relevance (MMR) framework [Carbonell and Goldstein 1998] and are provided with the capability to dynamically change their queries by removing terms or selecting more terms from the cloud.

3. Results and Future Work

A task-based laboratory study involving university researchers who compared our system to a query-based baseline, indicated that CRUISE improves inspirational discoveries. Another pilot study with a team of professional concept developers who used CRUISE in their creative work assignments showed that our system enables inspiration. Our results provide evidence that the implicit use of social chatter in information seeking activities increases the potential for serendipitous encounters. We plan to enhance CRUISE with social features that will enable personalization of user interaction by taking into account the user’s social network as well as the context of the search session considering features such as the time a user spent to a specific item in terms of topic and type of the resource (i.e image, link, term).

References
