Where to Put the Search Concepts in the Search Result Page?

K.T. Tong and Robert W.P. Luk

Department of Computing,
The Hong Kong Polytechnic University
`csrluk@comp.polyu.edu.hk`

Abstract. This paper looks at where to put the search concepts in the search result pages by asking over 40 subjects. Four (layout) designs are used where the search concepts are placed differently, and subjects are asked to rank them. Results show that there is preference to place the search concepts near the snippets.

1 Introduction

Search results are typically organized into a rank list of found items (e.g., Google). The use of rank list is supported by the probability ranking principle [1]. Recently, search concepts are proposed to organize search results by grouping the found items that relate to the particular concepts. By clicking these concepts, a smaller rank list of found items relating to a particular concept is shown. Using concepts in this way is found to be effective by Ko et al. [2]. These concepts may be search categories or Wikipedia entries. While such concepts are useful to organize search results, it is not known where to put them in the search result page.

There are search engines that add search concepts on the left hand side of the rank list (e.g., Vivisimo) or on the right hand side of the rank list (e.g., those in Web of Science). Fig. 1 shows an example search result page and its related, placed items (e.g., recommendations and sponsored links). It is not known where users prefer to put these search concepts in this congested result page even though they are placed on the left. Putting concepts on the right hand side has the disadvantage that it blocks the typical (Google's) area to display sponsored links.

We carried out an experiment that asks over 40 subjects about their preferences to put the concepts in the search result page. Apart from the sides of the ranked list, we also presented alternative places to put the concepts. We investigated the learning effect due to carrying out part of the questionnaire. The results show that there is a clear preference to put search concepts near the snippets, and the subjects prefer only about five concepts to be displayed in a row.

The rest of the paper is organized as follows. Section 2 reports the research methodology and the related demographics. Section 3 discusses the questionnaire results about the four designs of the search result pages where the search concepts are placed differently. Finally, Section 4 concludes.
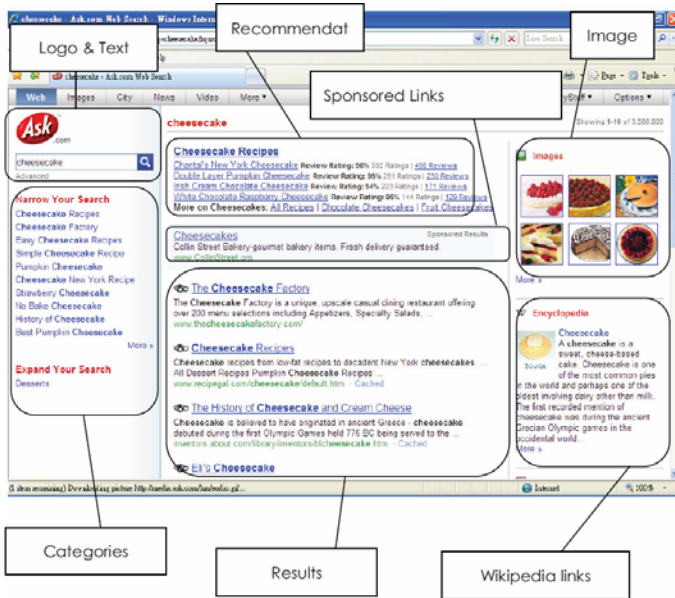
Fig. 1. An example search result page and its related, placed items

2   Research Methodology and Demographics

We administered the questionnaire to 60 subjects. The subjects were asked about the designs of the search result pages, and Fig. 2 shows some example questions in the questionnaire. Each design placed the search concepts differently or used different interface devices to see if this affected the ranking of the designs by the users. There were four different designs altogether.

The questionnaire was divided into two parts. In the first part, each subject was asked one design after the other without knowing how many designs there are and without knowing what were the subsequent designs. In the second part, the subjects knew that they had seen all the designs, and they were asked about the design one after the other again. The questionnaire was divided into two parts in order to see if there were any learning effects on ranking the designs.

Amongst the 60 subjects, 53% of them are male and the remaining are female. Note that 46% of them are under 24 years old, 23% are between 25 and 49 years old, and 21% are over 49 years old. In terms of frequency of search per week, 18% of them make less than 10 searches per week. 50% of them make between 10 and 20 searches per week, and the remaining 32% of them make more than 20 searches per week. Google is always used by 58% of the subjects.
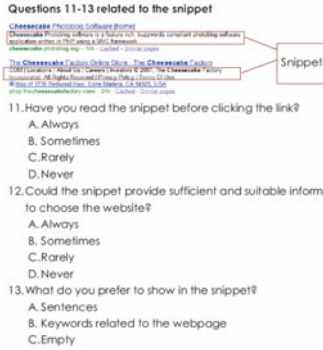
Fig. 2. Example questions in the questionnaire

3   Results and Analysis of the Questionnaires on the Designs

This section reports one by one the results of the questionnaire on the four designs.

3.1   Design A

Fig. 3(a) shows design A which groups the ranked items into different search concepts. Each group is displayed horizontally and the ranked items of each group are indented to show that they belong to the group, the search concept of which is shown immediately above.
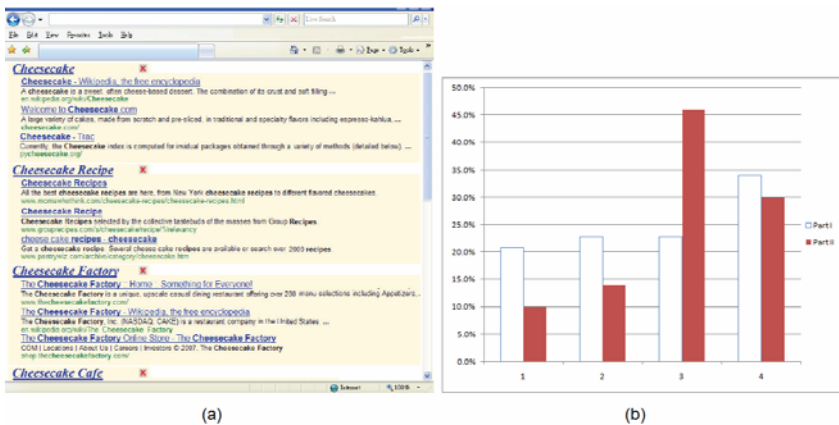

(a)   (b)

Fig. 3. Design A (a) Layout and (b) Ranking Results

Fig. 3(b) shows the ranking results of the questionnaire for part I and part II. Results for Part I show that the ranking is more evenly distributed than the results for Part II, which show that the majority of the subjects rank the design to be between three and four. Therefore, knowing all the designs facilitates the subjects to agree more sharply on which rank to select.

3.2 Design B

Fig. 4(a) shows design B layout which shows the search concepts below the snippet. Each search concept has a check box to invite the subjects to click it if the search concept is relevant. A "modify" button is included which modifies the query by adding the clicked search concepts to the original query when the button is clicked.
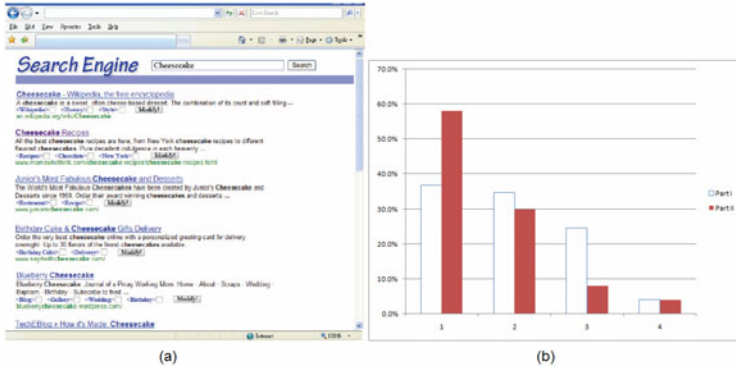

(a)   (b)

Fig. 4. Design B (a) Layout and (b) Ranking Results

Fig. 4(b) shows the ranking results for Part I and II. Part II shows that the majority of the subjects appear to know more clearly that the ranking of this design is between one or two.

3.3 Design C

Fig. 5(a) shows design C layout which is almost the same as B apart from the check boxes being replaced by crosses and apart from removing the "modify" button.
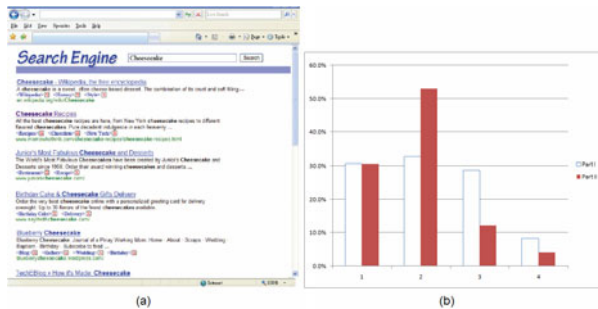

(a)   (b)

Fig. 5. Design C (a) Layout and (b) Ranking Results

Fig. 5(b) shows the ranking results for Part I and II. For Part I, the results are evenly distributed between rank one and three. For Part II, the majority of the subjects

voted rank two and one for this design. This shows that the minor interface device change has an impact on the ranking of the design.

3.4 Design D

Fig. 6(a) shows design D layout which places the search concepts on the right, blocking the sponsored links.
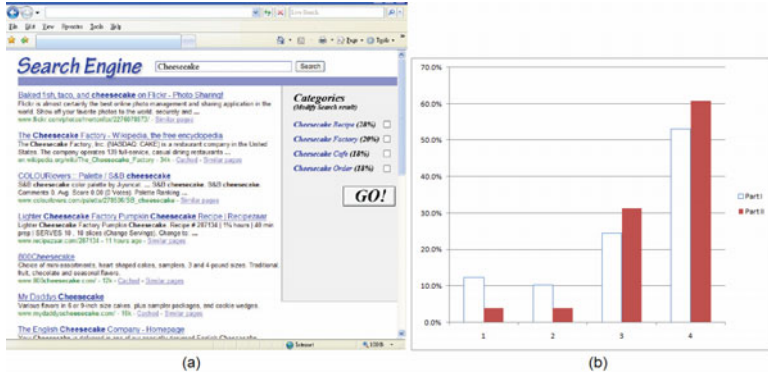

Fig. 6. Design D (a) Layout and (b) Ranking Results

Fig. 6(b) shows the ranking results for Part I and II, which do not differ much. Intuitively, the subjects seem to know this is not a preferred design and they rank it between three and four.

4 Conclusion

This paper shows that the preferred location to place the search concepts is near the snippet. Search concepts placed on the right hand side are not preferred. Empty check boxes are preferred over boxes with crosses.

References

1. Robertson, S.E.: The probability ranking principle in IR. Journal of Documentation 33(4), 294–304 (1977)
2. Ko, P.Y., Luk, R.W.P., Ho, K.S., Chung, F.L., Lee, D.L.: Are concepts useful for organizing search results? In: 22nd British HCI Group Annual Conference on HCI 2008, pp. 153–154 (2008)