

Targeted Search Engines for Children: Search User Interfaces and Information-Seeking Behaviour

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Abstract

Children are a fast growing user group on the Internet. Among different online activities, children use web search engines in order to gather information related to their personal interests and school activities. Children's knowledge, cognitive abilities and fine motor skills are different from those of adults. Therefore, they may experience difficulties with search engines that are built using standard information retrieval algorithms and search interfaces for adults. Special or targeted search engines for children are essential in order to better support children in their search tasks. Therefore, the goal of this thesis is to design appropriate search engines for children with a focus on the search user interface. However, this is not an easy task to accomplish. Not only are children's abilities different from the abilities of adults, children also undergo relatively fast changes in their abilities.

The specific and dynamically changing characteristics of young users pose a great challenge. In order to address this challenge, first, the specifics of information retrieval for young users are analysed. Second, open issues are identified in user studies with children using logfile analysis and eye-tracking. The conceptual challenges in the design of user interfaces regarding search engines for children are derived based on the findings of one's own and previous user studies as well as theories of human development. Third, user interfaces of search engines that address these conceptual challenges are designed, prototypically implemented and evaluated in user studies with children following a user-centered design. Specifically, the proposed user interfaces of the search engine address the changing characteristics of the users by providing a means of adaptation. Furthermore, a novel type of search result visualisation for children with cartoon style characters is developed which takes the children's preference for visual information into account. Both approaches were very positively received by children during evaluation. Children rated different user interface aspects of the search user interface prototypes as good, e.g., the adaptation of the search user interface towards user wishes and the helpfulness of the cartoon style characters during search. Finally, this thesis provides criteria and guidelines on how to design user interfaces of search engines for children.

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