

Clicked or Just Looked at? Understanding User Interface Usage across Information Seeking Stages

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1. INTRODUCTION

Research into information seeking behavior has shown substantial changes in user behavior during complex tasks involving learning and construction. Models of information seeking, including Kuhlthau's Information Search Process model, describe fundamentally different macro-level *stages*. Current search systems usually do not provide support for these stages, but provide a static set of features predominantly focused on supporting micro-level search interactions. This paper investigates the utility of search user interface (SUI) features at different macro-level *stages* of complex tasks.

2. RESULTS

We used a custom search system called SearchAssist, and designed tasks to take users through pre-focus, focus, and post-focus task stages in order to gather active, passive, and subjective measures of when SUI features provide most value and support.

First, we looked at *active* behaviour, the behaviour which can be directly and indirectly determined from logged interaction, such as clicks and submitted queries. Our main finding is that some features such as *informational* features (providing information about results) are used frequently throughout, while *input* and *control* features (for refinement of results) are used less frequently after the first stage.

Second, we looked at *passive* behaviour, i.e. behaviour not typically caught in interaction logs, such as eye fixations and mouse movements. Our main finding is the difference with the active results: evidently, users look often at actively used features, but other features that are less actively used (such as the recent queries feature) are more used in a passive way, suggesting a different type of support offered by these features.

Third, we were interested in the subjective opinions of users about the usefulness of features; this data also formed a reference point for interpreting other observed data from the previous research questions. Our main finding is that the perceived usefulness of features differs radically per search stage, as summarised in Figure 1.

*This is the abstract of Huerdeman et al. [1], receiving a *Best Paper Award Honorable Mention* at ACM CHIIR'16.

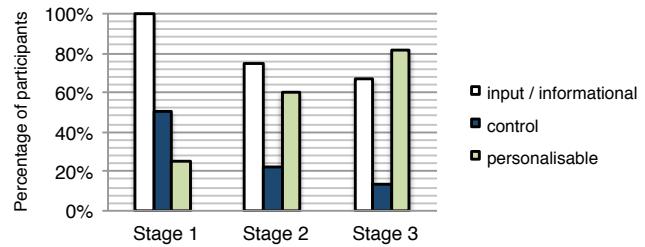


Figure 1: SUI feature categories perceived most useful by stage
Figure 1. First, the most familiar *input* and *informational* features (the search box and results list) were perceived as very relevant overall, but declined after the initial stage. Similarly, a set of assistive *control* features (search filters, tags and query suggestions), less commonly included in SUIs were also perceived as most useful in the beginning, but less useful in consecutive stages. Third, *personalisable* features (query history and a feature to save results), are considered as less useful in the beginning, but their usefulness significantly increases over time, even surpassing the value of common SUI features. Hence, our results indicate that the macro-level process has a large influence on the usefulness of SUI features.

3. CONCLUSIONS

Concluding, our findings suggest that the active, passive and perceived utility of SUI features across stages, especially in the context of complex and learning tasks, is inherently *dynamic* with different types of features being useful in different task stages. This is in line with macro-level information seeking models, describing broad changes in information behaviour across stages, and sheds light on the type of support needed in each stage. This provides new handles to overcome the largely *static* support for information seeking in current search systems, and facilitate a move towards more dynamic and responsive SUIs, providing tailored support to different information seeking stages.

REFERENCES

[1] H. C. Huerdeman, M. L. Wilson, and J. Kamps. Active and passive utility of search interface features in different information seeking task stages. In *Proceedings of the 2016 ACM on Conference on Human Information Interaction and Retrieval*, CHIIR '16, pages 3–12, New York, NY, USA, 2016. ACM. ISBN 978-1-4503-3751-9. . URL <http://doi.acm.org/10.1145/2854946.2854957>.