

Usability beyond the interface: designing a portal for text analysis

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We report on a two-phase usability analysis of the Text Analysis Portal for Research (TAPoR). The first phase consisted of 20 contextual inquiry interviews and the second phase, a further 17 usability interviews with text analysis researchers. Findings suggest that the conceptual design of the portal needs to emphasize text content, functionality and text analysis tasks rather than text format and text analysis tasks, and that terminology was a major obstacle in use of the portal. Study results were used to guide the re-design of the portal.

Introduction

The Text Analysis Portal for Research (TAPoR) is the result of a \$6M collaborative research project carried out by groups at six Canadian universities, including the University of Toronto [<http://tapor.mcmaster.ca>]. The main goal of the project was the creation of a web portal to provide humanities researchers with tools and e-texts to perform sophisticated textual analysis. The need for greater accessibility to and sharing of such tools has been voiced within the humanities computing research community for more than a decade [1]. The feeling was if these tools were made readily available, computer-assisted text analysis would begin to have a broader impact on the humanities research community [2].

As part of the University of Toronto group, we undertook a usability study of the TAPoR web portal. The goal of the study was to provide user-centred input to support iterative re-design of the portal. We interpret usability broadly as, “the effective and efficient use of systems in real-world settings, based on a complex interplay of technical, human and social factors” [3]. This approach allowed us to investigate how humanities scholars conduct text analysis research, with the aim of identifying how the portal might best serve their needs, both in terms of task support and ease of use.

Methods

The study involved two phases of user studies.

Phase I: We conducted contextual inquiry interviews with 20 participants: 11 academic researchers and 9 doctoral students. Contextual inquiry is a field interviewing method designed to gather data about work practices as they actually occur [4]. Interviews were approximately 60-90 minutes in length and were conducted in the researchers’ place of work where possible. The interviews had two parts: the first part focused on how researchers carry out text analysis, and the second part investigated how

the portal could support this work. Figure 1 shows the main screen of the initial prototype portal, which was the focus of this phase of the study.

Phase II: The second set of interviews aimed to evaluate the usability of the revised portal prototype (Fig.2). We conducted 17 sessions, 13 with academic researchers and 4 with graduate students. Sessions were semi-structured, and consisted of the interviewer watching the participant use the revised portal to carry out their own text analysis tasks, and asking questions to elicit feedback.

Figure 1: Initial Portal Prototype

Results

Findings from Phase I gave insight into the tasks and process of text analysis research as well as identifying specific issues related to use of the portal. Some of the key findings were:

- Users want text analysis tools listed by their function, rather than by text format (HTML, plain text, etc.) (see circled area in Figure 1);
- Users want to maintain access to their source text alongside the results of the analysis, so they can refer back and understand the results in context;
- Users want the capability to perform multiple simultaneous analyses of a single text;
- Users do not fully understand the terminology and metaphors used in the portal;
- Graduate students are more interested in the social and collaborative functions of the portal; scholars are focused on working with their texts.

Findings from phase II identified a great number of interface usability issues, as well as confirmed many of the Phase I findings, even though the portal had been substantially revised. Note the areas circled in Figure 2 that indicate a greater emphasis on the texts and the functions of the tools.

Some of the key findings overall were:

- The user's primary focus is the text, but the portal still puts the tools in the foreground;
- The system requires the user to specify the text encoding of source texts (XML, HTML), but users often do not know this information;
- Plain text is in heavy use among scholars, while the portal is more focused on analysis of encoded text;
- Users prefer more emphasis on the text analysis workspace, and less on information about the TAPoR project itself;
- The portal assumes a level of technical understanding and knowledge that most of the humanities scholars do not have. Terms such as "attribute", "aggregated text", "body", "tags" and "upload" were not understood.

Figure 2: Re-designed Portal Prototype

Discussion

The main findings illustrate a strong theme of tension between the portal developers' "tool-centric" approach and the portal users' primary interest in the texts and the tasks they wanted to perform.

Furthermore, the original portal design assumed a degree of knowledge and interest in technology, which simply was not evident in most of the users who took part in the study. As one of the study participants noted: “My own point of view on this would be that the format the text is in is not any of my concern, is not an important item. Whether it’s an XML or HTML or plain text, I really don’t care.... I’m interested only in the words and I want the markup to be insofar as possible ignored”. The portal’s tool-centric design orientation was the source of confusion and anxiety on the part of many participants, which would likely serve as a serious deterrent to the adoption of the portal in its current format among the broader community of humanities scholars.

Taking a contextual approach to this usability analysis was valuable in that it allowed us to identify broad issues related to perceptions and potential uses of the technology as well as specifics of navigation and comprehension at the interface level. This approach was well-suited to this study due to the relative lack of prior research on the work habits and use of technology among humanities scholars. In the first major redesign of the portal, a conceptual shift was made towards emphasizing functionality over tools, and in successive versions further steps have been taken in this direction. The ultimate usability goal is to enable these researchers to move beyond the interface to focus on the exploration and analysis of the texts themselves.

References

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