

The long term effects of search query examples on the search behaviours of non-native users of government e-services

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ABSTRACT

Interacting with information in an on-line capacity is common place for the majority of people nowadays. However, there still remains a considerable section of society whose skills, knowledge and experience in such activities are creating significant barriers to essential services. This research aims to investigate the information interaction behaviours of English as a second language users of on-line governmental services in the UK. Work has already begun on identifying what this user group understands by the term governmental service and the skills and information needs necessary to interact with such services on-line. Findings from the study of searching in a second language (English) in contextually relevant search situations show that despite performing to the best of their abilities, deeming that they were bookmarking documents of relevance to the task and that the tasks were easy, the participants were only choosing documents that were partially or tangentially relevant. This shows that despite their confidence in their overall performance these users were not able to correctly determine their actual performance and would suggest there is scope for search systems to support the information interaction of said users.

Keywords

Information interaction; search; e-government; information literacy

1. MOTIVATION

Government initiatives, such as the UK's 'digital by default', have been instigated in a response to the proliferation of digital services and Internet-based technologies. This has seen the UK government running both standard services (face-to-face, telephone and postal) and digital services simultaneously but it is not inconceivable that standard services will (eventually) be phased out.

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For those who find Internet technologies an everyday tool this is no great concern, however, there are members of society who currently rely on face-to-face encounters with staff or the skills, knowledge and experience of their friends, family or community members when their own is lacking. Information and digital divides place importance on the IT literacy and abilities of the user [4] so in instances where these social groups are unavailable or their knowledge and experience are inadequate this can have adverse effects for the more vulnerable members, who may already face significant barriers.

Research into the information interaction of users whose first language is not English is growing [1, 2, 4] but there still remains much that can be done in understanding their search behaviours [12] and in turn help facilitate those most at risk of falling prey to the 'digital divide' and segregation from essential governmental services. This project serves to add to the research (and this knowledge area) by exploring the ideas of information seeking as an activity [8] and expanding on the work of [6] by adapting methods of improving the users own abilities and knowledge through the utilisation of search query examples. In this process the user submits an initial query, are then offered high quality examples as alternatives to the original query which lead to users recognising positive aspects and are then able learn to produce higher-quality queries themselves.

2. RESEARCH QUESTIONS

The overall question of this research is to look at "What are the long term effects of search query examples on the search behaviours of non-native users of government e-services". To answer this the following sub-questions were formulated:

- How do English as a second language (ESL) users search for information?
- How does this differ from native English language users?
- How can potential differences be supported by the search system?

3. METHODOLOGY

Before tackling the research questions it is, perhaps, prudent to determine not just what the users needs are but what they know, firstly, of what constitutes governmental services but also what systems are pre-existing and whether there is a need for such functionality as search query examples [6].

Participatory action research is a methodology widely used in a number of fields [11] by facilitating the identification of user needs and developing relevant and validated systems in association with the users [7, 9, 10] and has potential to be utilised in an Information Retrieval setting [5, pp. 92].

As a result, a pilot study to set context, upon which the three sub-questions could then be based, has been devised in line with similar studies [13]. The objective of the first sub-question is identifying the needs of the user and how they search for information. The first stage of this is to be addressed as part of the pilot study. The second stage will employ a mixed methods approach, utilising recorded observation of participants undertaking search tasks and manual log analysis of their interactions, and post study semi structured discussion to determine their experiences and perceptions [4]. This second stage will also look to conclude the action research aspect of the study by not only identifying how these users search for information but also to help understand why they interact with search systems as they do and allow the users the opportunity to identify if existing services are fit for purpose and offer solutions should this not be the case.

Comparison of behaviours against those of English language natives (those whose first language is English) will follow with the use of identical methods to ensure similarities and/or differences in interactions can be adjudged with some level of certainty, and in the process accomplish sub-question two. The third sub-question will then look to adapt the approach of [6] on a longitudinal scale (somewhere between 10 weeks and 6 months) with time-scales determined by the implementation date in conjunction with the time remaining of the PhD project.

4. PROGRESS SO FAR

To date the pilot study has been concluded. Identification of the types of services users would use was made by involving 7 international PhD students (who ESL users) at a UK university, 6 of whom also took part in the second stage of the study. The students were recruited and tasked with identifying: what a government service entailed; which would be deemed most useful (to the group); and the information needs, information sources and skills that would be required to successfully utilise the e-service.

From this information, four search tasks were designed to reflect realistic information seeking situations as part of the second stage. This study incorporated a search retrieval experiment, with participants using the Google search engine to bookmark documents of most relevance to completion of the tasks. This was followed by a post study discussion whereby they could voice their experiences and put forward possible solutions and recommendations to any issues they encountered.

10 international PhD students from a UK university took part in this study with each a ESL user. Findings from the study of searching in a second language (English) in contextually relevant search situations show that despite performing to the best of their abilities, deeming that they were bookmarking documents of relevance to the task and that the tasks were easy, the participants were choosing documents that were non-relevant or tangentially relevant. This shows that despite their confidence in their overall performance these users were not able to correctly determine their actual performance and would suggest there is scope for

search systems to support their information interaction [3]. Due to the nature of governmental services the implications of these findings could have detrimental effect to the user in a real world scenario. Gaining a further understanding why these issues arise may inform development of future systems and techniques to mitigate these problems.

Although the findings show promise, the low participant numbers limit the ability to offer generalisable indications of ESL user behaviours. It is for this reason that the second stage study has been extended - with a view to gaining additional users. Work has already begun on this in conjunction with ongoing progress into the study of native English language speakers, that is users who use English as a first language.

5. FUTURE PLAN

The plan for the immediate future is to complete the remainder of the two studies in order to be able to complete sub-questions one and two and offer comparative evidence of the user groups.

Over the remaining time the aim is to build on the idea of creating a bespoke search system to test the repeated effect of users exposure to search query examples [6] which will help achieve the project objective of whether these users can be supported by the search system and the effects of such support over an extended period.

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