What Happens When the Untrained Search for Training Information

Jorgina Paihama and Hussein Suleman

Department of Computer Science, University of Cape Town,
Private Bag X3, Rondebosch, 7701, Cape Town, South Africa.
{jpaihama,hussein}@cs.uct.ac.za

Abstract. Unemployed and information illiterate people often have the greatest need for information because it could change their lives. While a lot of information on jobs and training is available online, it is unclear if the target users are indeed able to find such information. This paper presents the findings of a study of the expectations of low skilled people with low information literacy when searching for information about training courses. The results indicate that users have access to technology and information is indeed available online but the users who need this information most are not able to find it using conventional search engines.

Keywords: Information Retrieval · Information Literacy · Low Literacy · Low Skills · Unemployment · Training

1 Introduction

Unemployment is a global problem, but one that particularly affects poor and developing countries. Specifically, this is a problem for people who are unskilled or low skilled and have low levels of literacy and information literacy. Gitau[2] showed that such people are unemployable due to their lack of skills for the jobs that are available. Although there are technological solutions to allow them to access information, a lot of people in that category are also either not technologically savvy or they use technology but are unaware of how to go about finding training information that may be useful to them.

Someone who is information literate is able to recognise the need for information, and given that need, he/she is able to adequately locate, analyse and use information[1]. The unemployed in poor countries are, however, often information illiterate.

In most modern societies, getting information on training opportunities using the Internet is a straight-forward process. However, for the information illiterate, there are the following potential problems: lack of knowledge of what information to look for; lack of knowledge about where to look for such information; difficulties in understanding and analysing results; and lack of knowledge to modify the query in order to improve on the results.

Similar problems could be faced by literate users performing complex and exploratory searches, but it is unlikely that literate users would face these issues if given a training information search task[1]. In an attempt to better understand this and other issues that information seekers in the target group face, we conducted interviews and studied their expectations with regards to the search engine and the information obtained. The details and outcomes of this study are presented in this paper.

2   Literature Review

The process of searching for information that fully satisfies ones needs may seem simplistic, but in fact it can be a laborious and time consuming process for novices as well as experts[3][4][5]. For years researchers have studied how different groups of people search for information, their search strategies & patterns, as well as their interactions with the results set[6][5]. That in an attempt to provide fitting solutions to groups that may somehow be limited in using standard IR systems. Cultural factors[7], language barriers, young age[4][8][9], physical ability[10], along with illiteracy, limited subject knowledge and lack of systems expertise, are some of the constraints affecting users ability to find relevant results. Multiple avenues for possible solutions have been explored, including text free, visual & audio based solutions for illiterate and semi-literate users [11] [10], collaborative search[12], simplification or translation of language used[10], and creating bundles of aggregated information[13] to name a few. While not all showed statistically significant improvements, most efforts towards personalised solutions for disadvantages information seekers lead to similar findings; given how distinctive users are, there is no one-size-fits-all solution to providing access to information, and therefore it is important to tend to individual needs.

The details of our data gathering study are presented in Sect. 3.

3   Methodology

The goal of this study was to understand the search experience of users in the target population. There were 15 participants: 12 in Cape Town – South Africa and 3 in Luanda – Angola. The participants in Cape Town were approached through the Fisantekraal Centre for Development (www.fisantekraal.org.za); and the participants in Luanda were randomly selected in a township. The criteria was that participants had to be semi skilled and preferably in search of training opportunities. They were interviewed and their use of search systems was observed during a simple information seeking task.

This was a three part process. First, the users were given an explanation about the purpose of the exercise, and asked to sign a consent form and fill out a questionnaire. This initial questionnaire covered information about demographics, devices use and ownership, employment status, level of education,

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[1] A study analysing the search behaviour of different users has since been conducted.

familiarity with search engines, difficulties they experience in their searches for training courses and possibilities for assistance in the process. Secondly, the participants were asked to use Google to search for information about a training course of their interest. Finally, based on the results obtained from the second task, participants were given another questionnaire to complete. This time the questions were related to the results they obtained in their search. We asked them to rate the results obtained as relevant, slightly relevant, or irrelevant, and justify their choices. We asked whether the result set was satisfactory for their information needs, what information was deemed important but was not available, suggestions for possible improvements to the system and problems they may have faced during the process.

Twelve of the participants were females, and three were males, with ages ranging from 16 to 42 years old. Prior to this exercise, all 15 participants had Internet access and had already used it to search for information.

4   Results and Analysis

4.1   Platforms and Preparation

In terms of hardware, 53% of participants use only their cellphones, 40% use both cellphone and computer, and 7% use only a desktop computer. In terms of search services, 60% of participants use Google, and 7% use Bing. The remaining 33% (5 participants) referred to the browser rather than the search service itself, indicating some confusion on how Internet services work.

Participants were asked about their highest form of formal education; some chose multiple responses as the levels overlap to some degree. 60% of participants completed high school, 33% completed a professional training course, 20% completed primary school, and 20% completed a course at a Further Education and Training (FET) college[2]. Those who chose the other option also specified courses from professional training centres.

Most of the participants (93%) were formally unemployed, 87% were searching for employment, and 67% were searching for training opportunities.

4.2   Finding Jobs and Training

Participants were asked where they searched for training course information. The Internet is the most popular option, chosen by 33% of users, followed by Newspapers and Door to Door search with 13% each. The options of looking everywhere and not yet looking were chosen by 7% each. 12 of our 15 participants were engaged in a training course during this exercise. In conversation with the researcher, all 12 said that the found out about that specific course via the newspapers. However, only 2 participants stated that they use newspapers to search for information about training courses. Thus it is clear that relevant information is in the public domain, but there is no clear link between where

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[2] FET colleges in South Africa are equivalent to Community Colleges in the USA

users search for information and where that information can be found. It is also notable that, while a third of users search for opportunities online, none had enrolled in the current training because of online information.

Participants were asked about the constraints they have in mind when searching for training courses. 6 participants noted that the cost of training is a key constraint. All other constraints (location, search know-how, technology literacy, etc.) were mentioned by only 1-2 participants.

Table 1 displays what the participants indicated as means of improving the current search engines. Not all issues raised relate to the quality of the search engine itself. Some issues were related to the source of the information. However, from the perspective of the information seeker, there is no difference between the two.

Table 1. Suggestions by users on how to improve current search engines

Improvements to Current Search Engines
User friendly, simple, not unnecessarily complicated
Allow for online application
Provide basic information upfront, correct & updated information
Provide data relevant to user location,
Location and direction information, direct user to real people or institution
Aggregate information, no link hopping

Figure 1 displays the common factors that users indicated to be crucial in results that they rated as being relevant. Complete information, prerequisites and details of the application process were considered to be the most informative details. The users performed a single query[3] and were then asked to analyse, rate results (as relevant, slightly relevant and irrelevant) and justify their ratings for the different results. Users found this task to be onerous and most users did not complete the task - when the number of results was reduced from 10 to 4, more users were able to complete the task. This suggests that the assumptions search interface designers make about the ideal form and quantity of information to present to users does not hold true for all users, especially novice users, even those with a clearly defined need for relevant information.

Figure 2 shows pieces of information that the participants indicated were missing from most of the results in the set, but which they consider essential for training course information. It is clear from this data that users had very specific expectations that from their perspective were not met by the technology used. Again, given the users lack of knowledge on how search engines work, they could not make a clear distinction between the expectations for the search engines services and the expectations for information providers, i.e. the ability to find the information v.s. the quality of the information.

A deeper understanding of IR tools is not required for online information seekers. The problems identified here stem from the fact that the target users

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[3] With the first group the whole exercise took over 1.5 hours to complete, and although the users were not told not to refine or change their queries, none of them did so.
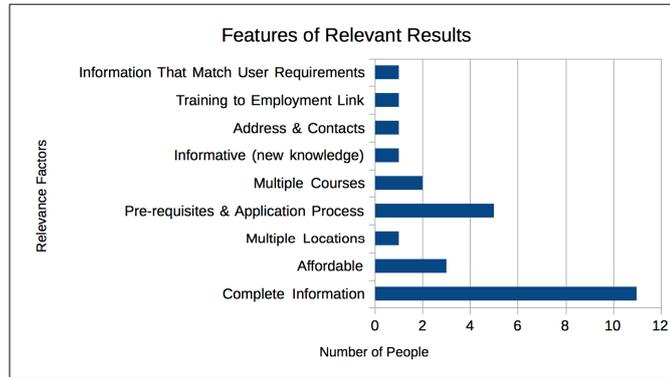
Features of Relevant Results

Relevance Factors	Number of People
Information That Match User Requirements	1
Training to Employment Link	1
Address & Contacts	1
Informative (new knowledge)	1
Multiple Courses	2
Pre-requisites & Application Process	5
Multiple Locations	1
Affordable	3
Complete Information	11

Fig. 1. Factors that make participants rate a result as relevant

are both information illiterate and search novices. Hoewver that should not deter them from finding information online. It is therefore up to researchers to provide a seamlessly integrated system that fulfills all their needs, by amongst other things steering information providers into adhering to standardised formats to safeguard data quality.
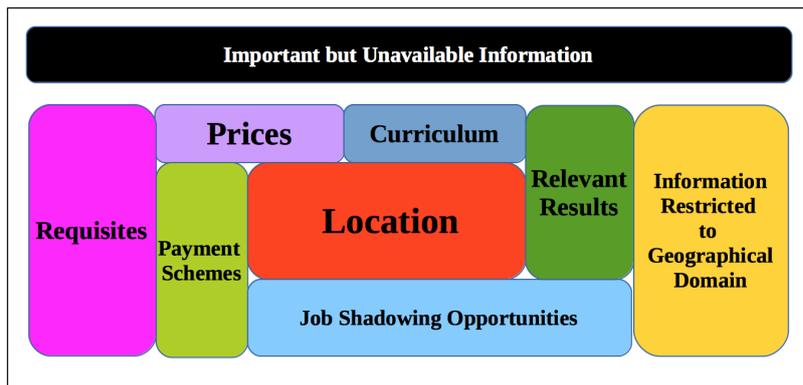
Important but Unavailable Information

Requisites — Prices — Curriculum — Payment Schemes — Location — Relevant Results — Information Restricted to Geographical Domain — Job Shadowing Opportunities

Fig. 2. Missing, but important information

5 Conclusions and Future Work

We have conducted an information seeking exercise to find out what are the expectations of people with low levels of literacy and information literacy when searching for information about training courses. The aim was to assess if the current search technology meets the needs of such users.

60% of participants (9 people) stated that they were not fully satisfied with the result set obtained during the exercise and that, in their opinion there is a need for help in facilitating this process. Our study has shown that technology is indeed available but not yet appropriate to meet crucial needs in some societies.

The goal of future work is to investigate solutions to bridge the gap between the information that is available on the Internet and the potential consumers of such information, who appear not to be able to find the information just yet. Potential solutions include training of users or some form of social engineering, such as the recommendation by Lazonder[12] that users search in pairs instead of individually. Given the specific responses from users on what they value and their difficulties in finding this information, it may be possible to combine various techniques in information processing to extract and offer specific results to users. Further studies will be conducted to support an informed and structured approach to solving this problem.

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