Job Profiles: incorporating contextual factors into workplace search queries

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Abstract

We are developing a means of supplementing keyword searching with job profiles. Job profiles articulate contextual and situational factors of the work task that influence the relevance of various documents types. We focus on software engineering consultants as a group of professionals who are performing complex tasks and making heavy use of information resources in their day-to-day work.

1. Research Questions

➢ What aspects of work influence the choices that software engineers make when looking for information sources and documents?
➢ What characteristics of information and information problems influence the choices that software engineers make when looking for information sources and documents?
➢ What is the nature of the relationship between work tasks and document genres in this domain?

2. Methods – Work Domain Study

Understanding information practices
• interviewed 14 consultants from 2 groups in large software company
• conducted detailed, semi-structured interviews (1-2 hours) using a layered contextual approach to work.

Document Type by Work Task Analysis
• used internal document database with rich metadata
• analyzed 2200 cases of author assigned metadata
• 20 task categories; 17 document type categories
• used correspondence analysis to identify work-task-document type relationship

Document Analysis
• examined 30+ repositories = 50,000+ documents
• extracted 20 common genres

3. Findings

Figure 1: Factors influencing Information Practices

Based on qualitative analysis of 14 semi-structured interviews with software consultants working in two product groups.

• Task relevance
• Information goals:
  - Knowledge & Skills
  - Problem Solving
  - Doing
  - Decision Making
  - Consulting

Figure 2: Document Type by Work Task Analysis

Summary of results from correspondence analysis based on 2200 meta-tagged documents from a software engineering document database. The analysis maps the relationships between and among document type and task categories onto a 2-dimensional space based on the strongest dimensions of disassociation.

4. Proposed Implementation of Job Profiles

To capitalize on the relationships between work tasks and document types for a search system:
• collect information from the user about the work context through “job profiles”;
• categorize documents by type;
• rank the results based on probability that certain document types are relevant to certain job profiles.

5. Next Steps

To build the experimental system, and test it against a baseline search system in this work domain. The key steps are:
1. crawl and index the documents housed in multiple separate repositories;
2. modify a ranking algorithm to incorporate aspects of the job profile – document type relationships;
3. design and build the job profile search interface;
4. conduct an experimental user study to test the system within the work domain under study.

Figure 4: Mock-up of Search Interface with Job Profiles

Job Profiles can be used to document, reuse and share project-related information.

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