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Entitled

A FRAMEWORK FOR PERSONALIZED CONTENT RECOMMENDATIONS TO SUPPORT INFORMAL LEARNING IN MASSIVELY DIVERSE INFORMATION WIKIS

by

Heba Ismail

Faculty Advisors

Dr. Saad Harous, Department of Computer Science and Software Engineering
College of Information Technology

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Abstract

Personalized learning advantages have become evident through research and practice. Even though, most of the early efforts in personalized learning focused on formal learning, there is a growing undeniable demand for personalized support for informal learning. Wikis among other information-oriented platforms are experiencing an increasing attention for informal learning, especially Wikipedia. Link-based navigation and keyword-based search methods used on wiki environments suffer from many limitations. To support informal learning on these environments, it is important to provide easy and fast access to relevant content. However, the massive diversity of unstructured content and user base on these environments pose major challenges when designing recommendation models. To the best of our knowledge, no effective personalized content recommendation approach has yet been defined to support informal learning on wikis. We propose an effective personalized content recommendation framework (PCRF) in addition to an evaluation framework that can be used to evaluate the impact of personalized content recommendations on informal learning from wikis. PCRF implements an efficient structural recommendation model by integrating fuzzy thesauri with adaptive users' interest models generated using structural analysis of topical navigational graphs. Our evaluation approach encompasses two main activities. First, we evaluate the impact of personalized recommendations on informal learning by assessing conceptual knowledge in users' feedback. Second, we analyze web analytics data to get an insight into users' progress and focus throughout the test session. We design user studies with multiple strategies and treatments to evaluate the effectiveness of the framework and assess the impact of recommendations on informal learning. Experiments show that PCRF generates highly relevant recommendations adaptive to changes in users' interests using the HARD model with MAP@k scores 86.4–100%. An evaluation of informal learning revealed that users of Wikipedia with personalized support could achieve higher scores on a conceptual knowledge assessment with an average score of 14.9 compared with 10.0 for users who used the encyclopedia without recommendations. Results confirm that PCRF can effectively support informal learning on wikis and similar environments.

Keywords: Information Filtering, Information Wikis, Informal Learning, Personalized Content Recommendations, Recommender systems, Wikipedia, Evaluation, Web Analytics.