# Developing a Hybrid Journal Recommender System Comparing Different Disciplines

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With the exponentially increasing journals being published every year, researchers need support in choosing the most fitting journal in submitting articles. To address this problem, this study developed a recommender system for journals with a content-based component to compare the text-based similarities between an input article and an already published journal articles in a database. The recommender system also includes a knowledge-based component, to assess the publication requirements of the researcher. This recommender system assists researchers of social sciences and medicine, to find appropriate publication venues from the open access journals. This research evaluated 16 factors that could influence the selection of journals. A survey was conducted to find out the importance of the 16 journal selection factors from the researcher's point of view. Subsequently, suitability of five algorithms was studied to find the most appropriate algorithm to implement the content-based component. According to the results, BM25 similarity surpassed the other algorithms that were studied. A knowledge-based component was developed to combine with the content-based component. Knowledge-based component organizes the order of journals recommended by the content-based component which is based on researcher's requirements of journal selection factors. A second survey was conducted to find whether and to what extent researchers considered these journal factors when choosing a suitable journal for in publishing their recent articles. A third survey requested the participants of the second survey to rank the suitability of journals recommended by the combined recommender system. The results revealed that about 58.8% of researchers from Social Sciences and 66.2% of researchers from Medicine, agree with the suggestions made by the combined recommender system. Furthermore, 40.4% of Social Sciences and 35.5% of Medicine researchers have recommended more suitable journal(s) than the one they have already published in. Average performance of the recommender indicated that about 18% and 15% of the researchers in Social Sciences and Medicine respectively have lost the similar recommendations, according to the most suitable order. Percentages were indicated as 28.4% and 22.4% of loss in Social Sciences and Medicine respectively when the average performance was scrutinized with a system that recommends suitable suggestion for all 10 topmost retrievals according to the most suitable order. The end result of this study is applicable to publishers of journals, editors, policy developers of academic organizations, librarians, and system developers, in addition to researchers.

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