

EDUCATIONAL RECOMMENDER SYSTEMS: A BIBLIOMETRIC ANALYSIS FOR THE PERIOD 2002 – 2022

(Sistem Pengesyor Pendidikan: Analisis Bibliometrik untuk Tempoh 2002 – 2022)

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ABSTRACT

Recommender systems have been applied across various domains to address the challenge of information overload by furnishing users with a personalised and pertinent recommendations. The surge in educational resources, notably within the e-learning content realm, has spurred educational recommender systems' emergence. Numerous studies have delved into these systems, employing diverse approaches and techniques to enhance the accuracy of recommendations. Consequently, analysing scholarly work on educational recommender systems becomes pivotal, providing an overview of prevalent trends and explored subjects within the field. This study aims to gather statistical information on educational recommender systems by conducting a bibliometric analysis of related papers published in the Web of Science (WoS) database from 2002 to 2022. The analysis includes examining the annual publication trend, the leading authors, journals, and countries, the most impactful articles, and the collaborative networks among countries. Then, the most common keywords, keyword clusters, and relationships between keywords were analysed with a word cloud and keyword co-occurrence network. This study also uncovers the important themes in education recommender systems research over time. The findings indicate that the main technique used in educational recommender systems is the collaborative filtering technique. However, in recent years, content-based filtering has also been applied with an inclination for natural language processing techniques. Overall, this paper presents broad insights into studies on educational recommender systems to allow the discovery of potential future topics in the domain.

Keywords: bibliometric; collaboration network; co-occurrence network; education recommender system

ABSTRAK

Sistem pengesyoran telah digunakan merentasi pelbagai domain untuk menangani cabaran lebih maklumat dengan memberikan pengguna pengesyoran yang peribadi dan berkaitan. Lonjakan dalam sumber pendidikan, terutamanya dalam alam kandungan e-pembelajaran, telah mendorong kemunculan sistem pengesyoran pendidikan. Banyak kajian telah mengkaji sistem-sistem ini dengan menggunakan pelbagai pendekatan dan teknik untuk meningkatkan ketepatan pengesyoran. Oleh itu, menganalisis kerja ilmiah berkenaan sistem pengesyoran pendidikan menjadi penting dalam memberikan gambaran keseluruhan tentang trend lazim dan isu yang diterokai dalam bidang ini. Kajian ini bertujuan untuk mengumpulkan maklumat statistik berkenaan sistem pengesyoran pendidikan dengan menjalankan analisis bibliometrik terhadap makalah berkaitan yang diterbitkan dalam pangkalan data *Web of Science* (WoS) dari tahun 2002 hingga 2022. Analisis termasuk mengkaji trend penerbitan tahunan, mengenalpasti pengarang, jurnal, dan negara yang menerajui bidang ini, mengenalpasti makalah yang paling memberikan impak, dan rangkaian kerjasama antara negara. Kemudian, kata kunci yang paling biasa, kelompok kata kunci dan hubungan antara kata kunci telah dianalisis dengan awan perkataan dan rangkaian kejadian bersama kata kunci. Kajian ini juga meninjau tema penting dalam penyelidikan sistem pengesyoran pendidikan dari semasa ke semasa. Dapatan menunjukkan bahawa teknik utama yang digunakan dalam sistem pengesyoran pendidikan ialah teknik penapisan kolaboratif. Walau bagaimanapun, dalam beberapa tahun kebelakangan ini,

penapisan berasaskan kandungan juga telah digunakan dengan kecenderungan terhadap teknik pemprosesan bahasa semula jadi. Secara keseluruhannya, kertas kerja ini membentangkan pandangan yang luas tentang kajian yang berkaitan dengan sistem pengesyoran pendidikan untuk membolehkan penemuan potensi topik dalam domain ini pada masa hadapan.

Kata kunci: bibliometric; rangkaian kerjasama; rangkaian kejadian Bersama; sistem pengesyor pendidikan

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