

MISQ Archivist

Recommending Remedial Learning Materials to Students by Filling Their Knowledge Gaps

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Abstract

We study the problem of providing recommendations to students that help them in their studies. To address this problem, we present an approach of providing recommendations of remedial learning materials to students that fill the gaps in their knowledge of the subject in the courses they take. According to this method, we first identify gaps in the student's mastery of various course topics. We then identify those items from the library of assembled learning materials that help us to fill those gaps, and recommend these identified materials to the student. We show empirically through A/B testing that this approach leads to better performance results, as measured by student's total score on the final exam across the personalized, non-personalized, and control groups and by improvement of the student's average score on that exam in comparison to previously taken courses. The proposed method is scalable since it can be applied to a large number of students across many courses.

Keywords: Recommender systems, technology enhanced learning, on-line education, knowledge gap