ABSTRACT

Web-based learning environment has led to the creation of a big number of digital learning materials that offer various topics; this makes users difficult to get valuable materials. Learners spend a lot of time to browse and filter information they need in terms of knowledge value or preference. Limited learnersøtime can prevent them from finding useful learning materials. One of the most successful technology to solve the problem is recommender system which can select items the user is interested in from a large amount of data. One recent study has attempted to use content-based filtering combined with good learnersøratings method (CBF-GL method). This method has a better accuracy compared to collaborative filtering method and also compared to content-based filtering method.

This thesis proposes an improved method for an existing e-learning recommender system with combination of content-based filtering and collaborative filtering with good learnersøratings (CBF-CF-GL method). Adding a collaborative filtering method is intended that only the rating of good learners with certain similarity with learner are used as rating recommendations on every learning material.

Experiments were conducted for measuring Mean Absolute Error (MAE) score and comparing them. The experiment shows that the CBF-GL method has produced the MAE score 0.542 while the CBF-CF-GL method has given a MAE score 0.447. The CBF-CF-GL method produces MAE score lower than the CBF-GL method. It has showed that the utilization of collaborative filtering at good learnersø rating has improved the system accuracy.

Keywords: e-learning, recommender system, rating, tagging, good learner, content-based filtering, collaborative filtering, learning material