UMS

UNIVERSITI MALAYSIA SABAH

AUGMENTATION OF ONTOLOGY-BASED USER MODEL WITH ITEM RESPONSE THEORY (IRT)

FINAL REPORT

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Synopsis

Electronic Learning (or E-learning) supports teaching and learning through the use of a computer technology. It is not something new and is used by many educational institutions all over the world. The use of this technology is not intended to replace conventional methods of classroom teaching but aims to create an augmented learning environment where technology is used to deliver a combined range of teaching techniques. Normally, the e-learning system is just a medium to deliver the educational content. In this learning environment, all learners are treated the same even though they are from different background. All learners are getting the same presentation of the learning content. The instruction and learning content is not personalized based on the learner's need. Currently we witnessed a growing interest in applying personalization and adaptation in numerous application domains especially in education. Advanced information systems are styled in a way that enables users to quickly access information relevant for their needs. Through personalized learning system, it will enable to offer the most appropriate resources tailored to the learners' needs. The core of personalized learning system is user model containing personal information such as knowledge, learning styles, goals which are necessary for learning personalized process. This research proposed a new approach dealing with diagnosis in user modeling which emphasis on semantic technology for user modeling and Item Response Theory for adaptive question selection. The advantage of such an approach through the ontology-based user model is that this model enables adding semantic meaning to data and using reasoners to infer new knowledge which categorizes the user based on their personal preferences in terms of user's prior knowledge, behavioral aspects, and learning goals. Item Response Theory (IRT) is the study of test and item scores based on assumptions concerning the mathematical relationship between item responses. By integrating IRT, it incorporates measurement assumptions about learner's item and learning performance, and how performance relates to knowledge as measured by the items on a test.