Summary: A survey of educational data mining research

Huebner’s (2013) article covered the data mining research concerning education. Educational data mining (EDM) can be executed in a number of ways; clustering, classification, and association rule mining are three common techniques. Although data mining is typically quantitative, educational data mining sometimes includes qualitative research methods as well. Synthesizing large amounts of data helps institutions with the decision-making process, and Huebner broke up the existing literature into three categories for doing so: student success and retention, personalized recommender systems, and evaluation of student learning within learning management systems.

Identifying and responding to at-risk students can make a big difference in student retention rates, and data mining may be able to help. Huebner cited several studies in which student retention rates were improved due to EDM, but also noted that these results are not generalizable.

Personalized recommender systems (PRSs) are mostly used in advertising to influence consumer spending. These function by tracking online behavior and recommending products for users that are similar to previously viewed ads and products. This algorithmic method is an expanding area of experimentation for EDM. Educational data mining technicians base their research on browsing history and history of student achievement, which can be useful to predict and improve student performance. According to Huebner, “the
contextual browsing model is much more effective than using association rule mining models.” (2013, 7).

Most data mining tools are complicated and require a certain level of expertise, but some institutions have created EDM “tool kits” for evaluation of student learning within learning management systems. Not only do these tool kits make it simple for non-experts to interpret the data, but they also create a way for teachers and administrators to share the data with one another. The author cited an application for this type of data mining related to customization, where each student’s progression through an online course was individualized. Only after the student mastered a section of the content would they move onto the next. Huebner stated that “this was an effort to create significant and optimal learning experiences for each student, and was a success” (2013, 8). EDM is also used in online education for tracking discussion postings, length of time spent reading certain pages, and learner engagement, to name a few.

I agree with Huebner that the field of educational data mining is continually becoming more prominent. The scope of EDM is growing as more opportunities for education become available. For example, Massive Open Online Courses (MOOCs) have thousands of enrolled students at any given time, which produces large amounts of data by the minute. So far, little research has been collected in this area, but the outcomes for student retention are not promising. EDM is needed in order to decide if these courses are worth the time and effort put in.
Reference