

Exploring the potential of Educational Data Mining (EDM) in measuring pedagogical readiness for Online learning

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Abstract:

While most of higher education institutions around the world are resorting to online learning to meet the emerging needs of students and academic community, many are still skeptical due to the lack of informed insights on the learners' and instructors' readiness to move from blended learning to online learning. One major aspect of readiness that is overlooked in research is pedagogical readiness. Instructors and learners need to have the baseline pedagogical skills and techniques to ensure success in online courses and institutions need to prepare them in this aspect. In order to take informed decisions and design effective preparation programs and solutions, meaningful data on the existing skills and techniques are required.

The newly emerged discipline Educational Data Mining (EDM) provides methods for exploring the unique types of data generated from educational settings such as learning management systems (LMS), and use those methods to better understand student's learning and performance. This paper intends to illustrate how EDM is undertaken and which data mining techniques are suitable for providing a broad picture of pedagogical readiness for online courses among students and instructors at Sultan Qaboos University (SQU). A typical EDM process includes data acquisition, data preprocessing, data mining, and validation of results. A variety of data mining techniques such as Neural Networks, Clustering and Visualization Methods, Fuzzy Logic are applied to the vast amount of data produced by the LMS. This paper proposes a model to guide this process at SQU.

Keywords-component: *Online Learning, Educational Data Mining (EDM), Pedagogical Readiness*