Using students' participation data to understand their impact on students' course outcomes

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Abstract

Many students with diverse needs are enrolled in university courses. Not all these students are able to be successful in completing their courses. Faculty members are keen to identify these students who have the risk of failing their courses early enough to help them by providing timely feedback so that students can meet the requirements of their courses. There are many studies using educational data mining algorithms which aim to identify at risk students by predicting students' course outcomes, for example, from their forum activities, content requests, and time spent online. This study addresses this issue by clustering the students' course outcomes using students' class participation data which can be obtained from various online education technological solutions. Using data mining in educational systems as an analytical tool offers researchers new opportunities to trace students' digital footprints in various course related activities and analyse students' traced data to help the students in their learning processes and teachers in their educational practices. In this study the focus is not only on finding at risk students but also in using data for improving learning process and supporting personalized learning. In-class participation data was collected through audience participation tools, the out-of-class participation data was collected from Stream and combined with the qualitative and quantitative data from questionnaires. The participation data were collected from 5 different courses in the mainstream university programs. Our first aim was to understand the perception of students regarding the effect of participation and using the audience participation tools in class and their effects on students' learning processes. Moreover, we would like to identify to what extents their perceptions match with their final course outcomes. Therefore, the tool has been used in different mainstream courses from different departments. The results of our study show that students who participated more and thought that the tool helped them to learn, engaged and increased their interest in the course more, and eventually achieved highest scores. This finding supports the view that in-class participation is critical to learning and academic success.

Produced Publications and Presentations

1. Shadi Esnaashari, “Bridging learning analytics with Xorro-Q: An institutional dashboard” (full paper-New Zealand Computer Science Research Student Conference NZCSRC. 2016).

2. Shadi Esnaashari & Anuradha Mathrani, Paul Watters, P. (2015)”Investigation of Audience Interaction Tools from the Perspective of Activity Theory”. 26th Australasian Conference on Information Systems. : The 25th Australasian Conference on Information Systems.

3. Shadi Esnaashari,” Is Participatory Pedagogy Useful and Satisfying for Tertiary Students?”, In submission.

4. Shadi Esnaashari,” Clustering Students based on their participation in classes”, In submission.

5. Shadi Esnaashari, “Bridging learning analytics with Xorro-Q: An institutional dashboard”, (ACIS Doctoral consortium), Adelaide, 2015.

6. Shadi Esnaashari, “Bridging Learning Analytics with Xorro-Q: An Institutional Dashboard for Engagement”, NZ Information Systems Doctoral Conference, NZISDC 2015.

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