

USING DATA MINING FOR ASSESSING STUDENTS INTERACTION WITH SOCIAL MEDIA IN HIGHER EDUCATION: THE CASE OF USING LEARNING ANALYTICS WITHIN THE CURRICULUM

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Abstract

The role of social media in higher education has shifted from providing a web 2.0 solution for supporting communication in computer supported learning to more advanced functionalities including virtual learning environment tools (e.g. content sharing, threaded discussions). This paper discusses how analysis of social media usage can equip tutors with visual probes to identify areas that may need attention. The paper also describes how data mining can be used to assess communication patterns in computer supported collaborative learning (e.g. issues associated with content, learning activities or student competencies).

The data collected from Facebook, Twitter and LinkedIn have been analysed using various statistical techniques to identify group cohesion, communication pattern, student interactions with and use of the different types of social media. Current work presented in the paper includes the statistical analysis of data communication between small student groups or student pairs from a cohort of more than 200 final year students studying information systems, over a two-year period. The scope of the analysis was to assess how different learning tasks affected individual and group contributions as well as the impact of specific learning activities on tasks such as commenting, sharing, linking and liking. The investigation also considered how keywords were used, indicating how social media interaction was affected by the subjects covered during specific learning weeks.

Building on previous work by the authors, this paper tests metrics identified previously for use in a learning analytics dashboard. The data includes attributes, which identify students' usage of social media such as total tweets, Facebook posts and LinkedIn projects, submitted by students over a period of 24 learning weeks over 7-8 months, during the two academic years 2014-15 and 2015-16.

Data mining techniques are used to investigate whether metric, identified before, are useful in predicting student's results in terms of engagement, involvement, participation, contribution and communication. These are some of the factors that may affect the learning experience when integrating Web 2.0 technologies with traditional virtual learning environments. Current work also discussed the design of learning dashboards, to identify student's results in real time (i.e. identifying those students who are likely to fail or need additional support), as ways to implement learning analytics in the curriculum.

Keywords: Social media, Web 2.0, learning analytics, data mining for e-learning, learning dashboards.