Title: Social media usage in engineering student design teams: project perceptions from highly centralised students

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ABSTRACT

Background:
Social media penetration has compelled higher education and organisations to consider the role of social media in various novel pedagogical learning settings (Linna et al, 2015; Pettersson et al 2014). We explored social media communication and perceptions of undergraduate engineers involved in an industrially focused annual worldwide competition to design and develop a racing car, where students are allocated project management and team leadership responsibilities (Gargiulo & Benassi, 2000; Gällstedt, 2003; Zika-Viktorsson, A., Sundström, P., & Engwall, M, 2006).

Objective:
The aim of the research was to understand the views of engineering students who are highly centralised in social media networks, and if they perceive the nature of their work differently than less central team members.

Methods:
During the project design phase, data from various sources were extracted from one academic institution. These data sources included meeting minutes, Computer Aided Design (CAD) files, project reports and Facebook communication in relation to the project’s Facebook page. This data extraction occurred between the 04-June-2013 and the 17-April-2015. Additionally, students periodically completed a questionnaire (consisting of 42 questions) about a range of project related factors. This WIP paper focuses on the analysis of the student Facebook communication in relation to the survey answers. Using the degree centrality figures for students from their Facebook network we compared these results to the survey answers using Spearman’s rank correlation coefficient (small sample, unknown linear relationship, unknown number of outliers). There were 35 students who conversed via Facebook and of those a total of 23 students also completed the survey.
Results:

We found that from the 42 questions, three questions showed a significant correlation between centrality ranking and higher answers being given in a scale from 5 (very high) to 1 (very low). The first of these significant correlations concerned individual workload with the higher centralised individuals also perceiving that their workload was higher (Rho = 0.42264). There was also a significant positive correlation with highly centralised individuals and perception of group conflict (Rho = 0.51224) and group delays (Rho = 0.61839). These findings suggest that highly centralised students perceive that their workload is higher than that of their peers. They also appear to have a holistic view of the project, identifying conflicts and potential delays in the overall group as they bring different components of the engineering project together. It is also notable that the persons identified as having the highest centrality scores were the student project manager and team leaders.

Future Work:

The sample size in this study is small (23 individuals), but it is envisaged that the same analysis will be conducted with the 2015/16 cohort of design engineering students. This comparison between year groups will ascertain if the presented significant findings occur year-on-year rather than falsely significant. Furthermore, we wish to compare other available data sources such as the network of collaborations on project documents and CAD files, with the questionnaire results and Facebook communication to understand the digital footprint of the project manager and how, long term, we can digitally support them.

References:


