Teamwork in Engineering Education: Student attitudes, perceptions, and preferences
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ABSTRACT

CONTEXT

Teamwork or collaboration skills are an integral part of contemporary engineering practice and are highly valued by employers (Crosthwaite, 2021). Within the design of team-based learning activities it is important to understand student attitudes, perceptions, and preferences. Pfaff and Huddleston (2003) and Tucker and Abbasi (2016) found that positive student attitudes to teamwork were strongly correlated with the amount and distribution of workload, previous teamwork experiences, dedicated class time, and the use of peer evaluation. While Grzimek et al. (2020), found that the attitudes to teamwork vary between disciplines. However, there is limited understanding of how attitudes develop across the program, as well as the effect of study mode.

PURPOSE OR GOAL

This study explored attitudes of undergraduate engineering students to teamwork in a range of courses across all year levels. We investigated (1) general student attitudes to teamwork and (2) whether there are changes in attitudes across year levels, as well as student preferences (3) around the organisation of teams, and (4) regarding online and face-to-face teams.

APPROACH OR METHODOLOGY/METHODS

An anonymous survey was developed to elicit student responses consisting of closed-ended questions collated from existing instruments or written by the research team. After internal review and pilot testing, the survey was conducted during class time in two courses at our institution, with additional respondents solicited through advertising the survey in other courses.

ACTUAL OUTCOMES

This paper reports the results of a preliminary study into student attitudes to teamwork (n=44). We found our respondents are broadly satisfied with the presence of teamwork in the curriculum and believe it teaches valuable professional skills. We did not find trends related to year level, perhaps because of the limited sample. Respondents preferred moderately sized teams, and indicated support for having teams led by two people. Finally, the students preferred face-to-face over online teams, pointing to the impact of mode on relationships, communication, accountability and conflict.

CONCLUSIONS/RECOMMENDATIONS/SUMMARY

The development of teamwork skills is a critical part of contemporary engineering education. This is most effectively achieved when students are engaged and have a positive attitude to teamwork. Out results indicate students value teamwork and its capacity to enable learning key professional skills. However, teachers must ensure that students are well prepared and supported as they engage in these activities.

KEYWORDS

Teamwork, student attitudes, student experience