

Comparison of Team-Forming Approaches for a Year-Long Senior Project

Sarah Harding¹, Eileen Rossman¹, Peter Schuster¹, Brian Self¹

¹Department of Mechanical Engineering, California Polytechnic State University

One of the first challenges with year-long senior design projects is the formation of student teams. Team formation can be informed by the significant published research about preferred student team membership and appropriate formation techniques. However, most current studies focus on student team formation for short-term projects where each team will have the same project goals. With this focus, research suggests that team formation be based primarily on complementary skills or team styles, not on student interests. In contrast, many senior design project teams will need to work together over a full academic year, and each team works on an entirely different design challenge. In these cases, experience has shown it is beneficial for student interest to factor into team formation. What is the best way to consider student's interests when forming teams, while also integrating research-based team-forming strategies? How does the team-forming approach affect student experiences, student learning, and project outcomes?

This study explores these questions by comparing two different approaches to forming teams in a mechanical engineering senior design project course: (a) Faculty-assigned teams taking into account student project interest and self-identified skills, and (b) Self-formed teams by meeting other interested students around project posters. The benefits and risks of the two methods are discussed, and the observed results are presented. The outcomes of each teaming process are assessed through multiple measures, including objective measures of team diversity, student and faculty survey responses, periodic team feedback assessments, and faculty observations of team interactions. Future work will include increasing the sample size and assessing project successes as a function of team formation.