Assessment of Peer Mentoring of Teams in a First-Year Design-Build-Test-Class

Magel Su, James Collier, Laura Alford, Stephanie Sheffield, Robin Fowler

1Materials Science and Engineering, 2Naval Architecture and Marine Engineering, 3Technical Communication Program

Introduction
In Introduction to Engineering: Underwater Vehicle Design, students work in teams of four or five students to design, build, and test two underwater vessels, while peer mentors recruited from former students of the course help to guide design decisions and provide feedback on the design and communication process.

Two Qualtrics surveys were designed to collect information from students and peer mentors.

- Students from Fall 2016 were asked to identify strengths and weaknesses of the peer mentor program (N = 27/112)
- Consider effects of peer mentor actions on individual student development and team development
- Investigate joint student and peer mentor growth as part of the peer mentoring process
- Consider effects of peer mentor actions on individual peer mentor development
- Identify actions that mentors performed for students throughout the design-build-test-communicate process

Past/current peer mentors were asked to identify strengths and weaknesses of the peer mentor program (N = 16/36)

Peer mentors developed leadership and communication skills
- “My communication and creative skills were developed when assisting the new students through the design and build portions of the course.” - Peer Mentor
- A skill gained was “learning when to give input and when to let them figure it out on their own.” - Peer Mentor

Peer mentors had significant impacts on teamwork, such as:
- “Keeping the team directed towards our main goal, even when members of the team such as myself seemed inclined to pursue insignificant tangents to the main design.” - Student
- “Facilitation of communication for equality of work and ideas.” - Student

Overall, having a peer mentor can change student team performance and success
- “Peer mentors are well equipped to be able to really make a difference in the attitude and performance of their teams.” - Student
- “The most significant impact that my peer mentor had on my team was that he met with us many times outside of class.” - Student
- When a peer mentor was not present, students reported feeling “somewhat stranded and on our own.” - Student

Student/Mentor Feedback

Acknowledgements
We would like to thank Greg Martin and BP for their continued support of this section of Introduction to Engineering, all of our peer mentors for supporting the peer mentor program, and all of the students who participated in this research.