

## **GIFTS: Strengthening Inclusive Group Dynamics**

We utilize the Gallup StrengthsFinder inventory [1] to foster diversity and inclusivity in our first-year Introduction to Engineering group projects. StrengthsFinder helps students better understand themselves and others, improving team communication and performance. We also use this technique to address stereotype threat. Students discover the diversity of ways each individual engineer contributes to the profession through their unique set of strengths.

The Gallup StrengthsFinder inventory reveals people's top five strengths. These strengths describe the individual's natural talents or dispositions: domains or environments that energize. The thirty-four strengths fall into four domains: Influencing, Executing, Relationship Building, and Strategic Thinking. For example, someone with the *consistency* strength (Executing domain) seeks balance and works to ensure fairness. Strengths are natural tendencies and should not be confused with skills such as problem solving, writing, fabricating, or computing. We encourage students to develop their engineering skills from their unique set of strengths. While they must develop competency across all the skills required for engineering work, students should "play to their strengths."

At the beginning of the course, students complete the Gallup StrengthsFinder inventory and learn about their unique talents. Later, they discover how they can leverage their strengths to improve their learning and communication. We use CATME's Teambuilder software [2] to form teams with students that span the different domains. The optimization can be set to favor groups with dissimilar Strengths domains among members.

Students also complete assignments designed to effectively highlight the advantages of a diversity of strengths within their team and devise strategies for effective communication. Specifically, they receive training on how to understand, communicate with, and work with teammates who have varied strength profiles. Students recognize how their unique attributes position them for meaningful and valuable contributions to their group. This understanding is expressed through a question on the first page of the team contract as groups describe their rationale for selecting project domains and individuals to lead each domain. Previous research indicates that engineering students are overrepresented in the Strategic Thinking and Executing domains [3] and [4]. Rather than feeling out of place, a student possessing strengths in the Relationship Building or Influencing categories begin to view their uniqueness as an asset.

We find student enthusiasm for StrengthsFinder increases as they recognize how their new understanding can aid them in their individual professional development. In addition to helping students develop teamwork and leadership skills as described above, they learn how to leverage their strengths to improve motivation. By reframing a professional development goal or a skill-building task to their individual strength profile, they can make their work more enjoyable and thereby achieve improved outcomes. Students become more effective at communicating their talents on resumes and in cover letters. They also share their personal reflection on strengths with their faculty advisors and others, which makes it easier for those mentors to write powerful reference letters and personalized guidance. The exposure to Strengths Finder in the Introduction to Engineering course, enriches the student experience across all four years and into their professional life.

## References

- [1] T. Rath, *StrengthsFinder 2.0*, New York: Gallup Press, 2007.
- [2] R.A., M.L. Loughry, M.W. Ohland, and G.D. Ricco, G. D. "Design and validation of a web-based system for assigning members to teams using instructor-specified criteria.," *Advances in Engineering Education*, vol. 2 (1), pp.1-28, 2010.
- [3] N. F. Jackson and S. Magun-Jackson, "Improve Your Strengths and Manage Your Weaknesses: Using the StrengthsFinder Profile in Team Development," in *ASEE Annual Conference Proceedings*, Nashville, 2003.
- [4] B. Read-Daily, K. M. DeGoede, and S. L. Zimmerman, "Gallup StrengthsFinder in Engineering, ASEE Annual Conference & Exposition" in *ASEE Annual Conference Proceedings*, Salt Lake City, Utah. 2018.