

GIFTS-Team Safety Brief: A tool to promote and enhance teamwork

Prof. Mirna Mattjik, Colorado School of Mines

Mirna Mattjik, a Teaching Associate Professor in the Engineering, Design, and Society Department, excels in teaching design engineering. She is also affiliated with the University Scholars and Honors Program and the Humanities, Arts and Social Sciences Department. Her educational background spans industrial technology, international political economy, and project management. Pursuing her doctorate, her research centers on educational equity in higher education.

As a Teaching Faculty member, Mirna Mattjik is committed to enhancing student learning through high-impact practices and promoting broader participation in engineering. She strives to create inclusive learning environments that foster a sense of belonging for all students at Mines. Currently, she is an active participant in the stEm PEER Academy - Engineering Plus, cohort 2023

Carter Moulton, Colorado School of Mines

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Introduction

First-year students will likely experience their first collegiate team in their engineering design course. Albeit the increased integration of teamwork in engineering design education, there are less information on what, how, and when to successfully intervene in team activities to yield better team performance. Psychological safety, which is a team construct established through deep interactions and conversations that facilitate how team members perceive their treatment from team members, could possibly elevate the performance of engineering design teams [1]. This initiative is a Work in Progress under the GIFTS category. The hypothesis is that a positive team experience with an emphasis on psychological safety can enhance a student's academic sense of belonging. Solidifying this tool is the first step to a multi-step research study.

Project Approach

The “Team Safety Brief” <https://bit.ly/tsbriefd1> was created as a proposed intervention tool for leveling skills in team dynamics. Six best practices were presented to students, and teams were given instructions to rank order which of these practices they will do immediately, in a couple weeks and much later in the semester. A beta launch was done in the Spring 2024 semester which results are included below. By the end of the semester, students were given a short survey on: (1) which of these practices they learned from/Q1, (2) which were applied during the semester/Q2 and (3) what would work better for the team/individually regarding team dynamics/Q3 (free response). The return on response for this survey was about 87% (40/47).

Figure 1 and 2 are results Q1 and Q2 respectively. Answers to Q3 overwhelmingly is about communication in some regard, following the trend where “Communication, Period!” is the majority for both Q1 and Q2.

However, students claim to want to improve in communication, however since there are many facets to communication, the

interpretation of what is further needed varies significantly. In contrast, less than 8% for both Q1 and Q2 is “Sharing is Caring”, which main thrust is psychological safety. Some improvements might be adding clarity to what this means, and/or adding a clear example of practice. Another improvement is deployment and its potential connection with Yosso’s theory on Community Cultural Wealth [2] and the embedded questions about Psychological Safety in the CATME survey for peer evaluation.

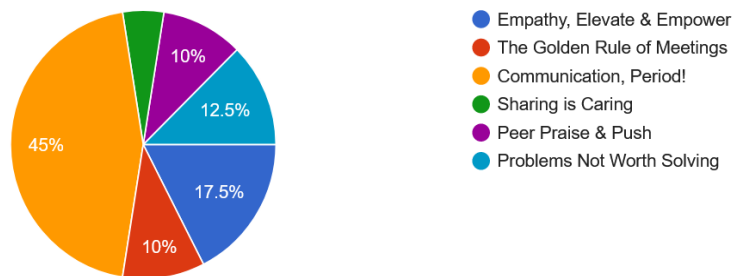


Figure 1. Answers to Q1 by percentage

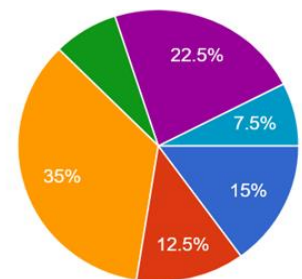


Figure 2. Answers to Q2 by percentage

References

- [1] C. Cole *et al.*, “What Factors Impact Psychological Safety in Engineering Student Teams? Mixed-Method Longitudinal Investigation,” *Journal of Mechanical Design*, vol. 144, no. 122302, Oct. 2022, doi: [10.1115/1.4055434](https://doi.org/10.1115/1.4055434).
- [2] T. J. Yosso, “Whose culture has capital? A critical race theory discussion of community cultural wealth,” *Race Ethnicity and Education*, vol. 8, no. 1, pp. 69–91, Mar. 2005, doi: [10.1080/1361332052000341006](https://doi.org/10.1080/1361332052000341006).