Engaged Learning in the M-Stem/IGR Collaboration

What is the M-Stem Academy?

The M-Stem/IGR collaboration takes place during the M-Stem Summer Academy, a program for incoming engineering students who spend six weeks in intensive pre-college courses and engineering activities. Students take a combined physics and chemistry course, computer science, math (at various levels), and a course IGR developed on identity, groups and teams.

The M-Stem Course

The course covers four modules: Identity Matters, Identity in Groups and Teams, Personality and Conflict in Groups and Teams, and the Role of Culture in Engineering. The course is facilitated by undergraduates trained by IGR and Residence Education.

Engaged Learning through Research

The M-Stem/IGR research is an effort to understand what happens in the summer program. The students take a survey both before and after they participate in a course. This survey asks students about things such as their experiences with group work, their attitudes toward diversity in engineering, and their desire to bridge differences, etc. Using these data, the research team helps the teaching team learn what is working, and how we can improve the course.

Applying Academic Learning to Project Work

Students were challenged to look at the group dynamics in their classrooms and in their group work in all of the M-Stem classes. The IGR final assignment asks the students to write about what they learned in the IGR course that helped them in their groups that built a bridge in the chemistry/physics course.

Applying Academic Learning About Facilitation

The academic learning of the facilitators from the IGR and Residence Education training courses came alive by facilitating the sections of the IGR M-Stem course. They were responsible for six sessions with eight students in each section, dealing with group dynamics in the classroom and encouraging their students to think how their identities and the identities of other students affect those dynamics.

Applying Learning from Projects to Classroom Learning

M-Stem assigns each student to an on-going group of four that serves as a learning environment for the entire summer program. Students in these groups solve problems together in the physics/chemistry course, create designs, and carry out learning activities in the IGR course. What they learn in these applied settings is constantly brought back into their classroom learning, making a seamless integration of project and classroom learning. It is engaged learning at its best.

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