

Incorporating Cultural Humility in Graduate Engineering Education: Insights from focus groups and seminars

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INCORPORATING CULTURAL HUMILITY IN GRADUATE ENGINEERING EDUCATION: INSIGHTS FROM FOCUS GROUP AND SEMINAR

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Background

- Engineering students are actively engaging and addressing **global challenges** outlined by the United Nations Sustainable Development Goals. These challenges encompass pressing issues such as poverty, inequality, climate change, and sustainable development.
- Recognizing the complexity of global issues, it is important to provide students with a comprehensive **global engineering education** that goes beyond traditional boundaries. Global education provides students with the necessary tools to understand the interconnectedness of global challenges, cultures, and the importance of collaborative solutions.

Engage with differing perspectives and experiences while maintaining a sense of our own cultural identity.

Fig 1. Global learning goals (adapted from Global Affairs outcomes, University of California Davis)

Expand our ability to cross cultural boundaries and collaboratively and equitably reach common goals.

Examine multiple and intersecting dimensions of culture, discovering our own and others' cultures, including experiences of privilege and oppression.

- A way to engage, examine, and expand the student's ability to work with multi-cultural academia and professional teams is to develop empathy and understanding through lifelong process of critical self-reflection and self-critique, also known as **Cultural Humility**.

Cultural Humility



Fig 2. Cultural humility pathways (adapted from Project READY ready.web.unc.edu)

Cultural Humility in Graduate Civil Engineering Education

Motivation

- Fostering cultural humility supports inclusive problem-solving, enabling civil engineers to address challenges in a way that respects and integrates diverse perspectives.
- Cultural humility skills are increasingly valued by employers, as the engineering workforce becomes more diverse and global.
- Civil engineering department at UC Davis has 182 graduate students from across the world. The distribution for graduate students is as below:

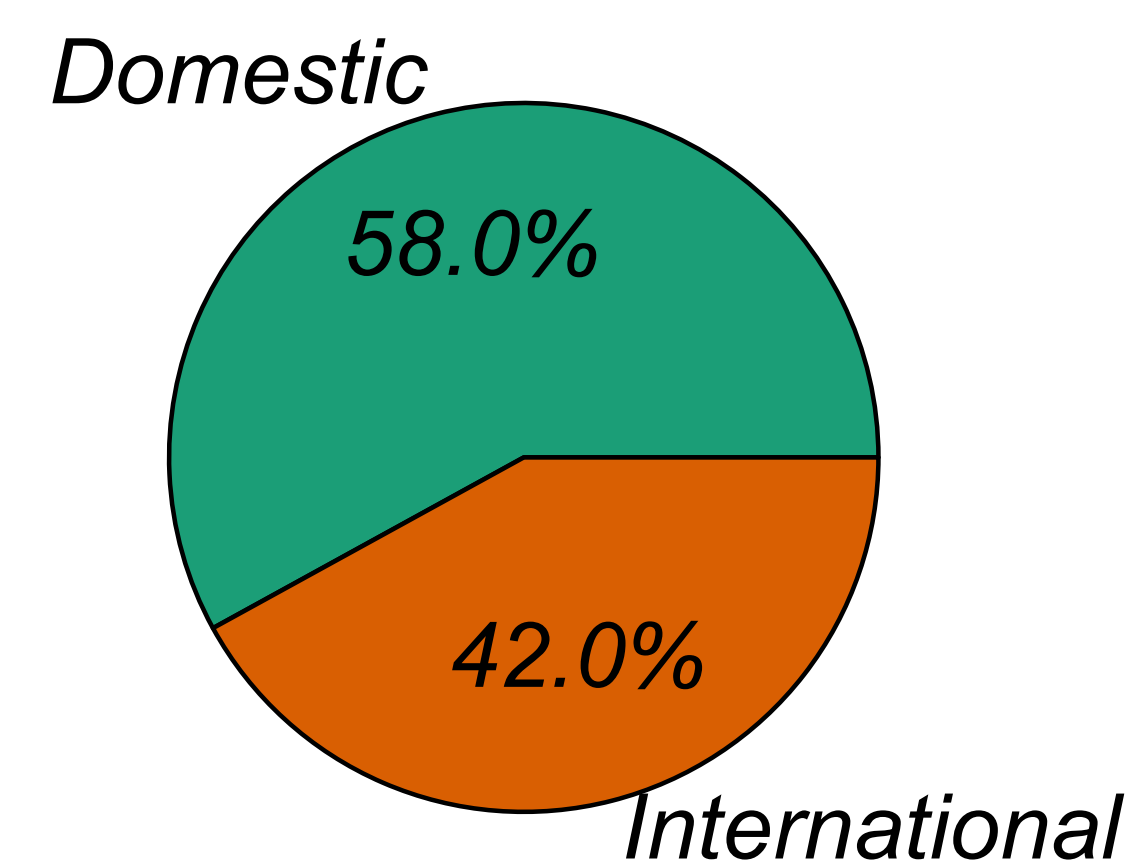


Fig 3. Distribution of graduate students in the department

- By incorporating discussions on cultural humility, domestic students may learn to recognize and challenge power imbalances, while international students may feel more comfortable sharing their experiences and perspectives which can help fostering mutual respect and understanding.

Focus group

- Focus group designed for graduate students to engage participants in self-reflection activities to explore their own cultural backgrounds, beliefs, and biases.
- Questions included:**
 - How was your previous experience different from your current experience at UC Davis?
 - What specific challenges did you face as a graduate student in adapting to a new academic and cultural environment?
 - Have there been any instances where cultural misunderstandings or stereotypes have affected your interactions with peers or professors?
 - How did you navigate or address these issues or gaps (either things you did or resources that you found helpful)?



Fig 4. Graduate student attendees for the cultural humility focus group

Seminar

- One-hour seminar** on cultural humility designed for seven incoming graduate students in civil engineering to open discussions on influence of culture on graduate school journey.
- Seminar components:**
 - Introduction to global and intercultural learning
 - Discussions on definition of culture
 - Identifying one's cultural values (Fig. 4)
 - Reflection on how disconnect in cultural values leads to cultural conflict
 - Cultural humility as a pathway to empathy and conflict management
- Impact of the seminar included:** Empowering graduate students by providing a platform to voice their experiences, building community through shared discussions and experiences, identifying actionable strategies to promote positive cultural climate within academic settings.

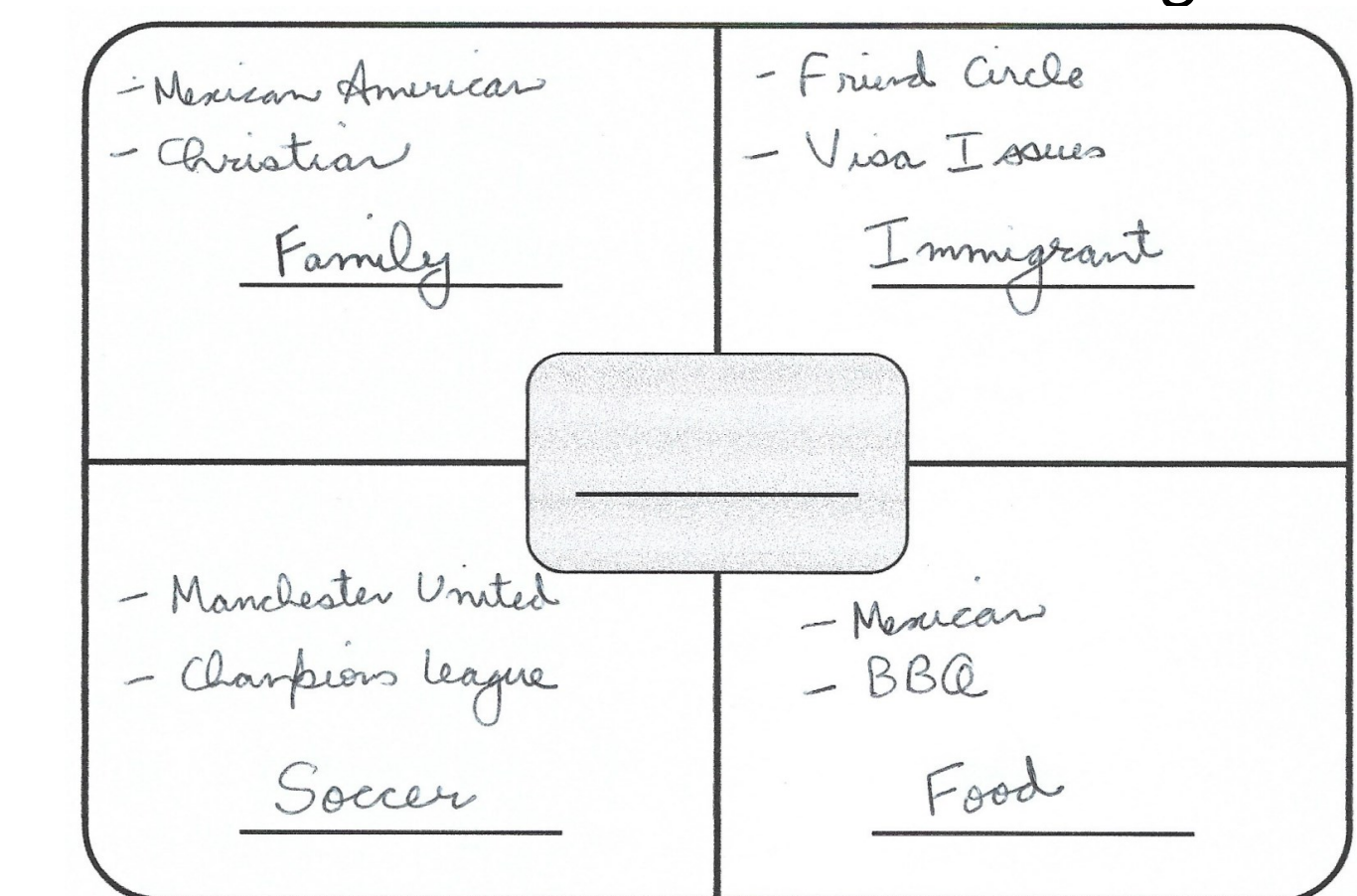


Fig 5. Example of four section diagram to identify one's cultural values (adapted from Global Affairs seminar on "Becoming a Global Learner")

Survey Data

The graduate student attendees for the focus group and seminar highlighted the following challenges:

- Cultural adjustment to academia**: Challenges in understanding and adapting to different educational systems, teaching styles, writing styles and academic expectations.
- Issues with social integration**: Lack of knowledge and fear of offending cultural norms leads to miscommunication or no communication between peers.
- Stereotyping and biases**: International students very conscious of accents or trying to be 'model' students due to fear of stereotyping which induces higher self-expectation anxiety.
- Academic expectations**: Unrealistic expectations on academic performance due to limited social and academic network along with fear of confrontation with the faculty.
- Homesickness**: Being away from support structures leads to homesickness, although social media helps alleviate some of the anxiety.

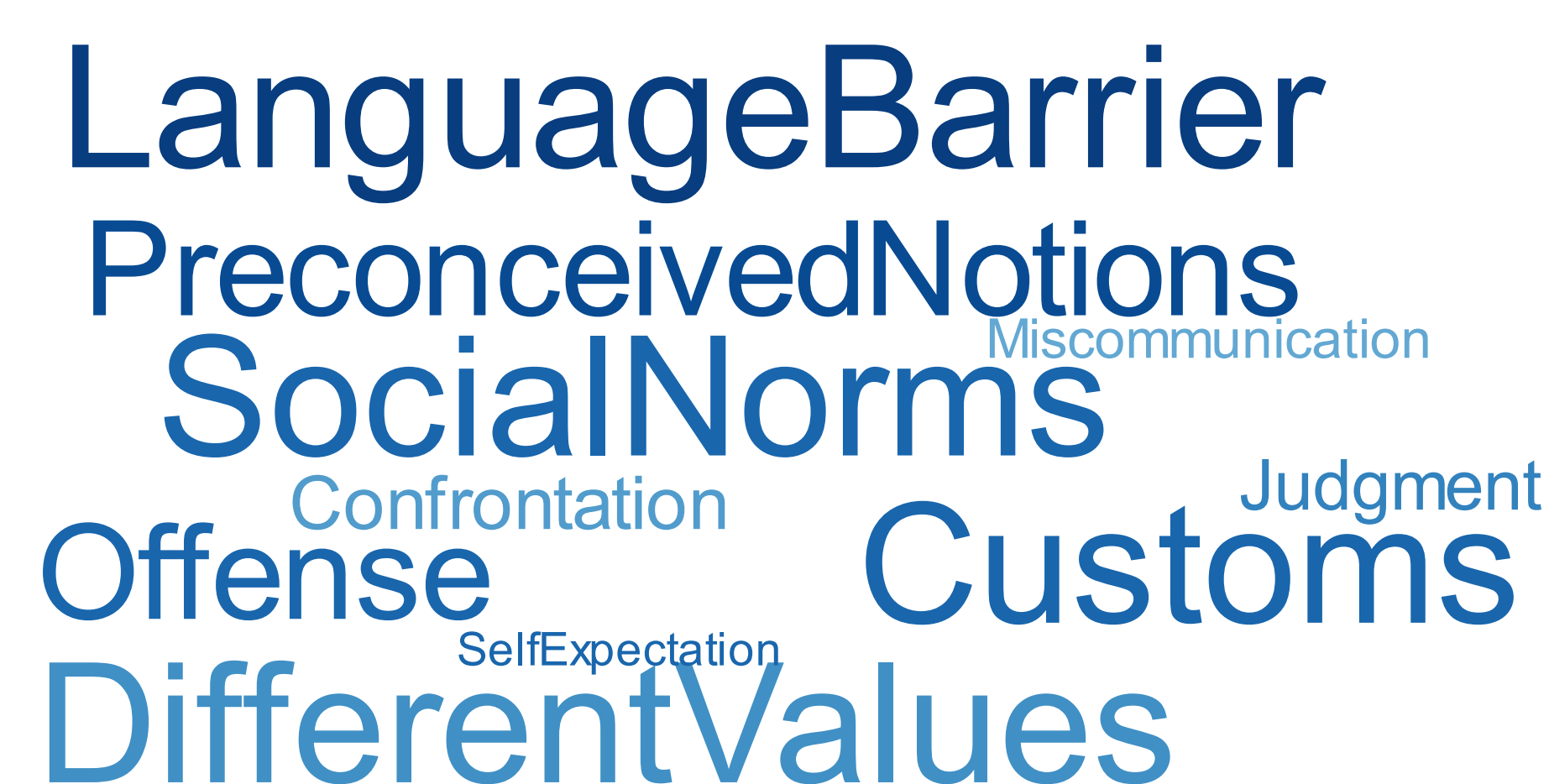


Fig 6. Keywords highlighting global learning and cross-cultural communication challenges faced by graduate students



Fig 7. Coping strategies identified when dealing with cultural conflicts

Impact

- The overall impacts from the focus group and seminar includes:
- Increased Self-Awareness:** Participants gained a deeper understanding of their own cultural identities, biases, and assumptions through reflective exercises, fostering increased self-awareness.
 - Improved Collaboration in Research:** Participants gained insights into how to mitigate cultural biases into interdisciplinary and cross-cultural research projects.
 - Enhanced Global Perspective:** An open discourse between international and domestic students cultivated a more global perspective among graduate students, preparing them to engage with international collaborators to address global challenges.
 - Inclusive Academic Spaces:** Participants identified programs and coping strategies to creating more inclusive academic spaces, promoting an environment where individuals from diverse backgrounds feel welcomed and valued.

Acknowledgements