

Increasing Multi-Cultural Awareness in Engineering Students

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Dr. Groh joined the Purdue Women in Engineering Program (WIEP) in 2009. She received a B.S. in microbiology from Purdue University, and a Ph.D. in microbiology from the University of Oklahoma. Prior to joining WIEP, she was the Graduate Program Coordinator in the Purdue Weldon School of Biomedical Engineering. As Associate Director of WIEP, Jennifer administers the undergraduate Mentee & Mentor Program and the Graduate Mentoring Program, teaches two Women in Engineering seminars (ENGR 19400 and 49400), and oversees WIEP's K-12 outreach programming. Dr. Groh has also invested over 100 hours of training in academic coaching to become a certified Affiliate Coach with LifeBound, Inc. with a specialized focus in serving Science, Technology, Engineering, and Math (STEM) populations nationwide. Additionally, she has facilitated numerous national workshops on academic coaching which have been well received by a variety of audiences, including undergraduate and graduate students, faculty and staff in higher education, and corporate representatives. In addition to leading these engaging sessions, Dr. Groh integrates coaching into WIEP programming, student mentoring, and her personal life.

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Increasing Intercultural Competencies for Participants of a Women in Engineering Mentoring Program

Abstract

With a growing number of international students entering a large Midwestern engineering program, the Women in Engineering department recognized the need to provide ways to foster cross-cultural understanding, to further integrate international students, and to be cognizant of international student needs while initiating and integrating diversity awareness activities into the department's mentoring programs. This study examines an option for increasing intercultural competencies of both domestic and international students by immersing mentoring program participants in cross-cultural activities. One of the objectives of this study is to assess the participants' "ability to think and act in interculturally appropriate ways" upon engaging in a mentoring program organized by a Women in Engineering department. Participants' knowledge, skills and attitudes will be evaluated and presented using 3 of the 6 intercultural constructs developed by the Association of American Colleges and Universities (AACU). Triangulation methodology is utilized, including questions adopted from a Likert scale survey (developed by the University's Center for Instructional Excellence and Global Learning programs) and a participant case study.

In order to meet these objectives, the student Leadership Team (LT) for the Mentees & Mentors (M&M) program, under the supervision of the Women in Engineering department's Associate Director, created two positions titled "Diversity Chairs" to educate over 300 M&M participants on diversity and inclusion through cultural immersion activities and to provide a resource for international and domestic students during their college careers. Beginning with pilot programming in 2013 and continuing today on a larger scale, monthly and semester activities are organized to encourage intercultural awareness.

One example of how diversity awareness is incorporated into existing programming is that each M&M monthly meeting for participants includes a quotation from "Foreign to Familiar" by Sarah A. Lanier³³ and an activity to expound the learning objective of the quotation. One social event per semester also focuses on cultural immersion. Collaborations with multicultural groups across campus have also aided this study. The results suggest that through new intercultural initiatives, participants show an increase in Cultural Self-Awareness (knowledge), Openness (skills) and Empathy (attitude). A significant number of participants are enthusiastic about learning about cross-cultural differences and attending cultural appreciation events and have learned how to apply these skills more broadly due to the efforts of this study. We conclude by providing a basis for future initiatives to increase the retention of international students within our program and to increase the intercultural competencies of our participants.

Introduction

In today's global economy, few would argue against the need for and importance of cross-cultural training in both the workplace and in higher education. Noted interculturalist Margaret Pusch remarked that cross-cultural training should provide "a conceptual framework for understanding differences among culture groups in general and comprehending how those concepts might be used in face-to-face interactions with people from other cultures"⁴. Additional recommendations in cross-cultural training include meeting participant and program objectives

and providing reflective learning opportunities where participants can engage in, comprehend, and appreciate cultural differences^{4,5}. Of relevance to this study, required cross-cultural training components which have been cited include general and country-specific cultural awareness, frameworks for understanding and valuing cultural differences, and business and social customs in other countries³.

In recent years, a common understanding has risen that today's university graduates require some level of competence in global and multicultural skills and knowledge in order to succeed in any field. Within engineering, specifically, this understanding has been shaped by recent national reports, conferences, and publications⁸⁻¹³. Downey et. al.¹⁶ provides a summation of this:

“The key benefit in the ideal of learning to work productively with other cultures thus involves going beyond recognizing that engineering problems can be solved in different ways to understanding that problems can be defined in different ways and mean different things to people holding different perspectives. While it no longer makes sense to assume that each person is a member of one culture whose boundaries coincide with those of a country, it does make sense for engineering students to gain experiences with people who are participating in, responding to, and/or challenged by cultural perspectives that differ from their own, regardless of how these differences might map across or within countries.” (2006)

With an acknowledged need for our engineering students to graduate with some level of global competency and awareness, the focus currently rests on how best to define, achieve, and measure this competence for our students. Several approaches are available and under study which provide opportunities for engineering students to develop global and multicultural skills. Some of these approaches incorporate experiences where to varying degrees, students are immersed in another country through study and work abroad programs and service learning programs. Closer to home, students can participate in learning communities and courses related to global understanding and awareness. Several papers provide an excellent overview of these approaches^{5-6, 22-23}

With regard to the immersive, long-term global experience opportunities, Shen et.al. suggest that “the average engineering student is not likely to sign up for an immersive, long-term global experience without first having orienting experiences that help develop their cultural awareness and orientation”⁵. This is supported by Doerry, et. al., who points out, for comparison, that nearly 25% of all engineering students in Germany pursue at least one study-abroad or international internship experience when compared to only 3.5% of U.S. engineering students doing likewise¹⁴. Reasons for this difference abound including that the travel abroad is not seen as relevant and/or easy to integrate into already packed engineering curricula. Relevant on-campus activities to provide multicultural opportunities for engineering students could include integration into coursework or extracurricular experiences or short-term, more regional travel programs. One mentoring program, designed specifically for domestic college students who were unlikely to participate in an immersive global experience, found that participants transformed prior knowledge about people unlike themselves into a “deeper understanding of themselves, their culture and their intercultural relationships” through face-to-face conversations with English as a Second Language (ESL) student participants⁶.

With a growing number of international students entering engineering in a large Midwestern university, and with increases seen elsewhere in engineering education programs across the country⁷ a Women in Engineering Program (hereby referred to as WIEP) recognized the need to provide ways to foster cross-cultural understanding, to further integrate international students into the program, and to be cognizant of international student needs while integrating diversity activities into WIEP mentoring programs. We also recognized, as others have before¹⁷⁻¹⁸ that the international participants in our program could help to increase multicultural awareness for our domestic participants, while conversely, domestic students can support the integration of international peers into the university. While other studies related to cultural aspects of mentoring in education tend to focus on three primary themes surrounding the mentoring relationship, organizational structure, and “manner in which ethnicity and societal beliefs relate to the purposes and structures of mentoring”²⁰, this study will examine how multicultural awareness can be integrated into general mentoring programs utilizing the diversity of program participants.

In doing this within an existing non-academic, non-curricular programming, we help to address a gap identified by others in engineering education - “the need for a systematic study of curricular and extracurricular offerings in international engineering education, and the extent to which these different international academic and non-academic experiences improve the global preparedness of engineering students”¹⁵. Another gap addressed by our study is a need to expand knowledge about cultural factors which are involved in mentoring programs¹⁹.

It is well known that women and other underrepresented students in engineering face unique challenges in pursuit of an engineering career²⁴. At least one study has shown that these groups also face challenges when participating in programs abroad, noting that stereotypes and bias they face at home in the US are magnified by cross-cultural differences. This study also makes the recommendation that with regard to global engineering education, cross-cultural training programs should include “elements that address gender roles, racial/ ethnic issues, and self-identity studies and survey”². Our mentoring program does just this: integration of cross-cultural training in a manner recommended for underrepresented groups in engineering. Integration of intercultural training and awareness activities in M&M helps to share this advice with our target population who “should be encouraged to reflect on how cross-cultural differences, such as gender roles and skin colors, may impact their experience in study or work settings. Such reflections, occurring whilst outside one’s own comfort zone, should be continuous and be viewed as personal life-long learning opportunities”.²

For our study we used the Intercultural Knowledge and Competence VALUE Rubric²¹, developed by the Association of American Colleges and Universities (AACU), where Intercultural Knowledge and Competence is “a set of cognitive, affective, and behavioral skills and characteristics that support effective and appropriate interaction in a variety of cultural contexts.”³⁰. From descriptive text associated with the University link above:

“The levels of this rubric are informed in part by M. Bennett's Developmental Model of Intercultural Sensitivity³¹. In addition, the criteria in this rubric are informed in part by D.K.

Deardorff's intercultural framework which is the first research-based consensus model of intercultural competence³². It is also important to understand that intercultural knowledge and competence is more complex than what is reflected in this rubric. This rubric identifies six of the key components of intercultural knowledge and competence, but there are other components as identified in the Deardorff model and in other research.”

We chose to use these 3 constructs (of 6 available) to evaluate participant intercultural awareness gained through M&M programming: Cultural Self-Awareness (knowledge), Openness (skills) and Empathy (attitude).

The scope of this pilot study is to share what outcomes can be achieved in a low-cost, on-campus and easily scalable program in which diversity and multicultural awareness activities and measures are built into existing mentoring initiatives. As a result of this study, along with plans for future related studies, similar activities could be replicated at other universities and organizations to create more opportunities closer to one's home for intercultural awareness. This type of programming can help address a gap for those engineering students who either choose not to study or work abroad and/or may encourage some to consider going abroad who wouldn't have otherwise. Another gap which this study addresses is the paucity of research on the impact of culture on mentoring programs and relationships (Kent et al., 2013). Also, in having conducted this study in mentoring programs for women in engineering students, we show that exposure to these multicultural activities has a positive impact on this particular population of women in engineering undergraduate students with regards to broadening their view of and engagement in activities related to diversity, inclusion and intercultural awareness. In this preliminary study, we also begin to lay groundwork for continued investigation to address this gap in engineering education: “the need for a systematic study of curricular and extracurricular offerings in international engineering education, and the extent to which these different international academic and non-academic experiences improve the global preparedness of engineering students”¹⁵.

Methods

Overview of M&M programming

A brief introduction to the M&M program within WIEP includes a description of different program formats (Pair and Group), Leadership Team (LT) roles, and program events. The overarching goal of the WIEP Mentees & Mentors (M&M) Program is to provide its participants with personal support, affirmation, and effective strategies to successfully complete their undergraduate engineering education. Over 20 years ago, M&M began as a pair mentoring program where first- and second-year students were matched with third- and fourth-year students with compatible interests. In 2009, M&M expanded to accommodate increasing numbers of interested students and the M&M Group Program was formed to complement the Pair Program. The addition of the Group Program allows more students to take advantage of M&M benefits and, with fewer requirements than the traditional Pair Program, provides more flexibility for those students balancing academics, extracurricular activities, and part-time employment.

The M&M LT is comprised of female undergraduate students from various engineering disciplines. Separate LT meetings (one for each program) occur weekly with the WIEP Associate Director and Administrative Assistant for team building activities and to plan and execute monthly program meetings, one each for Pair and for Group on consecutive evenings. In addition to rotating roles each month for the monthly meeting (e.g., facilitator, email, attendance tracking, networking lead, food and evaluations), special roles are held for the academic year based on LT interests. The special role of relevance to this study is the Diversity Chairs, one each for Pair and for Group.

The structure for monthly meetings is fairly standard with dinner provided to participants, a networking activity and either a guest speaker or group activity or combination of the two. Attendance requirements at these meetings are different for Pair and for Group and impact numbers in attendance and consistency of those attending. While Pair participants are required to attend all monthly meetings, Group participants need only attend two of four monthly meetings each semester. This is intentional by design to create a more flexible program option for students who wish to balance their participation in M&M with other extracurricular activities and/or employment, internships, co-op and study abroad. This also means that although we have over 200 members on the Group roster, monthly meeting attendance averages 90-100 participants (Pair averages 60-70), and that a different mix of participants can be expected for each Group meeting, leaving multiple opportunities for members to meet new and culturally diverse people at every meeting. Both Group and Pair participants are also required to attend one social per semester (social events held monthly) to remain in good standing.

More details on the M&M program (e.g., application process for both programs and matching of pairs in the Pair program) can be found in previous publications²⁸⁻²⁹ and program annual reports which are available upon request from WIEP. For the academic years comprising this study, there were 78 and 179 participants in Pair and Group respectively in 2014-15; there are currently 84 and 253 participants for Pair and Group (2015-16).

Overview of history of diversity awareness efforts in M&M programming

In order to meet these objectives, the M&M LT, under the supervision of the WIEP Associate Director, created two positions titled “Diversity Chairs” to educate over 300 M&M participants on diversity and inclusion through cultural immersion activities and to provide a resource for international students during their college careers. Beginning with pilot programming in 2013 and continuing today on a larger scale, monthly and semester activities are organized to encourage cultural awareness. Throughout the past several academic years we initiated and implemented a variety of ideas on how to make the M&M program more inclusive in this effort to better integrate and retain international student participants. Efforts prior to the years presented in this study (namely 2014-present) are outlined in M&M Annual Reports which are available upon request from WIEP.

One example of how we incorporate diversity awareness into existing programming is that each M&M monthly meeting for participants includes a quotation from “Foreign to Familiar” by Sarah A. Lanier³³ and an activity to expound upon the learning objective of the quotation.

Likewise, diversity events from around campus are advertised at the monthly meeting and the Leadership Team these events to encourage participant participation. Another example is one social event per semester also focuses on cultural immersion. Likewise, particular monthly meetings focused on different cultures.

Data analysis

We conducted a mixed-methods experiment using a triangulation study employing an established assessment instrument that captures different constructs (see below for more details). We utilized quantitative and qualitative data gathered from post-event surveys and a focus group (which while conducted as a focus group is discussed here in terms of a case study as we had only one participant). We gathered data from the case study through a recorded interview which was transcribed and analyzed to determine key themes from this one participant's experience in M&M and to compare this to the rest of the data gathered from our programming. To determine themes which might categorize a general experience related to diversity awareness and intercultural competence for students in M&M. Sample excerpts and quotes from surveys and transcripts are presented in this paper to illustrate findings.

Assessment Instrument Overview

As described in the Introduction, we chose to use these 3 constructs (of 6 available from the Intercultural Knowledge and Competence VALUE Rubric) to evaluate participant intercultural awareness gained through M&M programming: Cultural Self-Awareness (knowledge), Openness (skills) and Empathy (attitude). Our research team chose this instrument because of the theoretical alignment with our research objectives. Theoretical perspectives in which this instrument is grounded were also described in the Introduction. Regarding criteria for assessing at each level of this rubric, one moves progressively from Benchmark (1) to Milestones (2, 3) and then to Capstone (4), as higher competency is demonstrated for each construct. For example, for Cultural Self-Awareness (Knowledge), criteria for meeting the Benchmark Level is "Shows minimal awareness of own cultural rules and biases (even those shared with own cultural group(s)) (e.g. uncomfortable with identifying possible cultural differences with others.)" To achieve the Capstone level of this construct, one must articulate "insights into own cultural rules and biases (e.g. seeking complexity; aware of how her/his experiences have shaped these rules, and how to recognize and respond to cultural biases, resulting in a shift in self-description.)".

Overview of diversity and inclusion awareness in monthly program meetings

Since February 2015, most monthly program meetings (held during the academic year only) incorporated an activity and/or reflection on a topic related to diversity and intercultural awareness. Because of the different organizational structures for M&M Pair and Group programs, as explained above, and also due to different approaches taken by LT monthly meeting facilitators and LT completing survey summaries, some formatting differs between the two programs (e.g., in how the diversity activity was implemented and types of questions asked in surveys).

As part of our efforts to reach out to different organizations, the 2015 February and April monthly meetings invited several multi-cultural student organizations to co-facilitate the monthly meetings. Student organizations that were invited include: Society of Asian Scientists and Engineers (S.A.S.E), Delta Sigma Theta Sorority and University Salsa Dance Club. These had student representatives from the Asian, Black and Latino/Latina communities. The format of the meeting was mostly “hands-on” and interactive activities such as salsa-dancing, step-dancing and origami-making. Both networking activities for the meetings were adapted from “Kagan Structures for Emotional Intelligence” to incorporate mentoring and diversity. The room was divided into 5 sections representing different countries. Participants self-selected a section/country about which they wanted to learn more and/or visit. Then, they shared their reasoning with people in the same group. Afterwards, participants randomly switched groups to paraphrase to someone from another group the responses of her peers in the first group. This “Corners” activity has been proven to foster emotional intelligence by helping with self-awareness, self-control, self-motivation, empathy, and relationship skills.

In addition to the monthly meeting quotes from “Foreign to Familiar”, the October 2015 monthly meeting had a “Hot and Cold Climates” networking activity. In general, people from “hot” and “cold” climates are known to be very different in terms of their communication, sense of individualism, their approach to relationships, and their concept of time and planning. For example, the “Foreign to Familiar” book mentions that “hot climates” are widely known to be relationship-based, while people from “cold climates” are known to be task-oriented. Facilitators introduced the concept of Hot vs. Cold climates and the differences exhibited by people from these different cultures. Participants formed small groups and were given a different scenario (e.g. at a grocery store, in a work meeting, at a social, at a birthday party) through which to interpret and role play how people from the two different climates would interact in these settings. Volunteer groups then enacted the scenario which they were assigned and the rest of the participants had to guess which climate was represented.

Monthly program meeting evaluations

Paper evaluations were handed out after each monthly meeting. The format for paper evaluations used for each meeting is formatted as follows:

M&M Group Monthly Evaluations: One Likert scale question and one open-ended question related to diversity were added to all of the monthly evaluations handed out at the end of each meeting with the following format:

- How well was diversity/inclusion encompassed in this meeting? With 1 representing “Not at all” and 5 representing “Well Integrated!”
- How has the M&M Group Program stretched your view of diversity/inclusion and/or mentoring over the past month?
-

M&M Pair Monthly Evaluations: One diversity open-ended question was added to all of the monthly evaluations handed out at the end of each meeting with the following format:

- How has the M&M Group Program stretched your view of diversity/inclusion and/or mentoring over the past month?

Diversity and inclusion awareness in monthly socials

Starting in the 2015 fall semester, the M&M program committed to integrating diversity and intercultural awareness into one monthly social per semester. The first such multicultural social emphasized the Indian culture. Participants made Rangoli crafts with colored sand and sampled traditional Indian snacks while facilitators gave a brief description about the story of Diwali and the history behind Rangoli patterns. Participants completed an online evaluation at the completion of the social. Questions used in the discussion include questions like “How well did this social impact your cross-cultural awareness?”, “Would you be interested in attending more socials like this one with an emphasis on appreciation of and learning from diverse people and cultures?”

, “Have you attended a cross-cultural celebration/event before while at this university?” and “How likely would you attend a cross-cultural event that celebrated a different culture?”. Some of the survey questions used Likert scale used with 1 representing “Never” or “Did not impact me at all” or “Very Unlikely” and 4 OR 5 representing “Very often”, “Impacted me a lot” or “Very likely”. There were a total of 37 participants who attended the social and 11 participants who did the online evaluation.

The online evaluation contained the following questions :

1. Based on your experience at this social, how do you define Diwali or your understanding of Indian culture?
2. How well did the social impact your cross-cultural awareness?
3. Before and after this social, how much did you think about what you can learn from people who are different than you?
4. Would you be interested in attending more socials like this one with an emphasis on appreciation of and learning from diverse people and cultures?

Questions were designed to gain insight into participants’ understanding of the Indian culture before and after the social event and their overall willingness to participate in similar events.

Mid-year evaluations of diversity and inclusion activities

For both Pair and Group programs, separate online, mid-year evaluations were sent to all program participants in December 2015 to evaluate our progress in integrating cultural awareness into programming. The numbers of participants completing evaluations for Pair and for Group is 61 and 91, respectively.

The Group Mid-year evaluation contained the following diversity question*: How well has the program stretched your view of diversity/inclusion over the semester? Participants were given a Likert scale between 1 (Not at all) and 5 (A lot!) to answer the question. Likewise, they were asked to give an explanation for their response if the answer was 3 or less .

*only the diversity-related question and results were included in this report as other program efforts were measured on this survey.

Survey of international student participants and subsequent focus group

A survey was sent to the 44 international student participants in M&M in the latter half of the fall 2015 semester to gain a better understanding of the effectiveness of M&M efforts related to this study as well as of how international student needs vary from or are similar to domestic student needs. The survey was also intended to provide this study with a pool of participants willing to participate in a focus group.

Questions used on the survey are as follows :

1. What is your current year?
2. What is your major?
3. What is your hometown (city, country)?
4. Is this your first time studying outside your home country?
5. You are a participant of which program?
6. How many years have you been a participant of this program?
7. How can domestic students learn from your experiences as a student who is attending school in a country unlike your own?
8. What are your current expectations for the M&M program?
9. How has the M&M program helped you as an international student succeed in your career at this university?
10. How could the M&M program better aid you in your engineering career?
11. Would you be willing to meet with a small group of international student participants and M&M Diversity Chair to further discuss the questions above?

In order to support evidence found in all methods above, 6 of 9 international student participants who completed the survey indicated an interest in participation in a focus group and were invited to discuss how M&M can better meet the needs of international students. The discussion was designed to determine from each international student, their:

1. level of understanding of diversity and inclusion
2. ideas for how they can contribute to an understanding of diversity and inclusion
3. understanding of how they learn about diversity and inclusion
4. ideas for strengths as relates to diversity and inclusion in the WIEP M&M Program
5. ideas for weaknesses as relates to diversity and inclusion in the WIEP M&M Program
6. ideas for opportunities as relates to diversity and inclusion in the WIEP M&M Program
7. ideas for threats as relates to diversity and inclusion in the WIEP M&M Program
8. understanding of how the M&M Program helps increase participant understanding of cultures difference from their own
9. understanding of how the M&M Program provides information on global workforce skills in a team or professional setting and how the M&M student leadership team better prepare all M&M participants for a career in a global workforce

The focus group was moderated by the two LT Diversity Chairs and attended by one participant from the Pair program. Besides answering the questions asked by the two Diversity Chairs through the verbal discussion, the participant was asked to write suggestions and ideas on sticky-notes under the four categories of “Strengths”, “Weaknesses”, “Opportunities” and “Threats” with regards to WIEP M&M programming. The written responses have been paraphrased and included in the results and discussion.

Results

Overview of data analysis

All average ratings mentioned below are obtained by taking the sum of ratings from each participant, divided by the total number of participants who responded to survey questions. The averages include all data points (no outliers to drop).

Diversity and inclusion awareness in monthly program meetings

Both programs held a monthly meeting which focused primarily on diversity and inclusion. For Pair participants, the monthly meeting average Likert scale ratings for each of the activities out of 5: Networking Activity- Jeopardy (3.93) and Group Activity - Salsa Dancing & Origami (4.5). For Group participants, the monthly meeting average Likert scale ratings for each of the activities out of 5: EI Corners Activity (3.95); Origami (4.69); and Step Dance Team (4.36).

Analysis of October 2015 surveys from Pair participants is presented in a summary of themes identified (with number of times referenced by separate individuals) from responses to this question: “How has your view of diversity/inclusion and/or mentoring been stretched over the past month?” For Pair mentors, this month addressed their view on diversity through: interacting with women engineers to break stereotypes (2); expanded their view, through learning about other cultures/ideas (9); no impact (1); not answered (13). For Pair mentees, this month addressed their view on diversity through: the Diwali social (2); the “Hot and Cold” activity (7); help in gaining confidence (7); and not answered (13).

Analysis of November 2015 surveys from Pair participants is presented in Table 1 from responses to this question: “How has your view of diversity/inclusion and/or mentoring been stretched over the past month?” Representative comments are listed under adapted AAC&U VALUE rubric metrics for each of the three constructs we explored. A full list of results is available in Appendix Table 1. as a summary of themes identified (with number of times referenced by separate individuals).

For Group participants, an analysis of the 2015 monthly meeting programs is presented as an interpretation in the discussion section. Additionally, for the October 2015 monthly meeting the Likert scale rating for the Hot/Cold Climates activity averaged 3.27 (out of 5).

Table 1. Responses to the Pair November 2015 monthly meeting survey question: How has your view of diversity/inclusion and/or mentoring been stretched over the past month?

*Construct	Developing (Identify own cultural rules and biases)	Emerging (Recognizes new perspectives about own cultural rules and biases)	Proficiente (Articulates insights into own cultural rules and biases)
Cultural Self-awareness (Knowledge)	-Has helped me persevere -Improved my ability to mentor	-Encouraged to think about what or why I'm doing what I'm doing -Feel challenged to look outside the box	
	Developing (Express openness to most, if not all, interactions with different others, has difficulty suspending judgement)	Emerging (Begins to initiate and develop interactions with culturally different others and begins to suspend judgement)	Proficient (Initiates and develops interactions with culturally different others. Suspends judgement)
Openness (Attitudes)	-View diversity differently as a result of events	-Creating new relationships with others in the program -Meets with international mentor and learns something different about her experiences -Met new people with diverse backgrounds have gotten to know people that I might not have otherwise	
	Developing (Identifies components of other cultural perspectives but responds in all situations with own worldview)	Emerging (Recognizes intellectual and emotional dimensions of more than one worldview)	Proficient (Interprets intercultural experience from the perspectives of own and more than one worldview and demonstrates ability to act in a supportive manner)
Empathy (Skills)	-Learned about American culture from my mentor -Learned to be a better listener -Realized how difficult and how much time mentoring takes	-Able to help my friends using mentoring techniques	

*Adapted from AAC&U Core VALUE Rubric.

Diversity and inclusion awareness in monthly socials

Table 2. shows the answers to questions posed in an online survey of M&M participants who engaged in the Diwali social event. Numerical answers reflect the average from total responses and are not disaggregated into Pair or Group members. Table 2 also shows the values for the standard deviation, mean and coefficient of variation for each question in the Diwali Social Evaluation.

Table 2. Answers to Diwali Social Survey of participants (n = 37)

Question	Average Rating	Standard Deviation	Coefficient of Variation (Standard Deviation/ Average Rating)
How well did this social impact your cross-cultural awareness?	3.09 (Somewhat impacted me)	1.30	0.42
BEFORE this social, how much did you think about what you can learn from people who are different from you?	3.45 (Occasionally-Often)	1.13	0.33
AFTER this social, how much did you think about what you can learn from people who are different from you?	3.73 (Often-Very often)	1.10	0.29
Would you be interested in attending more socials like this one with an emphasis on appreciation of and learning from diverse people and cultures?	100% answered Yes	0	0
Have you attended a cross-cultural celebration/event	55% answered Yes (Average = 1.45, where 1 = Yes, 2 =	0.52	0.35

before while at this university?	No)		
How likely would you attend a cross-cultural event that celebrated your own culture?	5.09 (Very Likely)	1.45	0.28
How likely would you attend a cross-cultural event that celebrated a different culture?	4.09 (Likely)	1.22	0.30

Mid-year evaluations of diversity and inclusion activities

Group program evaluations at mid-year (Dec 2015) asked “How well has the program stretched your view of diversity/inclusion over the past semester?”. Responses are represented by the Likert scale where 1 is “very poorly” and 5 is “very well”. The average response is 3.75 with this breakdown: 5 - 9%; 4 - 67%; 3 - 15%; 2 - 8% and 1 - 1%. Those who responded 3 or below were given the option to provide comments on their selection. Comments of those responding with 3 or below are shown in Appendix Table 3. and those responding with a 2 or below are shown in Appendix Table 4.

In lieu of sharing the Pair mid-year survey, which had similar questions on it as on the international student survey, the international student survey information will be analyzed to further our discussion.

Survey of international student participants and subsequent focus group

Nine total responses were received from both Pair and Group international student participants. Eight of the 9 participants were new to the program and one was in her 2nd year of M&M programming. Five of the participants were First-Year Engineering students, and four students were sophomores. Four of the participants were studying Electrical Engineering, one participant was interested in Chemical Engineering, and four students were undecided.

For 78% this was their first time outside of their home countries. Of the two who had been abroad before, one had “one year of high school in Miami” and the other “did elementary school in Kenya and Middle and High school in Kuwait”. Home countries of all participants included Bangladesh, China (5), India (2), and Oman.

For a full list of open-ended question responses on this survey refer to Appendix Tables 8 - 11 below. The results of the focus group (turned case study) are interpreted in the Discussion section.

Discussion

Overview of Discussion section

We choose to discuss results of each activity related to diversity and intercultural awareness through the lens of each of the three constructs described in the Methods section. We then end this section with a discussion of study limitations and with some overarching findings.

Construct- Knowledge: Cultural Self-awareness

Diversity and inclusion awareness in monthly program meetings

A survey was given to all participants at each monthly meeting. There were a total of three monthly meetings with at least one diversity element included in the activities. Our results show a change in the responses over time and we also observed variations in responses which depended on participants' year of study. The discussion and conclusions below are based on the entire data set which we obtained from the monthly meeting surveys and which is included in the Appendix.

For the first monthly meeting (in September) interestingly, the First-Year Engineering (FYE) students, in general, were much more participative in their responses- The number of FYE students who provided an explanation in addition to the rating given for each question, was higher than that of the upperclassmen. However, the majority of respondents gave vague answers about the meaning of diversity and what the programming that evening taught them about diversity. Despite showing some interest in wanting to interact with people of diverse cultures and show an understanding that interaction will help them learn, participants did not show much awareness about their own cultural rules and biases in their answers. The upperclassmen participants were less specific in their responses about what diversity opportunities M&M provides and how learning about diversity and inclusion can help them in the future. Almost all of the more senior participants showed minimal awareness about their own cultural rules.

After the second monthly meeting (in October) the FYE participants showed a significant increase in recognizing the opportunities WIEP provides for them to meet people with diverse backgrounds. With the help of the "Hot and Cold Climate" activity that was included in this monthly meeting, participants stated that they had an opportunity to know someone new and that the need to "interact with other cultures is necessary". The upperclassmen participants started to show interest in the diversity-related opportunities and activities organized and began to recognize the differences between people of different backgrounds.

The evaluations from the third monthly meeting (in November) demonstrate that many participants learned about diversity through attending the Diwali-themed social held outside of the WIEP monthly meeting. Participants began to notice the 'Foreign to Familiar' quotes at the

beginning of each monthly meeting, as seen by the increase in openness to meeting people of different cultures, and also by their increase in understanding that people of different cultures or climates have different perspectives. Participants have also started to appreciate the diversity-related activities that the program organizes as they provide “exposure to (diverse) culture(s)”.

Overall, we realize that participants learned from participating in hands-on activities and activities that they can personally relate to, or apply in real-life situations. This is seen by the high number of positive comments about the “Hot and Cold Climate Activity” and the unexpectedly large turnout in the first diversity-themed social. Most participants mentioned that their view of diversity has changed as a result of events, with some statements that the program has helped them meet new people with diverse backgrounds. In one particular mentoring pair, the mentee expressed that she has learned about American culture from her mentor, and her mentor learns something from her.

Diversity and inclusion awareness in monthly socials

For the Diwali social, the average rating by participants was 3.09 (Somewhat impacted me) and 4.09 (Very likely) to the questions “How well did this social impact your cross-cultural awareness?” and “How likely would you attend a cross-cultural event that celebrated your own culture?” respectively.

This implies that the participants mostly identify with their own cultural rules and biases, and have a strong preference for the rules shared among people of their own culture. Also, it implies that the social provided an opportunity for most of the participants to learn something new about and to be impacted by a different culture.

Mid-year evaluations of diversity and inclusion activities

An online evaluation was sent to Group participants in the M&M program in November 2015. One question was “How well has the program stretched your view of diversity/inclusion over the semester?” A total of 91 responses were received and the average ranking for this question was 3.87/5. Participants who ranked this question at 3 or below were asked to further explain their ranking. Most of them were not aware of the diversity-related opportunities within M&M, had a surface-level understanding of the words “diversity” and “inclusion”, and did not recognize that there are many different ways of defining diversity - e.g., other ways besides ethnicity. This is seen by responses such as “There aren’t many minorities who attend.”, “There was never a diversity/inclusion activity.” and “We don’t do a lot with diversity and I’m already very used to diversity from living in Chicago.”

Survey of international student participants and subsequent focus group

The international student survey was sent to international students in our program to help us gain a better understanding of the effectiveness of current M&M efforts as well as how international student needs vary from domestic student needs. The survey was also intended to provide a pool

of participants for a focus group. An online evaluation was sent out to all 44 international participants of M&M in late fall 2015 and a total of 9 responses were received.

One of the questions in the survey was “How can domestic students learn from your experiences as a student who is attending school in a country unlike your own?”. Responses from the participants gave examples but did not elaborate enough to show significant awareness about each person’s cultural rules and biases, and how they vary (or are similar) between different cultures. This is seen by responses like “They can learn how I am adapting to changes around me in a foreign country.”, “Communication among different cultures” and “By talking to me they can learn about my experiences”.

Overall, participants showed minimal awareness of their own cultural rules and biases before our efforts; however, now recognize new perspectives about their own cultural rules and biases. With continued efforts, we hope participants will then articulate insights into their own cultural rules and biases.

Construct- Attitudes: Openness

Diversity and inclusion awareness in monthly program meetings

For the April 2015 meeting, most participants enjoyed the step dancing and origami making as it was a “good conversation starter” which allowed “more interaction... (and) learning,” and made them “more socially open to other cultures.” This is also reflected in the average ranking for all three components of the evening’s activities as 4.3 out of 5. This compares very favorable when compared to the average of other monthly meetings topics over the years from M&M programming. The rankings for the “hands-on activities” also show that although most of the participants were not from the same cultural background as the multicultural student facilitators, they were aware of and recognize that the activities were not from their culture and still were open-minded in participating enthusiastically.

Participants described how the “Hot and Cold Climates Activity” (Oct 2015) helped them gain confidence when meeting and communicating with people of diverse backgrounds. Some also feel that their view of diversity has expanded as they have learned about other cultures and ideas. This confidence could translate into being more open to additional opportunities to expand their knowledge of people from and information about other cultures.

We may want to explore further what mechanisms can help to boost confidence and address any anxieties or hesitations about participation in intercultural experiences. An example of this could include encouraging M&M participants to explore new cultural experiences in pairs or small teams. This kind of apprehension has emerged in another study which also looked at use of “local resources” - from diverse student populations on campus - for intercultural learning. Through examination of reflective journal entries, oral presentations and classroom discussion, themes related to “apprehension and anxiety about initial meetings and contact, high expectations of differences, realization of personal prejudices, and repositioning of oneself in relation to others” emerged in the data⁶.

Diversity and inclusion awareness in monthly socials

For the Diwali social, participants were asked, “Would you be interested in attending more socials like this one with an emphasis on appreciation of and learning from diverse people cultures?” All participants who responded to the survey answered “yes.” Furthermore, all participants expressed openness and willingness to participate in future events, either through the survey or through verbal comments made at the event (data not shown).

The program hopes to further encourage participants to initiate and develop interactions with culturally different participants. Participants were asked, “Have you attended a cross cultural celebration/event before while at the university?” Six participants answered “yes,” and five participants answered “no.” With a slightly larger number of participants participating in cross cultural events outside of M&M, results show participants are open to attending outside events with four participants who may still have hesitancy or need or a better understanding of how cross-cultural understanding aids engineering women during their college career as well as in their future aspirations. Participants were asked with a scale from one to five, “How likely would you attend a cross-cultural event that celebrated a difference culture?” The average of all responses was 4.09. Again, openness to attending events celebrating cultures outside their own exists among participants, but further activities in the coming months may boost their motivation to attend these events.

Mid-year evaluations of diversity and inclusion activities

Respondents shared a variety of responses to “[h]ow well has the program stretched your view of diversity/inclusion over the semester?” Out of a scale of one to five, the average rating was 3.52/5.0, which is somewhat lower than we might have desired. Responses included that participants “have not attended many meetings” or their “view has stayed the same.” Many participants commented that “[w]e did not have too many cultural experiences that really stretched my view.” Different presentation methods/formatting, alluded to in the methods section, may hinder the effectiveness of the program’s efforts. Likewise, this was the first semester of focused activities covering diversity and intercultural awareness. Responses, in general, didn’t tell us much about participants’ openness or not to increasing their intercultural awareness.

Survey of international student participants and subsequent focus group

With regard to openness being addressed by this survey, responses, in general, didn’t tell us much about participants’ openness or not to increasing their intercultural awareness. However, one respondent seems to suggest that openness comes from overcoming risks associated with leaving one’s comfort zone.

Overall, participants began receptive to interacting with culturally different peers but were unaware of possible judgements made during these interactions. After our efforts, participants both express openness in most interactions with culturally different peers and have begun developing interactions with these peers to suspend judgements possibly hindering the success of these interactions.

Results: Construct- Skills: Empathy

Diversity and inclusion awareness in monthly program meetings

As part of our efforts to reach out to different organizations, the 2015 April and February monthly meetings invited several multi-cultural student organizations to co-facilitate the monthly meetings. Participants showed an overwhelming affinity for the “hands-on” activities and interactive activities (salsa-dancing, step-dancing and origami-making), as well as the networking activities adapted from “Kagan Structures for Emotional Intelligence” to incorporate mentoring and diversity. This enthusiasm was demonstrated through the high ratings and comments whereby the activities gave them ‘more confidence’, provided ‘a great way to get away from studying’, and provided ‘more interaction’ by ‘doing things together’. Some even planned on continuing these newly-learned traditional activities in their free time. As for the Corners Activity, some participants mentioned that they ‘will take more care to listen to people,’ ‘have EI (Emotional Intelligence)’, and that it was a ‘good conversation starter’.

The high ratings for the Corners Activity, further supported by the additional comments in the evaluation results, show that participants were able to recognize emotional dimensions of more than one worldview, and are able to communicate their thoughts effectively to another person who might not have the same preferences as them. As participants were required to share thoughts about their chosen country with another person who might not possess as strong of an affinity for this country, the interaction required pairs to adopt an understanding of the other person’s perspective as well as the perspective of someone from the countries as the center of the discussion.

In addition to the monthly meeting quotes from “Foreign to Familiar”, the October 2015 monthly meeting had a “Hot and Cold Climates” networking activity. The upperclassmen mentioned in the comments that their view on diversity was ‘expanded’ as they ‘learned about other cultures and ideas’, while freshmen mentioned that the activity helped them ‘gain confidence’. These results show that participants were willing to think from another person’s point of view when the other person has a different cultural perspective.

Diversity and inclusion awareness in monthly socials

For the Diwali social, participants were asked to rate how often they consider what they can learn from people who are different from themselves, using a Likert scale of 1 (Rarely) to 5 (Very often), both before and after the social. The average rating for participants was 3.45 (Occasionally – Often) and 3.73 (Often – Very Often), respectively. From the results of these questions, we see that the amount of thought that participants put into thinking about other cultures has increased after the social. This suggests through attending the social, participants got a chance to adopt different cultural perspectives.

Mid-year evaluations of diversity and inclusion activities

Responses from the participants showed minimal awareness of the diversity present within their fellow participants and because most of them did not attend any of the diversity and inclusion activities organized by the program, they did not use the opportunity to view other cultural perspectives or to respond to the actions of another cultural group in a supportive manner. Some of the responses which reflect these are: “There aren’t many minorities who attend”, “I have not had the opportunity to experience it all!”

Survey of international student participants and subsequent focus group

One participant took part in the focus group (subsequently referenced as a case study) and her background consists of: Home country - China, Major – First Year Engineering (Civil or Environmental and Ecological Engineering). We primarily used this discussion as a case study to corroborate the information learned from our efforts aimed at incorporating more diversity and inclusion awareness into our program from Feb to Dec 2015.

From the focus group, we assessed that the participant showed only a minimal understanding of diversity and inclusion. For example, when asked to explain “diversity” and “inclusion”, the participant mentioned that she did ‘not know the word inclusion’ and that “diversity” means ‘different kinds of anything’.

Despite this minimal understanding of the words (which could result from English as her second language), this participant did show appreciation and recognition for the different initiatives that the program has done to increase diversity and intercultural awareness. For example, when asked if there were any weaknesses within the program or initiatives to discontinue, the participant asked if she could ‘say no...because WIEP’s approach to improve diversity is to have diversity events’ and if that is ‘taken away’, it will be harder for students to get exposed to different cultures. This participant also showed interest in interacting with people of different cultures and suggested ways to improve intercultural relations by providing more opportunities for domestic and international students to ‘mingle together’ and by getting participants to ‘promote their own cultures as an event’.

It is clear from the responses and discussion that the student is interested and enthusiastic in making the best use of M&M to increase her own cross-culture awareness and to get acquainted with people of cultures that are different from her own. She not only expressed a desire for more opportunities to get to know other cultures, but also wants these to be available to domestic students. Much of what she shared appears to be similar to survey responses received from both international and domestic student participants regarding this level of interest in and enthusiasm for intercultural awareness and diversity and inclusion activities at M&M events. She also demonstrates a similar basal (at the Benchmark or first Milestone levels) intercultural competency as the majority of M&M participants. We hope to raise our participants’ competency level through future research activities which will build further upon this study.

Overall, participants did not view the experiences of others through their own cultural worldview. After our efforts, participants recognize intellectual and emotional aspects of worldviews outside their own and have begun using these worldviews in peer interactions. This

suggests that through our efforts, the participants might have moved from the “benchmark” level to the “milestone” level of the construct “Empathy”.

Overarching findings

In general, open-ended survey responses in this study show that participants are developing and/or emerging in 3 aspects (Empathy, Cultural Self-awareness and Openness) of the AAC&U VALUE rubric for intercultural knowledge and competence (e.g., see Table 1). Further, through interactions between domestic and non-native students, the two parties can better understand each other’s cultures, languages and challenges (See Appendix Table 5). One participant suggested that the M&M program provide more opportunities for international students to interact with domestic students (See Appendix Table 6).

While not related directly to this study, it is useful to know that participants identify with the program’s sense of community, stating ways the program has helped them study, build friendships, or learn more about career opportunities. Likewise, participants highlight how M&M participation and mentoring helps with adversity (See Appendix Table 7). Finally, participants suggested more resources for choosing a major and more companies which hire international students when asked how the M&M program could aid their engineering career (See Table 8).

Study limitations and recommendations

In some rare occasions, survey responses were given which deviated greatly from the majority responses. For example, some participants mention that a particular monthly program meeting “didn’t really address diversity” and that “the meetings haven’t really been geared towards much diversity”. We attribute this deviation to the possibility that the group of participants surveyed might not be the same at each monthly meeting, due to the flexible attendance requirements of the M&M Group program. Thus some participants may have missed other meetings or socials with a focus on intercultural awareness, resulting in a reduced appreciation for, understanding of and opportunity to learn from the activities organized during the meeting which they did choose to attend.

As a result of the flexible attendance requirements, the average ratings for each of the questions might not be an accurate reflection of engaged participants. To further exemplify this, some participants might regard that their understanding of diversity has progressively increased with each time they participate in monthly meetings or socials with intercultural relevance. As the evaluations were anonymous, we are also unable to track the progress in a cumulative (or lack thereof) understanding of each participant in this regard. One potential solution to this, with regard to tracking of anonymous comments, is that we can design and utilize an anonymous coding tool to link and track each of their survey submissions.

Despite the relatively high interest level in attending the focus group for international students, only one participant showed up. However, because of the good conversation and in-depth

discussion that we had with the participant, we decided to use the focus group discussion as a case study to verify the progress that we have made since the start of the semester's initiatives.

In general, just as previous researchers have learned, future research we conduct and programming we lead as part of this research should include continual reminders of what the goal of the intercultural activities are and how they relate to the lives of engineering students and professionals. In a similar vein, a study assessing global competence of student design teams found that over 30% of the teams made no mention or only minor mention of global context during the first design project even though students were aware that this is a critical part of their grade. The teams who did mention a global context did so in regards to adjustments to be made in communicating over time zones and differences in climate. Very few teams showed higher levels of self-awareness and global competence though growth was shown in more teams' level of global competence on the second design projects²⁵.

We also need to raise continual awareness about strategies to avoid stereotyping and generalizing about cultures, even as we are attempting to raise awareness about other cultures. Another important point to make in our activities is a discussion on the widespread use of "American" for addressing the U.S population and how this can be interpreted as being ethnocentric. Americans can also include people from Canada, Mexico, Central America, and South America.

One area for improvement to help participants to further grasp the intent of these activities and the critical take-aways would be to find additional ways to better incorporate "experiential learning, iterative process and structured reflection" as has been recommended for increasing global awareness into existing classes²². While we have strived to do all three to some degree, we can make a concerted effort across both Pair and Group programs to work on a higher plane. As a result we aim to demonstrate significant impacts that can be made by incorporating these three learning constructs into existing extracurricular programs.

One possible way to do this and to provide a framework to motivate student engagement is through the use of this university's Passport to Intercultural Learning²¹ which includes "among its foundational and embedded learning outcomes Human Cultures, Global Citizenship and Social Responsibility, and Intercultural Knowledge and Effectiveness". PUPIL is marketed as "a tool to assist faculty and students in assessing and documenting the acquisition of these very important skills specific to Intercultural Knowledge and Effectiveness". Through this online system, M&M participants could earn "badges" as they complete activities to gain higher levels of competency related to intercultural and diversity awareness. We can investigate if these badges can even be earned in pairs or small groups.

Another limitation was the inconsistencies in methodology from various LT facilitating monthly meetings and summarizing surveys as part of their routine roles as M&M LT (and not as part of the diversity research efforts), including robust statistical analysis of all quantitative data. All efforts to synchronize this for future studies will be made. We will also address the limitation in future years where this study is split over half of two academic years and so no summative evaluation is available for either year.

In carrying out future studies, we will also bear in mind limitations shared in DeBoer et al., 2013²⁷, that assessment instruments mostly ask for self-reported data vs. using feedback from an outside evaluator and that instruments tend to focus on students' knowledge and attitudes in the domain of intercultural competence. The DeBoer et al., 2013²⁷ authors also note the value of these constructs, but warn that the assessment of the actual skills that lead to intercultural competence are "largely absent from the contemporary assessment toolbox".

Conclusion and Future Directions

The results of this study suggest that through new intercultural initiatives, participants show an increase in Self-Awareness (knowledge), Openness (skills) and Empathy (attitude). A significant number of participants are enthusiastic about learning about cross-cultural differences and attending cultural appreciation events and have learned how to apply these skills broadly. Through awareness activities, like those used in the M&M program, participants have access to a more well-rounded college experience through an increase in international awareness; are better equipped with skills to smoothly transit into a global workforce; and can become more familiar and comfortable in communicating with people of different cultures.

This preliminary study, led by two undergraduate student leaders within M&M, has helped to formulate possible future goals/objectives for continued research. Future outcomes for M&M diversity and intercultural activities may include one or more of the following:

- be able to solve technical and non-technical problems using diverse cultural perspectives
- gain advanced knowledge and skills on cultural self-awareness cultural worldviews, intercultural empathy, and verbal and non-verbal communication
- develop an enhanced understanding of how colleagues from different countries and cultures may approach or define problems
- know how to apply basic participant observation strategies to work more effectively with colleagues who define and solve problems differently
- gain knowledge about some of the key dimensions of cultural difference that are most prominent in multi/cross national team settings

To address limitations of the survey instruments used for this pilot study we plan to include a question to ask if the anonymous respondent is a domestic or international student and to utilize the AACU survey instrument while examining all six constructs. We acknowledge that it would be interesting to analyze the responses between domestic and international participants to see how the experiences in this study compare; however, the surveys for this pilot study do not ask if the respondent is a domestic or international student. For future studies, we will ask for this information. In future studies, by using an existing survey instrument, adapted from the AACU VALUE rubric by the university's Center for Instructional Excellence and Global Learning programs, we anticipate having more robust evidence for the increase of understanding of other cultures. Finally, in the methods section we explain our choice for the AACU VALUE rubric. As this is a pilot study upon which to build future research, we chose to focus on only three of the six constructs. We chose Self-Awareness (knowledge), Openness (skills) and Empathy (attitude) constructs over Cultural Worldview Frameworks (knowledge), Verbal and Nonverbal Communication (skills), and Curiosity (attitude) for ease of analysis and fit with the way our

mentoring programs are currently structured as well as planned activities. For future studies we may expand to include all six constructs.

Our intention is to join other researchers examining the opportunity to incorporate intercultural and diversity awareness into existing programs, such as peer mentoring programs, and have an impact on student preparedness for the global engineering workforce. We note the importance for future studies, literature reviews and reports to include these extracurricular activities (out-of-class time and not travel-abroad based) among the recommended initiatives to help increase intercultural and thus global competence in engineering students. At present, recommended opportunities espoused are international enrollment (study abroad), international projects, international employment, international field trips, and integrated class experiences^{16, 26}, all of which are more resource and time intensive than ways proposed in this study.

Adding extracurricular activities also fits well with recommendations from a Delphi study focused “on identifying the traits, experiences, and competencies that defined globally prepared engineering graduates”. A resultant semantic map of critical aspects of globally prepared engineering graduates refers to “other higher education contexts concerned with global preparedness” a category into which mentoring programs with culturally diverse participants and intentional and facilitated intercultural, diversity activities can fit²³.

In carrying out this research, we join other studies which identify how various intercultural activities can positively impact the attitudes and preparedness of different engineering student populations for the global environment of college and the workforce,¹⁵ where our focus area is and will continue to be related to female engineering students, both domestic and international.

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Appendix

Table 1. Responses to the Pair November 2015 monthly meeting survey question: How has your view of diversity/inclusion and/or mentoring been stretched over the past month?

view diversity differently as a result of events (2)
has helped me persevere
creating new relationships with others in the program
able to help my friends using mentoring techniques
have gotten to know people that I might not have otherwise
feel challenged to look outside the box
met new people with diverse backgrounds (4)
meets with international mentor and learns something different about her experiences
helped with teaming
realized how difficult and how much time mentoring takes (2)
learned to be a better listener Empathy
encouraged to think about what or why I'm doing what I'm doing
improved my ability to mentor
learned about American culture from my mentor
can give better impactions and advice
better stress management, dealing with people who doubt my capabilities
able to reach out and give advice to FYE students
realizing sometimes mentors need mentoring
mentoring is both advice AND support!

Table 3. Group mid-year evaluations: comments from participants ranking how well the program stretched their views of diversity/inclusion with a 3.

There was never a diversity/inclusion activity. Maybe having an activity that talks about cultural difference in the work place would be helpful.
There aren't that many minorities who attend
We don't do a lot with diversity and I'm already very used to diversity from living in Chicago.
I have only attended 2 meetings but the first one definitely stretched my view of diversity and inclusion.
Diversity was well integrated, but I don't feel I was "stretched" beyond any previous experience
I don't think there has been any opportunities for events centering around diversity/inclusion over the semester.
There haven't been as many diversity events as last year.
Have not attended many meetings.
Perhaps I already have a stretched view of diversity/inclusion, so I wasn't surprised by anything from the program.
This is the same level of diversity as the rest of the school.
We did not have too many cultural experiences that really stretched my view.
It wasn't always a main topic of discussion

Table 4. Group mid-year evaluations: comments from participants ranking how well the program stretched their views of diversity/inclusion with a 2.

I have not been exposed to a lot of diversity throughout the semester.
My view has stayed the same
I have only been to one meeting, I didn't notice very much on diversity. I am also in a diversity class so that has been where most of my diversity experiences and learning is coming from.
The diversity activities are not very helpful

I feel that the point of the program is to help women in engineering feel more confident in themselves and that they are not alone. This is the focus at the meetings and socials that I have been to, which is fine, but I don't feel that diversity was a main topic.
I have not had the opportunity to experience it all!
The diversity factor is just thrown in and not really developed throughout the whole meeting.

Table 5. How can domestic students learn from your experiences as a student who is attending school in a country unlike your own?

Some domestic students might to study aboard [<i>sic</i>] semesters I believe my expereince [<i>sic</i>] as an international student will help them.
How studying in a second language look like.
Work hard and walk out [<i>sic</i>].
They can learn how I am adapting to the changes around me in a foreign country.
Domestic students could share my experiences of studying abroad in terms of adapting to the food, culture and norms of the foreign country.
Communication among different cultures
By talking to me they can learn about my experiences.
I got lots of new experiences by leaving out of my comfort zone. I tried to do things that I've never done or I was afraid of doing before and I learnt more than I expected.
They can know something about my culture. Sometimes maybe also the language.

Table 6. What are your current expectations for the M&M Program?

To meet people from various engineering disciplines and find interesting opportunities [<i>sic</i>] in the field.
Giving more changes for international students to interact with domestic students. Help them make real friends in the program.
Learn about other's experience.
Gain leadership experience.

Introduce us to this university's graduates who had done a double major or are currently in the industry and have sessions with them
It's perfect
Keep getting advise [sic] on my sophomore courses.
Getting to know more about other M&M participants.
Know more about engineering, talk more to domestic student

Table 7. How has the M&M program helped you as an international student succeed in your career at this university?

I learned several hints on studying from my group members.
Let me know I'm not alone.
Helped me go around the campus.
It has helped me meet other women engineers.
It introduced a lot of new aspect of engineering career
Not much.
I can ask my mentor almost anything about school, which helps me to learn about American culture and keep up on school work.
First, I knew more activities about engr from my mentor, which offers me more opportunities. Second, I think I learnt many idioms and American slang.

Table 8. How could the M&M program better aid you in your engineering career?

The M & M program will help me more to chose wisley [sic] my career options and it will also guide me thugh [sic] my transition in college.
Hold more presentations talking about how to successfully study in Enginnering [sic].
More alumni in ECE. More tips for getting an internship/ COOP [co-op]/research.
By helping me meet more people from my desired major.
I think it is doing a great job and I couldn't think of a better way to implement this program

It's a great way to get to know the real engineering career

Get people from companies that hire international students so that we can network with someone.

I'd appreciate it if I have the chance to talk to other mentors since I kind of changed my mind about my major as semester went on.

Communication part. My English is improved. From my mentor's experience, I also learnt a lot.