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## Engineering Faculty and Staff Inclusive Excellence Training: Broadening Engineering Pedagogy For All

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# Engineering Faculty & Staff Inclusive Excellence Training: Broadening Engineering Pedagogy for All

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## **ABSTRACT**

As our classrooms become more and more diverse, the need for cultural competency in engineering faculty is more important than ever. Cross-cultural competency has been named among the 10 most important skills for the future workforce. Historically there is a lack of cultural diversity at East Tennessee State University. The university did not offer any formal training opportunity for faculty and staff in cultural competency. As such, faculty effort in cultural pedagogy is minimal resulting in persistent achievement gaps among culturally diverse students. In this project we have developed and implemented an inclusive excellence cultural competency training program primarily for engineering faculty and staff primarily in the College of Business and Technology. The project aimed to train these faculty and staff in cultural competency so that they can implement inclusive pedagogy and communication in and out of their classrooms. Cross-Cultural Adaptability Inventory and post workshop assessment were used to measure the efficacy of the training program. Assessment data showed that the training program improved faculty and staff's awareness in wide variety areas of cultural proficiency and provided them with a toolbox of ideas to implement them in their classes and workplaces. Lessons learned are: 1) To make an institution a culturally inclusive institution diversity, equity and inclusion need to be part of the organization DNA and leadership buy-in and advocacy is a must; 2) Whenever possible, create developmental approaches that engage faculty and staff with different levels of content over a period of time and 3) Provide flexibility in training delivery.

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## **1 INTRODUCTION**

Cultural competence is the ability of a person to effectively interact, work, and develop meaningful relationships with people of various cultural backgrounds (Durden, et al. 2016). Cross-cultural competency has been named among the 10 most important skills for the future workforce (Fidler and Gorbis 2020). Employers value culturally competent employees in designing, developing and marketing their products and services to culturally diverse customers (Swayze and Calvin. 2016; Bhawuk 2009; Palmer and Carter 2014). Cross-cultural competency is the key enabling factor of working in diverse teams (Alexis, et al. 2017; Lokkesmoe, et al. 2016; Trooboff, et al. 2008). Furthermore, there is also need to utilize the talents, experiences, and ideas of a broad group of people in order to achieve inclusive excellence and student success. As our classrooms become more and more diverse, the need for cultural competency in faculty is more important than ever (Burns 2020; Ekaterina, et al. 2015; Frawley, et al. 2020).

East Tennessee State University (ETSU) is committed to diversity and inclusion and has aspired to become a campus enriched by persons of different backgrounds, view, cultures, socioeconomic statuses, and other characteristics by infusing inclusion into all aspects of university life. However, there is a lack of diversity at ETSU. Only 10.89% faculty are non-white compared to 19.26% minority race/ethnic students and this disparity is increasing (ETSU Fact Book 2020). The majority of faculty and staff at ETSU hail from a middle-class, European-American background; therefore, the biggest obstacles to successful culturally responsive instruction for most faculty are disposing of their own cultural biases and learning about the backgrounds of the students that they will be teaching. European-American culture simply dominates social and behavioral norms and policies to such an extent that those who grow up immersed in it can be entirely unaware of the realities of other cultures. A related misconception that many faculty labor under is that they act in a race-blind fashion; however, most faculty greatly overestimate their knowledge about other cultures, which manifests itself in a lack of cultural sensitivity in classroom management and pedagogical techniques (Freedman, et al. 2003). A faculty member's lack of understanding of diverse cultures and beliefs can lead to disparities in learning, dissatisfaction, and achievement gaps among diverse students (Embrick, et al. 2018). On the other hand, a culturally competent faculty member can establish trust and respect, improve levels of communication, and create an inclusive learning environment. This project has two major goals: 1) Train the faculty and staff primarily in the College of Business and Technology in cultural competencies and enable them to understand, communicate and effectively interact with people across different cultures and 2) Develop a sustainable cultural competency framework for faculty and staff to be used by other colleges and departments.

## **2 METHOD - TRAINING PROGRAM DEVELOPMENT AND IMPLEMENTATION**

To equip the faculty and staff in the College of Business and Technology at ETSU in cultural knowledge and adapting to diversity, this project implemented the "Train the

Trainer” Model, is a widely acknowledged educational model across a number of disciplines (Pearce, et al. 2012; Tonna and Bugeja 2018). The train the trainer model was selected because it has a self-sustaining mechanism and provides an effective strategy to equip faculty and staff with new knowledge on how to teach others and how to foster an environment where everybody feels welcome to improve their skills. A train the trainer workshop can build a pool of competent faculty who can then teach the material to other faculty members. Instead of having just one trainer who trains/teaches a course, there are multiple trainers training/teaching the same course at the same time in this model. This means a new participant typically gets to watch an experienced trainer teach, complete the exercises, and then practice teaching segments to other participants.

We recruited a nationally renowned trainer, Dr. Yvette M. Alex-Assensoh, Vice President for Equity and Inclusion at the University of Oregon, to develop a training program on inclusive excellence through cultural competency for the College of Business and Technology faculty and staff. Dr. Yvette M. Alex-Assensoh is an award-winning researcher, university professor, and equity strategist as well as a member of the Oregon and Indiana State Bar Associations, Leadership Consultant, Certified Coach, Workshop Facilitator and Keynote Speaker. She has, over the last 25 years, delivered results in higher education, with non-profits and faith-based organizations as well as for individuals across America, and in Africa, Asia and Europe. Her life-long belief in the power of unconditional love, as actualized in L.A.C.E., is the driving force behind how she conducts research, teaches, leads and coaches (Alex-Assensoh 2020).

Dr. Alex-Assensoh, the authors and the ETSU Office of Equity and Inclusion collaborated to create a training workshop for faculty and staff with the following learning outcomes (Goal 1). The faculty and staff will be able to:

- (i) demonstrate a solid understanding of cultural diversity in classroom teaching;
- (ii) effectively accommodate diverse students through inclusive pedagogy and intercultural communication;
- (iii) effectively prepare students for careers with cultural knowledge and diversity skills.

Two assessment tools were also developed to measure the project success. The workshop was administered over four Fridays via Zoom due to COVID restrictions. Each session ranged from 2 to 3 hours with total ten contact hours. Each session consists of a pre-workshop reading assignment, in-session presentation, group discussion and hands-on activities. The faculty and staff enjoyed each session so much that after each session many of them stuck around to continue their group activities or chat with Dr. Alex-Assensoh. This demonstrated faculty and staff’s enthusiasm to learn about cultural inclusiveness and commitment to make ETSU a place of cultural pluralism to enhance the success of students of every race and nationality. Additionally, a total of 15 grants were awarded to faculty to apply the learning of the workshop into their classes to train students in cultural competency.

In Spring of the following year, four newly trained faculty and staff assumed the trainer role and trained a new group of faculty and staff. Due to high demand, the workshop was administered to two cohorts of faculty and staff. There were 21 participants in each cohort. We recruited one faculty and one staff from each cohort who completed the Fall workshop to lead the Spring cohorts. Both faculty and staff leads worked together early in the spring semester and built the workshop on ETSU's D2L learning management system. The participating faculty and staff were enrolled as students in the D2L system and the workshops were administered over four Fridays similar to the Fall workshop and assessment data was collected. After Spring implementation, the training materials were handed over to the ETSU Office of Diversity and Inclusion for wider deployment of the training to all colleges and offices (Goal 2). It is anticipated that over the time the cultural awareness and inclusive pedagogy will be an integral policy and practice in all aspects of ETSU.

### 3 RESULTS

ETSU Inclusive Excellence through Cultural Competency Workshop was a huge success. Our primary target population was engineering faculty and staff from the College of Business and Technology, but due to high demand we made it available to other colleges. A total of 42 faculty and 22 staff completed the workshop representing eight colleges of ETSU and three offices ( Figure 1). By expanding it to other colleges, we achieved broader participation and impact. Trained faculty and staff members are now equipped and motivated to infuse cultural pedagogy in their classes and workspaces to make ETSU a more inclusive campus.

#### 3.1 Participants' Demographics

Of the 64 faculty and staff who completed the workshop 78% self-identified as female, 17% as male, and 5% as other gender. The ethnicity/race distribution of the participants was: 79.6% White, 11.1% African American, 5.6% Asian and the rest are in some other ethnicity. As expected, the educational background of the participants skewed to the left: 9.3% had a Bachelor's degree, 20.4% had a Master's degree and 63% had a doctoral degree.

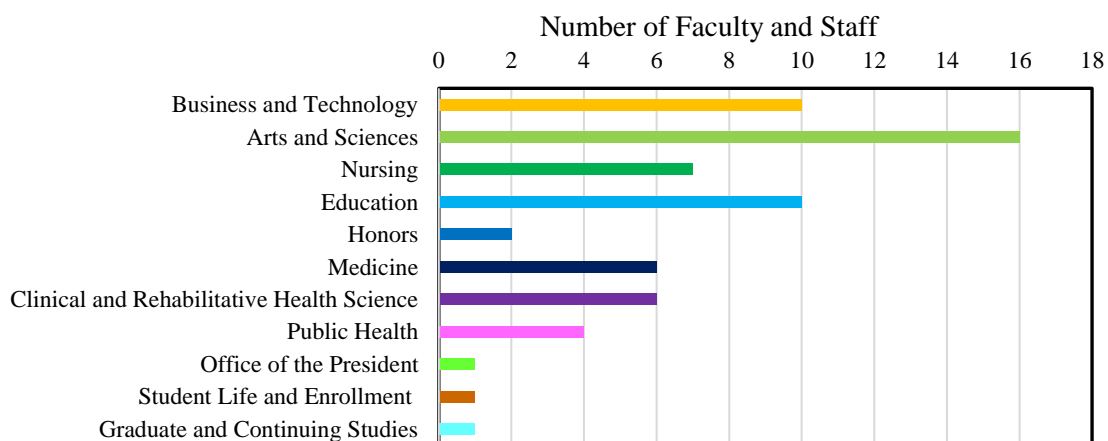


Fig. 1. Number of Participating Faculty and Colleges

### 3.2 Assessment

During the Fall and Spring workshops we collected two sets of data to assess the effectiveness of the workshop and how it has prepared faculty and staff by improving their awareness about identity, implicit bias and cultural proficiency. The assessment tools used were 1) Cross-Cultural Adaptability Inventory and 2) Pre and Post Workshop Assessment

I. **Cross-Cultural Adaptability Inventory (CCAI):** This inventory was developed by Colleen Kelley and Judith Meyers as a self-assessment tool that prompts multi-cultural discussions and help employees work successfully within a culturally diverse environment (Meyers and Kelley 2015). The CCAI measures four distinct areas of cultural competence with high statistical reliability and face, content, and construct validity. Published research also shows increasing evidence of predictive validity.

The four CCAI dimensions are:

- **Emotional Resilience:** Measures how one balances emotions, navigates difficult feelings, and maintains a positive outlook.
- **Flexibility/Openness:** Indicates how nonjudgmental and tolerant one can be towards new ideas and customs. This also measures how much a person enjoys encountering different ways of thinking and behaving.
- **Perceptual Acuity:** Measures how effective an individual is at discerning the subtle verbal and nonverbal cues in a cultural environment. Perceptual acuity encompasses attention to detail, sensitivity to the feelings of others, and general awareness of nuanced interpersonal context.
- **Personal Autonomy:** Indicates how dependent one is on familiar cultural cues to form an identity. This dimension shows how strongly one retains his or her sense of self and values in any environment or culture.

We administered the CCAI pre and post workshop. Typically, the CCAI scores are plotted on a radial diagram as a self-assessment profile. The score that is closest to the outer edge of the profile indicates one's strongest area, and the score that is closest to the center of the profile indicates one's weakest area. For simplicity a comparative bar chart is created which shows that after attending the workshop participants' scores increased in all four areas; however, they are not statistically significant except for emotional resilience dimension which is statistically significant at 5% significance level (Figure 2).

The range of scores for **emotional resilience** can vary from 0 to 108. Being among people from another culture can be frustrating, confusing, and lonely. In these situations, it is important to be able to maintain a positive attitude, to tolerate strong emotions, and to cope with ambiguity and stress. It is also helpful to be able to maintain one's self-esteem and self-confidence. The post workshop score of 88 compared to 79 in pre-workshop indicates that the workshop helped faculty and staff to improve their ability to cope with the unfamiliar cultures and to react positively to

new experiences. This demonstrates courage, risk taking, and a sense of adventure among the participants.

### Pre and Post Workshop Assessment of CCAI

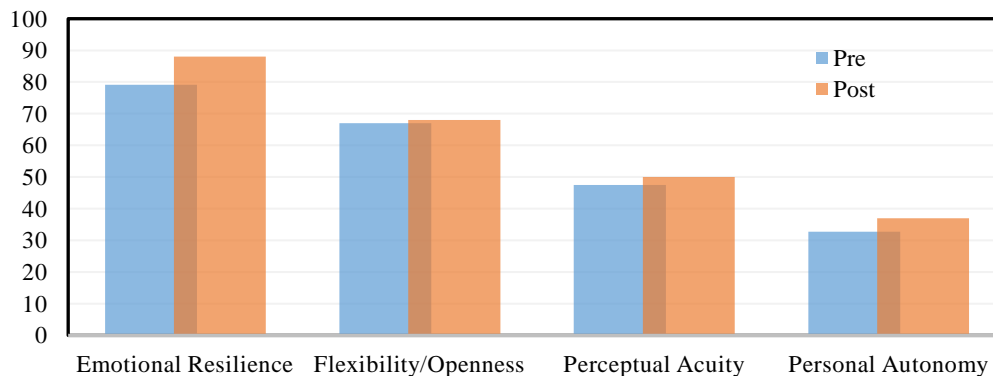


Fig. 2. Pre and Post Workshop CCAI Assessment

**Flexibility/Openness** scores can vary from 0 to 90. Adapting to different ways of thinking and acting requires an ability to be open to ideas that are different from one's own and to people who are different from oneself. These characteristics are also helpful in developing relationships with people who are different from oneself. The pre and post workshop scores (67 vs 68) show average openness of our participants toward differentiating ideas, tolerance, and a of liking for and comfort with people with diverse background. As there is significant room for improvement in this dimension, ETSU needs to implement reinforcing activities to improve the flexibility and openness of our faculty and staff.

**Perceptual Acuity** scores range from 0 to 60. Unfamiliar language-verbal or nonverbal-makes communication more difficult. Perceptual sensitivity is the key to successfully meeting this challenge. Perceptual acuity is associated with attentiveness to interpersonal relations and to verbal and nonverbal behavior. The post workshop score of 50 shows that the faculty and staff demonstrated above average perceptual acuity. They are able to understand people's emotions in diverse situations and cultures, pay attention to the context of the communication, being sensitive to one's effect on others, and communicating accurately.

The scores for **Personal Autonomy** range from 0 to 42. When one encounters people whose values and beliefs are different from one's own, self-knowledge is important. The main characteristic associated with personal autonomy is a strong sense of identity. Personal autonomy also includes the ability to maintain one's own personal values and beliefs, to take responsibility for one's actions, and to respect oneself and others. Post workshop score of 37 (vs 33) shows that the workshop helped the faculty and staff improved their sense of personal autonomy. They feel empowered to make ETSU more inclusive and equitable to all cultures. They know how to make and act on their own decisions while respecting the decisions of others.

II. **Post Workshop Assessment:** A post workshop assessment tool was developed and administered after the workshop. Participants were asked to rate statements

focusing on learning outcomes on 1 to 5 Likert scale (1: Strongly Disagree, 3: Neutral and 5: Strongly Agree). The survey had 15 questions focusing on several areas. 1) Identity: having an awareness of the participant's own identify, identity of others, how identities are correlated with equity, power and difference and strategies and activities to help students to develop their identities which are associated with increased self-esteem, improved mental health, and greater academic achievement. 2) Recognition of implicit bias: understanding of implicit bias and the role that it plays in perpetuating stereotypes and discrimination, understanding colorblindness and how colorblind ideology ignores patterns of discrimination, and strategies to mitigate the involuntary and unconscious associations that produce bias. 3) Cultural competency: creating learning and/or working environments in which students, faculty and staff feel respected by and connected to one another; helping students, faculty and staff at ETSU to be more culturally proficient and to incorporate the proficiency into my daily job duties. 4) L.A.C.E. Framework: understating L.A.C.E. and how to use it to raise self-awareness in work at ETSU. And 5) Support: understanding of how to partner with the ETSU Office of Equity and Inclusion to ensure that equity and inclusion are core values and outcomes in my campus unit. Assessment data shows that in their opinion the workshop has improved faculty and staff's awareness in wide variety areas of cultural proficiency and provided them with tools and processes to implement them in their classes and workplaces (Figure 3).

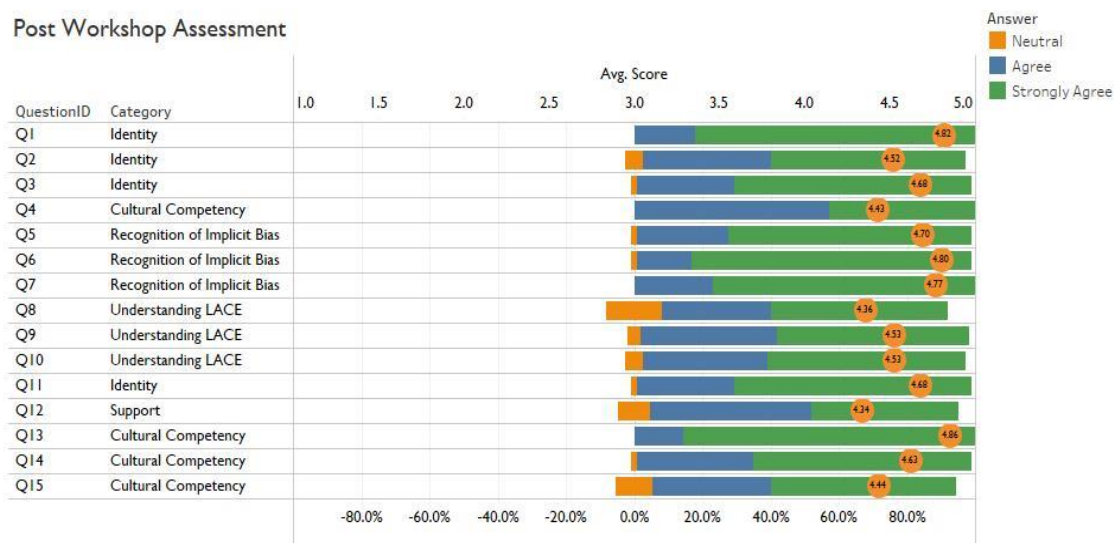


Fig. 3. Post Workshop Assessment

#### 4 LESSONS LEARNED AND RECOMMENDATION

In the landscape of today's global economy, industry and government organizations can expect to have employees and clients from numerous cultural backgrounds and varied cultural practices, needs, and expectations. As a result, businesses worldwide are looking for ways to bolster relationships across cultural lines. Knowing how culture impacts management style, problem-solving, asking for help, etc., can help us communicate better in cross-cultural interactions. As educators, we need to



prepare our students with cultural skills and knowledge and bring awareness to stereotyping and prejudices that can create barriers in the workplace. For those on other campuses working to organize such workshops, we have following recommendations:

1. *To make an institution a culturally inclusive institution Diversity, Equity and Inclusion need to be part of the organization DNA and leadership buy-in and advocacy is a must.* At ETSU, faculty and staff understand changing demographics and cultures in their classrooms and workplaces, and they are willing to learn and adjust to accommodate culturally diverse students. It is the support of faculty and staff (as opposed to being resistant) has made this project successful and paved the way to make ETSU a more inclusive institution for students' success.
2. *Avoid one-offs when possible.* In this new age of increased attention to racial justice and diversity, it may be tempting to offer lone workshops to satisfy a diversity checklist. But while well intentioned, singular or isolated sessions have the unintended consequence of leaving faculty and staff frustrated with more questions than direction. Whenever possible, create developmental approaches that engage participants with different levels of content over a period of time.
3. *Provide flexibility in workshop delivery.* We administered the workshop over four weeks in pieces and via Zoom and it provided flexibility and convenience for the faculty and staff. We also had many small and interactive group discussions during the workshop which helped participants to open up about personal experiences around identity, socialization and implicit biases. Helping others to walk in someone else's shoes can be transformative, especially when we're asking them to unlearn years of socialized bias.

## **5 CONCLUSION**

ETSU is committed to diversity, equity, and inclusive excellence both locally and globally. ETSU's inclusive excellence training program has provided faculty and staff with skills and tools to create classroom climates that are respectful and inclusive and that help students' value and understand the cultures of their peers. This will increase student engagement in collaboration, experiential learning and equitable opportunities for success. The train the trainer model will help expand the program in other units of the university. Trained faculty and staff will be able to create an inclusive classroom in which all students have equal access to information, regardless of sociocultural background. Bringing in diverse perspectives about content, creating opportunities for students to share their background and experiences, and limiting culturally biased curriculum are great ways to create a more inclusive classroom. This sense of belonging will contribute to CBAT student retention and persistence to graduation. When the college focuses on preparing students to understand the overall function, awareness and effectiveness of cultural competency, they will be providing students with the necessary skills needed to function in the ever changing local, national and global workforce.

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