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## Preparing Teachers For Culturally Diverse Engineering Classrooms: Sharing Experiences And Activities

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# SUPPORTING TEACHERS IN CULTURALLY DIVERSE ENGINEERING CLASSROOMS: SHARING EXPERIENCES AND ACTIVITIES

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## 1 INTRODUCTION

An important aspect of working as an engineer is working in a global environment. Engineering education needs to equip students with this competence as ASEE, EURANEE and FEIAP have repeatedly stated (Handford et al. 2019). In addition, engineering campuses are increasingly international, both in terms of faculty and students. While there have been a number of pedagogical projects linking students with other countries either physically or online (through for example, COIL projects), which typically involves a relatively small number of students, there has been little research into maximizing the possibilities between ALL students on the home campus (Van Maele et al. 2021). This workshop aims to assist participants in formulating their own activities for the culturally diverse engineering classroom using inspiration from current tried and tested practices.

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For educational success and well-being, it is important that both domestic and international students can be integrated into campus activities, both inside and outside the classroom (Bergman et al. 2023). This purposeful integration can give students the intercultural competence skills that are much sought after in engineering graduates by companies (Hundley 2015). It is also a key objective of an internationalization-at-home strategy, commonly defined as “the purposeful integration of international and intercultural dimensions into the formal and informal curriculum for all students within domestic learning environments” (Beelen and Jones 2015, 69). While diversity can refer to a range of aspects (see SEFI n.d., Van Maele et al. 2023), this workshop focuses particularly on the culturally diverse student population. While this naturally involves the students’ nationalities, this workshop sees nationality as only one aspect of a student’s identity and acknowledges that other aspects can play an important part in students’ interactions.

Teachers play a crucial role in the successful integration of these engineering students into the formal and informal curriculum, yet there is a lack of training provided for teachers in working with these culturally diverse groups in the classroom (Gregersen-Hermans and Lauridsen 2021). This workshop is thus part of a STINT funded project on educating the educators aiming to map existing professional development initiatives at Swedish higher education institutions and critically evaluate their effect for Internationalization at Home.

By the end of the workshop, participants:

- participated in a survey on their own and others’ current internationalization-at-home activities;
- listed possible future activities to facilitate the culturally diverse engineering classroom applicable to their institutional setting;
- reflected on and discussed these activities in small groups.

## 2 WORKSHOP DESIGN

The workshop was divided into two parts: (1) setting the scene and (2) teaching activities in the culturally diverse engineering classroom.

### Part 1: setting the scene

The first part of the workshop consisted of three parts:

- 1) **Introductions / definitions:** Facilitator-led introductions and definitions of diversity and internationalization-at-home (IaH).
- 2) **Questionnaire:** Participants shared their own experiences and practices in their own culturally diverse teaching environments, using a brief and trialled questionnaire on internationalization at home activities (Weimer et al. 2019). The results of this questionnaire gave an overall picture of current activities and practices being carried out at participants’ institutions
- 3) **Shared activities:** The facilitators shared some examples of their own activities from their home universities as well as reactions to some of these activities from faculty members (from the results of a survey and ongoing interviews). The activities included setting up the international classroom and

following up mid-course, particularly concerning a purposive use of intercultural group work.

## Part 2: teaching activities in the culturally diverse engineering classroom

The second part of the workshop consisted of two parts:

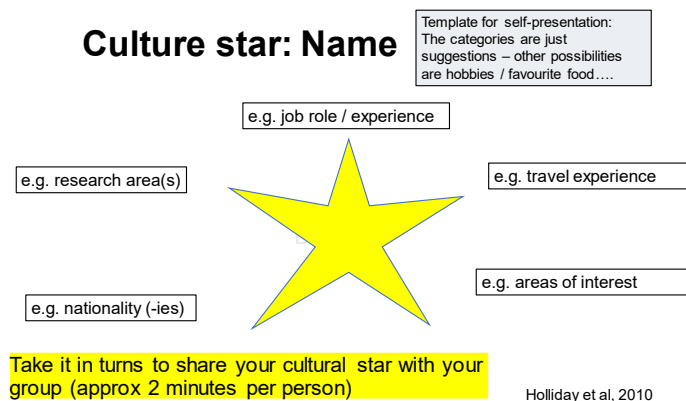
- 1) **Brainstorming** ideas individually
- 2) **Sharing** ideas in small groups of four

### 3 RESULTS

The workshop focused on three main activities, as shown below.

#### Activity 1: Cultural star

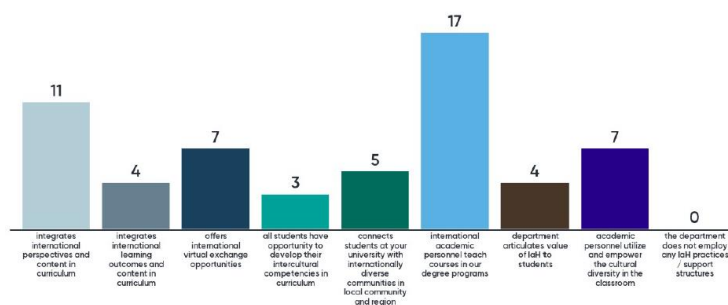
A crucial aspect of working in the international classroom is getting to know each other beyond country and discipline labels. Participants shared their own cultures through sharing their cultural stars with each other (Holiday et al. 2017, 238-239):



#### Activity 2: Internationalisation at Home survey

This mentimeter survey (mentimeter.com) provided an overview of the internationalization-at-home practices employed by the participants at their own universities (as far as they were aware).

## What internationalisation at home (IaH) practices and support structures does your program currently employ?

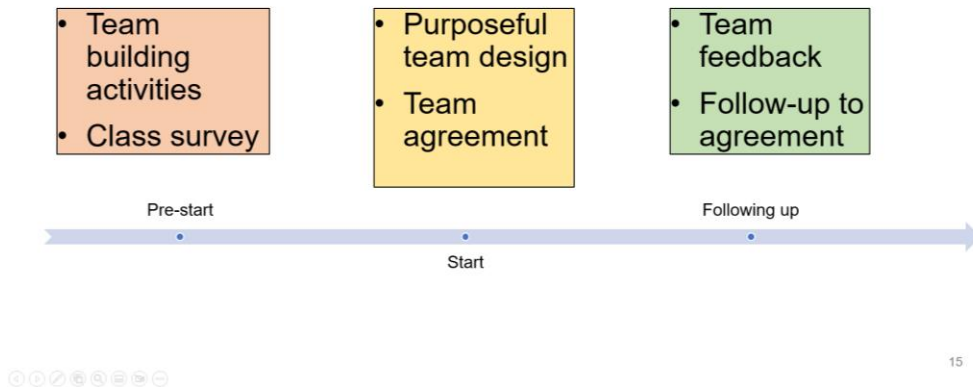


The results from the 17 participants showed that the most common internationalization-at-home practice was that of having international academic personnel (17 votes) followed by integrating international perspectives and content in the curriculum (11 votes) and academic personnel utilizing and empowering the cultural diversity in the classroom (7 votes) as well as offering international virtual exchange opportunities (7 votes). However, since the mentimeter lacked a scale, it was difficult to show the extent to which this was being applied, and it was commented that in some cases, this was rather minimal.

### Activity 3: Sharing of activities

In small groups of four, the participants then shared their own examples of possible activities to use in the culturally diverse classroom based on the figure shown below. In the figure, activities are grouped according to whether they took place before the course starts, at the start of the course or at some point later in the course. Many participants exchanged experiences of team building activities as a way to bring culturally diverse groups together.

## Activities used by teachers



## 4 CONCLUSION

While many participants felt that little was being done at their own institutions to work with culturally diverse students, the activities showed that some commonly used activities such as team forming and building or getting-to-know-you activities can contribute positively to bridging the gap that can often exist. In addition, a more conscious use and focus on existing resources such as the presence of international staff and working with international perspectives can also facilitate internationalization-at-home.

## 5 ACKNOWLEDGMENTS

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