

Types of Role Models for the Frontiers in Education (FIE) Community

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Abstract—In this Special Session participants explore role modeling in the context of IEEE/ASEE Frontiers in Education (FIE). Role models are important in engineering education, due to their being beneficial for those who have them. While educators and other professionals may strive to be role models for others, there is little research in this area to support this goal. How do we talk about role models? How can we reflect on what we can model and how, as individuals and through giving visibility to others? Conferences like FIE are great venues to provide participants with role models. What kind of role models are FIE attendees after? In this special session participants at any career stage are introduced to Grande's theory of role modeling to address these questions.

The groups will use Grande's theory to reflect on what kind of role models they would find interesting to look for in FIE. This aims to increase reflection on role modeling by the participants while also informing the organization of the event, who can consider increasing the visibility of the identified potential role models. Participants can later use a similar process to reconsider their role modeling in other areas, e.g. as teachers for their students, managers for their employees, or as conference organizers to analyze what kind of role models they are inviting to their events.

Index Terms—role models, diversity, inclusion, FIE, conference organization, engineering education

I. PURPOSE AND AIMS

We are all potential role models for those around us, regardless of which career stage we and the people we work or study with are at the moment. We may also look at others as examples of what we want to become. In other words, we may want to reflect on how we can be role models ourselves and on what kinds of role models we see in the spaces in which we take part. Providing role models for their participants is a common aim in events, particularly in those with the goal of broadening participation in engineering, due to the benefits of having such a model [1], [2]. But the term is loosely defined [3] and there is little discussion on what these role models should represent and how.

This special session is an invitation to everyone in the IEEE/ASEE Frontiers in Education (FIE) community, regardless of their career stage, to reflect on all of these questions using Grande's theory of role modeling [4]. This theory divides what can be modeled by a role model in two groups: achievements and aspects, such as competencies, character traits and attitudes.

Participants' main take out of the session is learning a way of reflecting that they can apply to several areas of their work, i.e. through the session they will learn how to consider how an individual, including themselves, can be a role model for others. An educator, for example, may later use this newly acquired knowledge to reflect on how they can be a role model for their students in ways that the educator may have previously missed. They will also be directed to examples found in our study of teachers in computing [5].

FIE is a renowned conference with a significant number of attendees. As such, the community around FIE can be seen as an example for others in engineering education and a venue for attendees to find different kinds of role models. In the case of FIE, what are the types of role models that the participants are after? What achievements and aspects of a person does the community think are worthy of emulation as an individual in engineering education? How are these given visibility in FIE and how could that be improved, if needed? These are the questions that would be used in the session as an example. As FIE participants are diverse, we have chosen to use precisely their belonging to the FIE community as the theme we know they have in common and that can be explored in terms of role modeling.

Thus, by participating in this special session an individual may not only reflect on the way they see themselves and others around them, and on what they would like to change based on that. They also see that their view of the FIE community and what should be valued within it is listened to, that their voice is heard by the FIE organization and that they contributed to enhancing FIE through their feedback, so that in the future the conference may be more adapted to their expectations.

Since we want to gather participants' views, anyone who attends FIE has a relevant experience to contribute to the session, since many different perspectives need to be considered.

II. AGENDA FOR THE SESSION

The agenda for the session will be:

- Introduction to role modeling and Grande's theory, including a matrix for reflection on types of role models (10 minutes)

- Individually, participants use the matrix to write down achievements and aspects of their view of role models that should be found at FIE (10 minutes)
- In small groups, participants put together their views and agree on a few core aspects of a role model. Then they create a short scenario where all or some of these aspects could be given visibility. For example, if honesty and humbleness are aspects that a role model should have, the group writes a scenario where a professor admits finding something hard. (15 minutes)
- Each group represents their short scenario to the rest of the participants. The groups acting as audience try to guess what was being modeled. Depending on the number of groups, it may be possible to discuss if the aspects were clear and/or other ways of giving them visibility (25 minutes)
- Each person goes back to the matrix they filled in at the beginning of the session and is given a chance to edit it based on the other views on role models that they have just seen. They also mark whether they have found these types of role models at FIE2020 (10 minutes)

At the end of the session, participants are given a consent form for voluntarily leaving a copy of their individual reflection matrix, for the organizers of the session to analyze and provide as feedback to the FIE organizing team.

III. FACILITATORS

In order to guide the discussions and other work in this session it is important that facilitators have experience in relevant research (role modeling theory, research on different aspects that can be modeled, and related topics), conference organization and participation in FIE.

The theory of role modeling used in this session is the main focus of Virginia Grande's PhD degree. She focuses on the experiences on teachers in computing as role models for their students [5] and how role modeling can be described [4]. She is currently looking at ethical theories that can be used to explain role modeling in engineering education [6]. Grande has over a decade of experience in service to professional organizations. This includes organizing events, particularly aiming to broad participation in computing. In this context she has discussed role modeling in communities around an event and has facilitated sessions as the one described here. Grande has also analyzed the potential availability of role models at FIE [7] together with Professor Daniels.

Professor Mats Daniels provides his expertise in research on professional competencies, one of the topics that can be discussed during the session as aspects to be potentially modeled, and his extensive experience in conference organization, including many editions of FIE as organizer and participant.

Dr. Anne-Kathrin Peters has researched the discipline as it is constructed in higher education. Her research suggests that disciplinary values and norms in education affect what role models are accessible to the students. For example, we might have women in the discipline but it may not be legitimate to endorse them for their (feminine) ways of participating in

the discipline [8]. Students may reject certain professional identities due to the lack of validation from their peers [9]. Peters will contribute with theoretical underpinnings on disciplinary culture and identity and use those to facilitate the discussions. She is also a frequent participant in FIE.

IV. EXPECTED OUTCOMES OF THE SESSION

The professionals and students who attend FIE have different backgrounds and positions. This will not only enrich discussions at the session but also lead to varied reflections afterwards. Participants will be encouraged to take home this format to reflect on how they may be role models (for example, as teachers or researchers) to others in their local communities or how others can act as such (for example, students can discuss how classmates can be role models for others in their cohort). Those in leadership roles can also reflect on how their choices affect the visibility of certain types of role models, e.g. which role models they provide in the conferences they organize.

Besides the personal reflections, an outcome of the session is feedback to the FIE organization, contributing to address questions such as who and what can be given more visibility in the event. For example, multidisciplinary backgrounds can be made more explicit in biographies of presenters.

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