

Special Session: Re-Imagining Engineering Education: Feminist Visions for Transforming the Field

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Abstract - The goal of this special session is to explore what engineering education might be like if it were done from a feminist perspective, and how this new vision might influence the profession and society. Feminist perspectives are understood broadly to recognize the connectedness of all forms of social injustice. Thus feminist visions of engineering might address a broad set of concerns such as militarism, racism, and global economic inequality as well as sexism and heterosexism. Outcomes include concrete ideas for future research and institutional transformation, collaboration and mutual support of one another's efforts.

Index Terms – feminism, liberative pedagogies, social justice, engineering ethics.

INTRODUCTION

What might engineering education be like if it were done from an explicitly feminist perspective? What would the field of engineering be like if it were practiced from a feminist standpoint? This special session is an invitation to the engineering education community to engage (or re-engage) in a visioning process around engineering education and practice from a feminist perspective. We seek to create time and space for creative and imaginative work that dreams what could be, and maps how we can work together to get there.

It is nearly impossible to offer a concise definition of feminism that all feminists would agree represents their perspective; indeed many might argue that part of what defines feminism is its space for multiple visions and conceptualizations. Therefore, in this session there will doubtless be multiple visions for transforming engineering and multiple strategies for achieving feminist goals. We hope to use this session intentionally to seek new questions and create new frameworks ripe for investigation that look beyond percentage counts of participation based on sex, and instead, ask fundamental questions about the nature of the profession and of the engineering education enterprise.

The modern feminist movement in America is a broad collection of people -- women and men -- that is concerned with a wide range of issues that affect women's welfare, including: women's economic or political power; how families

are recognized and function in different societies; how different kinds of "work" are understood and valued; war and violence (particularly against women); sexuality and women's health; and representation of women through art and music. In the mid 1970s, Second Wave white feminists were challenged by womanists and women of color to recognize the limitations of gender as a sole category of analysis early in the history of the feminist movement [1]. Women of color in the different political movements as well as the academy worked to develop a framework now referred to as *intersectionality*, which recognizes the connectedness of different forms of oppression as well as the difference in experience when multiple categories of social or political oppression intersect [2-4]. The concerns of women of color, of poor women, of queer women, of women living in the global South, and of disabled women, motivate feminists to be concerned with racism, imperialism, militarism, homophobia, and other social justice issues. Thus taking a feminist perspective in engineering might entail concern about representation of all women as well as men of color in engineering, and it might also entail concern about engineering's links to militarism, ecological sustainability, or the exploitation of the poor.

GOALS

The goal of the session is to create a space for discussion of key questions related to doing engineering from a feminist perspective and brainstorming some future paths for addressing them. Questions might include:

- How are definitions of engineering constructed by the interests of people who currently work in the field? Who decides what engineering is, what the "engineering process" looks like, or what questions or problems engineering addresses?
- What does it mean to say that "engineers solve problems" or "engineers apply science"? Whose problems? By what processes is the work of engineering accomplished? What are the effects? What other problems might engineering address, and by whom and how might they be prioritized?
- How can we re-conceptualize engineering in ways that do not serve engineering's traditionally historical ends of

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militarism or consumerism? Can we/should we educate students for a world that does not yet exist?

SESSION DESCRIPTION

Using creativity exercises and a participatory framework, we will brainstorm questions and develop a collective action plan for visioning engineering from a feminist perspective. The session will offer three frameworks for exploring these questions from feminist technology studies, movements for justice and liberation, and an ethic of care.

AGENDA

The schedule will entail:

- Introduction and discussion of feminist perspectives, connecting to larger themes of social justice, including struggles against racism, militarism, environmental devastation, and global poverty.
- Movement-oriented exercise toward embodying a transformative vision of engineering education and practice.
- Small Group work for further developing a vision of what engineering could look like, and how to get there.
- Reporting session on the work of small groups, development of a collective plan, including research questions and action items.

ANTICIPATED AUDIENCE

It is our hope that this invitation to a transformative visioning process may create new entry points for peers that have been involved in diversity efforts and are seeking ways to be involved in next steps, as well as peers who previously have not engaged with education efforts around gender in engineering. We anticipate participation from a core group of FIE participants that have attended workshops in recent years on feminist pedagogy and other related topics [5-9]. We hope that by making explicit the links between feminism and social justice, we can attract people who have previously participated in either or both types of special sessions in past years. It is also anticipated that some new faces will attend out of interest in something a little different, and something action-oriented.

We would like to suggest that the questions that emerge from this session should be different from those that surround women's historical and persisting under-representation in engineering (although this has been of concern to many feminists). It is our hope that with a transformative approach we can "leap frog" into a situation where we can ask critical questions and dream of change. Rather than addressing "Feminism 101" topics for the uninitiated, we can use this dedicated time to visualize where we as a profession need to be and determine a course for how to get there. Anyone who wants to be part of the solution can pick up the rest as they go.

OUTCOMES AND FUTURE WORK

Outcomes include a vision and action plan for doing engineering from a feminist perspective. Future anticipated

work includes collaborative research and efforts to transform institutions and the field.

CONCLUSION

Transformative feminism seeks to re-imagine engineering and engineering education from a feminist perspective. To do so we draw on a rich history of contributions from within feminist movements and within broader movements for social justice and peace. Our session focuses on specific contributions from Feminist Technology Studies, Latin American Liberation Theology, the movement for Social Justice and Peace in Engineering, and an Ethic of Care. What feminists can contribute to this ongoing dialogue in this special session is with the asking of specific questions that employ gender as a category of analysis [10], as well as the offering of tools from the academy and from the street that have been developed within the feminist movement.

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