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What is feminist pedagogy and how can it be used in CSET education?

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Abstract – Feminist pedagogy has been theorized, applied, and evaluated in many different disciplines, including women’s studies, communication studies, education, and cultural studies. Until recently, however, this term was extremely rare in CSET education. This paper is the first in a collection of four papers that bring feminist pedagogy into CSET education. The goal of this first paper is to introduce background material necessary for understanding feminist pedagogy and to report the outcomes of an informal survey of current perspectives regarding feminist pedagogy. This paper includes a short history of the women’s movement in the U. S. to provide context for the development of feminist pedagogy, a discussion of common values and beliefs among all feminisms, and an articulation of how three particular feminisms (liberal feminism, ecofeminism, and Black feminist thought) could improve CSET education. The paper concludes with a brief summary outlining ways in which adopting feminist pedagogy could improve CSET education.

Index Terms – feminism, feminist pedagogy, pedagogy, teaching/learning

INTRODUCTION

During the past twenty years, education in CSET disciplines has improved through the adoption of new pedagogies, including cooperative learning (both formal and informal), integrated curricula, and project based learning. In this paper, I introduce another pedagogy that would further improve CSET education – feminist pedagogy. Feminist pedagogy has been theorized, applied, and evaluated in many different disciplines, including women’s studies, communication studies, education, and cultural studies. Until recently, however, this term was extremely rare in CSET education. At the Frontiers In Education Conference in 2004, four engineering education scholars (Susan Lord, Elizabeth Eschenbach, Eileen Cashman, and Alisha Waller) facilitated an interactive session entitled “Feminist Frontiers” during which the participants explored their understanding of feminism and feminist pedagogy and then worked in small groups to consider its application to CSET education. This paper is part of the follow-up activities from that session.

In this proceedings of the 2005 Frontiers in Education Conference, three full papers and one Work-In-Progress presentation work together to explore the applications of feminism and feminist pedagogy to CSET education. The goal of this first paper is to introduce background material necessary to understanding feminist pedagogy and to report the outcomes of an informal survey of current perspectives regarding feminist pedagogy among Education, Research, and Methods Division members. The second paper in the collection, “Incorporating Feminist Pedagogy into the Engineering Learning Experience,” describes the experiences of two engineering faculty as they integrated feminist pedagogies into their courses. This paper gives many concrete examples of how one could begin to incorporate feminist pedagogy into their courses. The third paper in the collection, “Feminism and Engineering,” uses a qualitative analysis of reflective essays to explore how and why four participants combine being feminist with being an engineering educator. The final paper, “Feminist Research Methodologies,” is a Work-In-Progress to review the literature on how education researchers incorporate feminist perspectives into their research methodologies. As a group, this collection of papers introduces, motivates, and illustrates feminist pedagogies and feminist research for the CSET education community.

The first section of this paper presents a brief history of the women’s movement in the U. S. to give some context for the development of feminism and feminist pedagogy. Next, I turn to understanding the current views of feminism and feminist pedagogy within engineering education before I consider feminist pedagogy’s basis in feminist beliefs and values. Since there are many feminist movements and theories, I explore three very different feminisms: liberal feminism, ecofeminism, and Black feminist thought, and give examples of how they could influence pedagogy. In the final section, I consider broad ways in which feminist pedagogy can improve CSET education.

AN OUTLINE OF THE WOMEN’S MOVEMENT IN THE U. S.

I begin with a caveat. The women’s movement in the United States has a long and complex history with many different themes, strands, and goals. By providing only a short and greatly simplified summary, I am sure to upset some readers. However, I believe it is important to include a basic framework in order to historically locate contemporary feminism and feminist pedagogy. In addition, I believe that gender and sex are so intimately linked to race, sexuality, and class that connecting the women’s movement to movements in these areas is critical for a more than superficial understanding.
Although there have been women fighting to break down barriers and improve the lives and rights of women since at least 600 B.C., this “short and sweet” summary of the women’s movement begins with the suffrage movement. Now known as the “first wave,” the unifying goal of this period was achieving the right to vote for white women. Generally marked from 1890 to 1920, the women (and men) involved in this movement were usually white, upper-class, and educated. The leaders of the first wave, including Susan B. Anthony, Lucretia Mott, and Elizabeth Cady Stanton, wrote tracks to try to convince men to vote pro. One argument offered to support suffrage was the “natural rights” argument – that women are equal to men – is still employed in the fight to gain additional rights for women. A radically different argument, which is rarely heard today, was that women are more moral and socially upright than men and hence, with the right to vote, would bring peace to the world. Note that this movement overlapped with World War I, which affected how that argument was received, and that women in Britain already had the right to vote.

The second wave of the women’s movement occurred during the 1960s and 1970s, alongside and interwoven with the civil rights movement, the Vietnam War and anti-war protests, and the “hippie rebellion” against the traditional home. This second wave generally involved white, middle- and upper-class housewives who were formally or informally educated. The goals for this movement were access to careers and education, freedom to make choices about their lives, and additional opportunities regarding combining family and work. Legalizing abortion was one of the landmark achievements or defeats, depending on one’s perspective. The foundation of this period was “conscious-raising meetings” where women shared their stories and life experiences, learning from and supporting one another. Through these exchanges, “the personal is political” developed as a slogan to express the feeling that personal experiences are, in a large part, shaped by political activity and policy. Hundreds of newsletters, brochures, and white papers were produced and circulated.

The second wave achieved many goals and opened up possibilities for white women. Women of color faced a more difficult situation. Male civil rights leaders demanded their support as did white feminists. Many were urged to choose between them rather than having the option to link the movements together. As the gay rights movement gained momentum and visibility after the 1969 Stonewall Riots, heterosexism joined racism as a dividing factor.

The 1980s was a decade of backlash and reactionary politics, a backlash which has continued, intensified, and spread into all aspects of society. Images of idealized 1950s households (e.g. the Cleavers), studies of the negative effects on families of mothers working, and increased media campaigns promoting perfect homes and gardens were employed to divide the nation. “Full-time” or “stay-at-home” mothers were pitted against working mothers in a “divide-and-conquer” strategy.

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In the early 1990s, the women’s movement underwent dramatic change. Young women for whom the 1970s were a chapter in their history books began to ask different questions. Women’s studies programs became more visible and formal scholarship by, on, about, and with women proliferated. Globalization and postcolonial studies gave new perspectives and frameworks for understanding race and ethnicity among women. The third wave feminists continue to struggle to end sexism, which many see as inexorably linked to racism, heterosexism, ableism, classism, agism, and other ways of oppressing people on the lower status side of binaries. The women’s movement in the United States has changed life for both women and men and continues to work for equity, justice, and liberty for all people.

Feminist Pedagogies

In this discussion of feminist pedagogies, I will begin with current conceptions. In the spring of 2004, several colleagues and I conducted an informal survey of members of the Education Research and Methods Division of ASEE, asking what came to mind when they heard the phrase “feminist pedagogy.” Acknowledging the weaknesses of our design (no random sample, no follow-up to non-respondents, no interview based on their responses, etc.), we still found the responses very interesting. There were a wide variety of responses and many attempts to logically define it by combining their view of feminism with their view of pedagogy. With great difficulty, I chose a few of the responses to share and I give my reaction to them in italics.

- A pedagogy informed by feminist thinking/critique. Good job!
- They acknowledge a more inclusive approach to teaching - one where engaging the minds, interests, and intellect of the student is more important than the ego of the professor and the competition to find out who will “win.” Yes, it is one way to create a more inclusive teaching/learning interaction and the power circulating among students and faculty is an important issue.
- Pedagogy that appeals to female students, that has been proven effective for women, and is grounded in the experience of women. Not exactly, it is grounded in experience of each person in the teaching/learning interaction. Yes, it has been shown to be effective for women, but also for men.
- An unfortunately off-putting title for what COULD [sic] be a valuable consideration of how gender expectations negatively influence pedagogy and learning, and approaches that could be used to offset these negatives. I like the way you reference “gender expectations” because males are limited in their experiences of life through societal expectations just as women are. The word feminist, also known as “the F word,” unfortunately has a lot of baggage, but that doesn’t mean we should give it up. In addition, my scholarly integrity requires that I use the well-established term in the literature, rather than dismiss it through the adoption of a “less offensive” term.
- Education/Instruction issues devoted solely to increasing knowledge retention among women. This is a common perception, but feminist pedagogy is beneficial to all students. It is not about helping women overcome “their deficiencies.”

- This makes me feel that the pedagogy would have a political agenda that does not belong in the engineering curriculum. The faculty has a responsibility to maintain a non-hostile environment for women. However my interaction with “feminists” has often been with people who would maintain a hostile learning environment towards men. This is as repugnant as a hostile environment towards women. I believe that every teaching/learning interaction involves politics, sometimes directly and sometimes covertly. I’m sad to know that some people have had such negative interactions with some “feminists” and they dismiss the entire group of us.

- First reaction is that pedagogy is gender neutral; second reaction is “I wonder how / if this might fit within the whole idea of learning styles and multiple intelligences. There is no such thing as “gender neutral.” We don’t have any examples of people who are “gender neutral” so nothing involved with people interacting can be gender neutral. It does fit in with learning styles and other theories that open up teaching/learning interactions.

- Something that is of no interest and little value to men. One of my goals in writing this paper is to change your mind.

- The study of women’s achievements, often in spite of their having to function from positions of inferiority. Also an examination of the characteristics of women as they contrast or complement those commonly associated with men. Why do women have to be contrasted with men? One of the frustrations of many engineering education research studies is that men are the default standard and the value of women is only considered in relation to men. Given that there is more variance within women and within men than there is across the groups, comparisons are not necessary and are often counter-productive.

The previous quotes indicate the need for a common understanding of what feminism is and what feminist pedagogy is for the discussion in this paper to continue. There are many different descriptions of feminist pedagogy, with various levels of theory included, but my favorite is rather simple: Feminist Pedagogy is conducting teaching/learning interactions based on the values and beliefs of feminism.

Unfortunately, detailing the “values and beliefs of feminism” is problematic since there are multiple strands of feminism. A good analogy to understanding feminisms is to consider religion. If I tell you I am a Protestant, what do you know about me? You would know that I believe that Jesus plays an important role, that the Bible is more than a casual book, and that I may be involved in a community of faith. However, you don’t know whether I take the Bible literally, support the ordination of gay persons, or evangelize on the streets. Knowing that I am a United Methodist may give you more information, but there is still a great variety of perspectives within professing United Methodists.

If I tell you I am a feminist, what do you know about me? You know that gender is an important focus and that I am supportive of social change toward more gender equity, but you don’t know how I support that change, what specific changes I am looking for, or whether I am a lesbian. Just as there are many denominations of Protestants, there are many strands of feminism, each of which has particular foci, goals, strategies, and beliefs and within those strands there is great variety among individuals. Strands of feminism include (but are not limited to) liberal feminism, radical feminism, cultural feminism, ecofeminism, black feminist thought, socialist feminism, lesbian feminism, and poststructural feminism. Each of these feminisms leads to feminist pedagogies. To continue the exploration of feminism, feminist pedagogies, and engineering education, let us consider the common values, beliefs, and critiques among feminism strands and how they could impact engineering education. Then I will briefly examine several different strands of feminism and how they could contribute uniquely to the engineering classroom.

**FOUNDATIONS OF FEMINISM**

Defining feminism is difficult, since it is constantly shifting, adapting, and changing; it is not the philosophy of one particular group; and it is so personally interpreted. bell hooks offers my favorite definition: “feminism is a movement to end sexism, sexist exploitation, and oppression. … By naming sexism as the problem [this definition] went directly to the heart of the matter. Practically, it is a definition which implies that all sexist thinking and action is the problem, whether those who perpetuate it are female or male, child or adult” [2]. To flesh out this definition, I offer the following list of fundamental beliefs and values of feminism from Mary F. Rogers’ text, Contemporary Feminist Theory: A Text/Reader, [3], followed by an example in brackets.

- Women and men are equally entitled to all the good things a society makes available to its members. [Feminists support family leave, rather than maternity leave.]

- Gender should not be a distributive mechanism, a basis for social hierarchy, or a means whereby some parts of people get stunted and other parts get overdeveloped. [Equal pay for equal work falls in this category, but so do issues such as the myth of “maternal instinct,” women in combat, and the correlation between status and salary of a
Feminists value extending responsibility beyond oneself and one’s circle of loved ones, especially to those who depend heavily on the rest of us for sustenance and nurturance. [Concern for children, the homeless, those living in poverty, etc. are expressions of feminist responsibility. Service learning is an excellent avenue for expressing this feminist value.]

Inclusionary thinking: Women (and men) are diverse and no one subset can represent the whole set. Every societal problems needs a wide variety of people working together to find solutions. [Many feminists question the usefulness of the categories “women” and “men” because there is so much variation within the categories. Many calls for diversity in engineering education and practice appeal to this feminist value of having a wide variety of people doing engineering. However, presence of bodily diversity is not sufficient; people must feel comfortable enacting their diversity.]

Freedom, Liberation, and Self-actualizations: Feminists aim to enhance women’s freedom to choose the circumstances and purposes of their lives, but are disinclined to prescribe anything specific for women individually or as a group. [One way of enacting this value is to give students some choices regarding assignments, due dates, topics for investigation, etc. Because feminists are disinclined to be prescriptive, some faculty (in particular, STEM faculty) may find articles on feminist pedagogy “too theoretical and not enough how-to.”]

EXPANDING AND FOCUSING FEMINISM

Now that we have considered the values and beliefs that underlie feminism in general, I turn to the expansion, complexity, and focus introduced by liberal feminism, ecofeminism, and Black feminist thought. In discussing each of these feminisms, I attempt to generate broad suggestions on using it to improve CSET education. For more details and implementation guidelines, see the paper “Incorporating Feminist Pedagogy into the Engineering Learning Experience” in this proceedings.

Liberal Feminism

The most familiar feminism in the U.S. is liberal feminism, which is most visible through the goal of workplace equality of women and men. Liberal feminism “asserts that individual women should be as free as men to determine their social, political and educational roles, and that any laws, traditions and activities that inhibit equal rights and opportunities should be abolished” [5]. This type of feminism is not directly threatening to the status quo since it assumes that democratic reforms are sufficient to achieve equality. Access to education is a cornerstone of liberal feminism, which asserts that if equal education is provided to men and women, all people will be able to develop to their full potential. The vast majority of research and programs geared towards increasing diversity in engineering is based on an unarticulated liberal feminism. This work has opened doors, removed barriers, and enabled access...
for many people who otherwise would have been locked out of engineering. It has played a critical and important part in the struggle to make engineering a viable career for all students.

Within education research however, liberal feminism has been appraised as not going far enough, of not pushing for change in the status quo. A major critique of liberal feminism in education is that treating everyone the same is not going to achieve equality. A simple example illustrates: in a preschool classroom, the teacher discusses several “classic” fairy tales with the children, asking them to discuss what is similar about them and which character they like the best. Treating each student the same, the teacher calls on each student in turn. Within classic fairy tales, the children choose must between the evil witch, the princess who is powerless, and the prince who rescues and is given the prize (the princess). Given the gender identity construction occurring at this age, boys will identify with the prince and girls with the princess. Simply substituting feminist fairy tales (like The Paper Bag Princess[6]) is shown to be insufficient in disrupting the usual interpretation of boys/men as rescuers and girls/women as needing to be rescued [7].

With respect to the engineering classroom, it is harder to pinpoint the failings of liberal feminism, in part because public participation in engineering has been dominated by men over many centuries of development. Many faculty and students say “that’s the way engineering is” rather than “that’s the way engineering has been constructed.” Let’s explore the example of communication norms in engineering with respect to liberal feminism to understand this difference. Many studies document that, in engineering classrooms and practice, communication norms include self-confident assertions, competition for the speaking “floor,” and exhibition of technical skills and knowledge (see [8]-[10], for example). Studies in communication and rhetoric emphasize that men are much more likely than women to display those communication behaviors (see [11] and [12], for example). Liberal feminism’s “equal treatment” would require randomly assigning students to groups, which statistically results in most groups having more men and therefore adopting masculine (“engineering”) communication norms. Hence, more women would have to take on a new style of communication in order to “fit in” and be seen as behaving “like an engineer.” Equal treatment therefore leads to sex-based bias in experience and effort expended to participate. This analysis also applies to general, whole class discussions unless the professor intentionally interrupts the process. Similar analyses could be applied to leadership style, group decision making, ethical decision making, design work, and problem solving.

Ecofeminism

Like all other feminisms, ecofeminism has no universal definition, but Cuomo offers a place to begin: “ecofeminism stresses the depth to which human realities are embedded in ecological realities, and the fact that we are all composed of physical and conceptual connections and relationships” [13, p.1]. Furthermore, many ecofeminists underscore the interconnection between the abuse of nature and the oppression of women [14]. In most areas of the world, women are responsible for food, water, family health, and cleanliness and they spend a significant portion of their lives either pregnant or lactating; hence women suffer more during droughts, famines, and infectious disease outbreaks. In addition, men nearly always control wealth, land, and transportation. Certainly ecofeminism offers a different perspective from which to analyze policy relating to “developing countries,” exploring/exploiting natural resources, and improving public health. The global nature of transnational corporations, late stage capitalism, and U.S. domination require engineers and scientists to consider the world-wide effects of their designs and decisions and ecofeminism offers a new lens for these analyses.

The implications of ecofeminism for teaching extend beyond the obvious courses in environmental engineering. Sustainable development, service learning, international design projects, study abroad, and the internationality of students are areas which are ripe for ecofeminist analyses. Furthermore, considering that our students and most people in the U.S. live in a “built environment,” heavily influenced by engineering, technology, computer science, mathematics, and science, feminism gives us a new perspective from which to evaluate problem definitions and solutions. Built environments not only affect the way people interact with others, but with whom they interact, and how they experience themselves [15].

Black Feminist Thought

According to Patricia Hill Collins [16], a preeminent Black feminist scholar, U.S. Black feminist thought is distinguished by the convergence of six characteristic features:

- focus on the intersection of oppressions based on race and gender (and sexuality, class, ethnicity, religion, etc.);
- tension linking the idea of common experiences based on group membership and specific individual experiences and their significance;
- ongoing dialogue whereby action and thought inform one another;
- the work of Black women intellectuals merges action and theory;
- the fundamental necessity of change and dynamism within action and theory as a social justice project; and
- political actions as a means for human empowerment of all people rather than ends in and of themselves [16].

The significance of Black feminist thought to feminism in general is the expansion of theory by focusing on the intersections of oppression based in identity categories, such as race, gender, class, sexuality, etc. This strand of feminism calls into question current practices of measuring “diversity” along (assumed) independent axes of race and gender, of designating programs for support and funding as either focused on race or gender (e.g. minority engineering programs and NSF funding programs), and of the common idea that a black woman engineer is valued as a “double count.” In terms
of classroom practice, Black feminist thought should cause us to think more deeply about practices such as forming cooperative learning teams, the seduction of “gender neutral” and “race neutral” examples, and generalizations based on the category of “women” or of “minority students.” In terms of our research, we should rethink statistical analyses which use independent, categorical variables to capture race, gender, first-generation status, etc. We should also carefully think about the lessons from Black feminists when we conduct focus groups, realizing that within a group of men or of women, racism may be affecting the data collection and that within a group of Whites or “Minorities,” sexism may be at work.

Although we have considered only three of the many strands of feminism, space restrictions force us now to turn to a more general summary discussion of how feminisms and feminist pedagogies can improve engineering education. More explicit examples are given in the second paper in this collection.

**HOW CAN FEMINIST PEDAGOGY IMPROVE CSET EDUCATION?**

Feminist pedagogy has the potential to improve CSET education in many different ways. First, it provides a foundation for teaching engineering, technology, and computer science in a broader context and engaging in teaching and practice in a more ethical way. Second, feminist pedagogy offers practices which will help achieve accreditation goals of increasing students' global awareness, international competencies, and teamwork and communication skills. Third, the redistribution of authority and responsibility opens up the teaching/learning process so that faculty and all students benefit and learn, which supports the practice of lifelong learning. In addition, it creates a more inclusive classroom, which may allow greater possibilities for "enacted diversity," that is, students bringing their diverse experiences and lives to bear on the learning and doing of these disciplines. Finally, by allowing enhanced enacted learning, feminist pedagogy may contribute to increasing "bodily diversity," which is the common understanding of diversity by sex, race, disability status, etc. In this paper we have engaged in various ways to conceptualize feminist pedagogy and its application to CSET education. Much of this discussion has been a theoretical thought experiment, so the task before us now is to apply feminist pedagogy in real classrooms, evaluate the experience and outcomes, and publish it for the community of researchers and teachers.

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**REFERENCES**


