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ENC1102H

02.26.2016

Annotated Bibliography: Women Writing in Engineering

The field of engineering is an extensive one, covering sets and subsets of differing engineering disciplines. Despite this, the patterns that the writing takes within the field are similar across these disciplines. Because engineering, for the entirety of history, was a male-dominated field, these patterns and standards of writing were initially created and implemented by men. The question is, how are these standards challenged and altered with more women working in the field? Do women take a different approach to analyzing subjects and putting them into words, and if so, is this alternate approach beneficial? The people that would be most interested in this research are engineers - more specifically, female engineers, because they would be the focus of the study. Male engineers should also take note, however, because this research would ultimately affect them and the writing they encounter in the workforce as well. The criteria for the inclusion of articles to this annotated bibliography included the keywords 'engineering,' 'writing,' and 'feminist theory.' Sources were excluded if they did not talk much about the writing within the engineering community or if feminism was only a fringe note of the article. It is important that I conduct this research because as a woman in engineering, this knowledge will apply directly to me and so many others as well. If women do indeed take a different approach to analyzing and reporting information, then the standard set by men may be inhibiting forward progress in the field. My hope in doing this research is to call attention to potential inherent gendered biases in writing in the field of engineering and analyze their effects.

Bastalich, Wendy, et al. "Disrupting Masculinities: Women Engineers and Engineering Workplace Culture." *Australian Feminist Studies* 22.54 (2007): 385-400. *Humanities Source*. Web. 18 Feb. 2016.

This source examines the factors that contribute to the underrepresentation of women in the engineering profession. It discusses a couple of the most common theories, but also introduces a range of other social factors as well. It claims that "the workplace culture polices a narrow set of masculine norms and is intolerant of diversity" (397). The authors are all faculty at the University of South Australia. Julie Mills had a 16-year career as a structural engineer, and Suzanne Franzway has published many papers in the area of sociology. This relates to my research interests because it talks about some of the minutiae of the reason women have a hard time in engineering.

Beddoes, Kacey, and Maura Borrego. "Feminist Theory in Three Engineering Education Journals: 1995-2008." *Journal of Engineering Education* 100.2 (2011): 281-303. *Education Source*. Web. 15 Feb. 2016.

This article analyzed three engineering education journals for the presence of feminist theory. The 88 articles that were found were analyzed to 'determine their level of engagement with feminist theory' (281). It claims that "well-intentioned efforts actually reinforce the very conditions they seek to change," and "feminist theory is underutilized within engineering education scholarship" (281). Kacey Beddoes has written multiple articles about feminist theory and engineering, but she was a PhD student at Virginia Tech when she wrote this article. Maura Borrego was an associate professor at Virginia Tech. This article may not be the best one to use in my research, but it may have some points that I find useful.

Beddoes, Kacey. "Feminist Methodologies and Engineering Education Research." *European Journal of Engineering Education* 38.1 (2013): 107-118. *Education Source*. Web. 15 Feb. 2016.

This source discusses feminist methodologies in the context of engineering education research, and claims that those methodologies offer alternative paths to improve this research. It also claims that qualitative data is just as scientific as quantitative data. The author conducted interviews with ten US and five Australian students and faculty over Skype in order to collect her data, qualitative within itself. The author is a postdoctoral researcher in Purdue's School of Engineering Education and serves as a Managing Editor of *Engineering Studies*. This article is related to my research interests because it discusses feminist theory within the context of engineering.

Mills, Julie E, et al. "Getting it Together: Feminist Interdisciplinary Research on Women and Engineering." *Women's Studies International Forum* 34.1 (2011): 13-19. *Humanities Source*. Web. 15 Feb. 2016.

This source discusses the use of multidisciplinary research to solve complex problems. To conduct this research, the four authors - each well-known in their field of study - conducted a ten-year study around the main questions, "Why are there so few women engineers?" and "Why is this so resistant to change?" (14). Each author had done work in their field from a feminist perspective. This article is part of a larger conversation, as women from four different disciplines worked on it together. The authors were all part of the faculty at the University of South Australia, Australia. Although this article does not discuss the writing of the engineering field, the article was written and the research done by women, so that can be analyzed.

Foor, Cindy E., and Susan Walden. “‘Imaginary Engineering’ or ‘Re-Imagined Engineering’:

Negotiating Gendered Identities in the Borderland of a College of Engineering.” *NWSA Journal* 21.2 (2009): 41-64. *Humanities Source*. Web. 18 Feb. 2016.

This source suggests that the tension between ‘culturally prescribed’ notions of masculinity, femininity, and engineering identities is a barrier in women’s representation in STEM (1). The analysis uses feminist and discourse theory to examine the gendering of the field, which relates back to the notion of the writing involved. The authors conducted their research by interviewing 118 engineering students, both male and female. Neither author is an engineer; one has her masters in Cultural Anthropology and the other her PhD in Computational Organic Chemistry. This may skew their research, but it might also give them an outsider’s perspective.

Laeser, Melissa, et al. “Engineering Design: Examining the Impact of Gender and the Team’s

Gender Composition.” *Journal of Engineering Education* 92.1 (2003): 49-56. *Academic Search Premier*. Web. 22 Feb. 2016.

This article describes a study done on the quality of work produced by groups of engineering students, some of which were all male, some of which were all female, and some of which were of mixed demographics. To conduct this research, the authors set up a rubric and scored the final reports of these groups. The study found that the male groups did better in the first engineering class, while the female groups did better in the second class. This relates to my research because I would like to analyze the final write-ups for engineering for all-male groups and all-female groups and compare them, although I would like to do a more qualitative analyzation of the language itself. The authors are all associated with the Colorado School of Mines.

Schuster, Mary Lay. "My Career and the "Rhetoric of" Technical Writing and Communication."

Journal of Technical Writing and Communication 45.4 (2015): 381-391. *Education*

Source. Web. 21 Feb. 2016.

This source describes the author's experience with the evolution of technical writing and education. The author is affiliated with with the Department of Writing Studies, Law School, University of Minnesota, and was the president of the Association of Teachers of Technical Writing. She conducted her research by reflecting upon her own experiences and analyzing other literature. She claims that the field of technical writing and communication "now welcomes a range of scholarly perspectives and has grown from an almost exclusive focus on pedagogy to those 'rhetoric of' studies" (388). This source relates to my research because it describes the change in technical writing over time, and discusses specifically when more women started writing within a community, a parallel to my own area of interest.

Sullivan, Patricia, and Kristen Moore. "Time Talk: On Small Changes That Enact Infrastructural Mentoring for Undergraduate Women in Technical Fields." *Journal of Technical Writing and Communication*. 43.3 (2013): 333-354. *ERIC*. Web. 21 Feb. 2016.

This article asks the question, "How can technical communication classes contribute to the mentoring of young women engineers at a time when many of those women want to be identified as engineers instead of being spotlighted as women in engineering?" (333).

This article references Beddoes and Borrego, another source which I listed here, so it is definitely part of the conversation I am looking into. This article relates to my research because it discusses the language of engineering in relation to the language women are conditioned to use, and how that sometimes poses a problem.

Udén, Maria. "A Located Realism: Recent Development Within Feminist Science Studies And The Present Options For Feminist Engineering." *Women's Studies International Forum* 32.3 (2009): 219-226. *PsycINFO*. Web. 10 Feb. 2016.

This source claims that gender studies in engineering need to incorporate feminist understandings into the routines in engineering practice in order to be effective. The author, rather than conducting experiments and collecting data, instead synthesized many other authors' works to support her own ideas. The author works in the Department of Human Work Sciences at the Lulea University of Technology in Sweden. This article is relevant to my research interest because it describes women in engineering and how it changes the discussion of gender studies. Unfortunately, it focuses more on the gender studies than actual women in engineering, so it may not be as useful as it appears. There is probably some bias in this article, as the author herself is female and works in the Division of Gender. However, it is clearly a part of a conversation, as many other authors' works are referenced and included.

White, Kate, Suzanne Kesler Rumsey, and Stevens Amidon. "Are We "There" Yet? The Treatment of Gender and Feminism in Technical, Business, and Workplace Writing Studies." *Journal of Technical Writing and Communication* 46.1 (2016): 27-58. *Education Source*. Web. 21 Feb. 2016.

This source examines gender and feminism in technical, business, and workplace writing. It claims that so-called 'gender-neutral' text, such as in textbooks and academic journals, is not as gender neutral as it claims. To conduct their research, the authors, who are all assistant or associate professors at Indiana University Purdue University, analyzed technical and business communication academic journals and nine textbooks. These

authors are part of an existing conversation, as they build off the work of Isabelle Thompson and Elizabeth Overman Smith. This relates to my research interest as it discusses the gendered textual construction of technical writing.



Stylus
a journal of first-year writing