

article:1273**Gender Writ Small: Gender Enactments and Gendered Narratives about Lab Organization and Knowledge Transmission in a Biomedical Engineering Research Setting**

Gender Writ Small: Gender Enactments and Gendered Narratives about Lab Organization and Knowledge Transmission in a Biomedical Engineering Research Setting was conceived in the tradition of continuing to flesh out the issues and obstacles that face women as they climb the ladder in their STEM careers. Our focus was on the climate issues, the small enactments and everyday interactions that create the climate in which aspiring scientists work. We were mostly interested in the climate of research labs where students work in a “live” lab rather than instructional labs. Our participants were women from a variety of educational levels, from undergraduate to post-doctoral. The article’s data were drawn from one lab where the majority of senior researchers were women.

Our research was qualitative. It was conducted over a period of ten months where the lead author joined regularly held lab meetings and collected ten intensive interviews. As has been noted by others, qualitative research serves to capture a level of granularity that can be missed in larger scale studies that are more quantitative in nature or even in broad survey research. We recognize that there is a loss in generalizability. For analyses, we drew on grounded theory research, ethnography, and linguistic and psychoanalytic methods of reading and interpretation.

We were interested in the research of Sue Rosser (2004) and others (e.g. Conefrey, 2002) which suggested that science laboratories are not always as friendly to women as they might be. Were there styles of knowledge transmission that might exclude women or, in this female majority lab, had new norms developed with which these women were more comfortable in a way that enhanced productivity and learning? These questions, questions of invisibility, accumulated disadvantage, critical mass, mentoring, and marginalization are well known concepts to understand the effects of gender and gender schemas in women’s studies research within STEM. We were also adding a slight twist to these significant and established concerns.

Drawing upon concepts from ethnomethodology (West & Zimmerman, 1987) and gender studies (Butler, 1990), we treated gender as a performative, interactional and discursive identity (Gergen, 2001). Rather than ascribing gender to a particular body, we looked for those moments that became gendered within a narrative either directly or indirectly. Gender is often performed non-consciously through evocations of certain associational chains, enactment of expectations, and verbal and non-verbal responses. Thus for example, some participants in Sue Rosser’s research on POWRE (Professional Opportunities for Women in Research and Education) awardees suggested that they were not aware of any gender effects in their research labs. However, in our research we found that gender might not appear directly but rather became implicitly evoked through a particular metaphor or set of associations; attention to details was gendered feminine by almost all participants. A number of participants noted that

there were differences in the style of knowledge transmission; these differences were tied to gender ideologies. Further the gender associations that are attached to household tasks appeared to spill into quotidian lab tasks which in a “live” lab entails a fair share of everyday household work.

In a sense our effort was to take gender out of the black box, to see how it emerged in labs implicitly and within the context of ordinary lab activities and affected the lives of women scientists. Gender was not an attribute of an individual, but a negotiated reality that would sometimes be explicitly evoked by the participant and at other times, emerge through repeated associations and metaphors. Using this approach, the data illustrated how gender is inflected through forms of social organization that allot lab tasks. Gender also emerged in how one approached the cognitive labor of knowledge transmission and creation. Women were spoken of as having a style of relationship and communication that was characterized as less bound to a hierarchy of knowledge and as more informal or flexible. If there may be something more personal about these styles of knowledge transmission, it may make science more personal in other ways, some salutary (more careful attention to others) but others at odds with some traditional conventions of science (taking criticism too personally).

Overall, we found that treating gender as an intermittent and discursive identity worked well to reveal and open up avenues of data analysis. We found that this approach shed light on aspects of knowledge transmission that might be characterized as subtle barriers and differences that slowly erode or gently encourage diversity in STEM settings. We found that a more granular analysis also specifies, although it can not replace, the sorts of experimental research and survey data that serve as the basis of such important concepts as critical mass, gender schemas, and mentoring styles. In our research, a critical mass of women did not simply reduce gender salience but helped a woman re-frame the gender configurations that were organizing her relationship to male lab members.

In the future, we would hope to apply such linguistic analysis to a larger sample of interviews and to subject our analysis to a greater number of re-iterations. It would be interesting to see if our notions of household labor and knowledge transmission interact with gender in other lab settings. The research highlights without doubt the significance of lab settings as place of learning and identity formation as a scientist, conclusions drawn by others in the field (Seymour, Hunter, Laursen, & Deantoni,2004). It also suggests that stories and narratives about experiences in lab should be told and shared so that understandings and relationships that are the building blocks of one’s future as a scientist can be learned in these natural yet pedagogically rich situations.

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