

# HEGEMONY IN INDUSTRIAL DESIGN: A STUDY OF GENDERED COMMUNICATION STYLES

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## **ABSTRACT**

The field of industrial design is heavily male dominated, with only 19% female representation in professional practice; meanwhile, academic programmes are reaching equal numbers of men and women. Compared to other fields with a large disparity between male and female participants (such as architecture and engineering), there is little research or discussion in our field. This gap between academics and professional practice deserves further inquiry. This paper proposes ways to pinpoint more gender inclusivity and equity in further advancement of educational practice. Trends in gendered communication contribute to the ascension of male versus female communicators and are detrimental to industrial design pedagogy as they translate to how these students will work in professional studios. This is incremental to assessing and revising how communication and collaboration is taught within industrial design academics in order for there to be greater gender diversity as graduates enter into industry. To generate discourse on communication styles validated in industrial design education settings, this paper presents an ethnographic, partial participant observation of a mixed year industrial design module to assess and describe what specific communication practices could lead to gendered success within our field. We analyzed gendered non-verbal communication and its resultant effect in power and success for different genders.

*Keywords: Hegemonic masculinity, women in industrial design, diversity in design*

## 1 INTRODUCTION

The field of industrial design is currently 19% female [2]. Women are integral to innovation, and not having discourse around this topic in industrial design actively holds women back both academically, and professionally. There are a total of three academically published documents on the topic of women in industrial design – two from the 1980's and one in 2017. This most recent publication by McMahon and Kiernan is the closest to discussing what specific barriers to access women are facing, but there is no discourse for industrial design past the discussion that very few women are practicing industrial designers [1]. There are relatively equal numbers of men and women students in academia, then only 19% of women moving forward into in practice. Through various semi-structured interviews and surveys, we have documented students' personal experiences to start to understand, discuss, and publish specific barriers to access and atmospheric reasons to this disparity between academics and professional practice. We hypothesize that barriers to access faced in industrial design mirror those in engineering and architecture – including: CAD, drawing, masculine group collaboration, isolation, and a lack of representative mentorship - to be attributing to this disparity [7, 8, 9, 12, 14, 15]. The lack of research or discussion in this topic has lead us to investigate the specific elements that engineering and architecture have explored, but within the discipline of industrial design. Specifically, this study assesses and observes how gendered communication practices generate hegemonic atmospheres in academia as a possible contribution to this missing translation of women going from academia to professional practice.

## 2 LITERATURE REVIEW

### **2.1 Women in Industrial Design**

Female representation in industrial design fluctuates between 1-20% in professional practice and has consequences not only for women in the field, but the possibilities of/in this industry [5]. This is

problematic not only for how products are designed, but generates homogeneous atmospheres for design studios. It has been found that design teams lacking women resulted in products perpetuating stereotypes of female consumers, missing the actual needs of the user group [5]. The tacit knowledge of women is integral to the design process, not only in women's products, as homogeneous design teams have shown to be less innovative, even when the skill set of the homogeneous team surpasses the heterogeneous one [16].

This lack of women has been attributed to the historical sexual division of labour still affecting implicit conceptions of the field. In the 1980's, Bruce found that UK design managers noticed there were less women putting themselves out there, speculating that women were not encouraged by industry or the profession due to its underlying masculine terminology ("technical," "mechanic," "manufacturing") [5,13].

The lack of diversity our industry faces will only hold back creative thinking among design teams, since the optimal gender representation is 50/50 for proficient innovation [17, 18, 19]. When design teams are diverse, they call for vast spheres of influences and life experiences. Diversity does lead to disagreements and contentions because of these different life-stances, but filtering through those arguments, and using those as an advantage to the design process is what fosters further creativity and innovation for the entire team.

## **2.2 Non-verbal communication**

Power in communication refers to whether individuals are equal to, dominant over, or deferential to others. This is gauged in interpersonal interactions by the control of conversational topics, directing conversations, and interrupting, requiring a relationship between both non-verbal and verbal communication. Gender references to masculine and feminine non-verbal communication is not tied to the individual's sex, but the way in which their non-verbal behaviours are communicating. Feminine non-verbal communication is defined as taking up less space physically by keeping arms in, legs crossed, chest in, and moving one's body to take up less space – and is traditionally more common in women [11]. This follows and adds to masculine non-verbal communication and control, power, and dominance over the feminine, perpetuating existing subconscious power structures. In male dominant atmospheres, these types of body language can be indicative of continual male dominance over women and lead to further hegemonic behaviours [10].

These non-verbal behaviours are learned from a young age and continue through life, but how small groups respond to these non-verbal behaviours determines their effects – whether women have agency in conversations or not [11]. In male dominant environments, women who take up less space, and exhibit other feminine gendered norms are seen as less competent, confident, and capable, but must also balance a double bind of not being too aggressive [11]. This paper specifically presents observations of three non-verbal communication habits: proxemics, territoriality, and kinesics. Proxemics refers to the relationship of space between two people; territoriality refers to the non-verbal communication about who has the right to specific space or artefacts in a space, and kinesics, which refers to certain body movements and behaviours. In discourse on hegemonic masculinity, masculine communication takes the power position in terms of proxemics and territoriality, while feminine communication takes the subordinate position in proxemics and territoriality [10, 11]. This paper specifically uses non-verbal communication to assess and discuss the underlying atmosphere of group interactions between students. Because there is very little research done on women in industrial design and no assessment of specific barriers to access, it is important to prove the hegemonic atmosphere that continued to come up in semi-structured interviews between male and female students.

## **3 RESEARCH METHODS**

In order to understand how non-verbal communication could play a role in group dynamics of industrial design studios, a naturalistic observation was conducted of a collaborative, four hour, cross-year industrial design module working out a design challenge. The project brief was to create a design solution for unused metal signs. Students selected their own groups to work with and had to work through ideation, sketching, and produce individual models of their final concepts. Groups were given one large piece of paper in the centre of their table for everyone to share for sketching and ideation, as well as sticky notes and pens so that all students could collaborate together for their concept (Fig. 1).

There were twelve groups total, one group all male, eight groups with more males than females, and one group with equal numbers male and female, one group with more females than males, and one group with only females.

In order to understand gender dynamics in communication, each group was observed from a distance for five minutes at a time while the researcher was in a corner of the room coding non-verbal behaviours in group dynamics. During those five minutes, each member was analyzed between their body positions, amount of space taken up, and their agency in group discussion. To assist with clarity in note taking during the observation, female students were coded with a 0 and male students were coded with a 1. Each group was first counted with each of these denotations. Students' non-verbal behaviour was coded as follows: a 2 referred to feminine proxemics and territoriality, a 3 referred to masculine proxemics and territoriality, a 4 referred to feminine kinesics, and a 5 referred to masculine kinesics. Notes were added to each group to note whether students were working together or individually, and notes on each person to denote what specific masculine or feminine kinetic behaviour they were enacting. For example: Group 1: not collaborative: 0, 2 – female is not touching the table, legs crossed, arms in, head down, not speaking. This research has been paired with semi-structured interviews subsequently conducted at our institution to give clearer insight to student experiences whether women versus men have differing experiences in industrial design.

## 4 RESULTS



Figure 1. Students collaborating on design challenge with one paper to share

### 4.1 All Male Group

Through our observation, members of the all male group were positioned with their arms and legs out, chests up, taking up space. Each member was conducting their own task, mirroring each other's body language, and little conversation was occurring. The conversation that was happening was not collaborating on design concepts, but side conversation not pertaining to design.

### 4.2 Male Dominant Groups

Two of the eight groups that had more males than females had females who exhibited traditional masculine body language – taking up space, chest up, arms and legs out. In these groups, women who were using this body language were dominating the conversation, mediating dialogues, and leading the design process. Most importantly, these women were leading collaboration and working along with other people's ideas. They were handing other people sticky notes, collaborating on the same sketch with someone, and discussing through the narrowing down of ideas. When contested by other males in the group, these women maintained their body language as well as their agency in conversation.

The other five groups exhibited different behaviours than the groups explored above. These women kept their arms in, faces down, often their hands were on their face, and had their legs crossed. Not only were these women not leading group conversations, but one male in the group would be leading conversation. Male leadership in these groups worked differently than the leadership of women in the

other groups. These males were not guiding information or sharing sketching space with the group, but would discuss ideas as valid or invalid before everyone in the group would sketch towards the idea. In these dynamics, all women were to the side of the males. When they had ideas they wanted to share, they would sit up, move closer to where the males were working, and introduce their idea. Often there would be discussion about the elements of the idea and regardless of the idea being accepted or denied, the female would go back to her previous position and put her arms and legs inward, and possibly put her hand on her face again.

### **4.3 Equal Gender Group**

In the group with equal numbers male and female students, all students exhibited both masculine and feminine forms of communication. All group members shift from taking up little space to taking up more, shifting between arms and legs facing in and facing outwards. All members participated in mediating discussion, validating ideas, discussing each other's sketches, and working to help each other's sketches progress.

### **4.4 Female Dominant Group**

The group with more females than males had a female group leader who stood up when she was mediating discussion. This female worked between everyone in the group, but when it came to sketching, the two other females and the two other males worked differently. The females primarily kept their body language positioned inward, but when they spoke to the group and presented their work, they took up more space, while the males took up space the entirety of the observation. The two women would discuss together, look at others' work before sketching, and ask questions. On the other hand, the males would work on their own sketches, take up physical space, and presented their sketches when they were done with them. The group was evenly collaborative. One female was leading and mediating conversation, but guiding and narrowing the discussion toward collaboration.

### **4.5 All-Female Group**

Lastly, the all female group exhibited 50/50 collaboration. All group members shifted between taking up space, or keeping their bodies faced inward. There was no clear leader of conversation or brainstorming. Instead all members were sketching together, over each other, speaking about their ideas and sketching them at the same time.

### **4.6 Interviews**

To further investigate these outcomes, 5 male and 5 female students were interviewed at Iowa State University. In these interviews we found that female students, from their start of studying industrial design were taught differently than the males and had different experiences in terms of learning atmospheres.

In these interviews, women discussed their discomfort in the programme at a baseline, atmospheric level. They didn't feel comfortable working in studio, learning sketching, working in groups, hanging out with peers outside of class, working in the shop, asking instructors for assistance, and presenting work to peers.

On the other hand the males we interviewed did not experience the same level of discomfort as the women. If they were uncomfortable with a skill or scenario, then they reported that they would work harder to get better at those skills. This then resulted in males saying that they did not think their female peers were trying hard enough, were lazy, had other priorities, and that decreased their skills. In opposition to that notion, women were reporting that they were putting many hours into their skills in industrial design, but were working from home - where they were more comfortable. When women were asked if they felt they had agency in group collaboration, one woman said, "I don't want to be like, 'I'm a girl, so no one listens to me.'" This puts the discussion of women in industrial design in perspective: women do not want to be the woman bringing up the subject of male dominance in industrial design. Refer to Fig. 2 for specific quotes from male and female students.

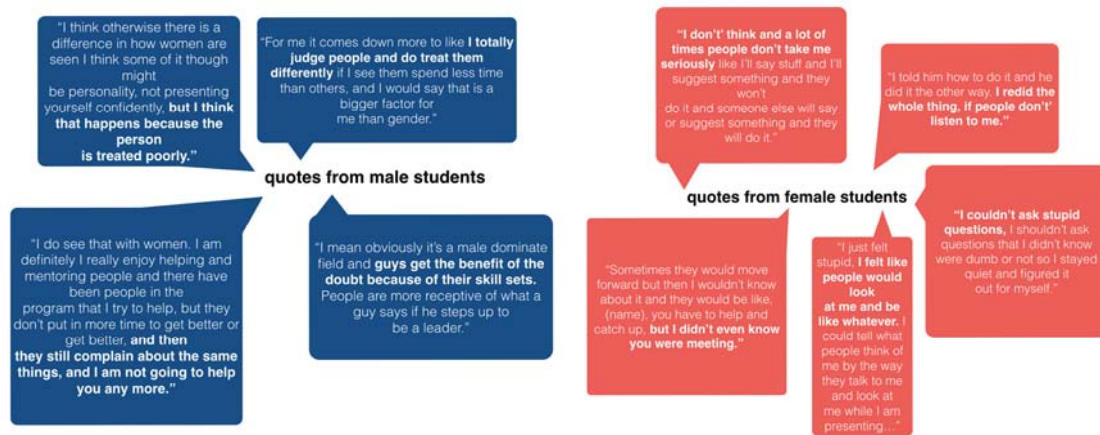


Figure 2. Quotes from male and female students

## 5 DISCUSSION

By observing non-verbal communication, we were able to specify which style of non-verbal communication lead to genuine collaboration between group members and success for all group members. Groups with a balance of male and female non-verbal communication styles, or even those swayed towards feminine communication styles, exhibited an equal distribution of individual agency in group conversation and collaboration. Instead of having one student dictate and mediate conversations towards a specific direction filtered through discussion before sketching, groups that showed gender diversity in communication styles exhibited more collaborative thought in ideation. They sketched together, were not watching to see what others were sketching, but worked together through ideation and collaborative brainstorming to reach their final concepts.

Another significant finding is seen specifically when looking at groups that have mixed gender representation, but are male dominant. The majority of these groups had male leaders who filtered the ideation process before group members collaborated on any sketches, indicative of competition over collaboration. The women's behaviour – making themselves smaller, being spatially separate from the males, and having to physically assert themselves into the conversation – reveals the hegemonic masculinity of these design contexts. This goes back to the notion of power in conversations, meaning that one group of people (male industrial designers) subliminally communicate dominance over the other group of people (female industrial designers) because of the way that masculine and feminine forms of communication work together [10,11]. The women that did have leadership roles in male dominant groups had extremely masculine forms of non-verbal communication and had to maintain dominance in group collaboration, which resulted in more competitive atmospheres overall. These women not only used male non-verbal communication, but also stood at their table managing each task that people were doing.

By looking at proxemics, territoriality, and kinesics, this research shows that group dynamics in industrial design at our institution are male dominated and lead to hegemonic masculine behaviours and styles of leadership, resulting in a decrease of overall group collaboration, particularly leaving women at a disadvantage.

The interview results showing that women were fundamentally uncomfortable in industrial design environments while male peers are viewing them as lazy, as well as these observation results proves an underlying and systemic version of hegemonic masculinity present even in undergraduate education. If this is how undergraduate education is operating before students are even reaching industry, how can we expect to see more women in industry if they are fundamentally uncomfortable within industrial design environments? Especially since we found that even female leadership in male dominated groups took on hegemonic forms of communication, it shows that even before students reach industry, the solution will not be in increasing numbers of women at our institutions or industry. If that is the case, increasing numbers of women operating in hegemonic styles will only maintain male dominance in industrial design, and maintain a hegemonic atmosphere, missing the point of inclusive design teams, and having opposing perspectives and styles of working. This will take not only focus and attention to how many women are being educated in industrial design, how many women they are educated by, and how many women are in industry, but fundamentally assessing and revising the fundamental atmosphere in which our industry operates.

## 6 CONCLUSION

This research shows that the students at our institution experience gendered discrimination in educational experiences with peers, in subliminal, but consequential ways. While it cannot be directly concluded that this pedagogical discrimination is the sole cause for the shift from equal ratios in academia to large disparities in professional practice, it reasonably inspires curiosity for further exploration into what specific role hegemonic masculinity plays in the gap between academia and practice. The purpose of the research was to begin the conversation about the gender disparity industrial design faces and start investigating what specific barriers to access women may be facing. We hope to inspire further investigations not only at our institution, but current pedagogues focusing on innovation in education.

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