

# ENGREDU 6194 Gender- and Race-Based Minoritization in Engineering Education

## A Podcast about “Women in Engineering” in the Chinese Context (Script for Podcast) Linjue (Jade) Wang

### Introduction (2 mins)

[Music<sup>1</sup>]

Hello, this is my very first podcast and today I will share my personal view on “women in engineering” in the Chinese context. I am Jade Wang, a fourth-year PhD student in engineering education. The discussion today will be based on my personal anecdotal experience, as well as articles that I have read during a gender and race based class in engineering education. I hope you will find this topic interesting.

### Chapter 1. Who am I? (5 mins)

I would first like to briefly introduce about myself, the research I am currently working on and why I choose to do a podcast on this topic. First, I want to start with a vulnerability statement: although I am doing engineering education research, I wrestled with the exclusive engineering culture in my undergraduate in China, and I survived to graduate.

I was born in a small city and I was lucky that my educated parents migrated to Shanghai to seek a better education for me. My first gender barrier was in the middle school when I was ranked as the last student in math and was laughed by other boys. I then worked hard to improve my math or prove myself not "stupid" by practicing tons of math problems. After a semester, I reached the top 5 in the math class and outperformed most boys in my school. However, I also noticed that I gradually lost my female peers in the same class because they chose to focus on history, English, or literature.

When I entered college in China, I struggled to get good grades in engineering courses, and I could not conquer engineering as I did to math in the middle school. The problems were more complex, and I was frustrated to find myself staring at a problem with no idea how to solve it. Then I realized that I was not alone. There were many students labeled not right for engineering because they got bad grades. I then sought to find other inclusive ways to teach engineering where grades were less-emphasized, which brought me to where I am today.

Thus, my doctoral project is determined to explore community-based learning in engineering where students' goal is to serve a community rather than only get As. I also want to introduce empathy in engineering to resist the exclusive culture in engineering. In the future, I hope to be the engaged scholar and educator who will create a more inclusive learning environment in engineering for all students.

This reflection on the positionality is important when we discuss about gender issues in Chinese context. The reason is because we, as human beings are socialized in the world, where our identities gradually shaped our experience and influence our views, values and beliefs on social issues, including gender. For example, as a young female middle class student who grew up in the big city, my personal view on gender equity can be different from an elderly male working class single parent from a small city. Therefore, what we see, hear, feel or experience have shaped who we are as a person, as someone with

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<sup>1</sup> "Moanin" Song by Art Blakey and the Jazz Messengers from the album Moanin', recorded October 30, 1958

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multiple identities. According to Crenshaw (1989), the multiple identities brought the uniqueness into “intersectionality”, where everyone experience something different according to their identities. Some identity might be dominant. For example, you are born in a wealthy family, or you are a healthy able-bodied person, while some identity might be oppressed. Today, I would like to talk about one of the oppressed groups, women in engineering.

### Chapter 2: Do women in engineering minoritized in Chinese society? (System Level) (5 mins)

Before we move, I would like to spend some time to discuss the question: what is gender? According to Connell and Pearse (2015), gender is the identity in the social process which we bring our bodies into the social world. In other words, gender is the categorization of different form of physical bodies. However, gender, as a word that we used to categorize different people, can also have its deeper meaning. Let us close our eyes and think about the word – “women”, do you have an image jumped in your mind? Now, let us think about the word – “engineering”, do you have an image jumped out? Now, open your eyes, and if you can take a piece of paper to draw those images out, do you find there could be something overlapped between these two images, or do you find there are conflicting elements in both images?

This mental exercise might give you the idea that gender is not as simple as the body difference, it also conveys social meanings. One question we can ask is: where does your image about women and engineering come from? Sensoy and DiAngelo (2017) tell us that sexism can reinforced by media, movies or even pornography that people consume every day. Think about the recent popular TV drama, 三十而已 (Nothing But Thirty), which claims to tell the stories of three women who are turning 30 years old, and how they fight against challenges and social pressures at this stage. However, the message of this TV show was sent that age is a big deal for women and their lives will always be influenced or related to man. Personally, this makes me uncomfortable to enjoy the show because I do not agree with this message. However, we are all fish that lives in the water like this – sexism can be difficult to see because these patterns are constantly there in the dominant culture. The same happened to me, and I would like to share my experience with you.

The first social event I went to in graduate school is a woman in engineering workshop. I was uncomfortable and asked my colleague that I felt this activity brought the women in the spotlight. His response was: but if there was no such student organization, what other university resources can support women in engineering?

At that time, I realized I might not be distinctly aware of gender equity surrounding me. As I have been learning gender issues throughout my Ph.D., I believe that gender equity should always be considered in engineering education research; even the research topic is not focused on gender. For example, my doctoral project is designed not specifically focus on women in engineering but to support engineering students' social awareness through developing empathy in community-based learning (CBL). However, it is related to gender equity because more female students are attracted to CBL. The study's female participants consisted of more than 50%, which over-represented the female percentage in the college of engineering as 20%. Moreover, after I stopped recording the interviews, several female participants told me that they appreciated this research because addressing empathy in the current engineering culture would be necessary.

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In China, it is expected that female engineering students encounter gender bias when entering the job market and receive at least 20% less salary than male peers. According to the article written by Hu & Wang (2019), they interviewed 10 experienced human resource directors in the engineering industry about their image of engineers. They found that their images of engineers have masculine features – such as powerful, logical, and rational. One HR said that they did not recruit women engineers because they are thinking for their own good, “most places we asked our engineers to go to are dirty and filthy places, and I don’t think women can endure that”. While another HR gave the opinion, “if there is a woman who has straight As in college, and has strong English skills, while the other is a man who barely graduated and can’t speak English fluently, we will definitely consider the woman”. These qualitative findings can explain why female engineers, no matter how outstanding they are, will always have less opportunities than the male peers when entering the job market. Therefore, I would say that women in engineering are minoritized in Chinese society.

### **Chapter 3: What can we do to close the gender gap in engineering in Chinese society? (Action Level) (5 mins)**

The #MeToo movement as a global feminism revolution has its influence in China. The nation’s parliament enacted civil codes that define actions that can constitute sexual harassment in May 2020. In the movie industry, several female actresses in their 40s, advocated in a movie gala night to produce more plays that can appreciate the maturity and aging of females. Those promising changes have influenced the public’s view on gender equity, but also aroused a binary standpoint about gender equity in the cyber world.

First of all, there is continual pressure on women’s body. Body shame and judging through appearance on women is prevalent on the Internet, where you can easily see words and points that are materializing women as an object, and even morally accused those women who don’t want to have kids. On the other hand, there are also so-called “feminists” playing the role as the judge to humiliate some independent women who chose to be pregnant. From those feminist perspectives, you can not give birth if you are a feminist. It sounds ridiculous, but this hatred of “male” as a way of anti-sexism is well received on the internet. After I read Crenshaw (1989), I would like to share my opinion to those “feminists” that this is not a fight in oppression between man and woman – either women win, or men win. It is a complex status that everyone in the society can convey some type of oppression, or some type of privileged experience. For example, being a housewife does not mean that those women choose to be economically dependent on men. There can be more complex situations where the couples made this decision.

Secondly, there are unspoken rules and limited space for women to achieve success in the current society. A recent news also revealed women’s limited career choice in the society on the internet that there is a high school principal who has fought her life to provide education for girls from the poverty areas to pursue higher education in college. She firmly believed that higher education could change the girls’ life and generations after. However, recently she turned down a generous donation to her school offered by a former female student because she is a housewife. She thought that she wasted all her education for not working and relying on a man, who can easily dismiss her. However, I would argue that instead of looking down upon housewife, we should think about the question: what is the dominant cause of women remaining minoritized in the job market? Why housewife is not as a valuable job as a CEO, which the

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women need strong time management skills, endure long working hours without payment and look out for resources for the kids to have access to better education opportunities.

Take women in engineering as an example. We might see women who are engineers are portrayed in media as a nerd who wear glasses, awkward and too “challenging”. Interestingly, Trump used similar words to describe Kamala Harris who is a woman that is too “ambitious”. When those words are thrown at women, it appears to be negative. Wait, negative because it is not fit with the role of women in a masculine society where men rule institutions that have the power. Why we cannot accept women are as equal intellectual as men and can make same or other contribution to the engineering profession? Why “challenging” and “ambitious” women are evil but not outstanding? Why women in engineering must face those unfriendly stereotypes while they are supposed to explore the STEM world? I think one reason is because few of us have real gender equity conversations.

In the education system, there are a lot of space that we can create to have the gender conversations. These conversations can happen in classroom, where our teacher will no longer tell us that “girls will outperform boys until middle schools, but boys will be outstanding when they are in high school”. These conversations can happen between schools and the parents, where the parents will be advised to not choose a barbie doll for their daughters and when they buy LEGO for their sons, but to consider what they really like. These conversation can happen in the college of engineering by creating an inclusive environment, where women will no longer struggle to prove themselves are good in a team work, but to focus on exploring what they would like to contribute to the society as an engineer.

Therefore, to answer the question of what I can do to close the gender gap in engineering, I will say that I am determined to push engineering into a more inclusive environment by introducing empathy and CBL. I would also like to attract more girls from K-12 to engineering by organizing CBL programs in pre-college settings. Ultimately, my commitment to women and girl equity in engineering education is to approach the goal that someday, engineers' image would no longer just be rational, logical, and powerful but also be empathic, creative, and reciprocal.

### **Closure (1 mins)**

[Music]

Thanks for listening to this podcast about “women in engineering” in Chinese Context. As the final product of the class project, it also captured my reflection of the gender issues in China while I am still learning. I hope you will enjoy the stories and thoughts I have shared, and if you have any comments or feedback on this podcast, feel free to follow me on Twitter @LinjueWang. Thanks again for your listening. Have a great day!