

# What roles do school counselors play in broadening STEM participation?

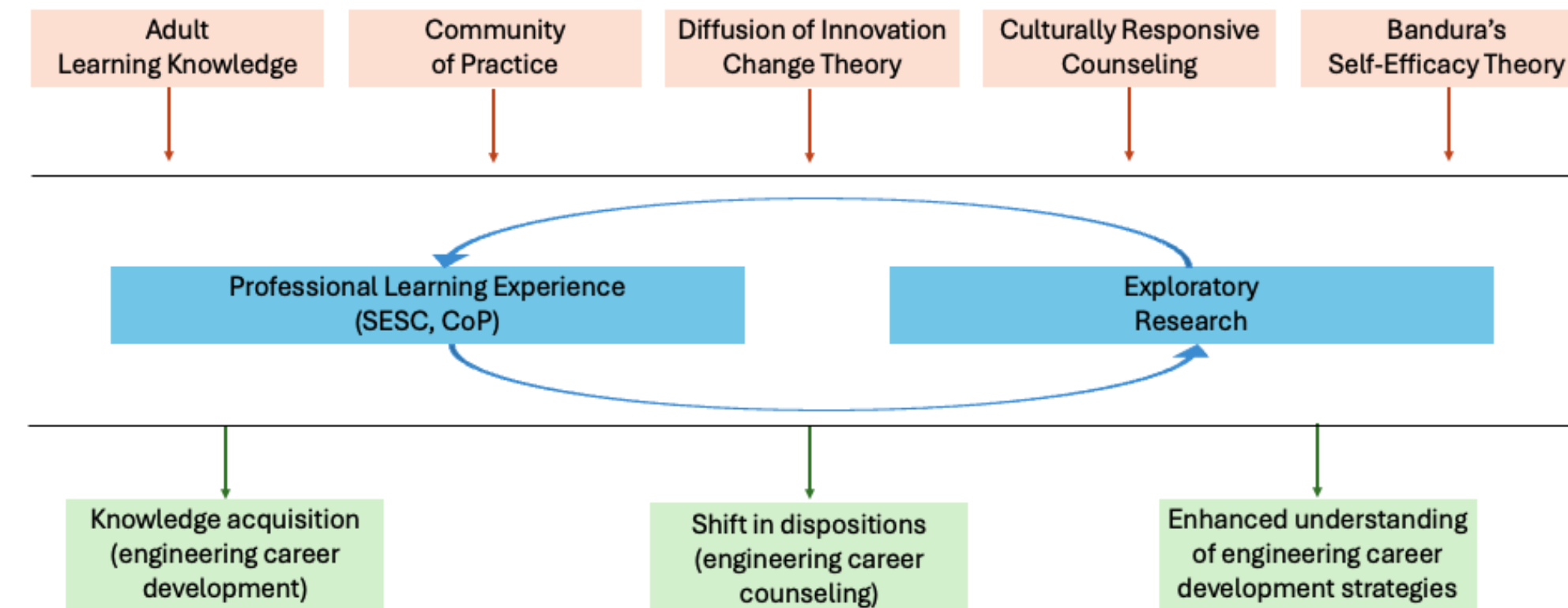
## Project Aims

### Problem of Practice

- Limited counselor knowledge of engineering professions, disciplines, and pathways
- Individual beliefs and biases about who can(not) be an engineer

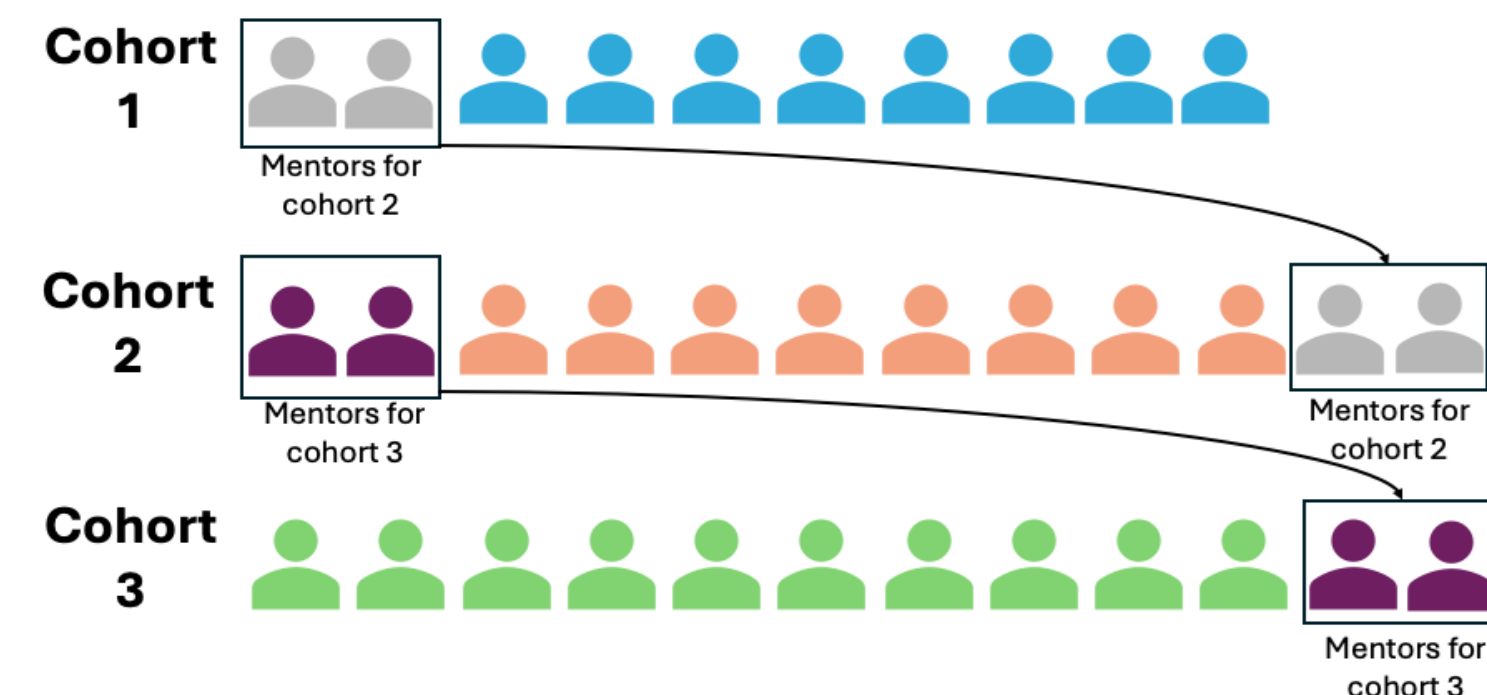
### Goal

Expand counselors' understanding of engineering career counseling (ECC)

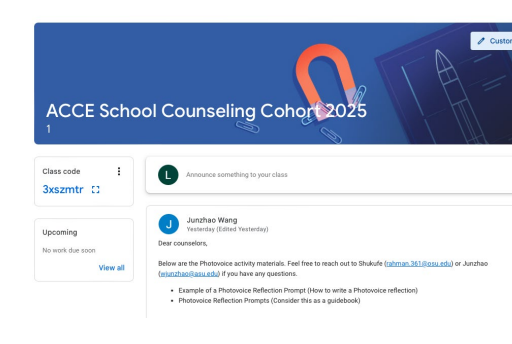
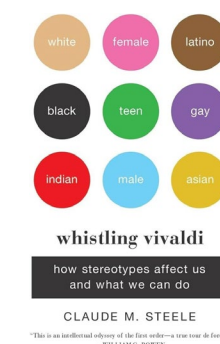
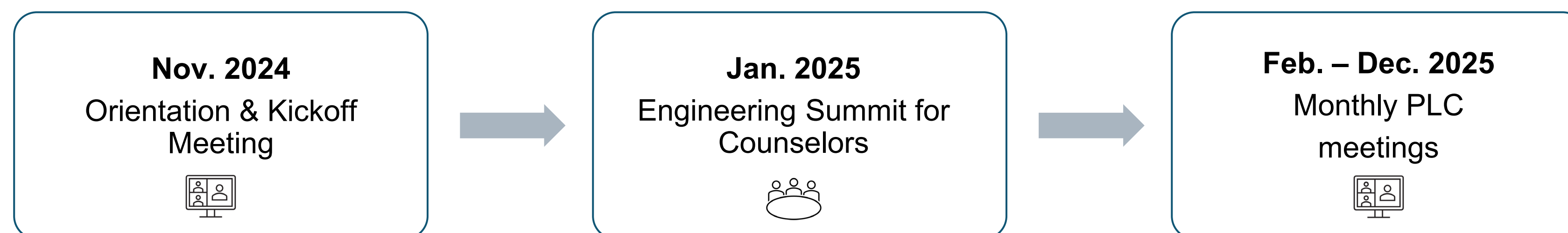


## Project Overview & Structure

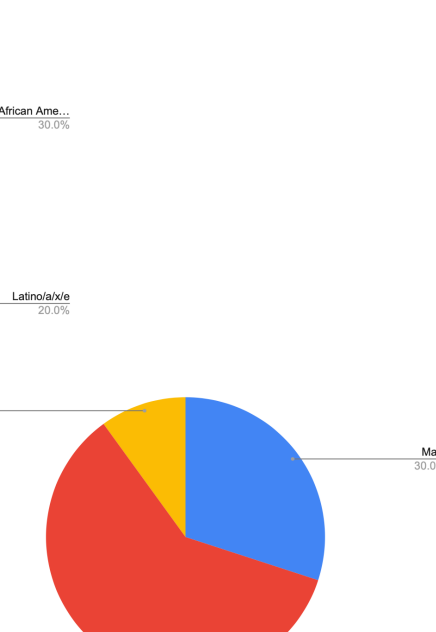
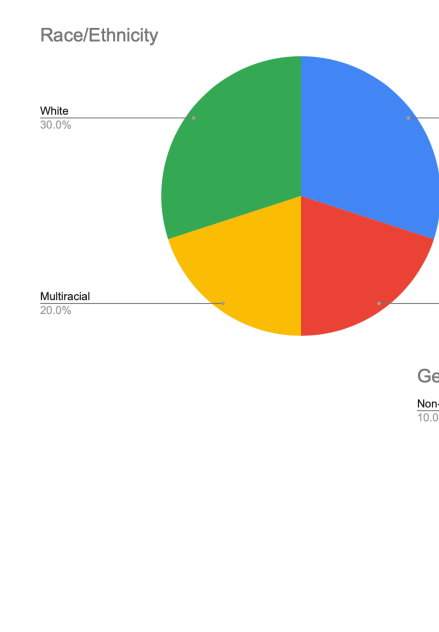
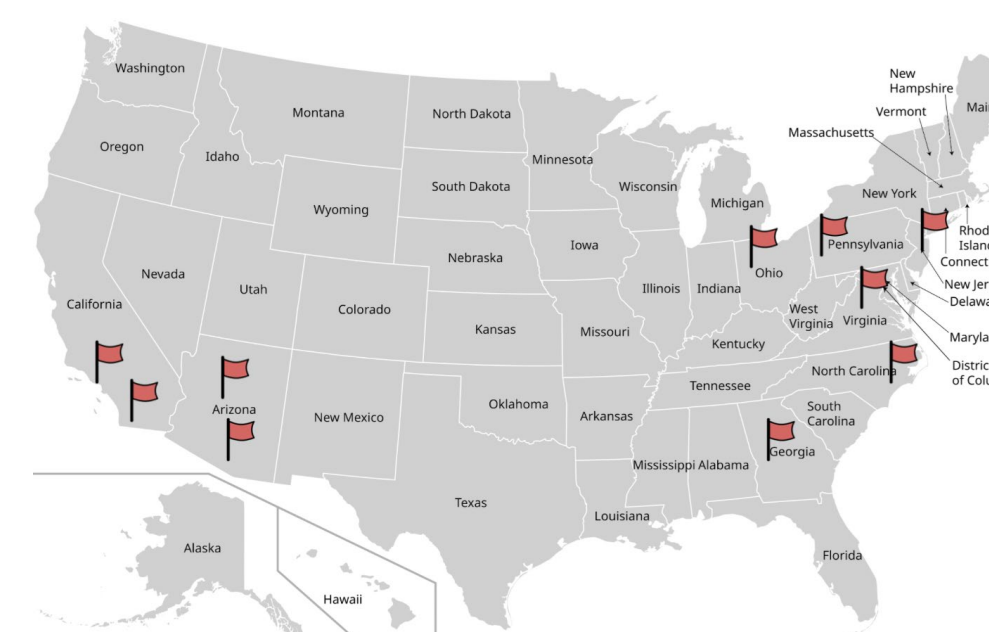
### Three Year Program



### Year-Long Professional Learning Experience



## Cohort 1 Demographics



### School/District Characteristics

	BIPOC Students	Students with Disabilities	FRL Students
< 25%	2	5	1
25 - 50%	1	5	3
50 - 75%	2	0	2
> 75%	5	0	4

## Research Design

### Research Questions

- What efficacy and dispositions of engineering career counseling do counselors develop and put into practice during an engineering-focused professional learning experience?
- What mechanisms support the development of counselors' efficacy and dispositions of engineering career counseling practices for all students?

Component	Data Collection	What we Measured
Orientation & Kickoff Meeting	Pre-focus group	Participation goals & understanding of engineering
	Pre-survey	School context & counseling practices
	Photo elicitation activity	Perceptions of engineering
In-Person Workshop	Artifacts	Engineering design challenges (e.g., rain shelter)
	Focus group	Counseling practices jigsaws about engineering identity
	Post-focus group	Whistling Vivaldi (chapters 1 – 3)
	Post-workshop survey	Workshop experiences
	Artifacts	Understanding of engineering
Monthly PLC Meeting(s) & Other	Meeting recordings	Formative feedback
	Photovoice	Reflection letters to future counselors
		Whistling Vivaldi discussions
		STEM engagement

## Preliminary Findings

### Understanding of engineering

*I think my favorite part was learning about the engineering identity. ...You are an engineer in your own career, in your own profession.*

### Shifts in Counseling Practices

*It wasn't just about theory; it was about action. We didn't just discuss what needs to change; we explored concrete steps to implement change in our schools. The resources and strategies I gained are already shaping how I counsel students.*

### Sense-Making of Stereotype Threat

*I think this specifically this stereotype threat and I can see picture her in the future. I hope that I can build some resilience in my counseling with her before she leaves high school for her when she goes to college ... I don't want her to believe that that's the end of her engineering career.*

## Questions & Feedback

### Questions:

- Do you have resources that could be adapted for counselor training or STEM career advising?
- What strategies have effectively engaged counselors or educators in broadening STEM participation?
- How do you measure changes in dispositions or practices among adults in your programs?

### Feedback:

Based on what you see in this project, what suggestions or feedback do you have that could strengthen our approach or increase its impact?



## Contact Information

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