Establishing and Sustaining Inclusive Learning Communities for Supporting Faculty Creating More Inclusive Engineering Classrooms

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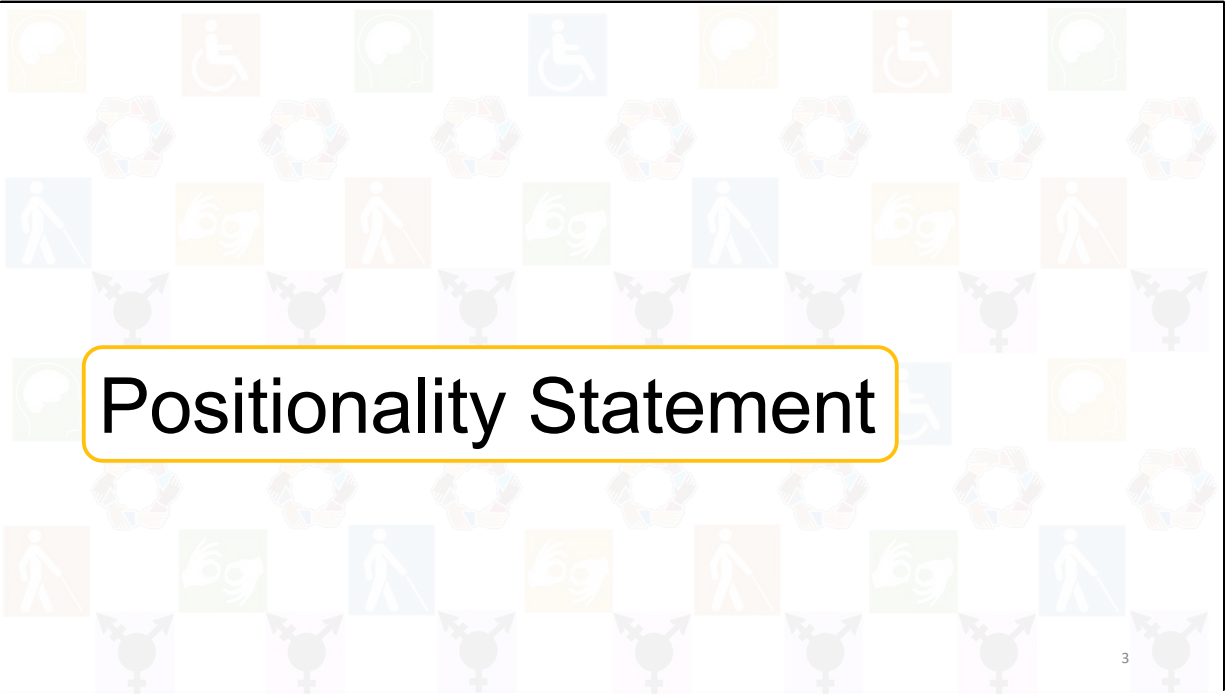
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40 min session
PDF submission

Introduce using the title

Outline

- Positionality Statement
- Guiding Theory
- Literature Review
- Breaking Down Learning Communities
- Research Questions
- Inclusive Learning Communities
- Assessment Plan and Faculty Results To Date
- Lessons Learned
- Conclusion

Go through outline

Positionality Statement

Positionality Statement

Before continuing this presentation, and in the spirit of self-reflection, I acknowledge my standpoint as an educated Black American woman. I have not been an instructor of record yet, but I have experienced and observed both positive and harmful situations within and outside of the engineering classroom involving minoritized and historically marginalized students. I acknowledge that my positionality has given me a unique perspective while working on this project.

Inspired by Davis (2018)

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Positionality statement will also introduce the presenter(s)

The Guiding Theory

The development of the menu is informed by and aligned with the Theory of Change Model developed by Henderson, Beach and Finkelstein

Individuals

I. Disseminating: CURRICULUM & PEDAGOGY	II. Developing: REFLECTIVE TEACHERS
Change Agent Role: Tell/Teach individuals about new conceptions and/or practices and encourage their use.

Task: Inclusive Practices Menu and Decision Matrix to launch at other institutions and across DEI networks | Change Agent Role: Encourage/Support individuals to develop new conceptions and/or practices.

Task: Recruit faculty; develop and pilot inclusive classroom learning communities and deploy practices menu |
| III. Enacting: POLICY | IV. Developing: SHARED VISION |
| Change Agent Role: Enact new environmental features that require/encourage new conceptions and/or practices.

Task: Intended for future proposal | Change Agent Role: Empower/Support stakeholders to collectively develop new environmental features that encourage new conceptions and/or practices.

Task: Recruit faculty; develop and pilot inclusive classroom learning communities |

Environments

Prescribed   *Emergent*

Figure 1. Theory of Change adapted from Henderson et al (2011)   **Intended Outcome**

Slide is animated for presentation mode for the gray boxes to disappear

The guiding theory for this study overall and the menu is the TOC developed by Henderson, Beach and Finkelstein

Talk briefly through each of the quadrants

Mention how all of our tasks can be sorted into these quadrants with the focus of today's presentation on the LCs we developed centered in Quadrants 2 and 4
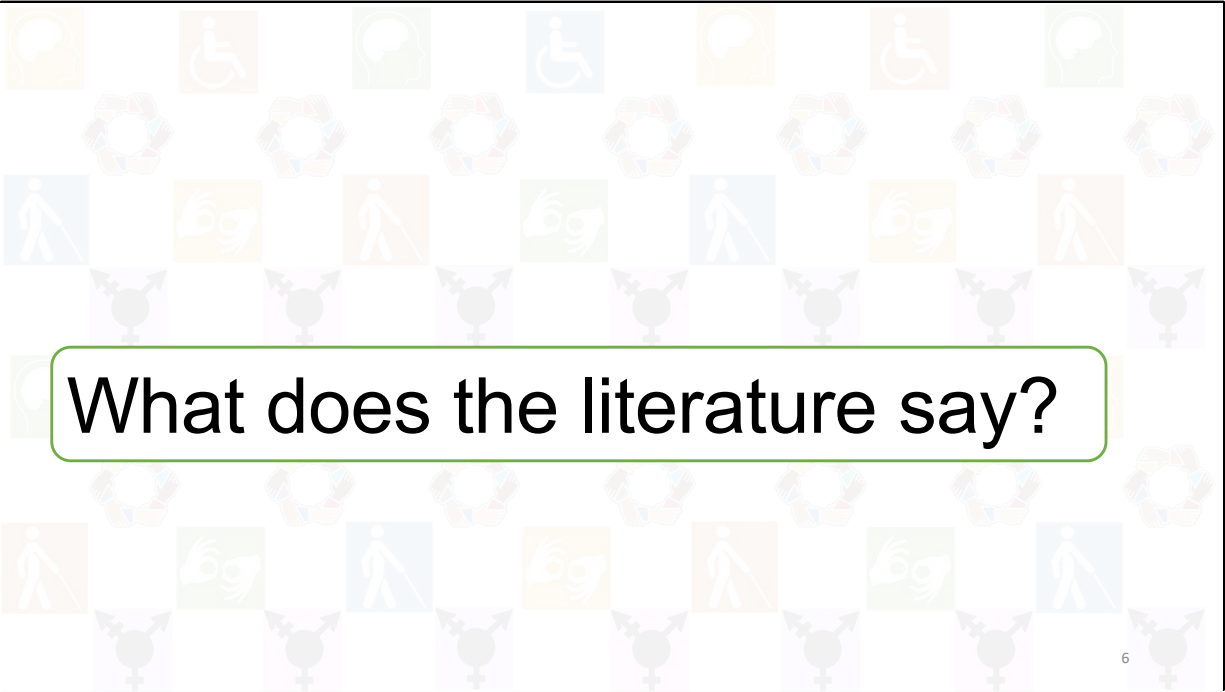
What does the literature say?

Research has illustrated the positive impact that inclusive classrooms have on student success

- Previous research has indicated **instructors** should create classroom environments that **foster inclusivity** and belonging to aid students in succeeding academically and socially (Bauman et al 2005, Hartman et al 2019, Milem et al 2012, Mills and Ayre 2003)

- One of the factors in the achievement disparities between historically minoritized and marginalized students and their peers is that classrooms are often characterized by curriculum and pedagogy that enforces the "**absent standard**" (Hartman et al 2019, Anderson et al 2014)

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Read the quote(s)

Major point of slide: The impact of inclusive classrooms on student success has been well-studied, particularly in the effect they have on historically marginalized and minoritized students given their experiences inside and outside of the classroom can impact their educational outcomes (Bauman et al 2005; Milem et al 2012)

The "absent standard" occurs when the dominant culture's norms are considered the "accepted norms" in the classroom and are reinforced through the way the class material is delivered

Though the impact of inclusive classrooms has been highlighted in the literature, instructors in <u>technical disciplines</u> such as engineering, have <u>difficulty finding actionable guidance to incorporate inclusivity into their courses</u>

Bauman et al 2005, Casper et al 2021, Milem et al 2012, Salazar et al 2010, Tanner 2013

- Main point: Research has illustrated the necessity and importance of creating more inclusive classrooms, however in more technically rigorous disciplines like engineering, how can faculty do this in the most impactful way? What support structures do they need?

Especially when there's not an emphasis on teaching and improving their teaching in graduate education, current instructors may need more information and resources on how to be the best teachers they can be

What can help?
Learning Communities (LCs)

LCs provide a long-term collaborative structure for faculty to improve their teaching skills

- The five components of research-based faculty LCs are:
  1. Shared beliefs, values and vision
  2. Shared and supportive leadership
  3. Supportive structural and relational conditions
  4. Collective intentional learning and its application
  5. Shared personal practice

- Topic-based vs. Cohort-based LCs

Borrego et al 2011, Whittaker et al 2014, Cox 2004, Hord 2008

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Sources: Borrego et al 2011, Whittaker et al 2014, Cox 2004, Hord 2008

LCs sit at the integration of research and teaching

Participation in faculty LCs have promoted productive outcomes and sustained faculty commitment as well (Borrego 2011, Cox 2004)

Cohort-based LCs focus on addressing the teaching, learning, and developmental needs of a group of instructors impacted by something in the academy and the participants shape the LC curriculum

Topic-based LCs have a curriculum designed to address a specified campus teaching and learning need, issue, or opportunity and offer membership across departments and instructor ranks

Best Practices for Successful Faculty LCs

- Continuous administrative or institutional support
- Specific and clear goals that are consistent with the values and concerns of members
- Establishing a safe and trusting environment for all participants
- Activities that enhance competency and autonomy to help members grow and develop as instructors
- Experienced facilitators who are either faculty or external individuals who can emphasize the connections between pedagogy and theory to support the actions of the LC members
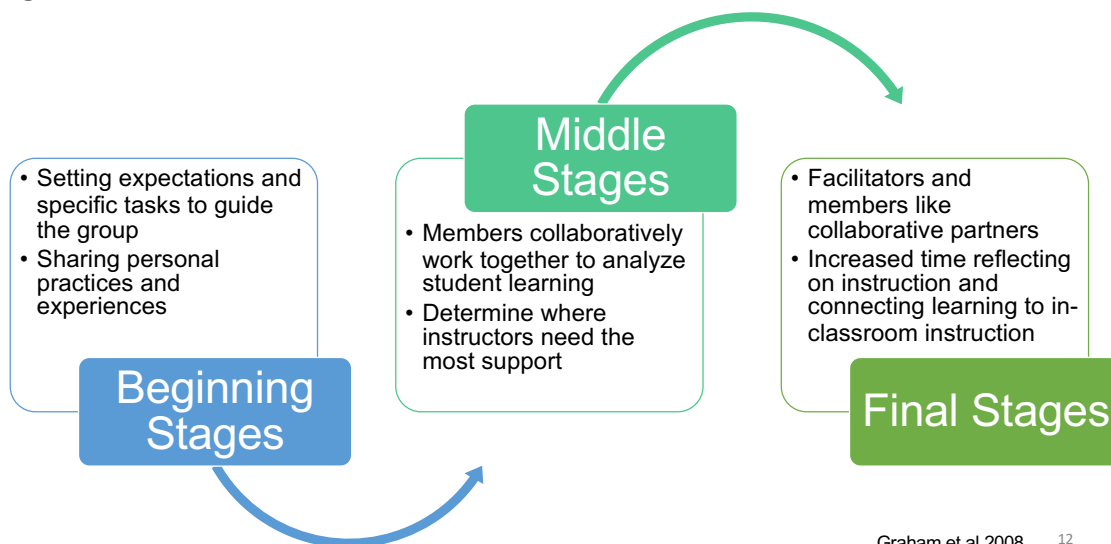- Meets frequently and consistently

Daly 2011, Furco et al 2012, Schlitz et al 2009, Tinnell et al 2019, Ward et al 2012

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Read through some of the best practices

Another best practice to consider is that it is okay for faculty LCs to come to an end either fully or in its current state if the learning has become stagnant or fulfilled its purpose

Most Faculty LCs grow through similar developmental stages from instructor to learner-centered

Beginning Stages
- Setting expectations and specific tasks to guide the group
- Sharing personal practices and experiences

Middle Stages
- Members collaboratively work together to analyze student learning
- Determine where instructors need the most support

Final Stages
- Facilitators and members like collaborative partners
- Increased time reflecting on instruction and connecting learning to in-classroom instruction

Graham et al 2008   12

Beginning stages – Setting expectations and specific tasks that will guide the group and lots of sharing of personal practices and experiences

Middle stages - Members collaboratively work together to plan and develop common assessments for students and analyze student learning to determine where improvements can be made and where instructors need the most support

Final stages – Facilitators and members act more like collaborative partners and the focus of the LC is largely determined by participants; increased time reflecting on instruction and connecting what they've learned to their in-classroom instruction

Inclusivity-focused Learning Communities

- **Faculty LCs have emerged across higher education** focused on topics that broadly address improving diversity, equity, and inclusion in the classroom and on **inclusive teaching**
- The **literature is sparse on the topic of LCs focused on culturally inclusive content and pedagogies** that aid faculty in effectively teaching all students
- The tools and information used in these communities are not always **widely shared with the broader higher education community**

Anderson et al 2014, Considine et al 2014, Cox et al 2004, Schlitz et al 2023, Tinnell et al 2019, Ward et al 2012

Read through the bullet points

Main point: The literature has shown the importance and need to create more inclusive classrooms that are shaped by context and consider the diverse perspectives present in the classroom. However, literature is sparse on the topic of LCs focused on culturally inclusive content and pedagogies

We can also say that anecdotally, our research team has noticed the increase in the number of learning communities on various topics at different institutions so it's definitely a professional development tool that higher education is also employing to engage their faculty

Our Research Questions

1. What are the most effective practices to promote an inclusive engineering classroom?

2. How do different LCs foster and support inclusive engineering classrooms?

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Animated for questions to pop up one by one

Given the lack of literature and resources on providing inclusive practices for engineering faculty, we developed two research questions that guide our study and today, we'll focus mostly on the second question through talking about the faculty LCs we convened to support engineering faculty in creating more inclusive classrooms

1. What are the most effective practices to promote an inclusive engineering classroom?

- Developed a menu of inclusive, evidence-based classroom practices for the engineering classroom
- Collected feedback from participating faculty and their students through surveys and voluntary interviews
- Transformed the menu into a decision matrix to make an interactive version of the menu for users
- Developed a public project website for dissemination across institutions and universities

Publications Thus Far: Vaden et al "Developing and Implementing an Inclusive Practices Menu in Undergraduate Engineering Classrooms" Journal of Civil Engineering Education, Under Review

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The last time we were at CoNECD we talked about this first question and shared results from developing the menu and preliminary feedback we had from student and faculty participants. Since then, we have also created a decision matrix using the menu and developed a project website we will share at the end of the presentation.

Can list publications on the slide (even under review)

Our Research Questions

1. What are the most effective practices to promote an inclusive engineering classroom?

2. How do different LCs foster and support inclusive engineering classrooms?

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Animated gray box comes up to emphasize we will focus on the second question in today's presentation

Today, we'll focus mostly on the second question through talking about the faculty LCs we convened to support engineering faculty in creating more inclusive classrooms

Developing Our Inclusive Learning Communities (ILCs)

The ILCs were developed with the shared goal of supporting faculty implementing the inclusive engineering practices menu, but differed depending on the institutional contexts and opportunities

The ILCs were developed with shared goals, but differed at each of the partner institutions

Our ILCs

- Convened at each partner institution to support faculty and provide space for feedback throughout the study
- Members consisted of faculty, staff, and/or teaching assistants
- Employed core ideas of LCs from the Center for the Integration of Research, Teaching, and Learning (CIRTL)
  - Shared discovery and learning
  - Creating and fostering functional connections among learners
  - Fostering connections with related learning and life experiences
  - **Inclusive learning environment**

Source: CIRTL website

We convened ILCs at each partner institution to support faculty involved in the study by providing a safe, supported space for sharing and learning but also for them to provide feedback

Members were largely faculty, but could also include staff and/or teaching assistants who were interested in improving inclusivity in their teaching

However, the ILCs were developed through existing efforts at different levels of the partner institutions

University of Pittsburgh — Swanson School of Engineering	Arizona State University	Colorado School of Mines
ILC embedded into the Department-wide IDEA committee in Civil and Environmental Engineering	ILC included into ASU's Research in Inclusive Science and Engineering Education Center's existing Core Faculty Meeting	ILC initially led under the President's Office and partnered with the Trefny Center, Mines' institute focused on supporting evidence-based practices

Talk through each institution's origin and emphasize how they were different – Institution 1 is department wide (bottom up), Institution 2 is a part of a DEI group in Engineering (both bottom up and top down), and Institution 3 is a Teaching Center at the University level (top down)

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What would you do to start inclusion-focused Faculty LCs led from these different levels at your institution?

Department vs. Established DEI group at school-level vs. University-wide

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Ask the audience this question and spend a few minutes talking about this before going into what we did on our project and how our ILCs changed
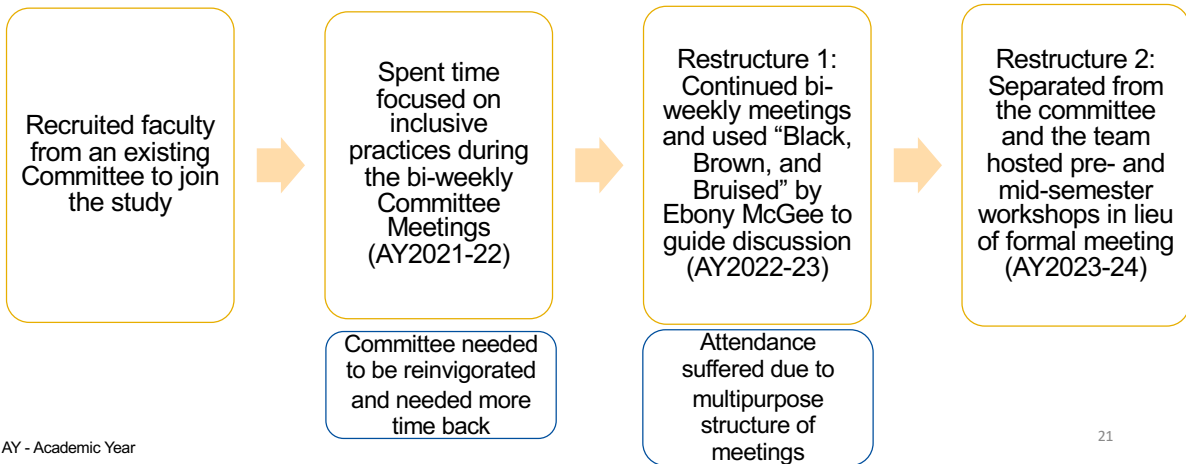
These next 3 slides represent how they've transformed on a larger scale looking at the ILCs themselves, but there are other details and pieces that have developed as a result of the project

Talk through development and restructures/re-orgs
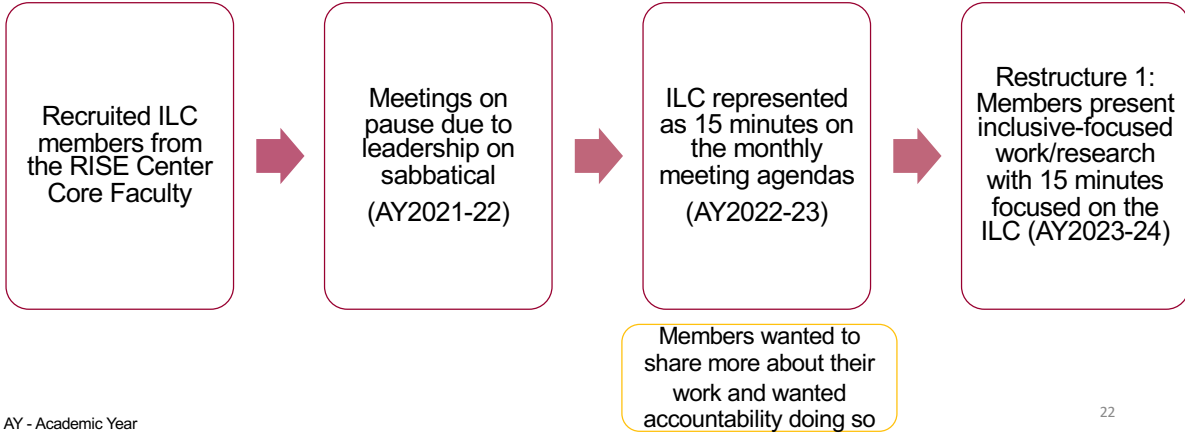
Talk through development
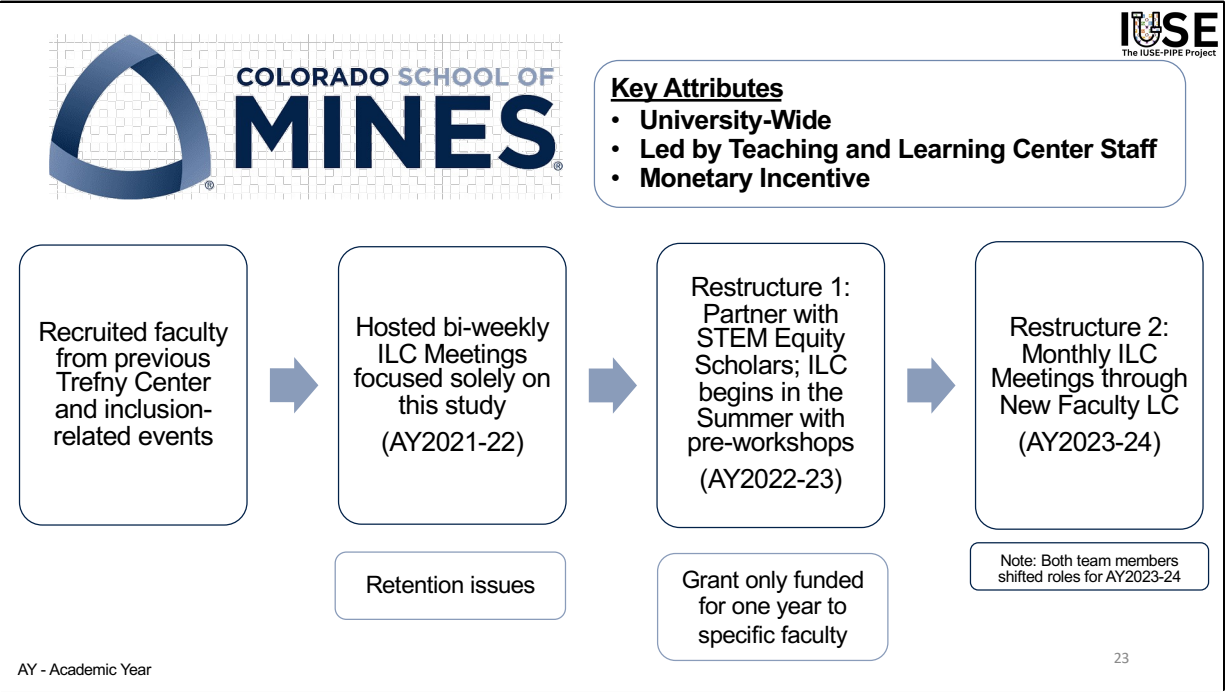
Talk through development

The leadership change in the last year is assisted by having the program partnered with the Trefny Center; they offer workshops, coaching, and the ILCs at the end point; retention continued to be an issue so that also led the changes in the restructures

We've talked about how our ILCs were developed and changed over time, but how did faculty respond to them?

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Faculty Assessment Plan

Faculty Survey

- Faculty's use of the inclusive engineering practices menu
- Evaluation of the efficacy of the ILCs
- Feedback on improvements for the ILCs

Semi-Structured Voluntary Interviews

- Elucidate further information about experiences using the menu and membership in the ILCs

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In order to sustain our efforts in the dissemination of inclusive practices at our institutions, we want to evaluate whether the ILC's are an efficient system to promote, support, and continue sharing ideas about inclusive practices.

Faculty who participate in the ILC's will be surveyed and interviewed in order to determine:
- Whether the ILC helped foster a sense of community
- The value of the ILC to the faculty
- The role the ILC had on initiating and continuing to use inclusive practices

We will use faculty's experiences in the ILC to determine whether ILCs are an efficient mechanism for initiating and sustaining change efforts in creating more inclusive environments within engineering departments and schools.

To date across all three institutions, there were a total of 24 complete faculty surveys

Semester	Total Faculty Respondents	% Pitt Faculty Respondents	% Mines Faculty Respondents	% ASU Faculty Respondents
Fall 2021	7	57	43	0
Spring 2022	2	100	0	0
Fall 2022	10	40	50	10
Spring 2023	5	20	60	20
All	24	46	46	8

Table 1. Faculty Survey Demographics to Date (n=24)

There were 24 completed surveys that were used in data analysis

Pitt and Mines have had the most participants compared to ASU (11 participants each) across all four semesters of study

Faculty Feedback on the ILCs

- Many faculty reported having positive experiences in their ILCs
- Faculty appreciated having **"protected time"** to discuss experiences and learn from their peers who were also using the menu
- Faculty noted **still trying to understand inclusivity in the classroom** and how their experiences and identities can impact their classroom culture
- Changes and improvements to the ILCs included having **more frequent meetings, seeing student survey results, and more information on ease of implementation of the menu**

Many faculty reported having positive experiences in their ILCs

Faculty appreciated having "protected time" to discuss experiences and learn from their peers who were also using the menu

Faculty noted still trying to understand inclusivity in the classroom and how their experiences and identities can impact their classroom culture

Some changes they would like to see included having more time, more frequent and consistent meetings, seeing the student survey results, and wanting to discuss and learn more about the difficulty of implementing practices on the menu
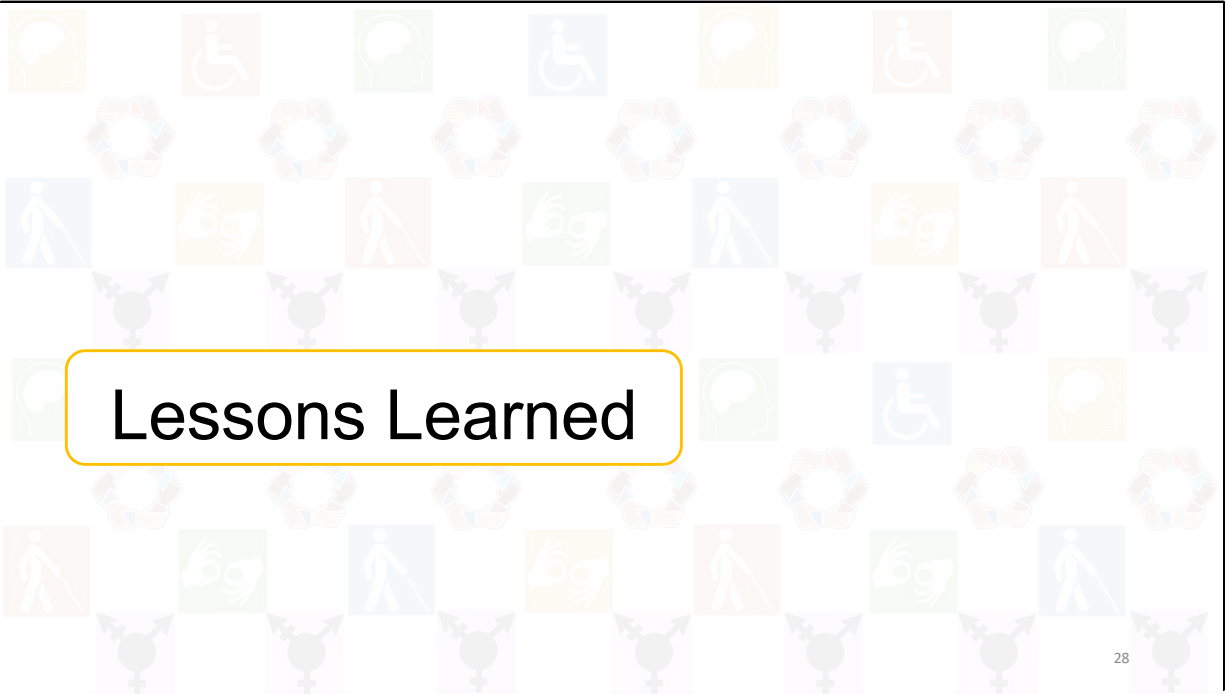
Lessons Learned

ILC Meeting Structure

- Initial thought process was to have standalone ILC meetings to encourage community building and focus on the topic

- ILCs adjusted based on institutional contexts and opportunities that arose and were led from different levels of the institutions which resulted in certain aspects like incentives

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Prioritizing Inclusivity in the ILCs

Wellesley College

- The ILCs were developed using best practices for successful faculty learning communities from literature and other projects

- Challenges
  - Difficulty dealing with emotions from discussing and confronting cultural insensitivities and lack of training
  - Harsh criticism and judgement
  - Creating and reinforcing "ground rules"

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Incentives to join the ILCs

- Arizona State University (School-Wide)
  - RISE Center affiliation
  - Collaboration on an inclusive teaching journal paper
- Colorado School of Mines (Institution-Wide)
  - Stipend
- Challenges employing incentives
  - It should already "be a part of everyone's job"
  - Providing protected time for faculty to work on these efforts

Jostle Blog

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Conclusion

Project Goals	Progress
Collect practices that are peer-tested, peer-recommended, and expert evaluated	
Develop a menu of practices that focus on high-impact inclusive classroom practices that align with the arc of the course	
Evaluate the menu of practices by implementing and monitoring the recommendations in three diverse engineering programs	
Create and pilot inclusive learning communities	
Assess both students and faculty to create succinct, high-impact recommendations on creating inclusive engineering classrooms	

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Talk about where we are in terms of our project progress

Future Work

- Fall 2023 will be the last data collection semester for this study
  - Finish faculty interviews at Institutions Pitt and ASU (Mines interviews occurred in Spring 2023)
  - Conduct internal interviews with the research team about their experiences with ILC facilitation
- Journal publications are currently in progress detailing our student and faculty results
- Continuing to update the website

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Acknowledgements

- All of the student and faculty participants from the three institutions

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Stay in Touch

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See our website!

JMV