Partnership Development for Co-design of a Digitally-Based Teacher Learning Platform

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Co-Design Team

Co-Designed Vision & Plan for a Digital, Simulation-Based Teacher Learning Platform

Project Overview

- Teacher PD on K-5 math and science teaching is best co-designed with teachers. **Co-design** is "creating with, not for stakeholders."
- Five K-5 teachers, two instructional coaches, a district administrator, four researchers, and two assessment professionals (former teachers) co-designed a **vision and plan for a teacher PD platform with digital performance tasks and AI-powered feedback**.
- The platform will enable in-service grades K-5 teachers to practice and improve at **facilitating student discussions in mathematics and science**.
- **Feedback on the envisioned platform** was gathered through focus groups and a survey of K-5 math and science teachers and coaches.

Co-Design Activities

1) In-person **3-day kickoff** and 2) **regular virtual meetings** to co-design this vision by:

- Asset mapping across our organizations
- Developing **community charter** outlining co-design core values and working norms
- Surfacing **teacher PD needs**
- Brainstorming via **collaborative learning activities** (e.g., think-pair-shares) to envision and plan the **key platform components**, including **performance tasks** and **personalized automated feedback reports**

Practice Dimensions for Facilitating Student Discussions

Practice Dimensions

- 01 Creating an Inclusive and Safe Environment
- 02 Ensuring Equity of Voices
- 03 Encouraging Student-led Interaction and Idea Sharing
- 04 Using Student Ideas to Advance Learning
- 05 Fostering Critical Thinking and Reflection
- 06 Active Listening and Responsiveness
- 07 Using Varied Discussion Formats

Proposed Platform Features

- Digital simulations with 1-5 student avatars, personified by AI for scalability
- Simulations provide opportunities to iteratively practice dimensions of FSD through performance tasks organized by subject, grade, and subtopic (aligned with NGSS and CCSS); searchable for current teaching topics
- Authentic, low stakes, on-demand format with progress tracking
- Performance tasks include context and preparation materials

EXAMPLE PLATFORM DASHBOARD

Teacher's Profile

Feedback Report

Mathematics: K-5 | Science: K-5

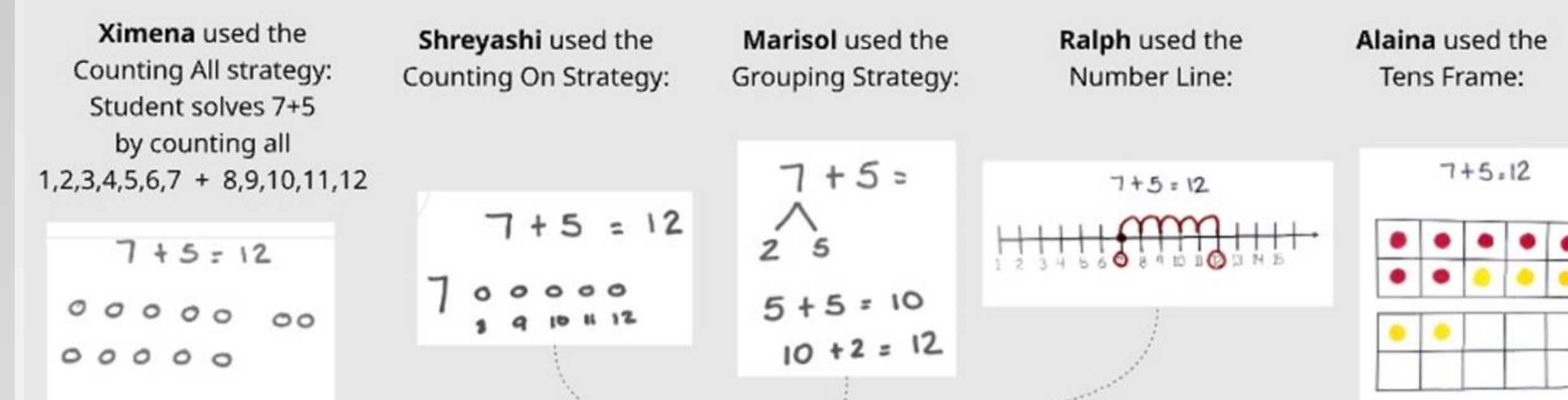Select Performance Tasks: Using Students Ideas
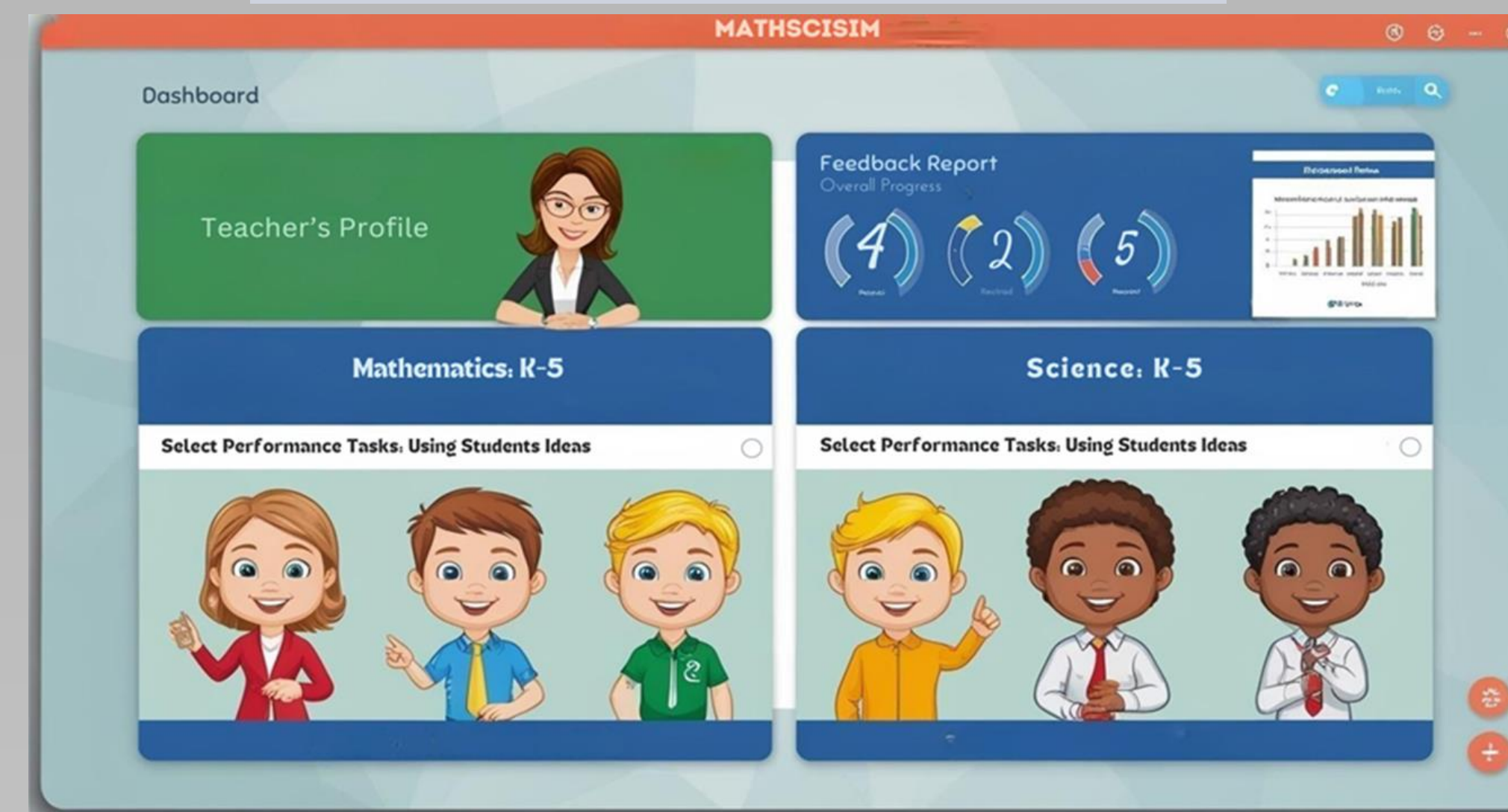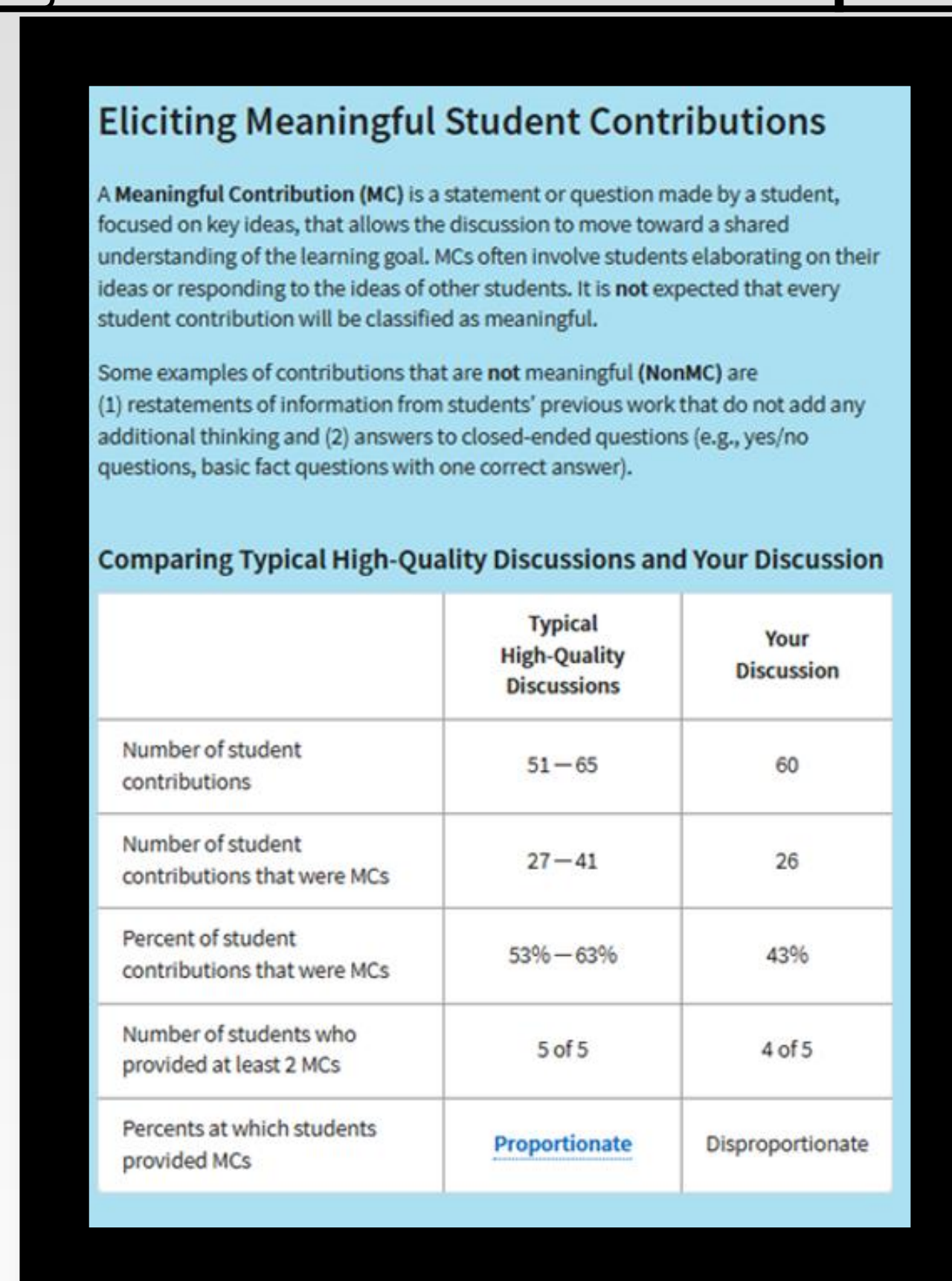
Example Math Performance Task (Gr. 1)

Task #1:
Goal: Practice Dimension #5: Foster Critical Thinking and Reflection
By employing various questioning techniques, teachers elicit student ideas to stimulate critical thinking about the strategy they used and encourage students to reflect on their learning.

Preparation: to prepare for your individual student/teacher conference, review each student's strategy and consider questions you would ask to encourage critical thinking and reflection.

Ximena used the Counting All strategy: Student solves 7+5 by counting all 1,2,3,4,5,6,7 + 8,9,10,11,12

$7 + 5 = 12$

Shreyashi used the Counting On Strategy:

$7 + 5 = 12$

Marisol used the Grouping Strategy:

$7 + 5 =$
$5 + 5 = 10$
$10 + 2 = 12$

Ralph used the Number Line:

$7 + 5 = 12$

Alaina used the Tens Frame:

$7 + 5 = 12$

Personalized, AI-Powered Feedback Report Example

Eliciting Meaningful Student Contributions

A Meaningful Contribution (MC) is a statement or question made by a student, focused on key ideas, that allows the discussion to move toward a shared understanding of the learning goal. MCs often involve students elaborating on their ideas or responding to the ideas of other students. It is not expected that every student contribution will be classified as meaningful.

Some examples of contributions that are not meaningful (NonMC) are (1) restatements of information from students' previous work that do not add any additional thinking and (2) answers to closed-ended questions (e.g., yes/no questions, basic fact questions with one correct answer).

Comparing Typical High-Quality Discussions and Your Discussion

	Typical High-Quality Discussions	Your Discussion
Number of student contributions	51—65	60
Number of student contributions that were MCs	27—41	26
Percent of student contributions that were MCs	53%—63%	43%
Number of students who provided at least 2 MCs	5 of 5	4 of 5
Percents at which students provided MCs	Proportionate	Disproportionate

Teacher & Coach (N=16) Focus Group Results: Expected Platform Impacts

- **Empowers Teachers:** The platform will provide clearer, more practical support for facilitating discussions than typical PD, helping teachers build confidence in this area.
- **Promotes Reflective Practice:** The personalized, automated feedback will support self-assessment and growth—comparable to coaching or administrator feedback.
- **Supports Coaching of Less Vocal Students:** "Using Student Ideas" will help teachers ensure all voices are heard by prompting inclusive questioning and attention to diverse learners.
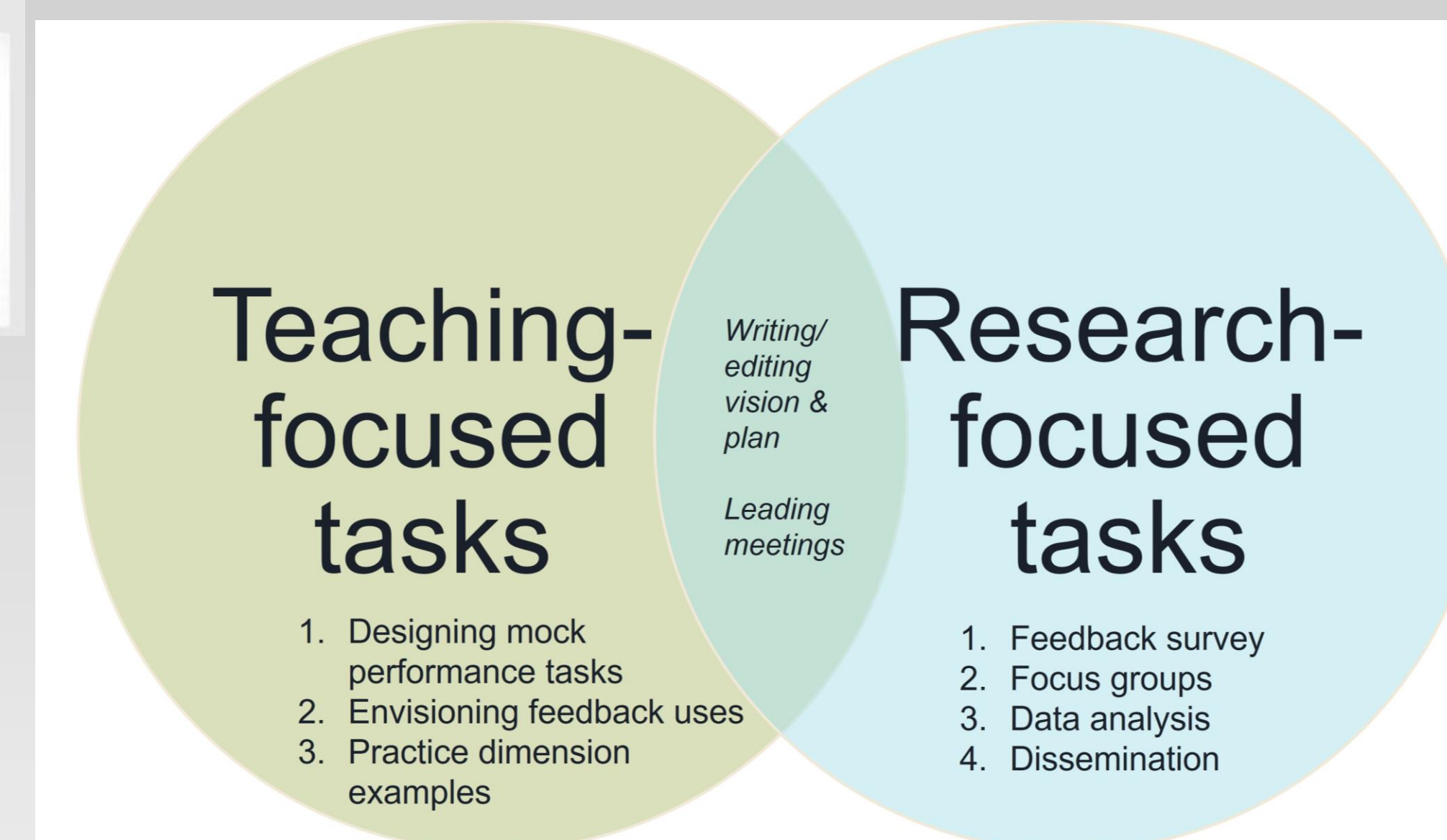
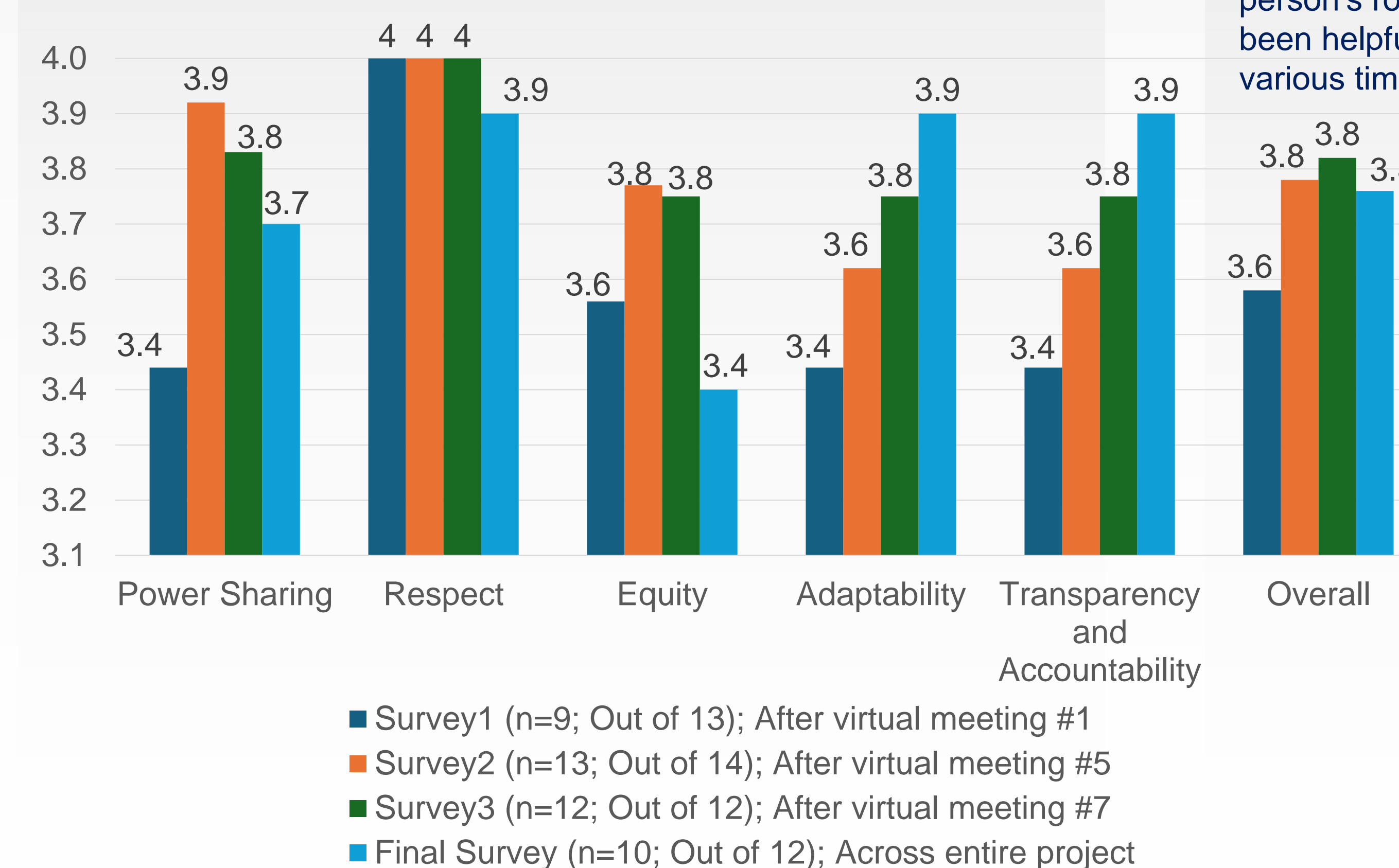## Co-Design Process & Research

Our Co-Design Core Values

Power sharing	• All voices are valued, and power is shared across roles.
Respect	• We respect and value each team member's unique strengths, expertise, background, experience, and style.
Equity	• We aim for equal participation and a balanced exchange of ideas.
Adaptability	• We adjust our approaches as needed, based on feedback.
Transparency & Accountability	• We regularly reflect and provide feedback on what is going more and less well

Codesign Research Activities

- Three monthly anonymous feedback surveys on our team's adherence to our co-design core values
- Reflection activity in a virtual whiteboard
- Final feedback survey on core values and the co-design process, including strengths, areas for improvement, and lessons learned

Teaching-focused tasks

Writing/editing vision & plan

Leading meetings

Research-focused tasks

1. Designing mock performance tasks
2. Envisioning feedback uses
3. Practice dimension examples

1. Feedback survey
2. Focus groups
3. Data analysis
4. Dissemination

Co-Design Process Survey Results: Mean Ratings of Core Values Adherence Over Time*

- ■ Survey1 (n=9; Out of 13); After virtual meeting #1
- ■ Survey2 (n=13; Out of 14); After virtual meeting #5
- ■ Survey3 (n=12; Out of 12); After virtual meeting #7
- ■ Final Survey (n=10; Out of 12); Across entire project

*Items were on a scale of 1-4 (1=Our culture and practices did not embody the core value and 4=Our culture and practices exemplified the core value)

Co-Design Process Survey Results

Key takeaway #1: Co-design was viewed as messy, challenging, and stimulating.

Key takeaway #2: Most team members thought the process went well and was appropriate for the platform development, and they gained new skills and knowledge.

Key takeaway #3: About half of team members perceived room for improvements in the overall process, and one thought it did not work well for development of a vision and plan for a teacher PD platform.

Key takeaway #4: Adherence to core values improved over time and was highest for respect, adaptability, transparency, and accountability. It was lowest (only slightly lower overall) for power sharing and equity.

Open-ended comments highlighted:

1. Positive views of co-design:
"I have felt heard and respected at every meeting."

"As an educator, I am a member of many committees. Utilizing the co-design process, especially power sharing, is hugely important to make sure everyone's voice is heard and valued."

2. Mixed views of co-design:
"We are doing well at sharing power and dividing up various roles. People sign up for what they are interested in and available for, which leads to some imbalance. But that imbalance makes sense given our differing availabilities and other commitments."

3. Areas for improvement included communication, roles, & time:
"Some additional transparency and communication about each person's roles and responsibility for each part of the work would have been helpful. More time to engage in the codesign -- it was hard across various time zones and work commitments."

Learn More

Blog post about the project:

ISTElive Conference Presentation
July 1 (hope to see you there!):