

The Numbers are Not Enough:

The Role of Qualitative Evidence in Local Teaching Cultures

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Project Background

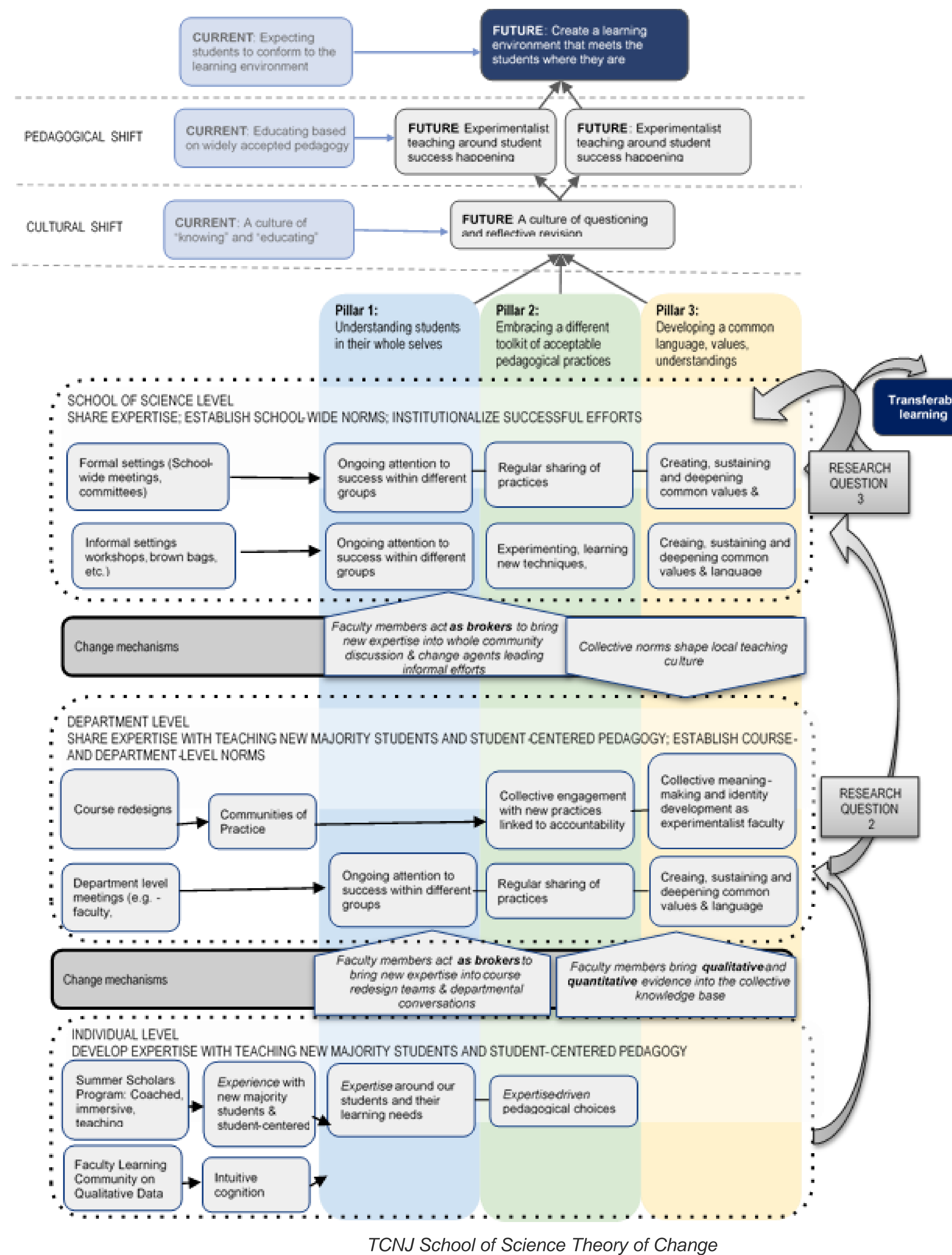
STEM-centered change efforts often rely on quantitative evidence to inspire faculty to change their pedagogies. However, data do not speak for themselves. Instead, people select and interpret specific data to use as evidence while making a case for defining a problem in a certain way and proposing and advocating for solutions¹.

Although faculty have considerable access to and regularly make use of quantitative evidence using College processes, they can miss differential impacts of their own teaching practices unless they are brought to their attention in a compelling way³. Rich, systematically collected qualitative data can amplify the voices and experiences of minoritized students, revealing the *why* and *how* behind the numbers.

Pedagogical practices are shaped by the interaction between rules and resources²; therefore, a change in resources (such as adding different kinds of data to the mix) in turn creates new opportunities for change. Our project deliberately creates opportunities for faculty engagement with qualitative and experiential data focused on minoritized students in order to see the effect on the local teaching culture^{4,5}.

- **Research Question 1:** What role do direct experience in new majority classrooms and rich, qualitative data have in shaping pedagogical decisions?
- **Research Question 2:** How do faculty share their experience and knowledge with others, and how do these inform the local teaching culture?
- **Research Question 3:** How can we sustain lessons/components from our successful programs and distill evidence into transposable learning that may be implemented in other contexts?

Project Context



Early Findings

In Spring '22, the research team presented **quantitative-only data** on student demographics, academic outcomes, and survey results on sense of belonging in multiple meetings. Faculty responses reflected:

- **Statistical Illiteracy**
- **Interpretation based on majority students**
- **Limited predictive empathy and solution generation**

In contrast, the research team presented **qualitative data** on minoritized students' experience of grade shock to contextualize **quantitative data** on student demographics and academic outcomes. Faculty responses included:

- **Practical changes to the structure of future courses**
- **Engagement with tailored data collection**
- **New norms in the local teaching culture**

Conclusions

Early results suggest that combining qualitative data with quantitative data facilitates predictive empathy, identifying practical interventions, and creating a common understanding of effective pedagogical strategies.

References

1. Spillane, James. 2012. "Conceptualizing the Data-Based Decision-Making Phenomena." *American Journal of Education* 118(2):113-141.
2. Sewell, William H., Jr. 1992. "A Theory of Structure: Duality, Agency, and Transformation." *The American Journal of Sociology* 98(1): 1-29.
3. Eddy, Sarah L., and Kelly A. Hogan. 2014. "Getting Under the Hood: How and for Whom does Increasing Course Structure Work?" *CBE—Life Sciences Education* 13(3):453-468.
4. Oleson, Amanda, and Matthew Hora. 2014. "Teaching the Way they were Taught? Revisiting the Sources of Teaching Knowledge and the Role of Prior Experience in Shaping Faculty Teaching Practices." *Higher Education* 68(1): 29-45.
5. Hora, Matthew, Bouwma-Gearhart, Jana, and Park, Hyoung. 2017. "Data Driven Decision-Making in the Era of Accountability: Fostering Faculty Data Cultures for Learning." *Review of Higher Education* 40 (3): 391-426.