



**RESEARCH + PRACTICE
COLLABORATORY**

Building a Knowledge Base for NGSS by Fostering Partnerships between Research and Practice

NARST Preconference Workshop
March 30, 2014

Goals for Today

The workshop will provide participants with concrete strategies for:

- (1) identifying persistent problems of practice from practitioners' and stakeholders' perspectives,
- (2) developing a collaborative design process that leverages the expertise of practitioners, researchers, subject matter experts in science, and other stakeholders, and
- (3) formulating design goals that foreground supports for implementation, equity, and diversity.



R+P Collaboratory



The R + P Collaboratory is an NSF-funded project formed to address the gap between research and practice in STEM education, across both formal and informal settings.

Introductions

Find 3 other people (preferably people you don't know here), and introduce yourselves to them, and discuss:

1. What do you see as major *problems of practice* linked to engaging all young people in science?
2. How does your work (whatever your role) help to address that challenge?
3. Who are your partners in this work (if you have them)?



Negotiating the Focus of Joint Work

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explOration[®]

Thinking about Problems of Practice

- What does the term “problems of practice” mean to you?
- For the problems of practice that are focal in your work, which kinds of stakeholders would resonate with your descriptions?
- What happens when someone approaches you to work on their problem, but you aren’t so sure it’s important?



Big Idea 1: Joint Negotiation

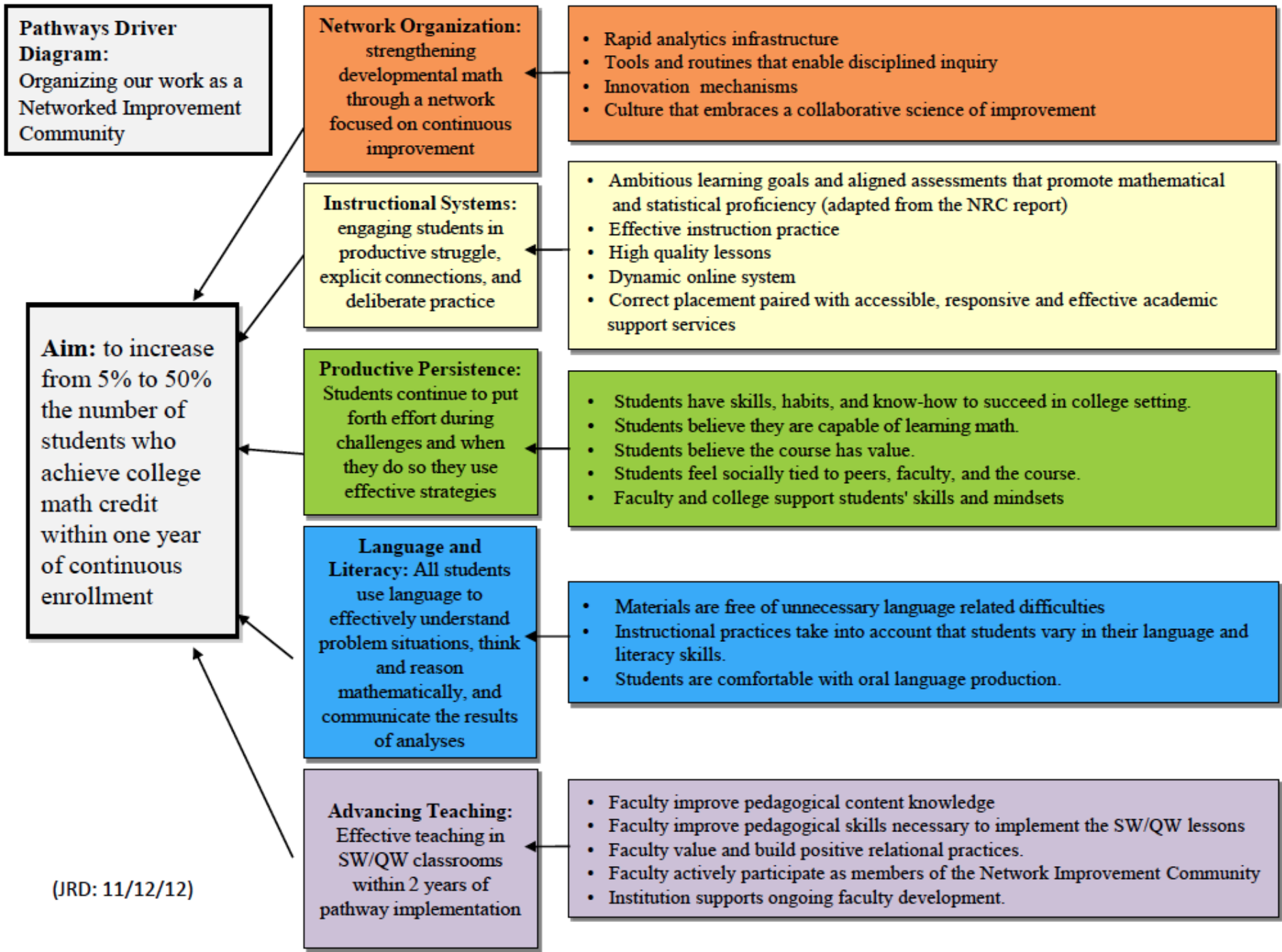
- The problems that research-practice partnerships address are jointly negotiated.
 - Neither researchers' nor practitioners' initial ideas about the problem are a sufficient basis for partnership.
 - Each stakeholder is likely to have a different perspective on what's important, depending on their role.
 - Joint negotiation benefits from systematic analysis.



Example: Driver Diagram

- Used as a tool by Carnegie Foundation for the Advancement of Teaching
- Facilitates identification of:
 - A specific goal or aim
 - Primary drivers are strategies that are sufficient to meet the aim or goal
 - Secondary drivers help move the primary drivers





(JRD: 11/12/12)

Other Tools for Negotiation

- “Five Whys” Technique (a way to generate a Driver Diagram)
- Rapid ethnography: Getting smart about variation in contexts
- Developing personas: Building empathy for different kinds of participants in activity

<http://learndbir.org/bundles/co-design-tools>



Big Idea 2: Negotiation is Ongoing

- Partnership activity produces new dilemmas and problems of practice.
- Partnerships develop in changing contexts:
 - Changing policy environment
 - Changing funding environment
 - Changing people
- Partnerships benefit from routines and practices for:
 - Periodically reviewing the focal problems
 - Collaborative design
 - Managing and reviewing progress of the partnership itself.



Example: Adopting a stance

- Continued attention to individual stakeholder needs (problems), as well as the joint partnership problems
 - “What’s in it for you, and how does our partnership help you with that?”
- Delivery on clear, individual commitments to important problems AND practices
 - Continued specification of individual commitments to focal problems (of practice)
 - Continued specification of individual commitments to focal practices
 - Under-promise, over deliver... but be sure to deliver



Example: Team Structures of PSEP

(an R+P adaptation site)

Leadership Team

Meets quarterly to monitor and set course

- Evaluation of feedback
- Recommendations to sub teams
- Institutional issues (external)
- State science updates
- Long-term sustainability
- Prioritization of team learning needs



Explicitly organize meeting agendas around these topics

PD Design Team

Core Design Team

Other Sub Teams

Website/resources

STEM Professionals

Evaluation

Project Learning Team

Leadership and Core Design Teams must include members from each institution and include the voices of each stakeholder

Big Idea 3: Inclusion

- Power and authority dynamics are a part of every partnership.
- In a multi-leveled system like a school district, include people at each level.
- Organizing a partnership for equitable participation requires a consideration of:
 - Who is usually at the table in designing policies and programs?
 - Who has a stake in our proposed work?
 - How can people whose voices are usually not heard be amplified in the process?



Example: AIC Partnership

Consideration	How Manifest
Leadership and key stakeholders	Native people as educators Inclusion of elders as advisors
Governance	Community helps to shape the research agenda, selects staff, manage budget
Values	Respect for traditions for relating to land as relevant to science learning
Norms for interaction	Purposefully hybrid forms of science and traditional meeting spaces

Source: Bang, M., Medin, D., Washinawatok, K., & Chapman, S. (2010). Innovations in culturally based science education through partnerships and community. In M. S. Khine & M. I. Saleh (Eds.), *New science of learning: Cognition, computers, and collaboration in education* (pp. 569-592). New York, NY: Springer.



Big Idea 4: Anticipate the “Counter-Normative”

- Because many of the roles are unfamiliar to everyone, many aspects of a partnership are counter to norms and cultures of both researchers and practitioners.
- The leadership of partnerships needs to anticipate ways that people will feel challenged by new roles and prepare them (as best as possible) for them.



Example: Mentoring new partners

- The hard work of building a joint partnership does not end after things start humming along
- Even long-standing partnerships between institutions have turnover in individual people, and new members must be mentored and coached into the partnership
- On the following slide, I'll share a brief email as an example of an instance of mentoring, highlighting how you can attend to new members



Subject: you get the gist...

...of what I'm saying to the [University] folks about PD. Don't be shy about respectfully pushing them to focus through a teaching lens for PD (have clear objectives, appropriate activities that support learning, and assessment). Don't stress about too much landing on your plate—they should be able to develop activities for Tuesday. I know you'll take on whatever you can, but you will be helping everyone a lot by just refocusing them in your conversation later today. Txt me if you want to talk at all tomorrow.



Possible Questions for Discussion

- What are some challenges to negotiating the focus of joint work in a research-practice partnership?
- What are some ways partnerships have successfully re-negotiated the focus of joint work?
- How can partnerships successfully include young people, families, and community members in negotiating the focus of joint work?

