Building Capacity for Research-Practice Partnerships

Needs and Strategies

This report presents findings from workshops sponsored by the R+P Collaboratory, an NSF-funded project that develops and tests new models for integrating research and practice perspectives for the improvement of science and mathematics education.
How can we build capacity for educators and researchers to work together in research-practice partnerships?

Improving STEM education in and out of schools depends on the collaborative efforts of educators, policy makers, education researchers, and community leaders. One promising strategy for structuring such collaborations is research-practice partnerships (RPPs) that bring researchers and educators together for sustained joint work around a key problem of practice of mutual concern.

In June 2014, the Research + Practice (R+P) Collaboratory held two workshops focused on building capacity for research-practice partnerships in conjunction with the 11th International Conference of the Learning Sciences. One workshop brought together active partnerships focused on STEM education to identify strategies and needs. A second workshop engaged doctoral student and early career researchers in activities designed to develop the skills and dispositions needed for messy but productive collaborative work.

In conjunction with the 11th International Conference of the Learning Sciences, the Research + Practice Collaboratory held workshops for active research-practice partnerships, doctoral students and early career researchers focused on building partnership capacity.
What tools and routines help partnerships organize co-design and sustain their work?

The Active Research-Practice Partnerships workshop comprised 62 participants from 11 partnerships (each of which included at least one educator and one researcher). The partnerships focused on a wide range of challenges in STEM education, from improving linkages between formal and informal science learning opportunities, to supporting implementation of high-quality mathematics instruction at scale, to developing strategies to help Indigenous youth engage in culturally sustaining science education.

Nearly all were mature partnerships that had been operating for some years across multiple grants/projects. This meant that the participants came ready to learn from the workshop leaders as well as from each other, with a shared goal of developing resources that might benefit people working in various types of partnerships.

The workshop focused on developing “tools and routines” in order to address partnerships’ challenges in bringing together diverse stakeholders to develop common aims and improvement strategies. Tools and routines can help partnerships identify common values, root causes of problems, and key drivers of improvement. They can also help partnerships organize for equitable participation in design and research.

Participants developed key tools and routines for:

1. Negotiating the focus of joint work
2. Using evidence to inform iterative design
Themes and Outcomes from Workshop 1

At the workshop, groups formed to develop strategies and tools for promoting equitable participation in partnerships. For each strategy or tool, the group named challenges in STEM education that would be addressed, the key purposes and uses of the tool, and a brief scenario in which the tool would be used. By the end of the workshop, participants had developed templates for tools that they believed could benefit partnerships like their own in addressing these challenges. Two key themes emerged.

The need for early and ongoing attention to equity

There was widespread agreement that partnerships need to commit to equitable participation in activities to set goals, identify focal problems of practice, and design solutions to those problems. This means asking: Who needs to be at the table as we decide on a challenge to focus on in our shared work? How do we involve families or youth in developing initiatives for youth engagement in STEM? How do we make sure the agendas and perspectives of partners and researchers are given equal consideration?

The need for tools and routines that make joint work possible and productive

The workshop also focused on identifying the specific kinds of strategies and tools partnerships can develop to support their work. For example, what are organizational routines that a partnership with a large school district can create to support teacher learning (beyond traditional professional development)? What kinds of tools and formats facilitate sharing the message of the partnership with a wide variety of audiences? How can partnerships engage youth and students in the work of RPPs?

There is a clear need to continue to develop, test, and share tools, routines, and measures across partnerships. Participants shared existing tools from their partnerships and generated new ideas for tool development.

Next steps

Due to participants’ expressed enthusiasm for more tools, the R+P Collaboratory is supporting partnerships in further developing tool ideas that emerged from their groups. Three groups submitted proposals to the CU R+P Collaboratory team and received funding to attend two-day working meetings focused on this aim.
How can we prepare researchers for partnership work?

Engaging in partnership requires researchers to have skills and dispositions that are not readily taught in graduate school. In the Preparing Early Career Researchers for Research-Practice Partnerships workshop, we explored what doctoral students and early career scholars in education research need to learn to engage in the complicated work of participating in lasting collaborations with educators.

All early career and doctoral student participants in the workshop shared a commitment to working closely with educators and educational leaders but had varied levels of experience in doing so. Five mentors with deep research-practice partnership experience participated in panel discussions about the value, benefits, and challenges of working collaboratively from the perspectives of researchers, educators and policy makers.

The workshop provided opportunities for participants to interact with peers and with both educator- and researcher-mentors about their career trajectories. In addition, there were structured activities focused on helping participants develop multiple ways to represent their work in ways that would appeal to teachers, district leaders, informal science educators, and science center leaders.

Themes and Outcomes from Workshop 2

The early career researchers expressed great enthusiasm for partnership work. Participants came to the workshop committed to doing research that was collaborative and relevant to educators and educational leaders, and they found the activities and mentorship valuable. The workshop was designed as a mix of panels that shared stories of successes and challenges of partnering, and workshop time, focused on the research interests and strategies of participants.

The workshop helped participants think through their areas of focus from the perspectives of groups of educators across multiple roles who care about the same issues, and emphasized the value of being able to name and pursue research interests in ways that are recognizable and relevant to educators. Early career researchers also learned about writing and publishing research that is conducted collaboratively. Participants were able to bring what they learned from the workshop into their own work.

Assistant Professor June Ahn (University of Maryland) shared, “I applied for a Researcher-Practitioner Partnership grant from IES this year for my partnership work with the Washington, DC Public School system and their blended learning initiative. I had been working with DCPS for a year prior, and we presented our project at the early career RPP workshop at ICLS. The workshop was really instrumental in helping me reframe our partnership to be a true partnership—thinking through the day to day collaborative activities we'd need to do beyond just research—and helped us revise and improve our IES grant application.”
RPP Working Group Meetings

Three working group meetings emerged from the Research-Practice Partnerships workshop

Creating Small Measures for Improvement (December 2014; San Francisco, CA)

RPPs that aim to improve the quality of classroom instruction and student learning face a lack of available measures—most of which have been developed for purposes related to research purposes rather than for improvement in the context of ongoing researcher-practitioner collaborations.

During the RPP workshop, a group of mathematics education researchers and practitioners convened to think through how to identify precise, focused improvement goals and how to create measures to monitor progress towards these goals. Group members referred to these as “small measures” to differentiate them from measures developed for research purposes that are often demanding for participants and require extensive data analysis.

The group proposed a working meeting to collectively develop “small measures” specific to students’ participation in math discussions and associated data collection and analysis routines that can be used across partnerships. Group members are testing and refining the measures and piloting the data collection and analysis routines developed.

Building Equity into Research + Practice Collaboration Efforts (May 2015; San Francisco, CA)

The concept of “equity” is inherent in the purpose of RPPs in that such partnerships challenge traditional norms and hierarchies among researchers and practitioners. Furthermore, many educational projects are focused on advancing equitable learning opportunities for students, teachers, and families. Yet a shared understanding of why or how to build equity into RPPs is not necessarily present in all partnership work.

During the RPP workshop, participants acknowledged that “building equity” into RPPs requires challenging assumptions about designing research endeavors. Some questions that arose include: Who defines the research questions? Who should be “at the table” during research discussions? Whose professional language is used in discussions? Who defines program success? Whose knowledge bases are being privileged? Whose social, historical and cultural contexts are being recognized?

One small group that formed at the workshop is developing a tool to help facilitate inclusion of all perspectives “at the table,” addressing how equity can be built into partnership efforts from the start. This tool will support partners in defining equity from their professional experiences and/or sharing their understandings about what is important about equity in research-practice collaboration. It will also help to identify important norms for communication as partners develop a shared language around definitions, research, theories, and personal experiences with the concept of “equity.” This can surface personal values and assumptions in a respectful manner, ensuring that all partners’ perspectives are built into the foundation for collaborative work.

A Playbook for Research-Practice Partnerships (June 2015; Seattle, WA)

Research-practice partnerships that take a design-based implementation research (DBIR) approach must attend to mission-critical processes, namely, establishing a shared problem to work on, co-designing so that the designed product has better utility, and sustaining the partnership and its initiatives. The organizers of this working group meeting believe that an RPP will have a better chance of succeeding with attention to these aspects of DBIR work. They have therefore proposed to develop a “playbook” for RPPs that are organized around DBIR efforts.

In the world of football, a playbook is a notebook containing descriptions of all the plays and strategies used by a team. More informally, it refers to “any plan or set of strategies, as for outlining a campaign in business or politics.” This metaphor is relevant, as the group plans to create a material tool that describes strategies and processes for establishing and engaging in the work of DBIR.

The playbook will focus on partnerships that involve university researchers and school district personnel and the redesign of curriculum and teaching toward educational improvement. The tool will be derived from the team’s experiences and insights from 8+ years of working together to redesign STEM learning environments in ways that align with the Next Generation Science Standards and positively impact social, emotional and learning outcomes for students and teachers.
Workshop Participants

The ideas presented in this report are the products of intellectual exchange among the following educators, educational leaders, and researchers.

ACTIVE PARTNERSHIPS WORKSHOP

**Workshop Leaders**
Philip Bell (University of Washington) & Bill Penuel (CU-Boulder)

**Participating Partnerships**
Bellevue School District-University of Washington (UW)
Partnership: Greg Bianchi and Angie DiLoreto (Bellevue SD); Nancy Vye (UW)

California Tinkering Afterschool Network (CTAN): Meg Escudé, Jean Ryoo, Molly Shea, and Shirin Vossoughi (Exploratorium); Emilyn Green (Community Science Workshop Network); Linda Kekelis (Techbridge); Paul Pooler (Discovery Science Center)

Colorado State University (CSU) Writing Project: Antero Garcia and Cindy O’Donnell-Allen (CSU); Bud Hunt (St. Vrain Valley SD)

GET City: Angela Calabrese Barton (Michigan State U); Carmen Turner (Boys & Girls Club of Lansing, MI)

Hive Research Lab: Dixie Ching and Chris Hoadley (NYU); Leah Gilliam (Hive NYC), Rafi Santo (Hive Research Lab); Kylie Peppler (Indiana U)

Inquiry Hub: Raymond Johnson, Heather Leary, Bill Penuel, Sam Severance, and Tamara Sumner (CU-Boulder); Patricia Kincaid (Denver Public Schools)

Maine Adaptation Site: Pamela Buffington and Josephine Louie (EDC); Shannon Larsen (University of Maine); Mike Muir (Main Department of Education)

Middle-school Mathematics and the Institutional Setting of Teaching (MIST): Paul Cobb and Erin Henrick (Vanderbilt U); Kara Jackson (UW); Michael Sorum (Fort Worth School District); Tim Truitt (Jefferson County Public Schools, KY)

Professional Associations Network: Ted Willard (NGSS@NSTA)
Partnership for Science & Engineering Practices: Philip Bell (UW); Daniel Gallagher (Seattle Public Schools)

Rebuilding Relations: Native Science Education: Megan Bang (UW); Lori Faber (Northwestern U & American Indian Center of Chicago); Jasmine Gurnee and Ananda Marin (Northwestern)

Strategic Education Research Partnership (SERP): Hilda Borko (Stanford); Phil Daro and Suzanne Donovan (SERP); James Ryan (San Francisco Unified School District)

Synergies: Deb Bailey, Lynn Dierking, John Falk, and Nancy Staus (Oregon State U); Karin Malbrough (Girls, Inc. of the Pacific Northwest); Stacey Sowders (Oregon State U Extension 4-H Youth Development Program)

Collaboratory Evaluators
- Jenifer Helms and Mark St. John (Inverness Research; Tim Podkul (SRI International)

EARLY CAREER WORKSHOP

**Workshop Leaders**
Bronwyn Bevan (Exploratorium) & Andrew Shouse (UW)

**Mentors**
- Kris Gutiérrez (UC Berkeley); Tricia Harding (Oregon State U); April Luehmann (U of Rochester); Ben Kirshner (CU-Boulder); Matt Krehbiel (Council of State Science Supervisors)

**Early Career**
- June Ahn (U of Maryland); Haiwen Chu (WestEd); Sameer Honwad (NYU); Nan Renner (San Diego Incubator for Innovation); Richard West (Brigham Young U)

**Doctoral Students**
- Daniel Ginsberg (Georgetown U); Florencia Gomez (U of Michigan); Sara Heredia (CU-Boulder); Emily Lin (Tufts U); Breanne Lits (UW-Madison); Cathy Tran (UC-Irvine)

WORKSHOP COORDINATORS
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Key Research Resources


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