

Mutual Learning at the Boundaries of Research and Practice: A Framework for Understanding Research-Practice Partnerships

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Abstract: Given the rapid growth of research-practices partnerships (RPPs), we need a framework that helps the field understand how RPPs can facilitate mutual learning for those involved. Drawing on both cultural-historical and organizational learning theories, we argue that learning can happen in RPPs for both researchers and practitioners at the boundaries of research and practice. The conditions for learning depend on the development of boundary spanners, practices, and objects that facilitate joint work. Engaging productively at the boundaries of is moderated by the prior conditions of educational organizations and their research partners. Where mutual learning occurs at the boundaries, we are more likely to see changes in collective knowledge, policies, and routines for participating organizations.

Introduction

Research-practice partnerships (RPPs) are long-term collaborations that aim to promote educational improvement and transformation through the production and use of research (Farrell, Penuel, Daniel, Steup, & Coburn, 2020). Though they have gained in popularity in recent years, significant gaps remain in our understanding of their dynamics and outcomes (Coburn & Penuel, 2016). Addressing these gaps is important because there are significant challenges in developing and maintaining partnerships. Not all partnerships create the conditions needed for mutual learning of RPP participants or longer-term organizational change (Cohen-Vogel et al., 2018; Farrell et al., 2018).

Here, we present a conceptual framework that helps the field understand how RPPs can create conditions that support mutual learning. Drawing on both cultural-historical and organizational learning theories, we argue that learning can happen in RPPs for both researchers and practitioners at the boundaries of research and practice. The conditions for learning depend on the development of a set of hybrid practices, objects, and roles that facilitate joint work. Engaging productively in these practices is moderated by the prior capacity of educational organizations and research partners. When partnering is productive, it increases the likelihood that participating organizations experience organizational learning outcomes. This framework is a useful tool for those looking to start or maintain a partnership, as well as a resource to develop testable propositions that can guide future research.

RPPs as a strategy for educational improvement efforts locally and at scale

Many worry that the innovations from educational research have a limited impact on the lives of educators, students, and families (National Research Council, 2012). Studies have shown engagement, interaction, and sensemaking around research ideas are important for the degree to which they are used in practice (Johnson et al., 2009). Partnerships between practitioners and researchers can help improve the relevance of research by focusing on questions of concern to educators and communities (National Research Council, 2012). In recent years, major investments from federal government and private foundations have helped grow the number of RPPs (Arce-Trigatti, Chukhray, & Lopez-Turley, 2018).

Though the evidence of impact of RPPs is small, it is growing. RPPs can support the design of interventions that improve student achievement (Booth et al., 2015), support more equitable participation in classroom learning (O'Connor, Michaels, & Chapin, 2015), and enhance the quality of teaching (Penuel et al., 2017). Research shared from an RPP can also contribute to shifts in district routines and policies (Farrell, Coburn, & Chong, 2019) and support implementation of those policies in schools and classrooms (Henrick, Klafehn, & Cobb, 2018). Yet, RPPs can face significant challenges in their work, including leadership turnover, different paces of work, and struggles engaging key decision makers with authority to act on findings (Cohen-Vogel et al., 2018).

Existing conceptual frameworks have limited our ability to understand the conditions under which RPPs are productive. For example, one dominant framework for relating research and practice rests on the metaphor of translation: RPPs are viewed as a means for making it easier for researchers to “translate” research findings into practice. Yet, focusing on translation activities of research is an overly simplistic way to characterize the breadth of activities of an RPP. It does also not account for the multi-directional nature of learning in a partnership, where researchers gain insights from their work with partners (Greenhalgh & Wieringa, 2011). Other frameworks draw on the idea of “two communities” of research and practice (Caplan, 1979). Here, practitioners and researchers are cast as two separate communities that are poorly connected, operate under different rules, speak different languages, and motivated by different rewards systems (Farley-Ripple, May, Karpyn, Tilley, & McDonough, 2018). While this view does account for bidirectional sharing between groups, it does not attend to the organizational conditions that shape researchers and practitioners’ abilities to engage productively in joint efforts or to the fact that many researchers have been and continue to be educators who are familiar with the world of practice, or vice versa (Newman, Cherney, & Head, 2015).

The field needs a framework for understanding how practice and research organizations can create conditions for mutual learning within partnerships, given existing organizational conditions. This is the gap our framework aims to fill. We began with relevant theories from learning sciences and organizational studies. We draw on ideas from cultural-historical accounts of learning (Engeström, Engeström, & Kärkkäinen, 1995; Engeström, Engeström, & Kerosuo, 2003; Suchman, 1994), particularly the ideas of boundaries, boundary practices, and boundary objects (Akkerman & Bakker, 2011; Star, 2010; Star & Griesemer, 1989). We then introduce the idea of absorptive capacity (Cohen & Levinthal, 1990) to understand the conditions under which a partner organization is likely able to learn from partnership interactions, and with what implications for organizational learning outcomes.

Learning at the boundaries of research and practice

We conceptualize joint work in RPPs through the lens of learning at the boundaries of research and practice through boundary practices, objects, and spanning. The existing conditions of the partnering organizations likely influence the encounters at these boundaries, with consequences for organizational learning and the production of relevant research for the field. We explore each of these claims below.

Navigating boundaries of research and practice

While engaged together in an RPP, participants encounter multiple boundaries where the world of research the world of practice meet. Here, boundaries refer to cultural encounters in which participants who need to negotiate differences in terminology, context, practices, or expectations engage with one another, which is likely to engender conflict over roles or understandings (Denner, Bean, Campe, Martinez, & Torres, 2019). The concept of boundaries is a particularly useful one for understanding how cross-organizational, professional collaboration is accomplished (Akkerman & Bakker, 2011; Engeström et al., 1995; Suchman, 1994).

Whether partnerships stall and disband or move forward and are sustained depends on what happens when partners encounter boundaries. Boundaries here refer to sociocultural differences that give rise to “discontinuity in action” or halting of a partnership’s work (Akkerman & Bakker, 2011, p. 133). Though discontinuity implies a threat to a partnership, such moments of discontinuity are fundamentally opportunities for learning for those involved (Engeström, Engeström, & Kärkkäinen, 1995; Spinuzzi, 2011; Wenger, 1998). As partners navigate discontinuities, they may develop new understandings, practices, and identities that transform their work together. When productive, RPP engagements can create opportunities for learning, as people engage with and make meaning of ideas and tools within their own context and based on past experiences (Coburn & Stein, 2010). An RPP’s ability to collaborate and respond to challenges productively is due, in part, to the “boundary infrastructure” (Bowker & Star, 1999), a network of structures or practices that help overcome difficulties. Particular roles (boundary spanners), interaction structures (boundary practices), and artifacts (boundary objects) play roles in supporting partnerships in creating successful conditions for mutual learning.

Boundary spanning

Boundary spanning refers to an individual’s transitions and interactions across different sites of practice (Akkerman & Bakker, 2011). In the case of research–practice partnerships, this might entail a researcher going to a community center to meet with families, or it might involve a district leader trying to map or represent an unfamiliar territory of the district to researchers in the context of a partnership meeting (Penuel, Allen, Farrell, & Coburn, 2015). Individuals who move across boundaries and facilitate connections between groups are called boundary spanners or brokers (Hopkins, Weddle, Gluckman, & Gautsch, 2019; Mull & Adams, 2017). Within a partnership, certain individuals may emerge as boundary spanners, or they may be designated for the role (Levina

& Vaast, 2005). However, boundary spanning can occur outside of an official role. It is the doing or enactment of the roles – or boundary spanning practices – that matter more than an official designation.

Boundary spanners can take a number of actions to facilitate mutual learning in boundary practices (Ansett, 2005; Mull & Adams, 2017). Boundary spanners can help *create social networks*, improving communication pathways within the partnerships. Such pathways facilitate learning because complex ideas about practice that are typically the focus of partnerships' joint work require intensive communication (Hansen, 1999). Boundary spanners can *reframe ideas* from one group into ways others may understand more easily (Penuel & Gallagher, 2017) or help others see how different organizational goals might overlap (Davidson & Penuel, 2019). Boundary spanners may also be a resource for *managing or repairing partnership relationships*, particularly critical when there are missteps or histories of mistrust (Booker, Conaway, & Schwartz, 2019). They can also help *broker connections* to researchers and research beyond the direct partnership (Hopkins et al., 2019).

Boundary practices

Boundary practices are partnership activities that bring together multiple participants from the domains of research and practice. Boundary practices are interactive, hybrid activities that neither partner would typically engage in within their home professional or organizational practice. Boundary practices provide a forum where research-based ideas, tools, and processes enter into educational organizations and where research teams engage with ideas and constraints from practice. Examples of boundary practices in RPP might include co-design meetings (Bell et al., 2016), Plan-Do-Study-Act cycles of networked improvement communities (Russell et al., 2017), or joint meetings where researchers share findings with practitioners (Moeller, Seeskin, & Nagaoka, 2018).

There are several features of boundary practices that may create conditions that support learning within the partnership. First, a boundary practice can be structured in ways that *elicit and make use of relevant perspectives and knowledge of participants*. For example, a design circle involving parents seeking to re-design workshops to promote parent engagement can surface parents' experiences directly about barriers to involvement (Ishimaru & Bang, 2016). Through formally established practices for making expertise visible, participants can bridge what they had brought to the table with the work of the others and come to appreciate the other's unique contributions (Campano, Ghiso, & Welch, 2016). Boundary practices that are designed with explicit attention to differences in social power are may be especially important in an RPP (Bang, Medin, Washinawatok, & Chapman, 2010). Not doing so can unwittingly reinforce inequality among participants and diminish the voices of particular partners (O'Connor, Hanny, & Lewis, 2011).

Second, boundary practices can *establish roles, responsibilities, and expectations* for participants that clarify what is expected of participants and how they can contribute to the activity as a whole (Farrell, Harrison, & Coburn, 2019). Such roles can be specified ahead of time, but they can also emerge as people become more comfortable with participation. When people create expectations and fulfill them, trust can develop, which is essential for productive partnering (Rousseau, Sitkin, Burt, & Camerer, 1998).

Boundary objects

Boundary objects are material and conceptual tools used in a partnership that are critical for joint activity (Akkerman & Bakker, 2011). Something is a boundary object if: a) it serves a *coordination function* between different groups that work in different organizational settings; and b) it *mediates activity* within each organization, albeit differently for each (Star, 2010). Both characteristics—coordination and mediation—are necessary for something to function as a boundary object that can develop and maintain coherence across intersecting groups (Bowker & Star, 1999). Boundary objects can also serve to make aspects of partners' *practices and expertise visible*, and it can carry some of the meaning of other settings with it within a partnership.

An example of a boundary object and its functions within an RPP comes from Johnson et al. (2016). Here, researchers, teachers, and districts leaders together engaged around a set of mathematics tasks and associated rubrics which served as a boundary object. For teachers, the tasks and their analysis functioned as resources to support student learning. For district leaders, the tasks and their analyses were a means to help teachers understand new standards. To the researchers, educators' analysis of the tasks and subsequent professional development was a line of research to which they could contribute. Initially, the tasks were rated using a researcher-developed task rubric which the teachers were expected to use, but most did not. Therefore, it ran the risk of serving as a "boundary roadblock" (Carlile, 2002). Eventually, though, the rubric did serve to coordinate and mediate activities, thus becoming a boundary object in use, once the practitioners adapted it to their local needs. Other examples of possible boundary objects central to RPPs might include on-track indicator reports (Allensworth, 2013), visual diagrams that represent a partnership's theory of change (Thompson et al., 2019), or co-designed classroom materials (Kwon, Wardrip, & Gomez, 2014).

Organizational conditions that support learning at the boundaries

Not all practice or research teams are equally positioned to engage productively in the learning opportunities at the boundaries of research and practice. Organizational theory, particularly the concept of “absorptive capacity,” provides some useful ideas to help us understand what kinds of conditions are necessary to support mutual learning at boundaries. Scholars Cohen and Levinthal (1990) introduced the idea of absorptive capacity, describing it as an organization’s “ability to recognize the value of new information, assimilate it, and apply it” (p. 128).

Here, absorptive capacity refers to an organization’s ability to learn productively from its interactions with external partners (Farrell & Coburn, 2017; Farrell, Coburn, et al., 2019). Although the term “absorptive capacity” may suggest a metaphor of unidirectional knowledge “absorption,” we conceptualize absorptive capacity in interactive terms. In other words, it involves making sense of information and construct new knowledge through activity and social interaction within boundary practices (Lane, Koka, & Pathak, 2006; Zahra & George, 2002), engaging relevant prior knowledge, communicating internally, strategic knowledge leadership practice, and mobilization of resources. These conditions likely matter for all partners in an RPP.

Engaging relevant prior knowledge

Educational systems are complex systems, and people’s positions within those systems give them a particular view of problems and opportunities for change (Campano et al., 2016). The degree to which engagement in an RPP supports learning depends, in part, on the knowledge, expertise, and perspectives participants bring to the interactions (Cohen & Levinthal, 1990; Szulanski, 1996). Relevant prior knowledge is critical, as knowing something about a given issue enables an organization to better discern the value of knowledge from partners and be able to incorporate it into practices. This is not any and all expertise on the part of the partner(s), but instead, the knowledge or expertise relevant to the goal(s) of the partnership. The potential for learning is greatest when knowledge resources from the educational organization and research partner are complementary, that is, similar enough to enable communication and facilitate learning but dissimilar enough so that there is value to the partnership (Cohen & Levinthal, 1990).

Available expertise in the partnership matters for mutual learning at the boundaries for several reasons. First, the nature and complementarity of prior knowledge shapes the ability of RPP members to engage in joint work at the boundaries. For instance, the degree of complementarity may also be important for productive work together. Too much overlap in expertise, and there may be little for groups to learn from one another. If there is a wide distance between the sources of expertise, however, RPP members may struggle to span boundaries effectively. Interpretations of shared tools may be too divergent to serve as an effective boundary object. Or, divergent knowledge sources may require more extensive or elaborated boundary work to make explicit expertise to support shared learning.

Engaging in internal communication

The communication pathways within partner organizations matter for the potential for learning at the boundaries of research and practice. First, communication pathways within organizations can influence the expertise available to the partnership. For example, in a school district with highly siloed departments that do not communicate frequently, the RPP may have limited access to perspectives to inform the problem at hand – particularly an issue when the partnership’s focus requires multiple perspectives. In contrast, strong within-organization communication may better at ensuring there are relevant sources of expertise and perspectives in the boundary practice. Internal communication pathways can also support the representation of others’ perspectives even if they cannot be direct participants in the boundary practice.

Strong internal communication pathways within organizations can also play a role in supporting successful boundary spanning across partner organizations. What makes someone a good boundary spanner is not just that they have extensive ties to the outside organization but also strong ties within the organization to others (Tushman & Scanlan, 1981). People with strong internal ties who play boundary spanning roles can help with work at the boundaries because it facilitates their knowledge of the work or perspectives of different team members. Conversely, people with weak internal ties may be unaware of the activities of others, leading to missed opportunities for boundary crossing work within the RPP.

Strategic knowledge leadership practice

RPP leaders set an RPP in motion and provide important oversight both within and beyond the partnership. A specific type of leadership, strategic knowledge leadership (SKL), is key to these efforts (Van den Bosch, Volberda, & de Boer, 1999; Volberda et al., 2010). Dimensions from past studies of strategic knowledge leadership in RPPs include 1) assessing current internal expertise, identifying gaps or potential opportunities, and scan the field for available partners; 2) designing boundary practices; 3) creating or supporting communication

pathways that make that expertise available to the partnership; and 4) anticipating how knowledge from the partnership can connect to current routines, policies, or practices with the organizational setting (Farrell & Coburn, 2017; Farrell, Coburn, et al., 2019).

SKL practice likely matters for RPP members' ability to engage productively in boundary practices. First, strategic knowledge leadership is involved in launching partnerships before boundary practices can begin in earnest. In an RPP, this might involve having a sense of available expertise in their own organization and identifying partners who may have complementary knowledge. Then, SKL can play a role in the authorization, design, or refinement of boundary practices (Farrell, Coburn & Chong, 2018). The design of boundary practices can create different opportunities for surfacing and synthesizing different areas of expertise and knowledge (Potvin, Kaplan, Boardman, & Polman, 2018).

SKL practice and boundary spanning are also interrelated. Because SKL involves attending to the expertise available to the partnership, a leader with SKL may be effective in acting as a boundary spanner by linking different stakeholders together or helping to build connections between participating organizations to expand available sources of knowledge. This can involve identifying gaps of available expertise and bring other perspectives to the partnership when necessary or in replacing people when they leave the partnership.

Mobilization of resources

Partnerships require organizational resources – budget, time, staffing, materials – to engage productively at the boundaries of research and practice. The work of developing and engaging in boundary practices require devoting a budget that supports the time of key stakeholders. In some cases, resources support dedicated staff to support coordination of boundary practices or to serve in boundary spanning roles. Resources can also be required to the develop or sharing boundary objects integral to the work. When partners underestimate the resources needed, interactions, it can undermine the effectiveness of work at the boundaries, particularly if boundary spanning work is seen as additional to RPP members' current responsibilities (López-Turley & Stevens, 2015).

Outcomes of mutual learning at the boundaries

We draw on organizational learning theory to broadly conceptualize the outcomes that result from the mutual learning in RPPs. We focus on outcomes at the organizational level as they could potentially outlast the learning of any individual educator or researcher. Organizational learning is the degree to which a participating organization integrates ideas from their RPP into collective knowledge, routines, and policies that guide their organization's behavior (Feldman and March 1981; Levinthal and March 1981; Levitt and March 1988; March 1991). We hypothesize that both practice and research organizations can demonstrate organizational learning as a consequence of mutual learning in RPPs.

Shifts in collective knowledge

Mutual learning at the boundaries of research and practice might involve *shifts in collective knowledge*. Levitt and March (1988) argued that one of the most powerful consequences of engagement with new ideas and experiences is the “transformation of the givens,” or the “redefinition of events, alternatives, and concepts” (p. 324). For example, researchers stand to gain new collective understandings about the issues in education, based on the on-the-ground conditions and implementation challenges (Cohen-Vogel et al., 2015). Researchers may acquire new collective understandings around partnering, and what it takes to do the work of partnering with their practice organization (Holmqvist, 2003; Larsson, Bengtsson, Henriksson, & Sparks, 1998). Similarly, educators may gain new ideas about the issues in education. For instance, Coburn et al. (2008) described how one partnership shifted district leaders' thinking around professional development – from one-time trainings to professional development that was ongoing and situated in day-to-day work.

Shifts in organizational policies or routines

Learning at the boundaries could contribute to *shifts in the organizations' policies or routines*. We define policy broadly, including formal policies as well as rules, plans, and guidelines. In the case described above, the organizational learning for the educational organization went beyond new collective understandings about professional development (Coburn et al. 2008); the district also changed its policy regarding teacher professional learning. Instead of a series of workshops throughout the year intended to provide follow up for intensive institutes in the summer, the district leadership reconfigured the calendar so that students had a late arrival four times during the year to allow for time during the school day for ongoing, situated professional development. For research organizations, while a research organization may adjust hiring or evaluation policies to honor partnership efforts. Research organizations can create new routines for co-presenting with their practice partners (Penuel & Gallagher,

2017). Others create new roles that help with facilitating learning at the boundaries (Kim, Shen, & Wentworth, 2019).

Conclusions

Given the rapid growth of RPPs and wide variety in their impact, we need to learn more about the processes and structures through which RPPs operate, and how differences in these processes facilitate or impede learning outcomes. Specifically, we bring together theorizing on the mechanisms through which learning at the boundaries of research and practice occurs, with attention to the organizational conditions that shape researchers and practitioners' abilities to engage productively in joint efforts. In doing so, we pave the way for important comparative work that will hopefully illuminate whether and under what conditions RPPs can foster educational improvements locally and at scale.

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