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MESSY, SPRAWLING, AND OPEN

Research-Practice Partnership Methodologies for Working in Distributed Inter-Organizational Networks

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Research-practice partnerships (RPPs) increasingly operate within multi-organizational networks, a trend with important implications for how common RPP practices are structured and enacted. Such networks include collective impact efforts that span actors across sectors (Kania & Kramer, 2011) and informal STEM and digital learning ecosystems that involve collectives of out-of-school providers (Akiva, Kehoe, & Schunn, 2017; Ching, Santo, Hoadley, & Peppler, 2016; Penuel, Clark, & Bevan, 2016). Many such networks are organized as or participate in RPPs that operate differently from partnerships that focus on a single school, district, or community organization.

In this chapter, we offer methodological strategies for *distributed RPPs* that operate in such multi-organizational, nonhierarchical contexts. We draw on lessons from an RPP involving the Mozilla Hive NYC Learning Network, a collective of over 70 informal educational organizations committed to experimentation with digitally inspired pedagogies, and Hive Research Lab, a university group led by the authors of this chapter, researchers from Indiana University and New York University.

The chapter centers on key dynamics of distributed RPPs. We see distributed organizational networks as requiring specialized routines but also providing new ways to engage in joint work. We explore four aspects of RPPs as they play out in a networked context: (1) negotiating the focus of joint work, (2) *the nature of problems* addressed within joint work, (3) building collective orientation toward the focus of joint work, and (4) engaging in collaborative design and knowledge building around problems of practice associated with joint work.

Hive NYC: A Distributed Network of Informal Learning Organizations

Founded in 2009, Hive NYC was the first of several Hive learning networks stewarded by the Mozilla Foundation with funding from the John D. and Catherine T. MacArthur foundation. It describes itself as

> a city-wide laboratory for educators, technologists and mentors to design innovative, connected educational experiences for youth. . . . Together, they create an ecosystem of equitable and accessible education opportunities for young people to explore their interests and develop skills that prepare them for success in the digital information age.
>
> *(HiveNYC.org, March 2017)*

This description encompasses two functions used to describe Hive networks. On the one hand, they are *networks that learn*—organizations learn from and collaborate with one another in order to create new educational initiatives and collectively advance communal expertise around informal learning and digital media. On the other hand, they are *networks for learning*—part of a broad ecosystem of learning experiences made available to young people to support their long-term learning trajectories across multiple institutions.[1]

Hive NYC's more than 70 informal learning institutions are diverse in terms of their missions, organizational forms, size, expertise, and age. Members include cultural institutions such as the American Museum of Natural History and Carnegie Hall, the major library systems in New York City, grassroots community-based organizations, and other youth-serving nonprofits with specialized approaches to learning. Diverse pedagogical expertise is present in the network in areas such as informal science, maker education, web and game design, filmmaking, journalism, youth organizing and civic engagement, media and digital literacies, and computer programming and physical computing. This diverse collective of organizations shares a common interest in serving youth and experimenting with digitally oriented pedagogies. There is also a common focus on giving youth opportunities to engage in learning that is driven by interest; centers on creativity, tinkering, and production; and is accomplished collaboratively with peers and mentors, aligning broadly with ideas of connected learning (Ito et al., 2013) and constructionism (Papert, 1980).

Beyond the membership of the network, an important aspect of Hive NYC is its stewardship by the Mozilla Foundation. In 2010, the Mozilla Foundation, best known for designing the open-source Firefox web browser, launched an educational initiative focused on digital technology and, in particular, web literacy, which it sees as critical for maintaining the internet as an open public resource. Hive learning networks represent contexts for developing new approaches to achieving this mission of mobilizing educators around digital literacy.

Within Hive NYC, Mozilla staff facilitate a wide range of activities that bring network members together. Many of these are in-person events, such as community meetings, professional development workshops, happy hours, and all-day collaborative youth-facing learning events called *pop-ups*. Others are virtual—a community listserv where members and Hive staffers can share information and announce various opportunities, a public blog where both network stewards and members share reflections more publicly, an online member directory that contains points of contact and specialties, and an online portfolio space where organizations can document and share resources relating to specific youth-facing initiatives they've developed. Finally, for most of its history the network has had an associated funding body, a collaborative donor fund called the Hive Digital Media and Learning Fund, which was founded through the support of the MacArthur Foundation. The fund issues biannual requests for proposals to support collaborative initiatives among member organizations, an important aspect of the network that provided resources supporting experimental projects among network members. Opportunities to receive funding also created conditions necessary for institutional buy-in to the network so that members could participate, share, and learn across the Hive.

Distributed Inter-Organizational Networks as RPP Contexts

We characterize Hive NYC Learning Network as a *distributed inter-organizational network*, defined by Russell, Meredith, Childs, Stein, and Prine (2015) as

> an arrangement of public and private organizations, agencies, and departments that have been explicitly constituted to facilitate collective action . . . [in which] . . . at least a portion of the interactions among actors in the network are framed in terms of something other than superior—subordinate relations (as in traditional hierarchy), including fee-for-service contracts and voluntary partnerships.
>
> *(p. 93)*

In discussing distributed inter-organizational networks, we focus on several characteristics that we see as making these distinct as RPP sites. Most importantly, the context contains multiple organizations as opposed to a single organization. Additionally, there is not a centralized organizational hierarchy or explicit line of authority, accountability, and reporting among the actors in the network—participation is voluntary, as are partnerships formed between organizations within it. However, issues of power—and competition—do exist. For Hive NYC, funding opportunities available via network participation were a powerful motivator and created something of a hierarchy between funders and members. Still, we saw the network's power dynamics as flatter than those of schools and school

districts, enabling more equal collaboration among partners with complementary expertise. Throughout this chapter, we will explore how these characteristics of a distributed RPP context intersected with the ways that joint work unfolded between researchers and practitioners in Hive NYC.

RPP Activities Reframed Within Distributed Inter-Organizational Networks

In this section, we describe how many of the core activities in which RPPs engage have played out in our partnership and how these reflect working in a distributed inter-organizational network. We address four areas relevant to RPPs: (1) negotiating the focus of joint work, (2) defining the nature of problems addressed within joint work, (3) building collective orientation toward the focus of joint work, and (4) engaging in collaborative design and knowledge building around problems of practice associated with joint work.

How Does a Distributed Network Decide on the Focus of Joint Work?

One of the central questions of RPPs is "What is it, exactly, that we should be doing together?" This issue is often framed in terms of negotiation and deliberation, since *partnership* implies that no single actor decides the focus of work. The commitment to mutualism (Coburn, Penuel, & Geil, 2013) and to focusing on persistent problems of practice from multiple stakeholders' perspectives (Penuel, Fishman, Cheng, & Sabelli, 2011, p. 332) means that moments when decisions are made regarding the focus of joint work must be engaged with care and intentionality, and ideally, use deliberate strategies that involve many actors.

In the context of distributed RPPs, approaching this task of negotiating joint work presented some unique challenges. Convening all members of the RPP was logistically intractable. We needed to expect that different members would have different degrees of engagement, and there was also the issue of how to solicit equitable representation and voice. Broadly, we were faced with questions of who decides the focus of joint work when stakeholders are spread across a large set of organizational and institutional contexts and how we might approach this issue, given that actors in this context were not organized by traditional hierarchies and decision-making routines.

An Example From Hive NYC: From Consensus to Counsel

We present an example of how our project determined the initial focus of joint work through a network field scan approach begun in the summer of 2012. At the time, Hive NYC had been in existence for a little over three years, and network stewards at Mozilla and funders at the Hive Digital Media and Learning Fund

were beginning to consider how research might play a role in the Hive. They wanted to know what burning questions stakeholders had that, if answered, could improve work at various levels.

At the time, two members of the research team, both of whom had previously been members of the Hive network, were engaged in our doctoral studies. Each of us had maintained our relationship with the Hive, and we also had aligned research interests. We were thus approached by Mozilla with an open-ended request: to engage in a network-wide field scan to find out what member and stakeholder needs were and what role research might play in strengthening the network.

The field scan used a straightforward set of methodological tools. We conducted dozens of interviews with stakeholders, including members, stewards, and funders. We conducted field observations at network events and in members' youth-serving programs. We held open roundtables where members brainstormed research needs. Informed by these broader data collection events, we then designed a network-wide survey to find out where our research might have the greatest interest and impact.

We heard a wide range of desires and needs: What makes for a successful partnership between members? What were teens up to on social media that could impact mentorship and afterschool program design? What community-based issues should members address in their work? How does an organization sustain a new line of work after it's been catalyzed through network funding?

We identified dozens of potential lines of inquiry, serving different needs. Many concerns of network stewards and funders related to the network's impact on organizations and youth. They wanted to know whether it was accomplishing the goal of being an inter-organizational collective focused on experimentation. One network steward shared that he hoped that research could shed light on the Hive's ability to support both R&D and retail functions—the development of new and interesting educational approaches, but also the wide circulation of those approaches. Some members were mainly interested in the efficacy of their own programs, having research improve the usability of technologies they were developing or having it shed light on how teens were finding their programs and what participation in their programs led to for youth.

In our final field scan report, our team aimed to express the divergent interests we heard but also note areas where there was potential alignment. We outlined a set of research areas based on a thematic analysis of stakeholder perspectives, noted the degree of interest we heard for each area, and included recommendations for approaching both the content and structure of possible research efforts. The report was brought back to network leaders to consider but was also circulated back to members virtually as well as in the context of an open meeting for discussion and consideration.

Following its completion, the initial field scan served as the basis for the formation of the RPP. The network stewards and funders solicited a proposal from the

research team, requesting that we develop a research plan rooted in what members and stakeholders voiced as important during the field scan, as well as what we understood, based on our position as learning scientists, as important scholarship that could impact theory and practice.

This process highlights one way to negotiate research questions within a broadly distributed, and logistically unwieldy network. From the perspective of questions of *who's involved* and *who decides*, the field scan process of actively soliciting stakeholder perspectives to guide the research team represents a counsel-based approach to collective decision-making (Blunden, 2016). Counsel-based approaches to decision-making stand in contrast to two other more common approaches to collective decision-making: consensus, where all actors involved must come to full agreement on a decision, and majority, where all actors vote and, if a certain quantifiable subset agrees on a decision, that subset determines the group's decision. In counsel-based approaches, an individual or small group of individuals is instead responsible for a decision that affects a collective, but they cannot make that decision until all involved have been consulted to voice their views.

In the context of the initial negotiation of joint work within the RPP, as a research team we actively engaged in seeking counsel from as many of the Hive NYC stakeholders as we could within a fairly long timeframe and a resource-intensive process. We then engaged in developing a focus of joint work with the aim of representing the practitioner needs we heard. We found research questions that, based on our understanding of the broader field, would represent important contributions to both research and practice. This meant that even though there was indeed a single moment when the small group of network funders decided that the set of research activities our team proposed was appropriate, that moment was the culmination of a months-long decision-making process, based in the practice of counsel, that deeply involved and aimed to represent all network stakeholders.

The Nature of Joint Work in Distributed Networks: From Common *Problems to* Commons *Problems*

Having looked at the *how* of getting to a focus of joint work, in this section we look at the *what* of an RPP's joint work in a distributed inter-organizational network. What kinds of problems of practice can a distributed RPP address? What distinctive features might these problems have? In our partnership, the distributed organization led us to emphasize *commons* problems over *common* problems.

Common problems can exist in multiple settings but don't necessarily require solutions that link together and require coordinated institutional action across those settings. *Commons* problems, within the context of our discussion, exist at the intersections of institutional settings; they are not necessarily within the current scope of any given institution's responsibility or capacity to solve, but they

could be solved through coordinated activity across multiple institutions. Challenges that can only be addressed through collective action across organizations are the main justification for allocating resources to coordinate distributed actors through inter-organizational networks. We next describe examples of what this looked like in our RPP.

When we conducted the network field scan, we heard a mix of common problems and commons problems that stakeholders saw as important. Examples of a common problem was that some members saw research as a possible way to understand best practices for incorporating digital media production into youth development programs, to better develop pedagogies based on youth interests, or to increase usability of learning technologies they were developing. These issues aligned well with Hive NYC in terms of its pedagogical values and, if addressed, could be beneficial to practice and in some cases research as well. But these were problems that did not require a coordinated network to be solved. To address them, the research team could have studied completely unconnected organizations to, for example, look at how they leveraged youth interest in their programming, and then identify principles for doing so effectively.

To add value to the network, the team chose to address the kinds of problems voiced in the field scan that were distinctive to a networked context as these would be the areas of highest leverage for a distributed RPP. The areas of joint work we ended up focusing on had the dual aims of creating a stronger *opportunity commons* for young people and a stronger *knowledge commons* for organizations. Whose job was it to make sure that, after a young person ends an experience in an informal learning organization, there is a next opportunity for that young person to continue that line of learning? Whose job was it to make sure that there are rich information and broad practices for a given organization to learn from that exist beyond its walls? In a certain respect, the answer to these questions is both *everybody* and *nobody*, and thus these questions made good candidates for attention in an RPP in an inter-organizational network.

The focus of RPP work related to supporting youth learning in networks was framed around youth trajectories and pathways and addressed a desire to understand and support youth in a way that was both long-term (in terms of time scale) and cross-setting (in terms of institutions and contexts). Rather than looking at what a youth experience was within a given out-of-school program and asking about program efficacy or design, the pathways research looked at what supported youth to engage deeply in technology-related learning interests across time and across space, and how a networked approach could support that. Building on scholarship within the learning sciences that views learning as "life-long, life-wide and life-deep" (Banks et al., 2007) and in digital learning that focuses on "geeking out" (Ito et al., 2009), we looked to understand interest-driven learning from an ecological perspective (Barron, 2006). As part of this, we engaged in basic research through longitudinal case studies tracking youth involved in Hive programs for six to 18 months. We focused on understanding

how their technology-related interests, such as game design or filmmaking, were supported socially by individuals in different parts of their lives—friends, parents, teachers and, of course, Hive educators (Ching, 2016). This allowed us to see where breakdowns of coordination occurred across institutions, uncovering a persistent problem we called "post-program slump," wherein youth whose interests had been well supported while they were participating in a Hive program experienced a strong drop-off in support once that program ended (Ching, Santo, Hoadley, & Peppler, 2014). A clear understanding of such breakdowns provided an opportunity for the research team to come back to the network with a specific issue to focus on in terms of coordination across organizations—countering post-program slump.

Our second commons problem involved networked innovation; we aimed to address how the network could be leveraged to effectively circulate ideas across organizations, engage in collaborations, and build collective knowledge. We saw this as a commons issue since it was in the interest of all members to have a strong network context in terms of organizational learning—all organizations benefited from being situated in a strong knowledge ecology. Yet, though all members had a role to play in making the network strong in this respect, it was no single organization's job to do so.

In our research in this area, we looked at norms that Mozilla, as the network steward, had developed through its role in the free/open-source software community (Coleman, 2013). Building on fieldwork observations, we noted differences in the ways Mozilla approached problem solving, learning, and organizational innovation compared to the network's out-of-school organizations. Adhering to a set of practices called "working in the open" or just "working open" (Santo, Ching, Peppler, & Hoadley, 2014b, 2016; Santo, 2017), Mozilla staffers promoted learning practices that valued transparency and flexibility, sharing work in progress within public contexts and making the results available to anyone to remix.

Through our basic research, we could see that this was a potential approach to building a strong knowledge commons in the Hive—we saw that when organizations worked in the open, there was robust circulation of ideas and strong feedback on emergent projects, and members were more easily able to find others working on similar problems. At the same time, we also found that the somewhat fast, loose, and very public orientation of "working open" had tensions associated with it. The orientation toward sharing early-stage prototypes in large public contexts, for instance, played out very differently when youth from nondominant communities were involved in the design process, something not uncommon in informal learning organizations that emphasized youth leadership. Sharing work that might be seen as unpolished in front of large audiences at conferences had different implications when it came to youth safety. These kinds of findings provided an important entry point into supporting network members and stewards to think through mutually productive strategies for supporting cross-organizational learning in the network.

Sustaining Collective North Stars: Continual Tuning, Sense-Giving, and Relationship Building

Due to the distributed nature of Hive NYC, network actors varied in how tuned in they were to the joint work. There was variation in how much they understood the research priority areas as well as in their interest and ability to make connections to their own work. Naturally, stewards at Mozilla had a deep awareness and orientation to the RPP's focus. But the situation with network members was different. Network participation was voluntary, and different individuals from these organizations engaged in different contexts of network activity (e.g., network meet-ups, funded collaborations, online listserv participation). In order to carry out our work, the RPP team needed to make an effort to sustain the network's focus on collective north stars. To do so, we engaged in two strategies: (1) tuning, context setting, and formative knowledge sharing, and (2) ongoing relationship building.

Tuning involved creating a set of ongoing project narration approaches that were as open and public as possible as we engaged in the RPP's work. We created a blog where we regularly shared initial insights, open questions, and documentation of research activities. We released semi-regular briefs summarizing research, including our emerging findings, on topics of interest to the community such as the nature of social support for interest-driven learning or models of achieving scale within out-of-school organizations. Research briefs were five to 10 pages long, included empirical data, and were more formal in their layout, whereas practice briefs tended to be two or three pages, used more visual representations of ideas, and focused on practice recommendations. See Figure 1 for an example.

In network participation structures, such as community calls and network meet-ups, we shared reports and emerging findings, facilitated conversations around our research areas, and co-facilitated activities alongside Hive stewards. Across all these tuning activities—engaging in context setting, sharing formative knowledge, sense-giving around what we were seeing—we tried to create a sense of what the RPP work was about, along with ways to contribute to it.

We found that tuning efforts were particularly important at times when they could contribute to other activities going on within our RPP. For instance, shortly after we released a research brief detailing the phenomenon of "post-program slump" in social support around youth technology interests (Ching et al., 2014), we invited network members to a meeting to design potential solutions to the problem, as we'll discuss in the next section. Additionally, we found that no matter how often we engaged in project narration and tuning, we were never *done*. As work continued to unfold and implicate new actors at various levels within member organizations, recontextualizing where the RPP priorities came from remained essential to carrying out research and design activities.

The second approach that we took to sustaining collective orientation toward RPP priorities was to actively build and sustain relationships with network

stakeholders. We acted as participant observers in the network, which helped us build relationships that provided our team with important perspectives about the network members' evolving concerns and aims while also giving us opportunities to share about the goals and activities of the RPP. For example, in the first six months following the inception of the research project, we shared offices with the Mozilla network stewards. Co-working in the same space gave us a deeper understanding of their daily routines and priorities, and it allowed us to informally share knowledge from our fieldwork that could inform network governance. We also engaged in three months of intensive fieldwork once the RPP was formally under way, and during this period, we interviewed many network members and conducted observations at their organizations. During these interviews, we were not only collecting data but also discussing the research questions and strategies the RPP was focused on, helping orient these members, who were often different from those who had participated in the field scan during the prior summer. Beyond these initial efforts to build relationships, we also regularly attended network convening spaces like meet-ups, grantee meetings, professional development events, and holiday parties. Through this work, we developed relationships that deepened our understanding of network culture while also creating opportunities to talk through ideas we were thinking about and engage in collective sense-making around them with network members.

The process of tuning is one that spanned both the social geography of the network (across actors) and the long-term unfolding of network activities (across time). What this meant practically was that in a given moment of tuning—say, giving a short presentation about a new report on a community call—some members might be getting updated on questions they were already aware were being pursued, while others were being introduced to those questions for the first time. This ongoing narration meant it was more likely that network members would be able to productively engage with our efforts and understand their development and the rationales associated with them. This issue is salient in many RPPs where high turnover means that active strategies must be developed to deal with the realities of maintaining lines of work over long periods of time.

We don't hold any illusions that we ever achieved any sort of *universal* understanding of the priorities of the RPP across all Hive members. We know from an independent evaluation, in fact, that a good portion of network members were at times unclear about the research team's relationship to network stewards and funders, as well as whether we were engaged in a more traditional program evaluation role (Davis with Ching & Santo, 2016). We see these as indicators that the efforts we made to tune the network toward the areas of focus in the RPP in an active and ongoing way were necessary and that achieving collective understanding of an RPP in a networked context is indeed an important challenge to attend to. At the same time, achieving universality in terms of understanding the focus of joint work was not always essential. In a certain sense, we valued achieving a more traditional research dissemination goal of having as many member organizations

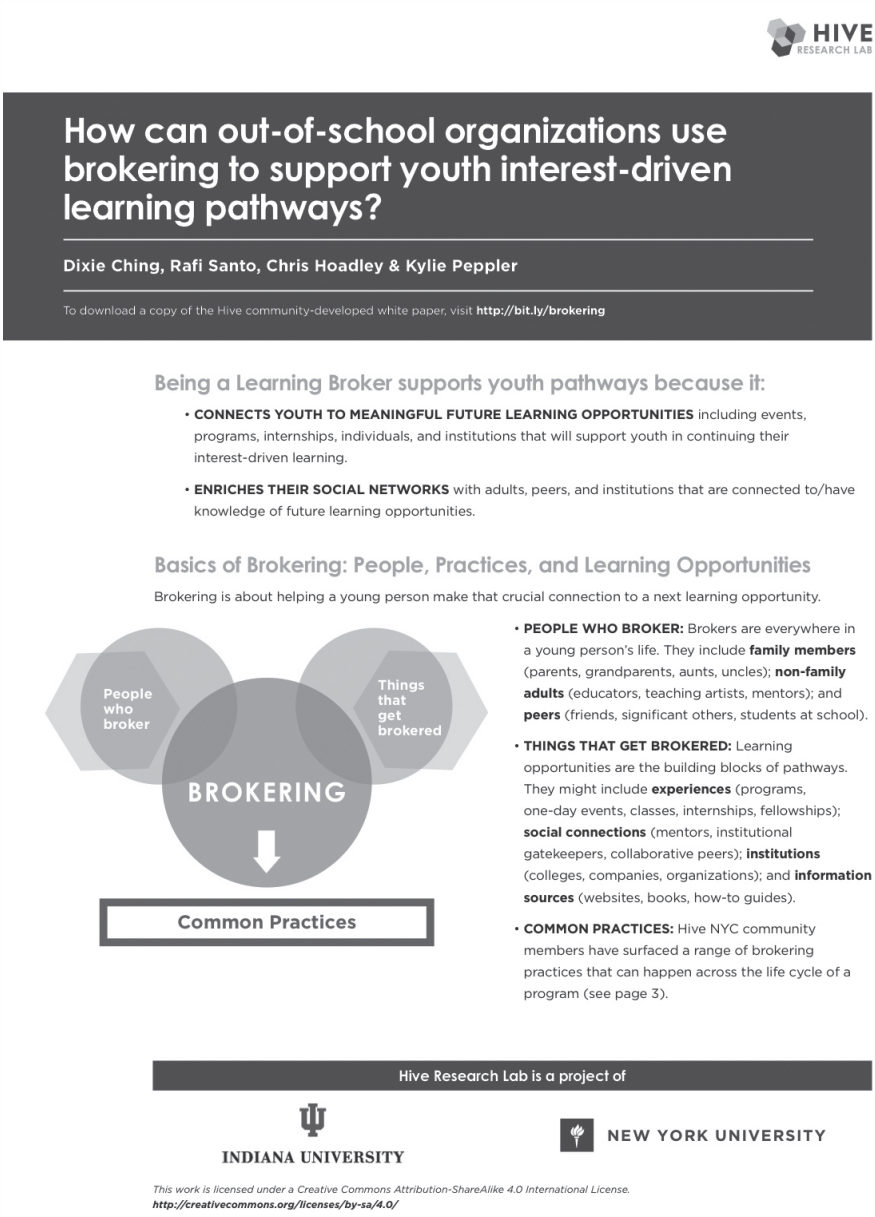

FIGURE 7.1 RPP Practice Brief Developed by the Research Team on a Key Practice: Brokering Future Learning Opportunities

as possible attend to our findings within their organizations, but we also valued other forms of engagement. From the perspective of having an RPP where we aimed to engage in joint work, we found that having a certain threshold of collective understanding across the network was enough to catalyze deeper forms of collaborative work with a smaller subset of network actors. This ability to

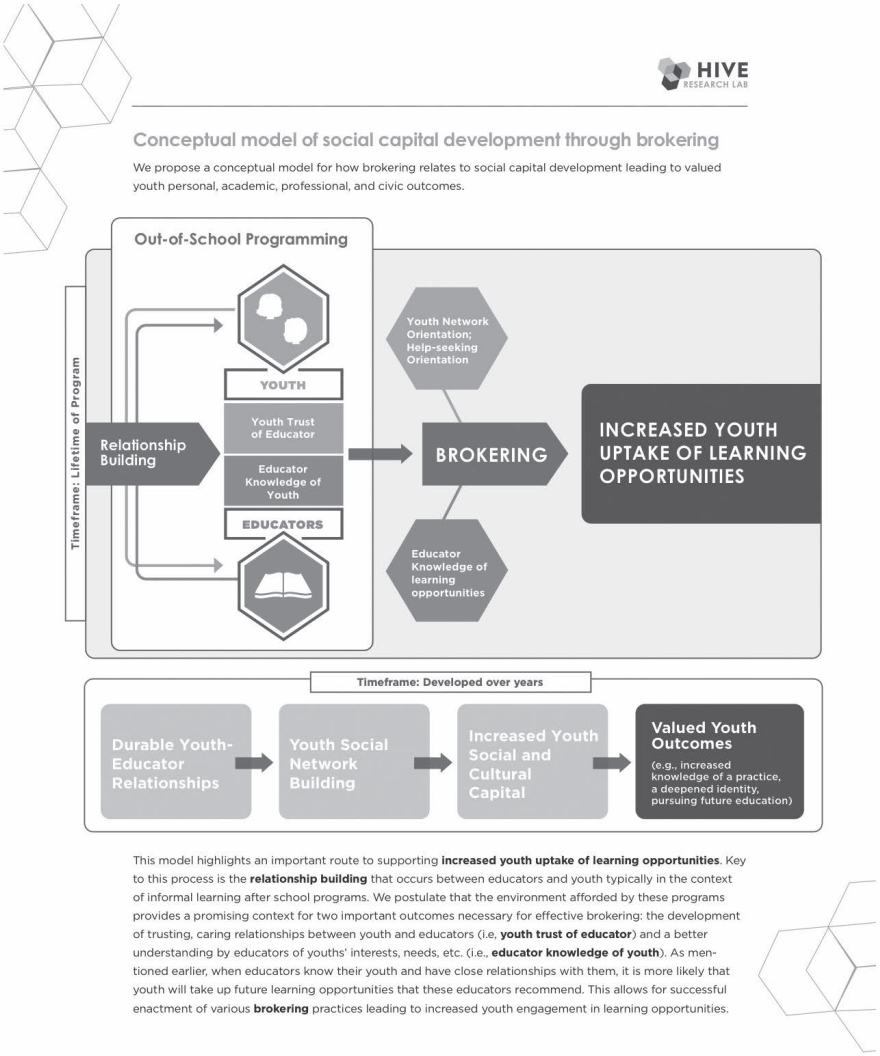

FIGURE 7.1 (Continued)

draw on shared understanding of the RPP priorities—the results of our continual efforts to sustain collective north stars—was key to facilitating participation in joint work, as we'll explore in the next section.

Collaborative Creativity: Open Structures for Co-Design and Participatory Knowledge Building

So far, we've discussed a variety of issues related to engaging in RPPs within distributed inter-organizational networks—how the focus of joint work is determined, what kind of problems networks can focus on, and how to achieve and

sustain orientation toward those problems. But what does actual engagement in joint work look like in a networked RPP context? In this section, we explore how two common outputs of RPPs—new designs and new knowledge—were produced in our partnership through collaborative joint work.

Design Charrettes: A Network Approach to Organizing Co-Design

Design research—an approach to iteratively developing and studying learning interventions in real-world contexts—is often utilized within RPPs, with practices of co-design (or collaborative design) being central, given the commitment to mutualism and focusing on problems relevant to both research and practice (Coburn et al., 2013; Penuel, Roschelle, & Shechtman, 2007). Although we won't focus on all the design research approaches we've utilized within our partnership, one aspect—how we went about convening network members to engage in co-design—is of particular relevance to working with networks.

After setting the stage through sharing formative insights with the network, we wanted to create a context to build on these and begin designing solutions. We didn't want a closed process, though, so we invited anyone in the network who wanted to participate to join what are called *design charrettes* (Howard & Somerville, 2014; Roggema, 2014), day-long sprints where members could learn more about issues, ideate potential solutions, and find new collaborators to bring these solutions to life. Creating open opportunities where any network members interested in the same issue, such as preventing post-program slump, could come together was important not only because it was democratic but also because our activities were focused on commons problems that sat at the intersection of institutions. Having multiple organizations in the same room meant that candidate solutions could leverage not just cross-organizational perspectives but distinct resources that different organizations could bring to bear.

In the case of a charrette focused on youth pathways, one member brought to the table an idea he'd been developing around creating Hive youth meet-ups, youth-centered events where youth leaders from across many member organizations could meet each other, share and give feedback on projects, make friends, and learn about opportunities across the network. As a sort of *connective tissue* within the network, the meet-up was the kind of design that sat at the intersection of multiple organizations to address a joint problem. The charrette created the opportunity for one member to share and refine an idea and to bring new organizations on board to make it a reality. Following the charrette, our team worked with a cross-organizational group formed during the meeting to prototype, test, and iterate the concept, and following this round of testing, the project eventually secured funding to continue its development.

Participatory Knowledge Building in Networked RPPs

The charrettes not only led to new designs but also catalyzed cycles of learning where the network could engage as a collective in participatory knowledge building (Santo, Ching, Peppler, & Hoadley, 2017)—processes of surfacing, synthesizing, and iterating on practice-linked insights that come from a wide range of actors through deliberative, community-based practices. An example of this occurred during the youth pathways charrette just described.

During the event, we engaged network members in a process where they collectively shared perspectives about youth pathways. They responded to prompts such as "What does a successful youth pathway experience look like?" and "What gets in the way of youth successfully having a pathway experience?" We built on their responses within group conversations that helped define the issue and created shared understanding that supported development of solutions.

In this process, a central practice—that of brokering future learning opportunities—was identified among the perspectives shared by members as an approach to supporting long-term, cross-setting learning pathways. The role of learning brokers had been previously discussed in the literature related to youth interest-driven learning pathways with technology (see Barron, 2006), but it hadn't been an active discussion within the network, despite the community's focus on pathways. The identification of brokering as a key pathway-supporting practice moved the collective frame from pathways (an outcome) to brokering (a practice supporting that outcome). This shift created a rich space for pedagogical exploration within the network.

Following the charrette, we combed through the ideas shared about brokering and began to develop a framework synthesizing the group's insights. In the months that followed, we engaged the network in a process of sourcing ideas, successes, tensions, and general knowledge around brokering practices. Practically, this meant working with network stewards to utilize the network's broader participation structures, such as community calls and meet-ups, as well as creating other structures with members, such as a working group, as spaces for participatory knowledge building. Through opening the conversation to the rest of the network, we were able to refine ideas around brokering learning.

After months of community sense-making around the concept of brokering, we developed a draft of a white paper (see Ching, Santo, Hoadley, & Peppler, 2015, 2016) in which we attempted to represent the network's thoughts, link them to our empirical research, and integrate insights from existing literature. The draft, in line with the broader participatory approach, was circulated to the network for feedback, with members making comments on the collaborative document (see Figure 7.2). This final round of participation in the knowledge-building process allowed us to not only clarify the core ideas but also reframe and add new ideas to create greater relevance to the realities of the network.

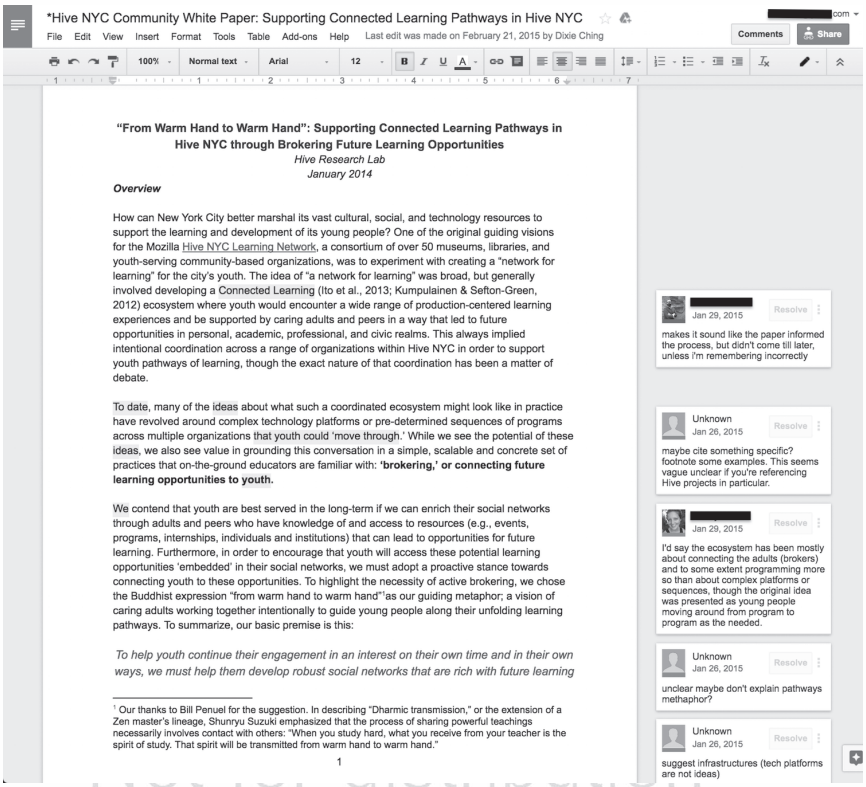

FIGURE 7.2 Collaborative Document Where Hive NYC Members Shared Feedback on an Initial Draft of a Community White Paper

By the end of the process, we'd engaged over 60 network stakeholders—members, network stewards, funders, and community allies—in the knowledge-building process. For some, participation was as simple as sharing an anecdote on a community call about a moment they attempted to connect youth to a new opportunity. Others were more deeply engaged, joining in working group meetings where we hashed out key definitions, meeting individually with our team to ideate and to refine practice recommendations, or digging into the white paper draft to give feedback to us researchers.

From the perspective of the RPP, engaging in participatory knowledge-building processes has important outcomes beyond the new knowledge represented in white papers or briefs. As is the case with design charrettes, participatory knowledge-building processes are key sites where shared language is developed and collective orientation around the RPP's north stars is deepened—part of the aforementioned tuning work that is central in network-based partnerships. Additionally, these processes position practitioners within the RPP as experts and foster a collective knowledge-building orientation through surfacing and representing

their practice knowledge. Finally, through these processes, the focus of the joint work itself is further specified and iterated on, new areas of possible investigation are uncovered, and new, promising practices are clarified—all of which lays the groundwork for new initiatives and changes to practice within the network.

Discussion: "Working in the Open" as an Approach to RPPs in Distributed Inter-Organizational Networks

Mozilla's culture, which emerged from its role as a network steward with roots in the free/open-source software movement (Coleman, 2013), brought with it notable shifts to the work culture of these educational organizations. While the idea of code being open and remixable by anyone is central in this movement, another key aspect of this culture is that the process of production is open and collaborative by default—projects are run publicly such that anyone can join, participate in ways large and small, and contribute ideas and distinctive expertise. As mentioned earlier, we found that in Hive NYC, practices of "working in the open" (Santo et al., 2014b; 2016; Santo, 2017)—ways of organizing work and learning that emphasize public and iterative design processes, low barriers to participation in ongoing lines of work, and fostering active collaboration across many actors—were part of the DNA of the network's stewardship by Mozilla. What we didn't quite expect was that the methodological approaches of the RPP itself—our ways of structuring activities and engaging as research partners to the network—would also come to be influenced and characterized by this culture of "working open."

As the research partnership was initially taking shape, we asked ourselves what it meant to be researchers that could be useful in a context like the Hive NYC Learning Network. From the start, we aimed to design our research efforts in ways that were participatory and even democratic—we knew that taking a summative approach where we checked in once a year with an outcomes report wasn't in line with the open and experimental spirit of Hive. From the start, there was an assumption and a desire that the research team be in the mix of the network, rather than apart from it. As the work unfolded and we worked to create an RPP that was in line with the norms of the network, what eventually developed was a cultural hybrid. We utilized the kind of "working open" practices that guided Mozilla's network stewardship and integrated them with scholarly orientations toward principled inquiry, knowledge building, and development of practice-relevant insights in a way that we could not have envisioned before we initiated this collective work.

Given this, we're attendant to the fact that tensions we found in our basic research related to the network's open culture could also be at play within RPP activities that follow similar organizing principles. Our research on working in the open has shown that it's a mode of work that can privilege those in positions of power—for instance, those comfortable with sharing half-baked ideas and those less concerned with issues of closely guarding intellectual property. Participation

in open work, be it in an RPP or not, also favors those with more resources to spare in terms of spending time in contexts where such work occurs, such as conferences, convenings, open calls, and various forms of online participation. Just as we think about equity-related issues concerning learning opportunities for youth, we see similar considerations as necessary for RPPs that engage youth and educators in seemingly open structures to avoid reinforcing inequities in opportunities to contribute to joint endeavors of the RPP.

The issues, insights, and practices we have shared in this chapter emerged from an RPP that took place in a distributed inter-organizational network. However, while the distributed nature of the Hive required our team to be especially attendant to certain issues that are particular to our community context, we see these issues as having salience to many RPPs, regardless of their context. How to decide on the focus of joint work in an equitable way, what kinds of problems to focus on, how to continually orient to ongoing research directions, how to involve stakeholders in collaborative activities—these are questions we believe all RPPs should consider. In offering examples from our partnership work, we hope to support others to reflect on theirs.

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Note

1 The framing of "networks for learning" and "networks that learn" for Hives was originally shared by Elyse Eidman-Aadahl of the National Writing Project.

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