

ARTICLE

Are we ready for citywide learning? Examining the nature of within- and between-program pathways in a community-wide learning initiative

Thomas Akiva | Stacy Kehoe | Christian D. Schunn

University of Pittsburgh

Correspondence

Email: tomakiva@pitt.edu

Special thanks to the Sprout Fund for helping to make this research possible.

Abstract

Learning and development occur over time across multiple settings both in- and out-of-school. However, educational programs have not been designed for coordination across settings. Successfully supporting community-wide youth learning requires greater understanding of how youth may move between settings and the learning pathways available to them. We investigated this topic with data from the adult leaders of 17 programs that participated in a regional summer learning initiative. Respondents tended to conceptualize within-program pathways (e.g., offering more advanced activities in their organization to current participants) but rarely described actively encouraging youth to move to related programs in other organizations. The results suggest that realization of supportive communities for cross-program learning and development will require shifts in models of knowledge sharing and program incentive structures.

1 | INTRODUCTION

Youth learn and develop across multiple settings in a community, in and out of school. This simple yet profound assertion is fundamental to community psychology (e.g., Kelly, 2006; Livert & Hughes, 2002; Orford, 2008). Although some educational scholars have embraced an ecological perspective of learning (Lee, 2010), the U.S. schooling system is not designed to respond to or build from this reality about the nature of communities. The education of our nation's children has not historically aligned with community psychology, especially the importance of context for shaping individual successes and the important role of empowerment (Orford, 2008). Instead, the system of schooling largely focuses on the individual student, with the assumption that a core, identifiable knowledge base can be transferred to students via the institution of school. However, two factors are challenging this dominant model and pushing education researchers and practitioners toward a model that may better align with community psychology.

The first factor is the growth of out-of-school programs, which have become significant settings in increasingly more young people's lives (Vandell, Larson, Mahoney, & Watts, 2015). In the last decade alone, participation in structured

afterschool programs has nearly doubled (Afterschool Alliance, 2014). Family spending on enrichment has steadily increased over the last few decades, particularly in higher income homes (Duncan & Murnane, 2011). Although it may have always been the case that youth learned from multiple settings, parents and youth now seek out non-school settings like never before.

The second factor is “anytime learning,” a trend that has emerged alongside technological advancements over the past decade (U.S. Department of Education, 2010). The Internet and social media have given rise to numerous avenues for youth to pursue interest-based learning. Countless voices have called for a reimagining of education for the 21st century that better fits the connected, digital world in which we live (e.g., Jenkins & Ito, 2015).

The principles of community psychology—in particular, attention to context and empowerment at multiple levels (Zimmerman, 2000)—offer conceptual and empirical tools for designing and understanding a cross-context learning system. A community-wide learning system might be designed around “interest pathways”—in which individual youth deepen both their interest and knowledge of a subject. Such a system would represent a shift in power and decision making about learning content and structure from educational authorities to youth and their parents. At the same time, this increase in empowerment would need to be accompanied by systematic support across the community, particularly so that the expanded educational opportunities would not benefit only those with power in various forms (Oxley, 2000; Rappaport & Seidman, 2000). Programs for youth would need to both serve as what Zimmerman (2000) called “empowering organizations” and intentionally support youth to travel between relevant settings.

Out-of-school and informal learning programs for youth may enable a more ecological approach to learning that draws on the social, cultural, and material resources embedded in the larger community (Kelly et al., 2000; Kelly, 2006). There is a pressing need for community-learning initiatives to examine the social, organizational, and structural barriers that hinder coordination in a community (Trickett, 2009; Tseng & Seidman; Wandersman et al., 2006). In addition, there is a need to examine how these barriers may drive patterns of participation (or nonparticipation) and empowerment among youth within a community (Wandersman & Florin, 2000; Matton, 2008). The present research examines challenges to a community approach to building interest pathways for youth.

1.1 | Defining Interest Pathways

Youth move through learning settings in and out of school, in pathways across a community that are partially purposeful and partially haphazard vis-à-vis their interests. Ideally, one positive learning experience leads to another more challenging or higher level learning experience—and learning deepens within an area of interest (Palmquist & Crowley, 2007a,b). In some communities, adults and institutions intentionally support interest-based learning pathways, leading to more youth staying on an interest pathway, as depicted in Figure 1. Pathways are often within organizations; for example, young people transition from introductory to advanced biology within a school or from introductory to advanced arts workshops within a museum. But between-program pathways also exist; for example, a school choir director may encourage talented young singers to audition for a citywide choir. Within- and between-program pathways each can be valuable for youth on their own. However, it is likely that spreading experiences and pedagogical expertise across settings (rather than centering all teaching within a single organization) will produce more diverse learning opportunities for youth.

Two cases help illustrate the nature of interest pathways and the critical role of a supportive community. First, Crowley, Barron, Knutson, and Martin (2014) provide a retrospective account of the development of science interest. Barry was fascinated by dinosaurs from a very young age. His parents encouraged this interest, and the interest was also encouraged in school through a 6th-grade science unit. Barry later studied paleontology in college, earned a PhD, and became a curator at a large natural history museum. In contrast, Chuck, a hypothetical elementary student, loved robots and science fiction cartoons but found school science boring and no adults attempted to tap this interest. His interest in robotics never moved beyond playing with robot action figures. With these cases in mind, we suggest that two factors must be present to define productive pathways: interest and progressive challenge.

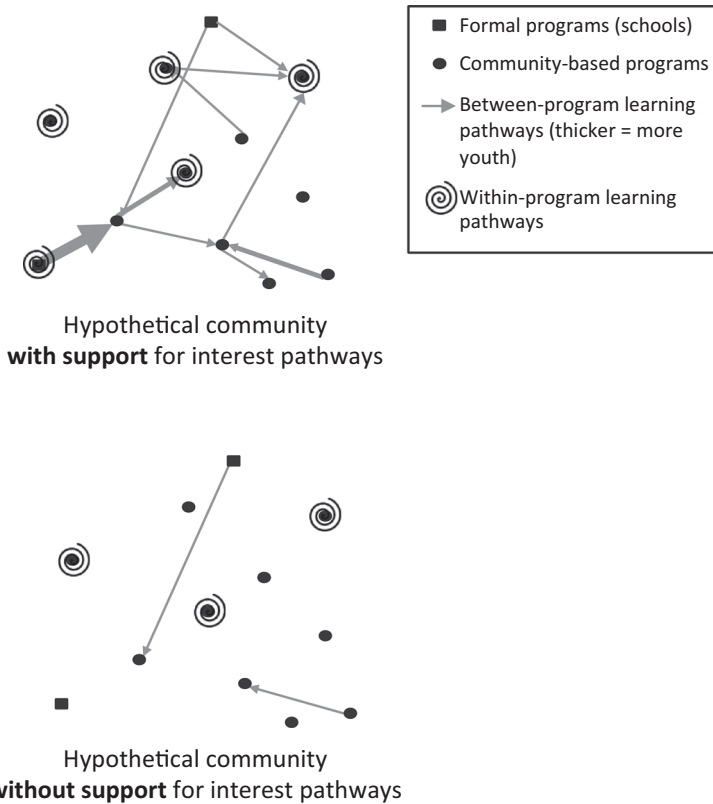


FIGURE 1 Hypothetical communities with and without support for interest pathways.

Evidence suggests that teens, rather than their parents or other adults, are the primary decision makers regarding their attendance in youth programs (Akiva, Cortina, & Smith, 2014). This youth self-determination likely involves following *interests* in ways not possible within the confines of school settings. Interest is a driving factor for decision making in major motivational theories (e.g., self-determination theory, Deci & Ryan, 2008; expectancy-value theory, Wigfield & Eccles, 2000). Abundant evidence suggests interest can be both a motivating factor and a stimulus for learning. Barron (2006) provides an ecological framework for learning across settings in which interest is a critical factor, supporting self-sustained learning.

Yet growth in an interest area requires *progressive challenge*—i.e., activities of increasing difficulty. As youth deepen interest and gain skills, further learning is only possible if the challenge level rises in the next experience. Vygotsky (1978) referred to this as the zone of proximal development, arguing that learning occurs when the challenge level is just beyond what a child can do without assistance. The sequencing of both the complexity and the diversity of learning challenges is a pervasive instructional strategy used to support domain learning and mastery (Collins, 2006). For example, youth ballet programs have an elaborated leveled system that begins with basics, and then gradually increases in difficulty to pointe shoes and beyond.

Cross-setting, interest-based learning, particular with technology and enabled by parents, has been identified in research case studies (Baron, 2006; Ito et al., 2013). Barron, Martin, Takeuchi, and Fithian (2009) examined the role of well-educated parents in helping their middle school age youth develop technological literacy. One of the important parent roles they identified was that of a “learning broker,” whereby the parent actively seeks out and facilitates access to relevant learning opportunities for their child. From a pathways perspective, this observed brokering role of parents suggests that well-resourced parents help youth navigate learning settings, and this parental role is likely critical in an uncoordinated network. A subsequent case study by Barron and her colleagues focused the development of technol-

ogy fluency in a computer clubhouse setting that provided access to computing tools for youth in underserved communities. They found that adult mentors fulfilled a brokering role by suggesting and connecting youths to new learning opportunities (Barron, Wise, & Martin, 2013).

Several research findings suggest that the pursuit of interest-based learning pathways with progressive challenge is more likely to happen for youth growing up in higher income homes. First, in an analysis of the large, multicountry Programme for International Student Assessment dataset of high school students, Tucker-Drob, Cheung, and Briley (2014) found that motivation plays a larger role in learning and achievement in wealthier contexts. Specifically, the researchers found a strong interaction between country gross domestic product (GDP) and individual science interest in predicting science achievement: In countries with high GDP, the correlation between science interest and science achievement was around .35; by contrast, in countries with lower GDP, the correlation was close to zero. The same relationship occurred within countries: Interest was associated with achievement only for high socioeconomic status families. These findings suggest that with limited access to resources, following one's interest is less likely. In contrast, an empowering learning community should offer accessible learning resources and opportunities for all residents, regardless of sociodemographic background (Zimmerman, 2000).

1.2 | Community-Wide Approaches to Supporting Learning Pathways

A learning pathway for a single youth may benefit that individual; but for wider impact—and for increasing access for less resourced youths—a broadly supported pathway must be established; that is, a coordinated set of more generally available learning opportunities that is known by relevant adults outside of the family (such as program leaders).

Allard and Small (2013) suggest that individuals with fewer resources often rely on organizations, institutions, and systems to broker access to knowledge and resources. Over the past two decades, out-of-school intermediary organizations have emerged to coordinate community-wide access to learning resources and opportunities. Nine such intermediaries form the Collaborative for Building After-School Systems (www.afterschoolsystems.org), a network initiative designed to support intermediaries to “better coordinate approaches to increase the scale, quality, and accountability of expanded learning initiatives” (Donner, 2012, p. 4). This collaborative recently conducted the first study of the state of after-school intermediaries, with over 200 representatives of these organizations across the United States completing online surveys (Donner, 2012). When asked about their role, intermediaries reported focusing on quality standards, increasing funding, and facilitating the use of data systems and assessment tools. Increasing youth participation was reported by 80% of sites; however, guiding youth to productive pathways was not mentioned.

By contrast, one intermediary that has embraced pathways is the Providence After School Alliance (mypasa.org) in Providence, Rhode Island. This intermediary founded the AfterZone, a “city-as-learning-campus” approach to after-school coordination (mypasa.org/afterzone-middle-school). Rather than enroll in individual programs, middle school age youth enroll in the AfterZone, and then select from learning experiences offered by participating organizations. An early evaluation found that youth participation levels are relatively high, and the program shows a small, positive effect on school attendance (Kauh, 2011). Recent AfterZone materials specifically describe learning pathways as “after-school interest tracks that can propel young people through their in-school experience and to graduation” (Providence After School Alliance, 2014). The general approach to pathways appears to be effective; however, little is known from a research perspective about how existing youth programs support learning pathways or how adult providers conceptualize movement between programs.

A community-wide learning system comprises a constellation of learning settings, each with unique social and material resources. Yet social change is not a product of successful outcomes in the system's individual parts. Rather, the success of a social intervention is reflected in the disruption of what is referred to as “social regularities”: patterns of social relations, connections, or linkages (Seidman, 2002). Community-wide approaches to learning pathways challenge the historical assumption that learning primarily occurs in school.

These approaches also challenge the longstanding social trend of high-quality out-of-school learning opportunities being limited to youth from higher income homes. Yet analysis of these approaches may reveal social regularities

across settings that compete with an agenda for systems-wide change. Community-wide analysis may reveal multiple providers that compete for learners and funding resources yet also can serve as collaborators in program development and seeking funding. Each organization has its own internal structures that could facilitate or impede cross-provider collaborations. Further, characteristics of the overall community could also influence the level and type of collaborations that occur in creating interest pathways.

As community-wide approaches to supporting cross-context learning become increasingly common, there is a need for research that examines the state of social regularities across the settings within a system. As Hawe et al. (2009) explain, a systems-wide approach to understanding community-wide interventions calls for an analysis of a system's dynamic properties, including the roles of key actors in the system (e.g., informal learning providers, parents, learners, and teachers), mapping how these different actors interact and exchange resources, and understanding how these actors make meaning of the intervention in local contexts.

1.3 | The Present Study

Understanding barriers and facilitators for learning pathways is likely key to successfully carrying out an organized, community-wide approach. Much is yet to be learned regarding both within-program and between-program pathways. We therefore investigate the following research questions. First, *how do providers within a community typically conceptualize pathways—how youth begin and end transitions to and from particular learning settings?* Second, *what factors promote or block the community pathways approach?*

This study was conducted in the context of the [Pittsburgh] Hive Learning Network, one of three Hive networks funded by the MacArthur Foundation and other foundations local to each network. We investigate our research questions in the context of 17 programs participating in the 2013 [Hive Days of Summer initiative], which served as the kickoff campaign for the network. [The Days of Summer initiative] was designed to coordinate teen summer activities and promote Connected Learning, an approach that emphasizes interest-driven learning across school and nonschool settings, using social media and other digital technologies (Ito et al., 2013).

2 | METHOD

2.1 | Sample

Seventeen organizations received “sponsorship” funding to support teen summer programming for the [Days of Summer] initiative. These organizations submitted proposals for this funding to provide support to small projects or enhancements to existing projects and to be included in network promotional media. Criteria for sponsorship was relatively nonspecific; however, the initiative was described as “for tweens, teens, and young adults,” and proposers were encouraged to explain how their program demonstrated connected learning (cf., Ito et al., 2013). Connecting across programs was described as a goal but no specific mechanisms were included for between-organization collaboration. In other words, if there is a bias in the sample, it is toward organizations that were aiming to support interest pathways, but not necessarily a bias toward within- versus between-organization pathways.

Programs were purposely diverse in structure (see Table 1): six summer camps in community centers or school buildings; five camps run through arts organizations (including two that were media-focused); four programs run through cultural institutions (two museums and two libraries); and two programs involved single-session events at multiple locations (one literacy program and one focused on sustainable food). Of these projects, 12 (70%) operated summer day camp programs; i.e., youth participants signed up and attended regularly for a fixed amount of time. Five (29%) offered drop-in activities, and five (29%) engaged youth through partner sites or events (these percentages are not mutually exclusive). All programs served middle- and/or high school age youth. Organizations varied in size from small, mostly volunteer-led to large, established, multimillion dollar establishments, and correspondingly the number of youth served ranged from 17 to well over 100 per program.

TABLE 1 Overview of Programs in Sample

Organization ^a	Description	No. youth
Programs in community centers and schools		
National community center branch	5-week summer day camp for tweens that focused on exposure to digital media arts and tools.	25
Community center north	Multiple 1-week summer day camps for tweens and teens that focused on youth leadership or robotics.	72
Community center east	2-week summer day camp for tweens and teens that focused on farming and sustainability practices.	17
Arts in schools organization	2-week intensive art sessions for middle and high school students participating in summer school.	50
Music program for young women	1-week summer day camp for tween and teen girls that focused on music and empowerment.	30
Community center for creativity	A range of short summer day camps that engaged youth and their families in DIY technology and art projects.	72
Programs in local arts organizations		
Center for studio art and outreach	Drop-in open studio sessions for tweens and teens, and an intensive summer internship program.	200+
Filmmakers resource center	Multiple 1-week summer day camps for tweens and teens that focused on filmmaking and media production. 3-day workshops for teens in the regional library branches that focused on super 8 filmmaking. 2-week intensive summer camp for refugee youth that focused on digital storytelling.	185
Neighborhood STEAM center	1-week summer day camps for tweens that focused on STEAM integration.	180
Center for photography	1-week summer day camp for teens that focused on the foundations of photography.	10
Filmmaking and production center	Summer workshops and day camps that range in intensity and duration for tweens and teens that focused on youth reporting, filmmaking, and/or digital media production.	75
Programs in large cultural institutions		
Regional library – Small branch	Summer drop-in program and open art studio for tweens and teens that focused on making and literacy.	50
Regional library – Main branch	Summer workshops and drop-in digital lab sessions for tweens and teens that focused on digital literacy.	50
Museum for children	Summer workshops and drop-in activities for young children and tweens that focused on making and digital technology. 8-week summer camp for tweens and teens that focused on urban agriculture.	100
Center for science	1-week summer day camps for tween and teen girls that focused on science skills and career exposure.	91
Pop-Up programs and workshops		
Digital technology & food workshop	Pop-up workshop nested in other summer programs. Facilitates teen exploration of local agriculture and digital technology.	100
Arts and literature workshop	Pop-up creative writing and crafts workshop that occurred in local summer festivals and public events.	200

^aThe names of organizations have been changed.

2.2 | Measures

Each program director (N = 17) completed a set of open-ended questions related to their summer programming and youth pathways in a program- and community-wide fashion. Three questions asked providers to indicate their recruitment methods and attendance levels (e.g., “Describe numerically the number of unique individuals affected by project activities”). Four items asked providers to describe how youth begin, continue, and end their program involvement

TABLE 2 Recruitment, Typical, and Ideal Transitions

	Recruitment methods	Typical transitions	Ideal transitions
Within-program	82%	82%	71%
Between-program	65%	12%	6%
Life beyond the program	n/a	41%	35%

(e.g., “How do youth typically learn about and get involved in your program(s)?”; “What usually happens when youth complete your program(s), ‘age-out,’ or advance in their skills?”). Two items asked respondents to indicate their beliefs about the strengths of the urban community for serving youth and obstacles to doing so.

2.3 | Analytical Approach

Content analysis of open-ended written questionnaire responses involved a combination of deductive and inductive approaches—informed by relevant literature and our research questions, but allowing for themes to emerge from the data (Bernard, 2006; Glaser & Strauss, 1967). Our iterative approach involved the following four stages. First, we conducted structural coding to establish the parameters of investigation. Two coders then independently created initial sets of codes, and then collaboratively combined and established a final coding protocol. This final protocol was used to recode all raw data. For this third stage, inter-rater reliability ranged from 65% to 100% (34 out of 38 items with 82% or higher, 11 at 100%). In the final stage, the two raters came together and discussed remaining items to consensus. For the four items with agreement less than 80%, adjustments were made to the coding sheet.

3 | RESULTS

3.1 | Program Transitions

In the first round of analysis (see Table 2), we investigated recruitment methods by coding responses to the open-ended question, “How do youth typically learn about and get involved in your program(s)?” Most commonly, respondents described *within-program* recruitment methods (14 sites, 82%) such as recruiting through newsletters, open houses, or word of mouth (e.g., “Word of mouth among kids already enrolled is always the best recruitment tool”). Over half of the respondents (11 sites, 65%) indicated *between-program* promotion; i.e., that they partner with schools and/or other youth programs for recruiting. For example, one stated, “We have enjoyed success in promoting our programming through the [schools] and several existing youth organizations that work with and in the schools as we do.” This suggests that some communication networks do exist to facilitate pathways to bring youth into programs from other programs. Other responses (eight sites, 47%) involved traditional marketing approaches (posters, fliers, direct mail, e-mail listservs) and four respondents mentioned social media.

We next investigated provider beliefs about *typical transitions* for youth—ways youth currently enter and exit their program, and their visions for *ideal transitions*. For typical transitions—in response to the question, “What usually happens when youth complete your program(s), ‘age-out,’ or advance in their skills?”—a large majority (14 of 17 sites) described within-program themes in their answers. Several within-program answers were similar to the following response: “You can’t age out of our programs; there is opportunities at all ages at our organization.” In contrast, only two respondents gave any description of youth moving between programs (i.e., across sites external to their own program) and seven site leaders described life outside the program; i.e., to programs geared toward adults or much older youth. For example, one site noted, “It is [our] desire and practice to help these students connect to higher education opportunities, internships and employment in TV and film industry.”

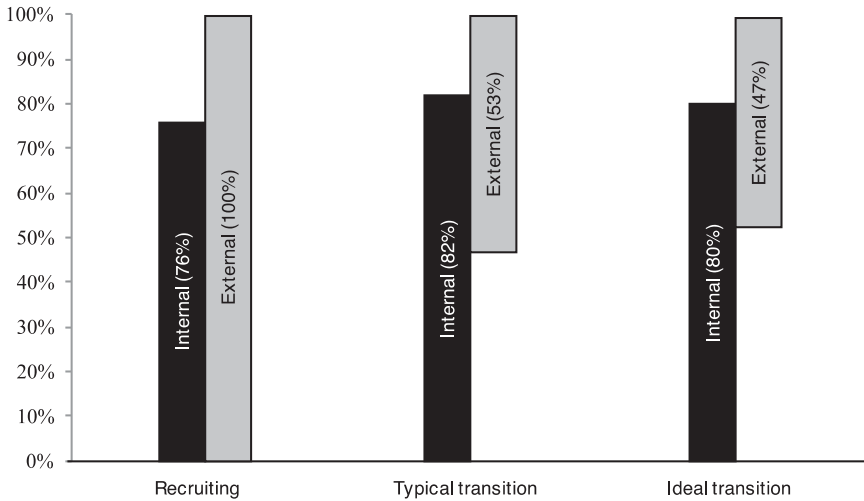


FIGURE 2 Internal versus external responses for recruiting, completion, and ideal transition (mutually exclusive categories, percentage of valid answers for each question).

For ideal transitions, we coded provider descriptions of youths' transitioning into and out of their program(s). Although this question directly asked about transitions outside the program, again the majority of answers (12 of 17 sites) described within-program transitions. Two of these within-program responses were that they would like the funds to hire youth as they become too old to be participants. Others described generally wanting to improve offerings for older youth, e.g., "We are working on tracking the youth as they participate in our various programs. We would like to see more return youth across our program offerings."

A smaller number of sites (six) described beyond-program transitions; for example, "We like to see students come into our programs in middle and/or high school and then connect them to further education or employment as they transition out." Only one respondent specifically mentioned connecting to other youth programs. For example, one responded, "The Museum makes connections with expert organizations so that teen makers and teen gardeners have a network from which to draw on. It would be great to connect more of the teens in similar programs across the city so that they can build their own networks."

Figure 2 shows the results of an additional round of coding that considers both between-program comments and beyond-program in the same "external" category. The patterns are comparable but this image shows the degree to which adult leaders consider anything outside of their organization. Unlike the results described above, in this case the categories are mutually exclusive. That is, for each of the three items, we coded each response as internal only (within-program), external only (between- or beyond-program), or internal + external. For recruiting, responses were coded as internal if they mentioned program websites, recruiting from within their members, or recruiting via word of mouth. External recruiting involved working with marketing and through schools and other organizations. For both the typical and ideal transition bars, we coded responses as internal when they described next steps for youth within the organization, external when they described anything outside the organization (other youth organizations or nonyouth organizations), and internal + external when their answer included both.

For recruiting, no respondents mentioned only internal routes; 24% mentioned only external routes, and the majority (76%) mentioned both internal and external methods for youth *transitioning in* to the program. This broad use of internal and external for recruitment is in stark contrast to the patterns for both completion and ideal transition, in which a majority of respondents described only internal themes (i.e., finding other opportunities within the same youth organization) for youth *transitioning out* of the program. Based on these patterns, it seems that most providers look outside the program for recruitment, but once youth attend, they almost exclusively look for ways to keep them there.

TABLE 3 Community Strengths and Challenges for Community-Wide Approach

Topic	Sites	Percent	Sample quote
Strengths ^a			
Collaborative network	9	53%	"There are also many opportunities for teachers, artists, and librarians to collaborate and learn from one another so we can better serve young people."
Many great programs	6	38%	"There are many places for out of school learning that are working to cultivate creative learning."
Committed professionals	4	25%	"[This city] has an incredibly deep and diverse assortment of professionals and experts in different fields who are exciting and willing to share their knowledge with others, of all ages."
Challenges ^b			
Transportation/geographic isolation	7	41%	"Transportation... limits youth in our neighborhood from participating in many great opportunities around the city."
Recruiting & serving diverse youth	6	35%	"There continue to be more youth, particularly in underserved communities, who would benefit from STEM programs and experiences than we collectively are able to reach."
Engaging teens	5	29%	"The main challenge is to keep tween & teens engaged in positive activities."

^aOther strengths listed: parental involvement, cultural diversity, universities.

^bOther challenges listed: funding (2), parent involvement (2), not enough good programs, pathway movement between orgs, lack of quality art resources, replication of programming, and collaboration.

The patterns across these results are clear. Within-program transitions were commonly described and between-program transitions were rarely described. Practitioners, at least those in this sample, do consider what happens to youth in their lives after the program; but it is very rare for them to describe helping a child or youth leave their program for an opportunity at another program.

3.2 | Community-Wide Approach to Youth Programs

Table 3 lists the strengths and challenges respondents mentioned most often for serving youth in their focus area or in general. A majority of providers saw strengths of an existing collaborative, community-wide, ecological approach, but they saw transportation as major barrier. Providers felt that the raw materials were present for a community-wide approach (many good programs, committed professionals), but they also frequently identified the challenges of recruiting and engaging youth, particularly traditionally underserved youth—a challenge that is common in programs across the United States (Fredricks & Simpkins, 2012). Thus, the nationwide challenge of equity and access was perceived to be a challenge in this context, even though the foundation of a collaborative community-wide approach was at least partially in place.

4 | DISCUSSION

Several trends make it now possible to consider a viable approach to education that is more consistent with the community psychology values of context supports and multilevel empowerment (Livert & Hughes, 2002; Zimmerman, 2000) than the current system. We conceptualized this as interest-based learning pathways and examined network and organizational affordances and barriers to supporting such pathways. Our findings reveal that providers in one urban

community's network perceived the region as being saturated with a diverse set of organizations with a range of programs as well as ripe for opportunities for cross-institutional collaborations. Providers could readily identify existing local resources for supporting interest-based learning pathways—a collaborative network of strong programs and ready adult leaders. However, our findings also suggest that adult leaders do not have strong mental models or examples of mechanisms for supporting their youth to follow between-program pathways. When considering transitions and pathways, the majority of providers appeared to almost exclusively look for opportunities to keep those pathways in-house.

The “internal pathway” model that providers described likely reflects the incentive structure in place for voluntarily attended programs. Voluntarily attended youth programs by their nature must contend with the challenges of recruitment—and so, in the absence of policies or grant guidelines that incentivize cross-program collaboration, it is in their interest to maximize within-program participation (cf., Akiva & Horner, 2015). Under current incentive structures, adult leaders of such programs are presented with a form of the famous Prisoner's Dilemma: Although it may be better for all youth programs if every program supported between-program pathways, a single program leader encouraging youth to find opportunities in other programs risks losing youth (and maybe funding) without gaining new youth. Thus, without a strong community-wide push for between-program cooperation around learning pathways (and perhaps an outside organization to make it happen), such support is unlikely to happen. The lack of between-program mental models found may extend into an oversimplification of what helping youth move through community-wide pathways might actually entail (i.e., dealing with transportation, neighborhood characteristics).

An important consideration that provides context for these findings is the multiple types of diversity exhibited by youth programs. Programs serve diverse age ranges—though this was not a particularly salient issue in our study because the sites all served middle school age youth. Programs are diverse in format—from multiweek camps to one-day youth-focused events. Although it is certainly possible that the format affected sites' likelihood to create cross-program pathways, we have no evidence that cross-program collaborations cannot exist across sites with different structures (e.g., one-time youth events often have recruitment from multisession program offerings). Finally, programs are diverse in terms of goals—our sample reflects this diversity.

Although our analyses are based on complete data—all programs who participated are represented—our sample of 17 sites is a relatively small group from which to draw conclusions. As described in the Method section, the guidelines that held these sites together were very loose, with almost no requirements for funding, but all of them self-selected based on their interest in connected learning. It therefore seems unlikely that participation bias led to an underestimate of support for cross-location coordination—if anything, we might expect the self-selecting group to be *more* likely to support interest based pathways. However, the addition of nonparticipating programs in this study would improve our ability to generalize.

4.1 | Implications

A central tenet of community psychology is that individual people interact with a variety of settings that impact their well-being (Livert & Hughes, 2002), yet the field knows that developmental outcomes are not simply attributed to interactions between a person and a place. Rather, settings exist in a much larger context that comprises other settings and subsystems. These between-system relations influence what happens in local contexts and therefore cannot be ignored (Bronfenbrenner, 1979; Seidman, 1983).

Interventions that are designed to promote social change target the social regularities that facilitate the connections or relationships between settings; the success of a community-wide learning initiative therefore depends on the extent to which the intervention alters the connections and relationships across a system (Seidman, 2002). The dominating provider perception of internal pathways as ideal is rational given regional shortages of diverse youth participation and incentive structures that reward enrollment, rather than learner movement and cross-organizational collaboration. It is therefore unlikely that the social regularity of providers keeping learners in-house will change without outside stimulus, given the Prisoner's Dilemma problem we mentioned earlier. Actions by intermediaries to disrupt the

barrier between formal learning contexts (schools) and informal learning contexts may allow for the fear of losing participants to subside within a rising tide of participants. However, greater transparency and intentionally incentivizing cross-institutional collaboration will likely be needed to improve broad access to relevant pathway opportunities.

Despite the emergence of community-wide conceptualizations of learning pathways, there is little to no maintenance of shared information concerning the state of youth learning within and across settings to guide community-wide work to support collaboration and equitable participation (Kehoe, Russell, & Crowley, 2016). A common evaluation tool aligned with community-level objectives is needed to systematically capture program content, enrollment, and demographics of participating youth. Of importance to researchers and policy makers, information about enrollment, demographics of youth served, partnerships, etc., are often kept inside organizations. Information that informs questions about what types of learners programs serve, how recruitment is performed, and what gaps currently exist in access across a region's offerings are not easy to access.

4.2 | Conclusion

Analysis of the effects of community-wide approaches to learning pathways at scale requires the development and maintenance of analytic tools that examine contextual change in addition to individual outcomes (Yoshikawa & Shinn, 2002). Advancements in technology and multilevel data analysis and visualization software have allowed within- and across-setting analysis to be within reach. In addition to incentivizing cross-setting collaborations, community-wide learning interventions should capitalize on the advancements of social network analysis to capture cross-setting interactions, specifically around youth recruitment and movement. The development of these tools will be critical to capturing the current state of community-wide approaches to learning pathways, as well as identifying weak connections across the system that can be altered into levers for change.

REFERENCES

- Afterschool Alliance. (2014). *America After 3PM: Afterschool programs in demand*. Washington DC: Afterschool Alliance.
- Akiva, T., Cortina, K. S., & Smith, C. (2014). Involving youth in program decision-making: How common and what might it do for youth? *Journal of Youth and Adolescence*, *43*, 1844–1860.
- Akiva, T., & Horner, C. G. (2015). Adolescent motivation to attend youth programs: A mixed-methods investigation. *Applied Developmental Science*. Advance online publication. doi:10.1080/10888691.2015.1127162
- Allard, S. W., & Small, M. L. (2013). Reconsidering the urban disadvantaged: The role of systems, institutions, and organizations. *The ANNALS of the American Academy of Political and Social Science*, *647*(1), 6–20.
- Baldrige, B. J. (2014). Relocating the deficit: Reimagining Black youth in neoliberal times. *American Educational Research Journal*, *51*(3), 440–472.
- Banks, J. A., Au, K. H., Ball, A. F., Gordon, E. W., Gutierrez, K. D., Heath, S. B., ... Zhou, M. (2007). Learning in and out of school in diverse environments: Life-long, life-wide, life-deep. *Seattle, WA: The Learning in Informal and Formal Environments (LIFE) Center, University of Washington, Stanford University, and SRI International*.
- Barron, B. (2004). Learning ecologies for technological fluency: Gender and experience differences. *Journal of Educational Computing Research*, *31*(1), 1–36.
- Barron, B. (2006). Interest and self-sustained learning as catalysts of development: A learning ecology perspective. *Human Development*, *49*(4), 193–224.
- Barron, B., Martin, C. K., Takeuchi, L., & Fithian, R. (2009). Parents as learning partners in the development of technological fluency. *International Journal of Learning and Media*, *1*(2), 55–77.
- Barron, B., Wise, S., & Martin, C. K. (2013). Creating within and across life spaces: The role of a computer clubhouse in a child's learning ecology. In *LOST opportunities: Learning in out-of-school time* (pp. 99–118). New York: Springer-Verlag.
- Bernard, H. R. (2006). *Research methods in anthropology: Qualitative and quantitative approaches* (4th ed.). Library (Vol. 4). New York: AltaMira Press.
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by design and nature*. Cambridge, MA: Harvard University Press.
- Bronfenbrenner, U., & Morris, P. A. (2006). The bioecological model of human development. In R. M. Lerner (Ed.), *Handbook of child psychology* (Vol. 1: *Theoretical models of human development* (6th ed., pp. 793–828). New York: Wiley.

- Chang, D., Santo, R., Hoadley, C., & Pepler, K. (2015). *On-ramps, lane changes, detours and destinations: Building connected learning pathways in Hive NYC through brokering future learning opportunities*. New York: Hive Research Lab.
- Collins, A. (2006). Cognitive apprenticeship. In A. Collins (Ed.), *The Cambridge Handbook of the Learning Sciences* (pp. 47–60). Cambridge, UK: Cambridge University Press.
- Crowley, K., Barron, B. J., Knutson, K., & Martin, C. K. (2014). Interest and the development of pathways to science. In *Interest in mathematics and science learning and related activity* (pp. 1–32). Washington DC: American Educational Research Association.
- Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology/Psychologie Canadienne*, 49(3), 182–185.
- Donner, J. (2012). *Making the connections: A report on the first national survey of out-of-school time intermediary organizations*. New York: Collaborative for Building After-School Systems, The After-School Corporation.
- Duncan, G. J., & Murnane, R. J. (2011). *Whither opportunity? Rising inequality, schools, and children's life chances*. New York: Russell Sage Foundation.
- Fredricks, J. A., & Simpkins, S. D. (2012). Promoting positive youth development through organized after-school activities: Taking a closer look at participation of ethnic minority youth. *Child Development Perspectives*, 6(3), 280–287.
- Glaser, B. G., & Strauss, A. L. (1967). The discovery of grounded theory. *International Journal of Qualitative Methods*, 5, 1–10.
- Harris, R., Rainey, L., & Sumner, R. (2006). *Crazy paving or stepping stones? Learning pathways within and between vocational education and training and higher education*. Adelaide SA, Australia: National Centre for Vocational Education Research.
- Hawe, P., Shiell, A., & Riley, T. (2009). Theorizing interventions as events in systems. *American Journal of Community Psychology*, 43(3–4), 267–276.
- Ito, M., Gutierrez, K., Livingstone, S., Penuel, B., Rhodes, J., Salen, K., ... Watkins, S. C. (2013). *Connected Learning: An agenda for research and design*. Irvine, CA: Digital Media and Learning Research Hub.
- Jenkins, H., & Ito, M. (2015). *Participatory culture in a networked era: A conversation on youth, learning, commerce, and politics*. New York: John Wiley & Sons.
- Kauh, T. J. (2011). *AfterZone: Outcomes for youth participating in Providence's citywide after-school system*. Philadelphia, PA: Public/Private Ventures.
- Kaushal, N., Magnuson, K., & J. W. (2011). How is family income related to investments in children's learning? In G. J. Duncan & Murn (Eds.), *Whither opportunity? Rising inequality, schools, and children's life chances* (pp. 187–205). New York: Russell Sage Foundation.
- Kehoe, S., Russell, J. L., & Crowley, K. (2016). Diversity and interconnectedness: conceptualizing the health of informal science learning ecosystems. *Manuscript submitted for publication*.
- Kelly, J. G. (2006). *Becoming ecological: An expedition into community psychology*. New York: Oxford University Press.
- Lee, C. D. (2010). Soaring above the clouds, delving the ocean's depths: understanding the ecologies of human learning and the challenge for education science. *Educational Researcher*, 39(9), 643–655.
- Lerner, R. M. (2006). Developmental science, developmental systems, and contemporary theories of human development. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology* (6th ed., pp. 1–17). Hoboken, NJ: John Wiley & Sons, Inc.
- Livert, D., & Hughes, D. L. (2002). The ecological paradigm: Persons in settings. In T. A. Revenson, A. R. D'Augelli, S. E. French, D. L. Hughes, D. Livert, E. Seidman, M. Shinn, & H. Yoshikawa (Eds.), *A quarter century of community psychology* (pp. 51–63). New York: Springer.
- Maton, K. I. (2008). Empowering community settings: Agents of individual development, community betterment, and positive social change. *American Journal of Community Psychology*, 41(1–2), 4–21.
- Orford, J. (2008). Community psychology: Challenges, controversies and emerging consensus. doi:10.1002/9780470773154
- Palmquist, S., & Crowley, K. (2007a). From teachers to testers: How parents talk to novice and expert children in a natural history museum. *Science Education*, 91(5), 783–804.
- Palmquist, S., & Crowley, K. (2007b). Studying dinosaur learning on an island of expertise. In S. D. R. Goldman, R. Pea, & B. Barron (Eds.), *Video research in the learning sciences* (pp. 271–286). Mahway, NJ: Erlbaum.
- Providence After School Alliance. (2014). Resource roundup. Retrieved from <http://mypasa.org/news/2014/01/14/resource-roundup-learning-pathway-infographic-fostering-grit-2014-afterschool-resolu>
- Russell, S. T., & Van Campen, K. (2011). Diversity and inclusion in youth development: What we can learn from marginalized young people. *Journal of Youth Development*, 6(3), 96–108.
- Seidman, E. (1983). Introduction. In E. Seidman (Ed.), *Handbook of social intervention* (pp. 11–17). Beverly Hills: Sage.

- Seidman, E. (2002). Back to the future, community psychology: Unfolding a theory for social intervention. In T. A. Revenson, A. R. D'Augeilli, S. E. French, D. L. Hughes, D. Liver, E. Seidman, ... H. Yoshikawa (Eds.), *A quarter century of community psychology: Readings from the American Journal of Community Psychology* (pp. 181–203). New York: Kluwer Academic/Plenum Publishers.
- Simpkins, S. D., O'Donnell, M., Delgado, M. Y., & Becnel, J. N. (2011). Latino adolescents' participation in extracurricular activities: How important are family resources and cultural orientation? *Applied Developmental Science, 15*(1), 37–50.
- Trickett, E. J. (2009). Community psychology: Individuals and interventions in community context. *Annual Review of Psychology, 60*, 395–419.
- Tseng, V., & Seidman, E. (2007). A systems framework for understanding social settings. *American Journal of Community Psychology, 39*, 217–228.
- Tucker-Drob, E. M., Cheung, A. K., & Briley, D. A. (2014). Gross domestic product, science interest, and science achievement: A person × nation interaction. *Psychological Science, 25*(11), 2047–2057.
- University Center for Social and Urban Research. (2012). *City of Pittsburgh neighborhood profiles: American Community Survey five-year estimates: Update for 2006–2010 data*. Pittsburgh, PA: University of Pittsburgh University Center for Social and Urban Research.
- U.S. Department of Education. (2010). *Transforming American education: Learning powered by technology: National Education Technology Plan 2010*. Washington DC: Author.
- Vandell, D. L., Larson, R. W., Mahoney, J. L., & Watts, T. W. (2015). Children's organized activities. In R. M. Lerner, W. Overton, & P. C. Molenaar (Eds.), *Handbook of child psychology and developmental science* (Vol. 4, 7th ed.). Hoboken, NJ: Wiley.
- Villarruel, F. A., Montero-Sieburth, M., Dunbar, C., & Outley, C. W. (2005). Dorothy, there is no yellow brick road: The paradox of community youth development approaches for Latino and African American urban youth. In J. L. Mahoney, R. W. Larson, & J. S. Eccles (Eds.), *Organized activities as contexts of development: Extracurricular activities, after-school and community programs* (pp. 111–130). Mahwah, NJ: Lawrence Erlbaum Associates.
- Vygotsky. (1978). *Tool and symbol in child development* (chap. 1). Cambridge: Harvard University Press.
- Wandersman, A., Clary, E. G., Forbush, J., Weinberger, S. G., Coyne, S. M., & Duffy, J. L. (2006). Community organizations and advocacy: Increasing the quality and quantity of mentoring programs. *Journal of Community Psychology, 34*(6), 781–799.
- Wandersman, A., & Florin, P. (2000). Citizen participation and community organizations. In J. Rappaport & E. Seidman (Eds.), *Handbook of community psychology* (pp.247-272). New York: Kluwer Academic/Plenum Publishers.
- Wigfield, A., & Eccles, J. S. (2000). Expectancy-value theory of achievement motivation. *Contemporary Educational Psychology, 25*, 68–81.
- Yoshikawa, H. & Shinn, M. (2002) Facilitating change" Wher and how should community psychology intervene? In T. A. Revenson, A. R. D'Augeilli, S. E. French, D. L. Hughes, D. Liver, E. Seidman, ... H. Yoshikawa (Eds.), *A quarter century of community psychology: Readings from the American Journal of Community Psychology* (pp. 181–203). New York: Kluwer Academic/Plenum Publishers.
- Zimmerman, M. A. (2000). Empowerment theory: Psychological, organizational, and community levels of analysis. In J. Rappaport & E. Seidman (Eds.), *Handbook of community psychology* (pp.43-63). New York: Kluwer Academic/Plenum Publishers.