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Play Captains on Play Streets: A Community-University Playful Learning and Teen Leadership Collaboration

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Playful Learning Landscapes (PLL) merges playful learning pedagogy with community spaces to create playful learning opportunities for children, families, and communities. Prior PLL projects have demonstrated effectiveness in enhancing social interaction between children and caregivers by creating opportunities for social interaction derived from the learning sciences literature. In the present case study, a university-based team of PLL researchers partnered with a local community-based organization (CBO) that provides educational, skill building, and job training opportunities for teens in low-income neighborhoods. PLL provided consultation and training to transform the CBO's Play Captains program into a Playful Learning program where local teenagers led playful learning activities for children on city streets (Play Streets) that were closed to vehicular traffic by Philadelphia's Parks and Rec department. The teen Play Captains also conducted research observations of children on streets and completed surveys that assessed their own personal growth as a result of their experiences as Play Captains. Results suggest considerable social interaction and use of learning language among children on the Play Streets where Play Captains ran playful learning activities and significant increases in Play Captains' self-confidence and understanding the benefits of playful learning. We discuss key lessons learned that can help to inform future university-community playful learning collaborations.

Keywords: Playful learning; community psychology; translational research; urban settings; child development; social interaction

Although children's experiences in school are critical to development, growing research indicates equal importance of opportunities available to children during the 80% of their waking hours spent *outside* of school (Meltzoff, Kuhl, Movellan, & Sejnowski, 2009). Providing rich and varied learning and skill-building experiences in children's communities can complement their in-school curriculum with everyday learning and skill development. Philadelphia is engaging their communities in concert with growing movements advocating for play to promote child development and family friendly urban environments. The present case study details one such collaboration.

Philadelphia is the poorest major city in the United States, with a population of about 400,000, a poverty rate of 25.7%, and 37.3% of children living below the poverty line (Howell, 2018). These economic difficulties mean that Philadelphia area schools struggle to support all children. Budget cuts dramatically impact schools that routinely face limitations like minimal supplies, unsafe buildings, overfilled classrooms, and a lack of resources to address children's social-emotional and health needs. This educational austerity especially impacts children living in economically precarious situations increasing the challenge of providing children with the basic skills to thrive. Amid this context, in 2013, numerous organizations in Philadelphia signed a Declaration of Play – after the city's famous Declaration of Independence – a ringing call to action stating that all children deserve opportunities to play. Philadelphia organizations made a commitment to supporting play in various ways. As university researchers who study playful learning, we partnered with organizations who already provided playful experiences for children and families, to transform these

opportunities into playful *learning* experiences, in which children have increased opportunities to develop skills and learn new content during play.

Research suggests that playful learning may be more beneficial to children than rote or directive learning practices (Golinkoff & Hirsh-Pasek, 2016) and can be especially beneficial in community settings because they support cohesion and ownership (Hassinger-Das, Bustamante, Hirsh-Pasek, & Golinkoff, 2018). Research further shows many children experience summer learning loss, but youth from low-income communities are especially affected by this "summer slide" (Cooper, Nye, Charlton, Lindsay, & Greathouse, 1996). Fortunately, with exposure to activities that complement in-school learning, children living in high-poverty environments make gains similar to their higher-income peers during the summer, or at least show a similarly small loss (Slates, Alexander, Entwisle, & Olson, 2012). This suggests that playful learning in community settings may be especially valuable during the summer, as implemented in the current case study.

Several studies demonstrate the benefits of evidence-based playful learning activities in urban public spaces (summarized in Hassinger-Das et al., 2018). In one, researchers transformed a traditional urban bus stop into a playful learning hub. This hub included playful learning activities based on the neighborhood's interest in creating a space that supported children and their families' literacy and narrative skills, mathematics and spatial skills, and executive functioning development. Results indicated the transformed bus stop increased adult-child interaction by 25% and content language by 34% (e.g., math, spatial, letter terms), both behaviors associated with children's in school success (Hassinger-Das, Palti, Golinkoff, & Hirsh-Pasek, 2019). Similarly, public libraries were redesigned in collaboration with visitors and librarians into dynamic, playful spaces encouraging spatial, mathematics, literacy, and self-confidence skills through play. Community members spent increased time at the libraries, engaged in more social interactions, used greater literacy and spatial talk, and displayed more positive affect in the playful learning library spaces than previously (Hassinger-Das, Zosh, Hansen, Talarowski, Zmich, Golinkoff, & Hirsh-Pasek, 2020).

In summary, the mechanism of the playful learning projects is to enhance caregiver-child social interaction by prompting caregivers to initiate targeted interactions filled with skill-building topics with their children during moments that would otherwise be filled with silence or children playing alone. These playful interactions form a foundation for children's social-emotional-cognitive development (Hassinger-Das et al., 2018). In this paper, we present a case study of a university-community partnership integrating cross-age peer mentoring, positive youth development, and evidence from the learning sciences into a community-based playful learning program (Karcher, 2009). This unique community-university partnership engaged researchers in supporting a community-based organization (CBO) that trains local teenagers in playful learning pedagogy and data collection protocols. The teens then applied this knowledge by running playful learning programming for children on the streets of their local neighborhoods.

Play Streets

During the summer in Philadelphia, PA, over 500 streets are closed off to cars between 10am-4pm, and the city's Parks and Recreation Department provides spaces where children and families receive a free meal and enjoy the outdoors together. The concept of Play Streets as providing an oasis in urban settings enjoys a long history, both in the U.S. and internationally (Cowman, 2017). Play Streets enjoy direct community support as 70% of block residents must sign their approval to make their street a Play Street. However, there are no institutionalized resources for Play Streets (aside from barriers to block cars, a daily cooler of snacks, and minimal toys expected to last all summer), and the streets often lack supervision, activities, or resources to provide basic necessities like shade or water during the sweltering summers. The name is a bit of a misnomer, as although Play Streets are spaces where children are *allowed* to play, they often lack physical play, games, or playful learning, especially on high-poverty blocks.

In 2017, Fab Youth Philly – a local CBO (community-based organization) that focuses on youth skill building, employment, and civic-engagement for teenagers – recognized the potential for making Play Streets more playful and simultaneously developing teenagers' leadership and job training skills. To accomplish this, Fab Youth Philly created the Play Captain Initiative to train and empower teens to lead play on the Play Streets in neighborhoods where other play-based initiatives typically are not present. The teens, known as Play Captains, were hired and trained to run a variety of games and activities on select Play Streets and in local libraries throughout Philadelphia as a five-week long summer job. The trial summer in 2017 was an anecdotal success, with teenagers leading activities for neighborhood children to enjoy, and teens themselves developing leadership skills and self-confidence.

In 2017, after learning about the first year of the Play Captains program, a non-academic collaborator of the university researchers reached out to the CBO to discuss the program and how it fit into the

playful learning umbrella and the Philadelphia-wide play initiatives. In early 2018, the CBO approached the university researchers to discuss how the researchers could support the second year of the program with additional intentional playful learning training and a program evaluation. By 2018, our university research team was helping the CBO infuse playful learning pedagogy into their already playful program. The CBO leadership recognized a gap in Philadelphia-based play advocacy and programs, in which many prior initiatives focused strictly on reaching young children through play. The leadership felt the science behind playful learning could benefit teens in addition to children. The director of the CBO sought out university researchers to a) address a gap in local play-based advocacy by reaching teenagers, b) support the CBO's integration of playful learning pedagogy and theory into the applied community play program, and c) provide a framework and training for program evaluation. In this context, the university researchers supported the CBO in coaching the teens on how to transform their activities – including games with rules (e.g., cards, board games), arts and crafts activities (e.g., making a game board, face painting), and physical games (e.g., tag, capture the flag) – into playful learning activities. Five teens returned from the 2017 trial summer and were retrained by the CBO's staff to run playful learning programming on Play Streets, as well as to collect data. In terms of collaborative balance, the project was led by the CBO in response to community needs, with the university team consulting on playful learning pedagogy, infusing activities with playful learning, and research and evaluation.

Defining playful learning

Playful learning is guided by a core set of principles – that we should try to make learning joyful, meaningful, socially interactive, actively engaging, and iterative (Zosh et al., 2018). Playful learning is a pedagogical perspective that children can learn through all kinds of play, but that learning is most likely when play is infused with learning goals. Play is difficult to define, and recently has been argued that it lies on a spectrum from free play with little adult support to direct playful instruction that is driven by adults. In the middle of this spectrum sit games with rules and *guided play*, in which adults gently facilitate play, but children retain the agency to drive the play activity (Zosh et al., 2018).

Evidence is growing that children learn and develop skills from multiple types of play, from children refining social skills and self-regulation during team activities (Blatchford & Baines, 2010; Foley, 2017) to building executive functions through games like Simon Says that require children to focus their attention, behave flexibly, and utilize their working memory (Diamond, 2016; Röthlisberger, Neuenschwander, Cimeli, Michel, & Roebers, 2012). Prior playful learning projects have aimed to harness the power of adult participation and child agency (Zosh et al., 2018). During guided play, for instance, if young children have the agency to discover information for themselves while adults keep them on track, children learn early math content better than when told the answer or when playing alone (Fisher et al., 2013).

Playful learning typically fosters a broad swath of "twenty-first century skills" such as communication, collaboration, critical thinking, content learning, creativity, and confidence (Golinkoff & Hirsh-Pasek, 2016). These skills are the suite of evidence-based, malleable, and measurable competencies that are central to today's workforce. They are not mutually exclusive, and may simultaneously develop during playful learning activities, especially when specific content goals are built into social play (Golinkoff & Hirsh-Pasek, 2016). For example, during a relay race, children are communicating and collaborating with teammates and developing critical thinking skills by planning ahead and learning from other teams' strategies. For less confident children, relay races are a great opportunity to build up confidence by succeeding and learning how to rebound from failure. There is even space for creativity by iterating winning strategies or trying out new moves. We can amplify the learning that takes place through this activity by integrating explicit content into the relay race. In one such variation, 4- and 5-year-olds might be required to count to 10 while jumping on one foot before passing a baton to the next runner. Though the link between playful learning and developing twenty-first century skills has been proposed based on prior literature (Golinkoff & Hirsh-Pasek, 2016), no study to our knowledge has explicitly observed the degree to which children engage in communication, collaboration, critical thinking, content, creativity, and confidence behaviors during playful learning activities. The current case study examined the degree to which, in a community space, we could observe young children engaging in these skills on the Play Streets to support these proposed outcomes of playful learning.

Mentorships and Social Interaction

Parents are not the only adults with whom children play and develop social relationships. Role models, such as neighborhood teenagers, are especially important for positive development of youth of color, especially when it comes to school success. Overall, meta-analytic work suggests that mentorship programs provide

benefits for both mentors and mentees regardless of age (DuBois, Portillo, Rhodes, Silverthorn, & Valentine, 2011). Although effect sizes are modest, there are overall academic and self-concept improvements (or smaller declines when declines are expected) for mentees compared to their non-mentored peers (DuBois et al., 2011).

Cross-age mentoring demonstrates positive effects for both teen mentors and youth mentees. For example, teens who served as mentors to middle school students had significantly higher self-esteem for school and extra-curricular activities and increased connectedness to friends, culturally diverse peers, and school, compared to their peers (Karcher, 2009). In addition, late elementary students with teen mentors were found to show increased connectedness to parents than youth without mentors, and this connectedness was linked to academic achievement (Karcher, Davis, & Powell, 2002). Mentorship can be challenging at times, and in particularly difficult circumstances has sometimes resulted in declining connectedness to the school environment (Karcher & Lindwall, 2003). However, mentoring can also be especially effective for children from unrepresented groups with mentors who look like them, as evidenced by a study finding that Black middle school students who participated in an Afrocentric mentorship intervention showed significantly higher academic achievement than their counterparts who were not in the program (Gordon, Iwamoto, Ward, Potts, & Boyd, 2009).

In sum, cross-age mentoring programs offer benefits for a variety of reasons, including their beneficial influence on agency. The agency that comes with participating in loosely structured activities, in contrast to the passivity that may be conditioned by rigidly structured activities and unstructured leisure time, supports self-confidence and overall developmental growth (Caldwell & Witt, 2011). Similarly, mentorship programs can teach content in an informal, positive setting, which has been related to overall school success (Caldwell & Witt, 2011). In addition, mentorship programs can engage youth in ways that traditional educational programs cannot (such as play or playful learning in this case), thus supporting the development of intrinsic motivation (Pearce & Larson, 2006).

Method

Environment and Participants

The CBO's program ran for five weeks during summer 2018. Five Play Captains spent 90 minutes running activities on the Play Streets and 90 minutes in a local library daily. Median household income in the neighborhood in which data was collected was $24,000, with 55% of residents living below the poverty line. The neighborhood population was 40% Hispanic or Latino and 29% African American or Black. Participants were children who happened to be playing on a Play Street or in the library during an observation period. The children observed ranged in age from approximately two to twelve-years-old.

Observations

As part of their employment responsibilities, Play Captains conducted five-minute naturalistic observations of behaviors and language on the Play Streets periodically for the CBO program evaluation. Play Captains rotated out of leading activities one at a time to collect the observations. A total of 34 five-minute observations were conducted over a three-week period.

Measures

Observations included the content of language in conversations (e.g., number words, spatial language, and asking questions), levels of social interaction, physical activity, and behaviors indicative of twenty-first century skills (Hassinger-Das et al., 2018; Hassinger-Das et al., 2019). Researchers provided sample research protocols adapted for the program evaluation that were consistent with prior observational research on social interactions in community spaces (Hassinger-Das et al., 2019; Hassinger-Das et al., 2020; Ridge, Weisberg, Ilgaz, Hirsh-Pasek, & Golinkoff, 2015; Schlesinger, Hassinger-Das, Zosh, Golinkoff, & Hirsh-Pasek, 2019). All children and teens within sight and earshot at the time of the observation were included as participants, and the conversations and behaviors of everyone in the observation were collapsed into a total group count for each observation.

Language

Observers tallied how many times youth used numeric words (e.g., whole numbers, fractions), spatial words (e.g., features, sizes), measurement language (e.g., using distance words, teaching to measure), pattern language (e.g., describing a pattern, making a pattern), planning language (e.g., proposing strategies or schedules), and asked questions. These six categories resulted in six unique continuous variables.

Behaviors

Observers rated as high, moderate, or low the average degree to which children engaged in contingent conversation, were physically active, and were socially interactive with other children and Play Captains. This resulted in three variables ranging from 1 to 3, with higher ratings indicating greater activity or interaction.

Twenty-First Century Skills

Observers holistically estimated the degree to which children engaged in communication (e.g., talking, gesturing), collaboration (e.g., team work, taking turns), content (e.g., math words, displaying self-control), critical thinking (e.g., solving problems, reasoning), creative innovation (e.g., making up rules, adaptation), and expressed confidence (e.g., taking risks, persisting) on a 1 to 3 Likert-style scale, resulting in six unique variables (Golinkoff & Hirsh-Pasek, 2016).

Survey

As part of the CBO's evaluation of their training program, 21 Play Captains (including 16 Play Captains who facilitated activities but did not collect data) took online surveys (before and at the end of the program) to evaluate their self-confidence, their recognition of the connection between play and learning, and their thoughts on the value of play (Grob et al., 2017). The survey was broken into three parts and was co-developed by the CBO and university researchers. The CBO assessed the teens' self-confidence to measure a primary goal of the Play Captains program: youth empowerment. The university researchers added survey items that measured teens understanding of the connection between play and learning and their perspectives on the value of play to examine how hands-on experience facilitating playful learning activities may have changed teens outlooks on play and learning.

Measures

Self-Confidence

Self-confidence was measured via Play Captains' level of agreement with nine statements about their self-capacity. All questions featured a 1 (strongly disagree) to 7 (strongly agree) Likert-style scale. The items to which they responded were: 1) I can make a difference in my neighborhood, 2) I can make a difference in someone else's neighborhood, 3) I am an effective leader, 4) I can communicate my thoughts clearly, 5) I know how to work well in groups, 6) I can follow someone else when they are being a leader, 7) I can stay motivated, 8) I can take initiative, and 9) I am a hard worker. The nine items had high reliability (Cronbach's alpha = 0.96) and were averaged to create a composite self-confidence variable.

Learning from play

Play Captains' beliefs in the connection between play and learning were evaluated using 10 questions about whether children could develop the following skills through play: 1) new words, 2) reading skills, 3) math, 4) science, 5) planning, 6) communication, 7) collaboration, 8) critical thinking, 9) confidence, and 10) creativity. The number of topics that Play Captains checked were summed, creating a variable ranging from 0 to 10, with higher numbers indicating a belief that a wider variety of topics can be learned from play (Grob et al., 2017).

Value of play

Play captains perspectives on the value of play were evaluated through their responses to three statements about the impact of play. All responses were on a 1 (strongly disagree) to 5 (strongly agree) Likert-style scale. The items were: 1) children grow as a person, 2) children can play and learn at the same time, and 3) play helps children practice being a leader (Grob et al., 2017). The questions had moderate reliability (Cronbach's alpha = 0.72), and were averaged, creating a composite value of play variable.

Procedure

Supervisor training

University researchers provided a 90-minute workshop to the CBO's field supervisors one month before the summer program began. These adults managed, trained, and guided the teen Play Captains throughout the summer. This workshop introduced the five principles of playful learning (i.e., fun, actively engaged, meaningful, socially interactive, iterative) and the six categories of twenty-first century skills used for creating learning goals for playful activities (collaboration, communication, content, critical thinking, creative innovation, and confidence). The goals of the training were to get staff comfortable with playful learning

as a concept, integrate playful learning terms into their lexicon, and practice transforming playful activities into playful learning activities. The training featured videos and activity examples, as well as brainstorming and discussion of how to enhance the playful learning activities.

Play Captain training

A similar workshop was held a few weeks later for the teen Play Captains who ran playful activities on the Play Streets. The goal of the workshop was to provide a "refresher" for training they had received from CBO staff on how to enhance any playful activity with playful learning, and to introduce an observational protocol for Play Captains to collect data for the CBO program evaluation. To the trainer's delight, the Play Captains demonstrated good familiarity with the concept of playful learning. They also displayed the principles of playful learning that they had embedded in their *"Bex decks"* – small notebooks with playful learning games and tips on running them – for easy reference on the streets (see **Figure 1**). By this time, the Play Captains had one week of experience running playful learning activities, and the researcher guided the Play Captains to work through some examples of how to enhance play with new learning layers.

The Play Captains collected observational data on the Play Streets as part of the CBO's program evaluation, with the additional goal of promoting leadership and job skills for the teens. To help the CBO achieve this goal, university researchers introduced coding protocols, and walked the Play Captains through the various categories (e.g., language, physical activity, etc.). The Play Captains practiced coding videos and discussed their reasoning for coding until they agreed and were confident about their coding decisions. The teens expressed enthusiasm for collecting evaluation data on the Play Streets, knowing that this research could help people learn more about the potential value of playful learning in community settings. The Play Captains discussed how even though they felt intuitively that playful learning principles worked, it was imperative to evaluate the impact of playful learning activities on the Play Streets. Play Captains insightfully pointed out that Play Streets is not a lab experiment, but rather an intervention benefitting children in the real world.

Results

Observational Results Overview

On average, there were five children on the Play Streets during any given observation.

Language

As shown in **Figure 2**, children used about two-and-a-half number words ($M = 2.65$, $SD = 4.02$) and asked nearly two questions ($M = 1.74$, $SD = 1.97$) per five-minute observation. Children used relatively little spatial ($M = 0.26$, $SD = 0.51$), measurement ($M = 0.26$, $SD = 0.93$, pattern ($M = 0.18$, $SD = 0.52$), and planning ($M = 0.56$, $SD = 1.11$) language.

Behaviors

Among children, there were high levels of conversation ($M = 2.38$, $SD = 0.60$), social interaction (e.g., competition, solving problems together; $M = 2.53$, $SD = 0.56$), and physical activity (e.g., running, jumping; $M = 2.06$, $SD = 0.89$).

Twenty-First Century Skills

As shown in **Figure 3**, children displayed moderate levels of communication (e.g., conversations; $M = 1.71$, $SD = 0.91$), collaboration (e.g., teamwork; $M = 1.59$, $SD = 0.99$), and confidence (e.g., persistence; $M = 1.53$, $SD = 1.02$). In contrast, children showed relatively low levels of content understanding (e.g., demonstrating

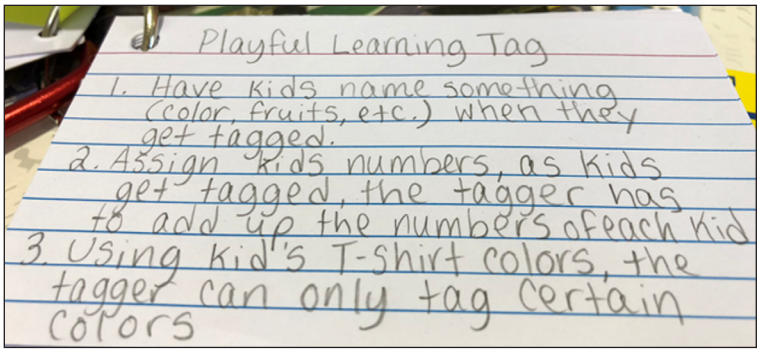

Figure 1: Play Streets Bex Deck (Tip deck): Playful Learning Tag.

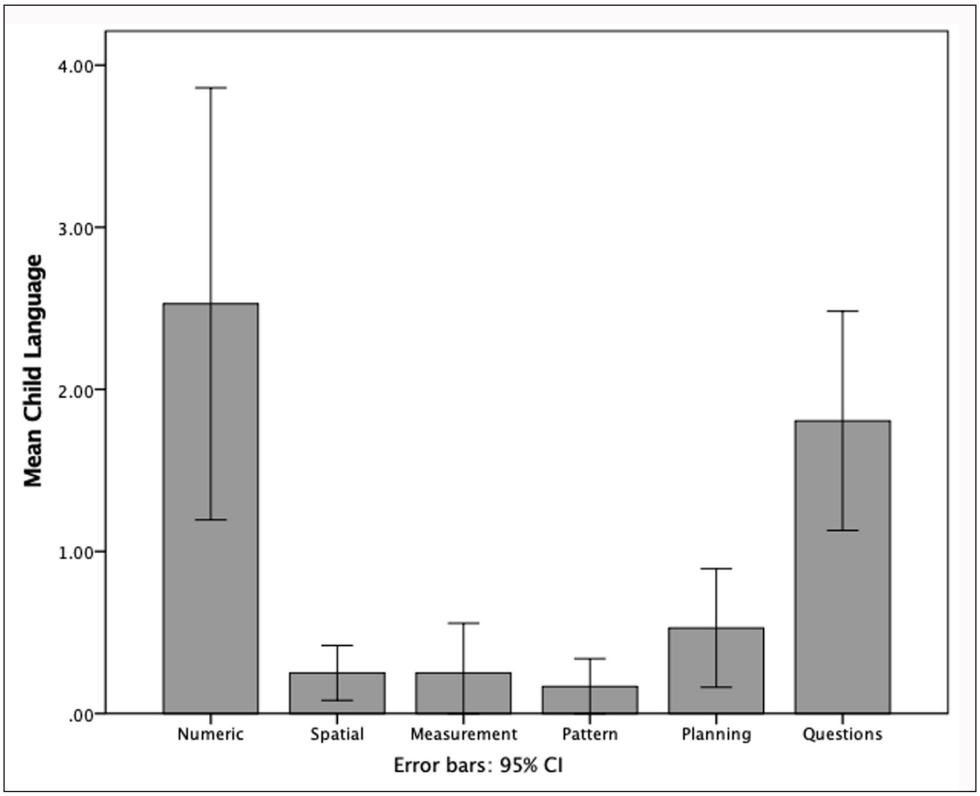

Figure 2: Children's language use on the Play Streets.

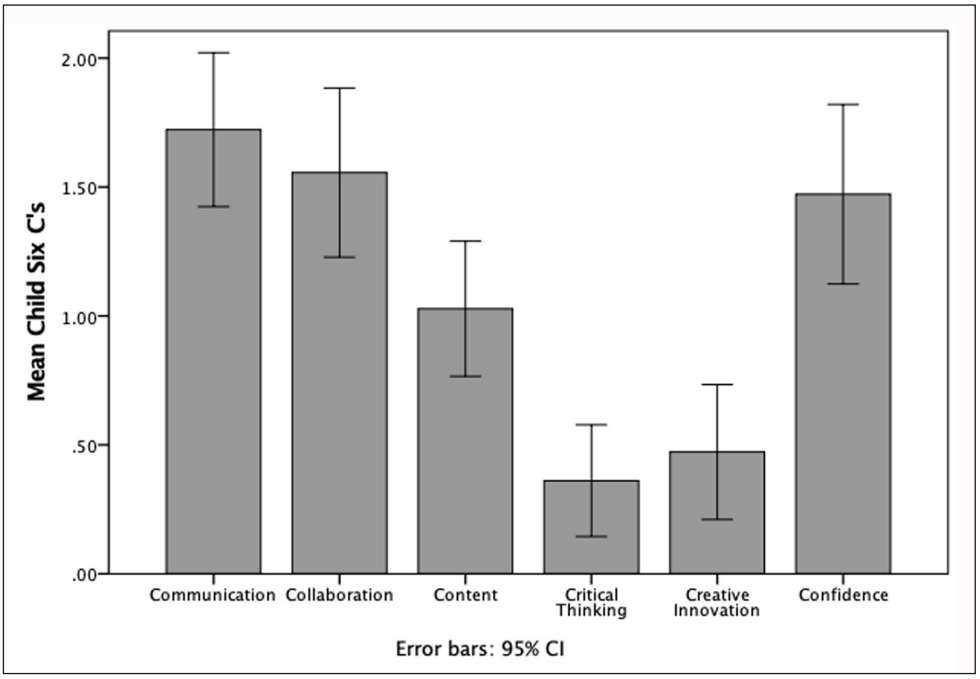

Figure 3: Children's Twenty-First Century Skills behaviors on the Play Streets.

self-control; $M = 1.06$, $SD = 0.78$) and creativity (e.g., developing original ideas; $M = 0.44$, $SD = 0.75$). Children showed minimal levels of critical thinking (e.g., compares and contrasts; $M = 0.38$, $SD = 0.65$).

Relation between behaviors and Twenty-First Century Skills

As shown in **Table 1**, both conversation and social interaction were positively significantly correlated with communication and collaboration. In addition, confidence was significantly correlated with conversation and physical activity.

Comparisons

Activity type (physical vs. sedentary)

Table 2 shows mean twenty-first century skills for physical playful learning activities (e.g., bicycle obstacle course, bean bag toss) versus more sedentary playful learning activities (e.g., wood crafts, face painting). During physical play, children demonstrated significantly higher levels of collaboration (d = 1.01), creativity (d = 1.67), and confidence (d = 1.17) than during sedentary play.

Location (Play Streets vs. library)

Children's language use on the Play Streets was compared to their language use in the library. Children in the library (M = 2.80, SD = 2.04) asked significantly more questions than children on the Play Streets (M = 0.89, SD = 1.49), $t(32) = 3.15$, $p = 0.004$, $d = 0.91$; and children in the library (M = 8.60, SD = 7.96) used significantly higher total language than children on the Play Streets (M = 3.32, SD = 4.03), $t(32) = 3.34$, $p = 0.030$, $d = 0.81$. In contrast, children on the Play Streets (M = 2.41, SD = 0.80) demonstrated significantly higher physical activity than children in the library (M = 1.64, SD = 0.84), $t(32) = 2.60$, $p = 0.014$, $d = 0.98$; children on the Play Streets (M = 0.95, SD = 0.97) also showed higher creativity than children in the library (M = 0.47, SD = 0.52), $t(32) = 2.48$, $p = 0.021$, $d = 0.86$.

Survey Results

Survey results revealed the Play Captains' beliefs changed from pre- to post-employment, consistent with the goals of the program (see **Figure 4**).

Self-confidence

Play Captains were rather ambivalent about their self-confidence at pretest (M = 5.34, SD = 1.74), and had fairly high confidence at posttest (M = 6.49, SD = 0.63), a significant increase in self-confidence, $t(19) = 2.69$, $p = 0.014$, $d = 0.73$.

Table 1: Bivariate correlations between Twenty-First Century Skills (6 Cs) and behaviors.

	Conversation	Social Interaction	Physical Activity
Communication	0.48**	0.42*	0.05
Collaboration	0.42*	0.34*	0.33†
Content	0.04	0.30	0.10
Critical Thinking	0.29	0.09	–0.14
Creative Innovation	0.15	0.13	0.29
Confidence	0.44**	0.30†	0.35*

Note: ** $p < 0.01$, * $p < 0.05$, † $p < 0.10$.

Table 2: Means (and SDs) for twenty-first century skills by activity type, with t-test results.

N	Physical	Sedentary	*t*	*p*
	8	13		
Collaboration*	2.00 (1.07)	1.00 (0.82)	2.43	.025
Communication	1.75 (1.16)	1.69 (0.85)	–0.16	.875
Content	1.13 (0.64)	1.00 (0.58)	0.00	1.00
Critical Thinking	0.13 (0.35)	0.54 (0.78)	1.68	.109
Creativity*	1.13 (0.99)	0.23 (0.44)	2.68	.041
Confidence*	2.25 (0.89)	1.15 (0.99)	2.56	.019

Note: * $p < .05$.

Learning from play

At pretest, Play Captains believed only about five skills or content areas could be learned through play (M = 5.29, SD = 2.53), and this significantly increased to about eight at posttest (M = 7.95, SD = 2.80), $t(19)$ = 5.064, $p < 0.001$, d = 1.28.

Value of Play

At pretest, Play Captains had fairly high belief in the degree to which children could benefit from play (M = 4.49, SD = 0.43), which significantly increased at posttest (M = 4.81, SD = 0.34), $t(19)$ = 2.781, p = 0.012, d = 0.75.

Discussion

This university-community partnership demonstrated the strength of leveraging the motivation and commitment of community members and organizations to provide playful programming for local youth. It further revealed the possibilities for university researchers to orient playful programming in the direction of playful *learning* with an enthusiastic community partner. University researchers were also able to provide the CBO with methods to evaluate the impact of playful learning programming. Critically, the observational research collected by the Play Captains demonstrates that teens can understand and conduct research. Further, children had the opportunity to engage in behaviors that are critical for social development and that build a foundation for learning while working with teens. This approach is consistent with other research on cross-age mentorship and positive youth development (DuBois et al., 2011; Karcher, 2009; Pearce & Larson, 2006). This case study aimed to examine the impact of playful learning programming for youth on the Play Streets of Philadelphia, as well as to assess the growth of the teens who ran these activities.

Observational Data

The goals of observational data were to evaluate whether the program resulted in youth on the Play Streets engaging in behaviors associated with learning. The results indicate that children exercised a variety of important skills, including high levels of physical activity, social interaction, and conversation—in particular using math terms and asking questions (consistent with Hassinger-Das et al., 2019). These forms of conversation outside of school are known to support young children's learning in school (Pruden, Levine, &

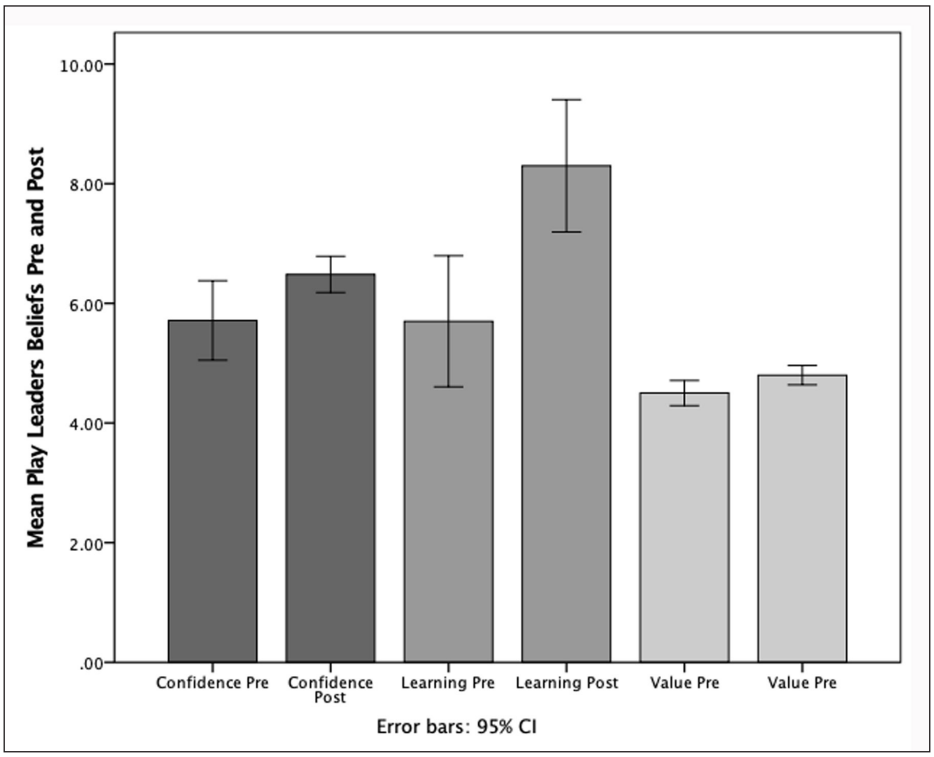

Figure 4: Play Captains survey results.

Huttenlocher, 2011). Children demonstrated moderate levels of behaviors indicating skills in communication, collaboration, and confidence—critical socio-emotional skills that support children's in-school learning (Golinkoff & Hirsh-Pasek, 2016). This suggests that children who engaged in the Play Captains' activities were building skills that provide a strong foundation for learning.

It is noteworthy that only certain types of language occurred often, and that certain twenty-first century skills were predominant—like communication and collaboration. This may be due to the types of activities provided, as many of the outdoor games intuitively seem to encourage communication, collaboration, and confidence, as well as question asking. In contrast, the most common playful learning activities on the Play Streets may provide fewer opportunities for learning content, engaging in creative innovation, or critical thinking. These opportunities may have been increased by the teenage Play Captains themselves engaging in critical thinking and creative innovation when they were improvising new activities and games with the children on the Play Streets, and the children responding positively to those modeled behaviors. An alternative explanation is that when children engaged in creativity, critical thinking, or content learning silently or internally, these skills were not captured by observational measurements of overt verbal and physical behaviors. The observational measurements included in the current study could not capture internal skill development or learning, only skills demonstrated in discreet behaviors (Ridge et al., 2015). Future research should attempt to integrate measurements that capture an array of internal and external behaviors.

Interestingly, children demonstrated significantly higher levels of the twenty-first century skills of collaboration, creativity, and confidence during physically active activities, as compared to more sedentary activities. This suggests that the benefits of playful learning might be enhanced by integrating a physical component into playful learning activities, further supporting the notion that physical activities have benefits for children far beyond exercise (Hillman et al., 2009; Sibley & Etnier, 2003; Schlesinger et al., 2019).

Survey Results

The goals of the survey were to examine whether the teenage Play Captains demonstrated increased self-confidence and knowledge that could support their academic and career success beyond the summer employment experience. Survey results indicated significant increases in self-confidence, as suggested by prior research (Karcher, 2009), in addition to increased beliefs in the value of play and topics that children can learn from play (Grob et al., 2017). This positive impact is directly aligned with research on teen mentor programs (DuBois et al., 2011; Gordon et al., 2009; Karcher, 2009; Karcher et al., 2002; Karcher & Lindwall, 2003), in which teens have demonstrated academic and social-emotional benefits by acting as mentors to youth.

Similarly, the Play Captains collecting program evaluation data themselves provided a unique opportunity to learn research skills. The teens' engagement in conducting research, and exercising critical thinking, reading, writing, and leadership skills likely counteracted any potential summer slide. Overall, the study's positive results support the CBO's mission to grow the self-confidence and job training of Philadelphia teenagers. The university researchers had never considered training minors to collect data in their community before and were pleased by how quickly the teens learned the rigorous observational protocols, providing a new perspective and appreciation of youth and community research partnerships.

Theory into practice

We hypothesized that the teenage Play Captains would benefit from their employment, based on prior literature about the benefits of teens acting as mentors (DuBois et al., 2011; Gordon et al., 2009; Karcher, 2009; Karcher et al., 2002). This prediction was supported by the finding of increased self-confidence among teens. However, the CBO leadership also noted numerous qualitative benefits for teens that were not captured by the formal survey or observations. For about half of the Play Captains who collected data, the experience of training and data collection transformed the position to feel like a *real job*, as opposed to feeling like school or an extracurricular activity. This perception of the experience, in which certain teenagers have a greater sense of pride and responsibility in their work, is another mechanism that seems to drive the benefits of mentorship programs. Additionally, some children on the Play Streets bonded with the teen Play Captains over the course of 3–5 weeks, and these children asked when they could become Play Captains, indicating that they looked up to the teens, and could see themselves playing this leadership role in the future. These types of qualitative experiences underscore reported benefits of cross-age mentorship for children and teens.

Partnership

Importantly, this was a university-community collaboration led by the CBO, with the university research team acting as consultants on pedagogy and evaluation. This partnership required a delicate balance in which the university research team deviated from traditional laboratory research methods and prior university research protocols. The goal was for the researchers to accommodate the desires of the communities where the Play Streets were located and the needs of the CBO in training and managing teenage employees. These adaptions resulted in a handful of promising surprises about the strength of community-university partnerships.

The initial data collection plan envisioned the university research staff collecting observation data (see Hassinger-Das et al., 2019 for a description), thus allowing the CBO more time to focus on programming and mentoring the Play Captains. However, the CBO recognized that the neighborhood would not be comfortable with unfamiliar white observers roaming their neighborhood with clipboards and surmised that this could lessen the trust that had been built between the neighborhood and CBO. Given our perspective that community needs were paramount in the collaboration, we did not want to send laboratory staff to collect data, and instead created the plan for Play Captains themselves to collect data. Ultimately, this arrangement likely generated more benefits for the teens than the original plan would have. Because most teens were motivated and excited to learn data collection protocols, they learned very quickly.

Similarly, the original strategy envisioned all Play Captains collecting data. However, the CBO quickly realized that for the first-year teen hires for whom this was the first job they had ever held, data collection would be an unreasonable burden. That is, for teens still mastering the art of facilitating activities for children during their third week of work, the added responsibility of conducting observations might be overwhelming. Restricting data collection to only returning second-year Play Captains diminished the number of observations available for analyses and the generalizability of the data. As a benefit, this change resulted in higher quality data, since only teens who were comfortable balancing multiple responsibilities actually collected data.

Limitations

Overall, results suggest that important types of language and twenty-first century skills emerged during Play Captains' playful learning activities. Nevertheless, the results are limited because of a lack of control observations on Play Streets without Play Captains. This omission was due to the constraints involved in Play Captains themselves collecting data, as they could not physically leave their Play Streets for the time required to conduct control observations on other streets, which were often a substantial distance away. Additionally, the research team had hoped to co-develop activities with the Play Captains that addressed the specific skills and learning goals that were most meaningful to the local community, but there was limited opportunity to do so given the timeline and schedule of the CBO's program. Similarly, because the teens participated in other job training and skill development activities throughout the summer, there was minimal time for researchers to meet with the teens to discuss challenges, develop new activities, and adapt the research protocol based on feedback from the Play Captains.

Conclusion

This university-community collaboration is part of the Playful Learning Landscapes (PLL) initiative, merging the place-making approach of the Conscious Cities movement (Sumerling, 2017) with the science of playful learning to fill the spaces where children spend their time outside of school with engaging activities that encourage social interaction and skill building (Hassinger-Das et al., 2018). Activities in PLL projects are intended for a range of ages and skill sets and are dedicated to accessibility for wide audiences. Projections indicate that by 2050, 70% of children will live in urban centers. With this growth comes more opportunity for moving informal learning beyond school walls, and providing all children, especially those in high-poverty communities, with prospects for learning school content (e.g., mathematics, literacy, science), and skills for success throughout life (i.e., collaboration, communication, content, creative innovation, critical thinking, and confidence; Golinkoff & Hirsh-Pasek, 2016). The university-community collaboration described here suggests the promise of temporary "pop-up" projects that can be more easily mounted in various locations and quickly adapted to respond to community needs and desires.

Play Captains facilitating playful learning activities on Play Streets demonstrates the power of providing opportunities for children to interact with mentors in the spaces they already inhabit. University researchers integrated the lessons learned from prior university-community collaborations and co-design experiences

(Hassinger-Das et al., 2019; Hassinger-Das et al., 2020; Schlesinger et al., 2019) to support the community's goals and needs rather than attempting to fit the community into the university's traditional procedures. This allowed the researchers to provide playful learning suggestions and research protocol training, with the CBO retaining the agency to choose how best to integrate this support.

Above all, this project shows the potential of university-community collaborations and connecting with the growing number of community groups who are promoting play. With a flexible, collaborative approach, we believe that university researchers are well positioned to support communities in expanding play through playful learning. In the present case study, Play Streets activities were enhanced based on evidenced-based research and researchers adapted evaluation protocols to support the CBO's interests. This consultative model was well received by both groups, and the CBO expressed that they were happy with the university collaboration and the infusion of playful learning theory into their practice. By starting with the needs of urban communities and organizations firmly rooted within them, as in this example of Play Captains, we will likely find fertile soil for growing the buds and flowers of playful learning.

Competing Interests

The authors have no competing interests to declare.

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