'When is safe enough?' Considering Diversity and Equity When Brokering Pre-Professional Learning Opportunities to Minoritized Youth

Rafi Santo, Telos Learning, Rafi@teloslearning.net Dixie Ching, Google, Inc., DixieC@google.com Kylie Peppler, UC-Irvine, Kpeppler@uci.edu Chris Hoadley, New York University, Tophe@nyu.edu

Abstract: Central to the Learning Sciences is an interest in promoting cross-setting learning, including early workplace settings. This study conceptualizes 'brokering pre-professional learning opportunities' as a practice that goes beyond facilitating access across settings to include concerns about when, exactly, an opportunity is 'safe enough' when supporting connections for minoritized youth populations. Utilizing a design-based research approach, we report results of an organizational 'vetting' routine used to assess whether companies being considered for work-placement sites were appropriate for minoritized youth of color. Our findings confirm that characteristics of staff diversity and equity orientation of work-placement organizations can support or hinder positive learning outcomes. However, we also found that both strengths and limitations in terms of diversity and equity, in concert with other supportive factors, can be productive resources within the context of future goal setting for youth of color. We close with implications for those interested in promoting equity-oriented cross-setting learning.

Introduction

As learning scientists have aimed to theorize learning as a cross-setting phenomenon (Banks et al., 2007; Barron, 2006), the question of how to equitably design supports for productive connections across settings has become a focal point for interventions (Acholonu, Pinkard & Martin, 2015; Penuel, Lee & Bevan, 2014). One practice, that of brokering learning opportunities from one setting to another, has emerged as a key form of support for cross-setting learning pathways (Ching, Santo, Hoadley & Peppler, 2015, 2016; Ito et al., 2013). However, the practice of brokering can easily assume that *access to new learning opportunities* is the only challenge to be addressed with regards to supporting equitable learning pathways, when this is not the case (Vossoughi, 2017). For minoritized youth interested in various disciplinary pathways, the opportunities that might be brokered to them may themselves not be productive and safe for participation due to inequities in representation in those industries by people of color, women, young people, and various other minoritized groups and may have limits in terms of their orientations to equity.

This study is based in a research-practice partnership focused on developing brokering routines across learning settings in Hive NYC, a network of informal education organizations focused on digital learning. We report results from a design partnership with one organization, Scope of Work (SOW), whose approach to brokering focused on not only considering issues of access, but also on assessing qualities of settings they were brokering into, including factors related to diversity and equity. Utilizing a design-based research approach (Design Based Research Collective, 2003), SOW worked with the research team to co-design and test an organizational 'vetting' routine that could be used to assess companies within the creative industry, including fields of design, music, film, fashion and technology, with the intention to select settings that would be supportive of a positive early workplace experience for minoritized youth of color. Importantly, the broader commitments of SOW were not only to provide access, but also, ultimately, to transform the creative industry in terms of issues of representation and equity for minoritized youth and their communities.

This study analyzes how two organizational characteristics identified within the vetting routine and associated with a 'safe' workplace learning environment—staff diversity and equity orientations of an organization—were experienced by minoritized youth of color participating in SOW's summer fellowship program. Our findings both confirm the importance of these factors as well as extend how we might attend to these characteristics when a potential learning setting is under consideration for brokerage to minoritized youth. We found expected evidence that strengths of an organization in these areas can support positive outcomes for minoritized youth of color during a workplace experience, and, vice versa, that a setting with limitations in these areas can result in negative outcomes. However, we also unexpectedly found that both strengths and limitations of learning settings in terms of diversity and equity, in concert with other supportive factors, can be productive resources within the context of future goal setting for minoritized youth of color. We close with implications for

those interested in promoting equity-oriented cross-setting learning experiences through brokering into contexts that vary in terms of diversity and equity orientation.

An equity orientation towards brokering learning across settings

Learning across-settings

Conceptualizing learning as a cross-setting phenomenon has implied a new set of concerns around equity in learning. As scholarship has come to understand learning as spanning, implicating and connecting spaces of home, school, peer groups, online contexts and out-of-school and community-based settings and the attendant cultural and epistemic resources that reside within them (Banks et al., 2007; Crowley & Jacobs, 2002), a natural next set of equity-focused questions have focuses on how continuities and discontinuities are made (Bronkhorst & Akkerman, 2016), how such learning is stratified along lines of race and class, and how it is subject to historically and culturally situated dynamics of power and privilege (Bell et al., 2013).

Connected learning, brokering practices and designed learning ecosystems

Recognizing this, various design interventions have emerged that aim to address these gaps in opportunity, among them efforts to cultivate designed learning ecosystems that span multiple settings (Acholonu et al., 2015; Penuel, et al., 2014). Within the context of such designed learning ecosystems, our work and others have come to focus on the practice of brokering future learning opportunities as a mechanism to bridge learning across settings (e.g., Ching et al, 2015, 2016, 2018; Barron, Martin, Takeuchi & Fithian, 2009; Russell, Kehoe & Crowley, 2017). Within a larger context of Connected Learning theory, such practices are often understood through the lens of 'pathway building' and 'sponsorship' (Ito et al., 2020).

The practice of brokering learning implicates various levels of analysis. Intra-personal factors such as a youth's network orientation (Barnes, 1972) and help-seeking orientation (Stanton-Salazar, 2001) play into when and whether they signal interest (Ching et al., 2018) or ask for social support around accessing new learning opportunities. Inter-personal factors such as youth trust of a learning broker and a broker's knowledge of a young person's interest effect whether productive brokering occurs (Ching et al., 2015; Louw et al., 2017). At the macro level, questions of what opportunities are available to be brokered and how transparent a given opportunity ecosystem is mediate how an actor can broker learning opportunities (Acholonu et al., 2015).

At the level of educational organizations that attempt to act as nodes within learning ecosystems, helping productively connect youth to opportunities relies on a critical meso-level factor - presence of organizational brokering routines that intentionally address opportunity access. For many informal learning organizations, such practices are largely oriented towards 'brokering within', that is, providing new opportunities within the bounds of a given organization's programmatic offerings, rather than 'brokering out' to opportunities in other settings (Akiva, Kehoe and Schunn, 2017). It is at the level of these organizational brokering routines that this study is situated.

Equity in brokering pre-professional learning opportunities

In focusing on connecting youth to opportunities, the practice of brokering learning can easily be construed solely through the lens of access (Vossoughi, 2017), and seen as an issue focused centrally on understanding and designing around factors that facilitate entry into and uptake of a given opportunity. However, such a perspective elides questions about the equitable nature of the opportunity itself, questions that are especially salient given the reality that many learning ecosystem efforts are oriented towards promoting pathways in science, technology, digital arts and creative sectors where issues of broadening participation from minoritized groups have been a long-standing concern. In these sectors especially, the 'destinations' represented in opportunities that are brokered are themselves often characterized by deep challenges when it comes to diversity and inclusion, let alone those related to pedagogical capacity to provide productive learning experiences. Literature has extensively documented the challenges for women of color participating in STEM (Ko et al., 2014). The technology and computing sector is replete with contemporary headlines concerning gender harassment and discrimination (Benner, 2017; Isaac, 2017), not to mention vast under-representation by African American and Latinx communities (The National Academies, 2011). Finally, creative culture sectors including music, fashion and design have long-standing histories of appropriation and lack of recognition of minoritized youth cultures from which they heavily draw and profit (Scafidi, 2005; Wallace, 1992).

Given such questions about the basic safety of learning opportunities for minoritized youth interested in a wide variety of disciplines, practices of brokering future learning into aformentioned sectors must consider whether and how a context may be a productive learning environment when it comes to issues of diversity, equity and inclusion. In some respects, this issue represents somewhat of a double-bind. If many of the

destinations are themselves 'not safe', how, exactly, should one approach questions of productive access to them for minoritized communities? The question the research-practice team involved in this study regularly asked itself throughout its design process was, essentially, 'when is safe enough?'.

Methodology

This study was situated within a larger Research-Practice Partnership with the Hive NYC Learning Network, a collective of informal learning organizations focused on digital and connected learning (Ito et al., 2013). A central focus of the partnership has been study of youth interest-driven learning pathways and ways that informal learning organizations can act as learning brokers (Ching et al., 2015, 2016, 2018). The authors engaged in co-design (Penuel, Roschelle & Shechtman, 2007) and associated design-based research cycles (DBRC, 2003) with a subset of organizations in the network to develop new routines supportive of brokering future learning opportunities, focusing here on work with one of those organizations, Scope of Work (SOW).

Scope of Work "strives to establish equity for young talent in New York's creative industry" (scopeofwork.org, N.D.), through addressing two problems, one focused on the creative industry and the other on minoritized youth. In terms of the creative industry, they state that it is characterized by "Ineffective recruitment, engagement, and retention strategies" of minoritized youth and, as a result, has a "singular perspective and voice". In terms of minoritized youth, they state that "Creative potential isn't being supported and leveraged" and that there is a "Lack of access points for under-represented youth". Its founders all identify as career educators, artists, and people of color - two female-identified and one male-identified. SOW's specific programmatic activities focus on "providing access to pre-professional development resources, real world work experience and holistic mentorship through site visits, shadow opportunities and master classes".

A brokering intervention focused on 'vetting' work placement sites

The pilot of the SOW Fellowship Program, spanning two months over the summer of 2017, involved youth work placements at companies four days a week and a weekly Friday workshop wherein fellows gathered with SOW staff to engage in reflection and design activities around personal entrepreneurial projects. The research team and SOW staff worked together for nine months leading up to the pilot to co-design a new organizational routine that would support the following brokering issue: *How might we know if an industry site is viable for an early work experience for minoritized youth of color?* Internally, we referred to this as the 'vetting problem'.

The ideated solution, designed by the SOW team with feedback from the research team, was a set of interlinked 'vetting tools' including a rubric, survey, interview protocol and digital communications analysis protocol. The rubric identified factors related to youth development orientation, staff diversity, cultural competency, hiring and employment practices, and equity orientation of a company's business model that were considered consequential to inform a decision about whether to place youth fellows within the organization.

SOW staff implemented the vetting process with potential partner companies, with the research team providing support around data capture of the routine's enactment and conducting reflection interviews with them about the usability and utility of the vetting tools.

Research questions, data sources, and analytical techniques

Following the selection of partner organizations that would host SOW youth fellows, the final element of the DBR cycle around the vetting tools focused on studying the actual experience of youth during their work placements, focusing on how organizational factors the vetting routine focused on were consequential in terms of youth having a "positive early-workplace experience", a set of outcomes we will elucidate shortly. We focus here on a subset of these organizational factors, specifically: (1) the diversity of the organization's staff and their relative positions with the organization with regards to identities including race, gender and class backgrounds, and (2) the equity orientations of the placement organization in terms of who it served and what its work aimed to achieve relative to pro-social ends. The analysis we present here speaks to the following research question: How were organizational characteristics of staff diversity and equity orientation consequential to positive early workplace experiences of minoritized youth of color? Answering this question aimed to help the research-practice team understand whether the design assumptions of the 'vetting' routine were correct.

The construct of "positive early work-place experience" drew off of outcomes identified within SOW's logic model, with some additions from the research team based on prior research on youth pathways. The definition included youth developing positive relationships, taking on and being supported in consequential work responsibilities, developing industry-specific knowledge and skills, reporting a positive experience, contributing to their artistic and/or entrepreneurial portfolio, and being able to ask for a recommendation after the early work-place experience.

The pilot summer program involved five youth of color aged 16-21, two male-identified and three female-identified, with a range of racial and national identities including Dominican-American, Liberian-American, African-American, and Puerto-Rican-American. Each was placed at a company in the creative sector including a high-end fashion brand, a hip-hop and electronic music record label, and three design studios with emphases on brand strategy, advertising, marketing and visual and interactive design. Within this analysis, we utilize data from three of the participating youth and the organizations they were placed in – Mateo (18), Sean (21), and Eve (19). All youth and work-site organization names are pseudonyms.

Data for this analysis included researcher conducted semi-structured interviews at multiple time points throughout the Fellowship with each of the youth, interviews at the beginning and end of the fellowship with employees at each of the work placement organizations, interviews with SOW staff at the beginning and midpoint of the fellowship, and observations of the Friday meetings that SOW staff facilitated with the youth participants where the youth discussed their work experiences that week.

Findings – Youth experiences of workplace diversity and equity orientations

Issues of workplace diversity and the equity orientations of partner organizations played out differently for different fellows. Three findings emerged in our analysis. Two were more straightforward and tracked with SOW's design conjectures that were indexed in the vetting tool about the consequentiality of these factors – that relative strengths and limitations in terms of staff diversity and equity orientations could contribute to positive and negative youth workplace experiences, respectively. The third was unexpected, showing how youth leveraged *both strengths and limitations* of their placement organizations on this front as part of identifying professional goals, specifically ones related to their socio-political orientations as creative entrepreneurs.

Mateo: Diverse leaders shifting youth perceptions of success

Mateo's case offers perhaps the clearest example of how choosing a work placement partner with diverse staff, especially diverse leadership, can be positively consequential for a youth. He was placed at a small design firm led by a married couple—Rob, who was African-American and male identified, and Danielle, who was white and female identified. Coming from a low-income Dominican American background, Mateo's experience of them as founders and principals of a company with high profile clients had a visible effect on his perception of what leadership could look like. He shared this about his perception of Rob, one of the co-founders:

Rob impressed me right away. His realness. Because like when I first started learning about business, I had this image of a CEO. In a corporate building, with a suit on, and you know, like bougie [short for 'bourgeois'], like 'don't talk to me you peasant!' [jokingly]. So then when I talk to him... he listens to rap music, I listen to rap music, he plays basketball, I play basketball. It's cool to see that you don't have to change, and be some type of robot to be successful.

Mateo referenced a pre-existing conception of business success rooted in both cultural and class markers he did not identify with, and an attendant antagonism that such class and culturally distinct actors would have towards someone from his minoritized ("peasant") background. The impression of Rob that Mateo shares here is rooted in both Rob's personality ("his realness", not "some type of robot") as well as shared cultural affinities in hip-hop and basketball, countering an existing conception he held of what business leadership looked like and what modes of interaction he'd expect to have with actors in that position.

In a similar vein, he noted positively that Danielle, the other co-founder, was a working mother, stating that he "respect[ed] her for that", with her position perhaps affirming for Mateo ways that leadership in a company can depart from the more traditional, gendered, and authoritarian conceptions he alluded to above.

Mateo's experience aligns with the design conjectures of the RPP team - that a diverse staff, especially diverse leadership, would be positively consequential for youth. In this case, it contributed to a positive orientation that a fellow had towards his work placement and to positive relationship development with staff at the organization (both outcome elements of 'positive early work experience' as defined by SOW), and to an additional outcome of shifted conceptions related to diversity and business leadership.

Sean: "There sure is not a culture fit"

If Mateo's positive experience of reflective representation within leadership of his placement organization tracked with the expectations SOW came in with, the experience of Sean, a 21 year old Liberian-American, provided another confirmation based in what he saw as a lack of "culture fit" with staff at Free Records, a

record label focusing on Hip Hop and electronic music. In the exchange below, Sean describes how a lack of shared class background played into what he saw as challenges in forming social bonds with Free Records staff:

Researcher: Can you tell me a little bit more about how there's either a culture fit or not a culture fit in your fellowship?

Sean: There sure is not a culture fit. Cause the lifestyles which they live I can't relate to, at all, you know what I mean? There's no way I could relate to that. I come from a harder background, I never really had much. As a kid, my mom never gave me more than \$20, ever. I never had the feeling of an allowance. So the things they talk about sometimes, I'm like that's cool, but I can't really relate. So it's easy to jump into a conversation where you can relate, but if you can't relate how are you going to jump into the conversation?

In responding to this question about culture fit, Sean actively references how his experience of difference in terms of class background makes it difficult for him to participate in conversations with other staff. It is important to note that this was taking place within a broader work experience at Free Records that was difficult - lack of what Sean saw as consequential responsibility, tasks that felt mundane, and a disconnect between his interests in music production and the 'office' role he was put in as an intern. Additionally, compared to the other two cases of Eve or Mateo, Sean came into the summer with less experience interacting with communities different from his own in terms of race and class. One aspect of his experience was having to navigate these differences. It's possible that had other factors both relating to his own background and the responsibilities he was given and broader environment at Free Records been different, he may have had a different sense-making process around this question of "culture fit". At the same time, his experience confirms that importance of attending to staff diversity within an early workplace setting for a young person of color, especially one coming from less economically privileged background.

Eve: "My voice and the work i want to do is not for them"

The most unexpected way that workplace diversity and equity orientations of partner organizations were experienced were as sense-making resources around youths' socio-political professional goals. This is a phenomenon we found in multiple cases, we share one here of a 19 year old African American youth named Eve. The example highlights distinct ways that both strengths and weaknesses related to staff diversity in her workplace setting—she was one of two women of color in an organization led by three white men with the rest of the staff made up of white female interns—were utilized as a resource in her process of identifying what kind professional setting she wanted to be in in the future with regards to workplace racial and gender diversity. Additionally, we also see the ways that a perceived lack of equity orientation of the company Eve was placed in—she was at brand strategy firm called Signal that largely served corporate clients to promote their businesses—was leveraged as she affirmed and specified her plans around her professional future, ones that involved more explicit orientations to addressing issues of equity and celebration of black identity.

Eve ranged in her sense-making around the racial and gender make-up of the company's staff, holding sometimes conflicting feelings about being in the space. At one point late in the fellowship, on being asked how she felt about the cultural fit for her at Signal, she expressed questions about whether in the future she wanted to be in places where she would need to get used to how white men behave, while at the same time acknowledging the need to know how to relate to these dominant identities for her own development as a professional:

I don't know how I feel about it [the culture fit at Signal]. [...] ...white males just react differently to things, and they hold themselves differently in places. And it's not necessarily a bad thing, but it's not something that I'm used to.

And so, I'm like kinda trying to figure out, like, is that something I would want to get used to? Do I think that I want to continuously put myself in places and spaces where I feel like I have to get used to someone else's behavior? Or, do I just not deal with it and try to find like places and spaces that are more reflective of things that I'm used to seeing.

But then, that's also kind of conflicting, for me, because it's like you have to be able to try new things. Because, regardless, I have to be able to know what those situations look like and how that kind of personality is, so that I can gauge it, and know how to deal with it. 'Cause it's not a negative thing, here. But like, if it was to be a negative thing, I would know how to deal with it.

In the midst of a new experience of being a space led by white men - one that she characterizes as "not a negative thing", but rather "different" – Eve engages in sense-making around what it means for her future professional choices. She names two possible futures: one in which she's engaged in somewhat more culturally familiar spaces "more reflective of things I'm used to seeing" and where she does not need to "get used to someone else's behavior", and another that acknowledges what she sees as a need to be familiar with cultural difference, specifically white male behavior, and know how to navigate it.

In the course of her experience, she notes the conflicted role she sees her supervisor, Fernanda, the only other woman of color in the organization, occupying. It's one that, while noting some challenging dynamics, she sees as emblematic of a valuable kind of pioneering role that can help others with marginalized identities by creating space and providing role models in less diverse professional contexts and fields.

Eve: We also need to learn, not necessarily, like, get used to or like adapt, but know how to be in a room, and be listened to. [...] Here it's positive, 'cause Fernanda's listened to. Like, Fernanda's like ... And it can be kind of problematic, if you want to be critical about it-

Researcher: What do you mean?

Eve: Like, in a gender sense. Because Fernanda's kind of like a mom, and she's like the fixer. That's why they hired her, basically. Like, every time they talk about her, they joke about like, "We hired Fernanda to basically clean everything up." 'Cause everything was just all over the place. So in that respect, they really look to Fernanda to make sure that things are together.

And, in that way, Fernanda does a lot more than they do, which I think is cool. It might not seem that way, to some people. But Fernanda does a lot in this office. She's the one who orders our snacks. [...] And she knows what everybody likes. [...] So, like it would be nice to work in spaces where there's more women, but I also think it's important to put myself in predominantly male or predominantly white spaces, where it's like, I know I belong here. And I can belong here.

Researcher: Why is it important to put yourself in those spaces?

Eve: So that other people can feel comfortable in those spaces. 'Cause, like, in the creative world, it's more diverse. It's not extremely diverse. [...] I feel like it's kinda empowering, for me to be like, if I'm here, like you can do it. Like, be that person. Even if you're the first person. Even if it feels a little bit uncomfortable, sometimes, and you don't know what to do with yourself. But it's important, so that you can tell other people, "Yeah, it was difficult. But you learn some stuff from it." And then maybe other people will feel comfortable enough to be like, "Okay, maybe I could do that too."

In making sense of Fernanda's position and role in terms of her desires for the future, Eve both notes what she sees as problematic gender dynamics such as Fernanda's engagement in care-giving activities as well as the importance of her being a woman that's "listened to" within a company led by white men. One way that Eve comes to see the importance of being a woman of color at a place like Signal is as part of a larger, long-term, collective project of creating space for minoritized identities within the creative industry.

In an interview that followed her final week in the fellowship, she expresses more fully how being at Signal has brought into sharper relief her desire to engage in a professional setting that was not only more diverse, but also potentially one that had different equity orientations and social commitments when it came to both community-building and cultural development:

Eve: Yeah. I wouldn't stay here for long, though. I want to be able to focus on the things that I want to do. I want to focus more on what SOW's doing, and what we've been talking about the whole time. I want to focus more on building a community for people of color. So, that's not really possible in a space like this, 'cause it's like, client-based. And a lot of those clients are companies that are predominantly white.

So, while this work is still important, and it's cool to do, and it's nice to see ... 'cause who knows. I might end up collaborating with, or encouraging these companies to do something different, like SOW's doing, that's not ... my voice and the work that I want to do is not for them. So I don't want to do work for them.

Researcher: Wait, "for them," meaning clients?

Eve: Yeah, for clients that are predominantly white. [...] I want to do work with people who are trying to make change, and kind of push the limits, push the boundaries, and push people of color outside of the box that we're kind of put in.

She goes on to share more about her desires for her future, expressing orientations towards building, celebrating and understanding the black community and experience, integrating into this expression a critique of high-end consumer culture that she saw being promoted at Signal:

Everything now is kind of selling a lifestyle, and it's easy to sell a lifestyle to people who can afford it, to people who have the luxury to not really think about everyday struggles ... whereas, selling a lifestyle to someone who doesn't have those luxuries, and has those concerns, doesn't feel right to me. It doesn't sit right that we're selling such a grand lifestyle to someone who doesn't even have the resources to reach that.

I don't want to be a part of a corporation that's just selling a brand, that's just selling a lifestyle. I want to be a part of something that's celebrating community ... what it means to really be a human being, and a black human being, in America.

For Eve, a number of factors came together that helped her sharpen her own socio-political commitments over the course of the Fellowship. Notably, she came into the experience with a developing orientation towards these values, as evidenced in a pre-existing entrepreneurial initiative she started, a youth arts community-building effort aimed at "responding to the current political climate and its impact on young people of color", as she stated in her application to the SOW Fellowship. Within this context, she responded to and actively made sense of the nature of the Signal staff's diverse representation and the business model and social commitments that characterized the organization's work in ways that both added nuance to and strengthened her own future socio-political professional intentions. Additionally, a clear factor contributing to her deepened and more specified critical entrepreneurial consciousness was the SOW initiative itself; its staff, the larger mission it was undertaking and the activities that it engaged fellows in each week during the fellowship were things that Eve actively referred to in the context of how she made sense of her experience at Signal.

Those elements, in concert with her experience of the complex context around staff diversity and perceived lack of equity focus in Signal's business, helped her clarify and specify for herself a number of commitments related to both the racial and gender constitution of the workplaces she wanted to participate in and in the kinds of socio-political goals she wished to pursue in her future work.

Discussion

Within efforts to promote cross-setting learning for minoritized youth, this study highlights the importance of broadening approaches to brokering from a purely access-orientation to include an equity-orientation concerned with the nature of the opportunities being organized for youth. In particular, in confirming conjectures that diversity and equity orientations of workplace environments can consequentially impact learning outcomes, the findings highlight the need for care and consideration when considering whether an opportunity is 'safe enough' for a young person. At the same time, the case of Eve shows that workplace limitations, along with strengths, can be productively utilized within the context of socio-political professional goal setting. The finding points to the importance of structures that support such sense-making that are separate and apart from a work placement site, a feature that has been more broadly identified as critical to the support of learning within pre-professional workplace experiences (Bronkhorst & Akkermen, 2016). In particular, the form of critical consciousness displayed by Eve in relation to her professional life and ability to critically 'read' the dynamics at play within the Signal work environment have been shown to be correlated with increased levels of clarity around vocational identities and greater commitment to future careers (Diemer & Blustein, 2006). Given that reality, the answer to the question of 'when is safe enough?' likely depends, in some part, on what kinds of supports minoritized youth have that help them engage with a worksite through critical and socio-political lenses.

References

- Acholonu, U., Pinkard, N., & Martin, C. K. (June, 2015). Locating Opportunity Gaps by Mapping the Computer Science Landscape in Chicago. Presented at Digital Media and Learning Conference, Los Angeles, CA.
- Akiva, T., Kehoe, S., & Schunn, C. D. (2017). Are we ready for citywide learning? Examining the nature of within-and between-program pathways in a community-wide learning initiative. *Journal of Community Psychology*, 45(3), 413-425.

- Banks, J., Au, K., Ball, A., Bell, P., Gordon, E., Gutiérrez, K. D., . . . Zhou, M. (2007). Learning in and out of school in diverse environments.
- Barnes, J. A. (1972). Social networks (Vol. 26). Addison-Wesley Publishing Company.
- Barron, B. (2006), "Interest and self-sustained learning as catalysts of development: a learning ecologies perspective", *Human Development*, Vol. 49 No. 4, pp. 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, 55–77. doi:10.1162/ijlm.2009.0021
- Bell, P., Tzou, C., Bricker, L., & Baines, A. D. (2013). Learning in diversities of structures of social practice: Accounting for how, why and where people learn science. *Human Development*, 55(5-6), 269-284.
- Benner, K. (2017, June 30). Women in Tech Speak Frankly About Culture of Harassment. The New York Times.
- Bronkhorst, L.H., Akkerman, S.F. (2016). At the boundary of school: Continuity and discontinuity in learning across contexts, *Educational Research Review*, doi: 10.1016/j.edurev.2016.04.001.
- Ching, D., Santo, R., Hoadley, C. M., & Peppler, K. A. (2015). On-ramps, lane changes, detours and destinations: Building connected learning pathways in Hive NYC through brokering future learning opportunities. New York, NY: Hive Research Lab.
- Ching, D., Santo, R., Hoadley, C., & Peppler, K. (2016). Not just a blip in someone's life: integrating brokering practices into out-of-school programming as a means of supporting youth futures. *On the Horizon*, 24(3). pp. 296-312.
- Ching, D., Santo, R., Peppler, K., & Hoadley, C. (2018). "He saw I had a loving for it": Youth Interest Signaling as a Means of Generating Social Support in Technology Pathways. New York, NY: Hive Research Lab.
- Crowley, K. and Jacobs, M. (2002), "Building islands of expertise in everyday family activity", *Learning Conversations in Museums*, University of Pittsburgh, PA, pp. 333-356.
- Diemer, M. A., & Blustein, D. L. (2006). Critical consciousness and career development among urban youth. *Journal of vocational behavior*, 68(2), 220-232.
- The Design-Based Research Collective. (2003). Design-based research: An emerging paradigm for educational inquiry. *Educational Researcher*, 5-8.
- Isaac, M. (2017, February 19). Uber Investigating Sexual Harassment Claims by Ex-Employee. *The New York Times*.
- Ito, M., Gutiérrez, K., Livingstone, S., Penuel, B., Rhodes, J., Salen, K., ... & Watkins, S. C. (2013). *Connected learning: An agenda for research and design*. Digital Media and Learning Research Hub.
- Ito, M., Arum, R., Conley, D., Gutiérrez, K., Kirshner, B., Livingstone, S., ...& Watkins, S.C. (2020) *The Connected Learning Research Network: Reflections on a Decade of Engaged Scholarship.* Irvine, CA: Connected Learning Alliance.
- Ko, L. T., Kachchaf, R. R., Hodari, A. K., & Ong, M. (2014). Agency of women of color in physics and astronomy: Strategies for persistence and success. *Journal of Women and Minorities in Science and Engineering*, 20(2).
- The National Academies (2011). "Expanding Underrepresented Minority Participation: America's Science and Technology Talent at the Crossroads." The National Academies Press.
- Penuel, W. R., Lee, T., & Bevan, B. (2014). Designing and building infrastructures to support equitable STEM learning across settings. *Research+ Practice Collaboratory Research Synthesis. San Francisco: The exploratorium*.
- Penuel, W. R., Roschelle, J., & Shechtman, N. (2007). Designing formative assessment software with teachers: An analysis of the co-design process. *Research and Practice in Technology Enhanced Learning*, 2(01), 51-74.
- Russell, J. L., Kehoe, S. & Crowley, K. (2017). Linking in and out-of-school learning. In K. Peppler (Ed.), *Encyclopedia of Out-of-School Learning*. Thousand Oaks, CA: Sage Publications.
- Scafidi, S. (2005). Who owns culture?: Appropriation and authenticity in American law. Rutgers University
- Stanton-Salazar, R. D. (2001). Defensive network orientations as internalized oppression: How schools mediate the influence of social class on adolescent development. In Biddle, B. J. (Ed.). (pp. 101–131). *Social class, poverty, and education: Policy and practice (Vol. 3)*. Psychology Press.
- Vossoughi, S. (2017). Access and Equity in Out-of-School Learning. In K. Peppler (Ed.), *Encyclopedia of Out-of-School Learning*. Thousand Oaks, CA: Sage Publications.
- Wallace, M. (1992). Black Popular Culture. Seattle: Bay Press.