

Relational connective tissue: The role relationships play in freedom of movement across culinary learning

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Abstract: Often intangible and invisible, relationships are pivotal in connecting soft/hard realities in ways that allow for participation in learning that imparts material and lasting impacts for marginalized youth experiencing complex, multidimensional barriers. We present the case of an immigrant Latinx youth who experienced *freedom of movement*—“supporting crossing physical boundaries of location, domain-specific boundaries of different topical areas, and conceptual boundaries of value and goodness of fit” (Pinkard, 2019, p. 40)—in an understudied area: culinary learning. We expand on the concept of *connective tissue* by analyzing a youth’s movement across the Healthy Learning Ecosystem Framework to render visible the *relational connective tissue* that afforded freedom of movement across *infrastructures* of learning (Pinkard, 2019). Through an ecological life history case study approach, we demonstrate and discuss the potential that theorizing relational connective tissue holds in surfacing the assets Communities of Color bring to educational experiences, which presents implications for designing more equitably around how nondominant learners access freedom of movement across space, time, and multiple axes of marginalization.

Introduction

Prior work in the learning sciences that addresses equity through understanding how nondominant communities experience learning has pointed to the need to “understand how complex learning ecologies support learning,” particularly for youth most overlooked by educational and learning systems, including “immigrant youth, dual language learners, and youth from under-resourced schools and communities” (Gutiérrez & Jurow, 2016, p. 566). This paper builds on how relationships affect how marginalized youth experience physical, social, and cultural realities—and by extension, how their learning is supported or constrained across their ecosystems and lifetimes (Pinkard, 2019).

Scholars studying geospatial space in tandem with sociocultural aspects of learning have created frameworks of analysis to render visible and improve upon the “interactions, routines, and practices” that afford or constrain learning (Erete et al., 2020, p. 1630). However, these social practices are deeply tied to relationships across the lifetime—which, despite holding deep political and materially transformative possibilities in learning (Freire, 1970), are often invisible and thereby difficult to track, and thus understudied in discourse around marginalized youths’ learning experiences (Vossoughi et al., 2020).

We address this need by attending to how relationships inform realities of learning in a life history case study of an immigrant Latinx youth’s learning ecology in an understudied area of the learning sciences, culinary arts. We apply an ecological framework that posits agency and exploration in learning as *freedom of movement*, and which makes explicit the various physical, topical, social/cultural boundaries (understood as *hard* and *soft infrastructure*) that youth traverse in their learning, as well as the strands of *relational connective tissue* that make such movement possible (Pinkard, 2019). We recognize the many possible forms connective tissue can take, and build on Pinkard’s (2019) conceptualization of the concept to focus on theorizing connective tissue through the lens of relationality. We theorize relationships as central to connecting these infrastructures, and identify what we call *relational connective tissue* as invisible, intangible agreements and dynamics which constrain and afford various degrees of freedom of movement in a learning ecosystem. For learners from Communities of Color who experience disparities in accessing educational opportunities due to missing connective tissue, we highlight relational connective tissue as refigured stepping stones demonstrating rich cultural assets, typically overlooked by deficit lenses. The following question guides our inquiry into our case study: *What relational connective tissue mediated freedom of movement across physical, topical, and conceptual boundaries in an ecosystem of culinary learning for an immigrant Latinx youth?* This paper analyzes the retrospective life history case of Elias (pseudonymized), an alumnus of an out-of-school culinary arts program in Los Angeles. By identifying the essential role that relational connective tissue plays in bridging infrastructures of learning, we render visible

inequities that shape the ways marginalized youth experiencing complex, multidimensional barriers (often preordained or transformed by relationships) experience and access learning across an ecosystem and lifetime.

Conceptual Framework

We build on scholarship that makes visible the social practices that undergird learning, to consider what Vossoughi et al. (2020) refers to as the *relational histories* of learners and stakeholders in space. Specifically, we focus on the pivotal, connective role of relationships in learning across the lifetime—thereby expanding upon the ways sociocultural learning scientists theorize the role of relationality in the ways nondominant learners access and experience learning across time, as well as across the physical, social, and cultural spaces which comprise their learning ecologies (Nasir & Hand, 2006; Pinkard, 2019; Vossoughi et al., 2020).

We gravitate to the space of out-of-school culinary making for the dynamic, quotidian, and deeply imbued cultural nature of its learning—which lends to its significant potential for democratized, interconnected learning across a variety of domains, knowledge spaces, and critical competencies across the lifecourse. Of consequence, according to the US Bureau of Labor Statistics, nearly 30% of those employed in the food/service industry in 2021 were Hispanic/Latinx, 13% were Black and 7 % were Asian. While scholars like Scribner (1985) have documented the robust forms of learning and distributed expertise amongst dairy farmers, the extant literature in the learning sciences around culinary learning view it as a means to access more meaningful STEM learning (Clegg et al., 2010; Clegg et al., 2014; Yip et al., 2012). Though innovative, this focuses on an output of domain-specific learning in a controlled setting rather than what Pinkard (2019) refers to as *movement of learning*, which refers to a sociocultural conceptualization of learning across multiple physical and social boundaries from an ecosystemic lens.

We apply this view on learning to a case study of an immigrant Latinx youth to understand how culinary learning occurs across the lifecourse and beyond physical, social, and cultural spaces. Specifically, we focus on the concept of learning as *freedom of movement* in this paper to refer to the degree to which youth are able to engage in exploration and participation across a variety of boundaries—“physical boundaries of location, domain-specific boundaries of different topical areas, and conceptual boundaries of value and goodness of fit” (Pinkard, 2019, p. 40). We apply the Healthy Learning Ecosystem Framework (HLEF) to our case study to map movement across these boundaries and make explicit the factors that allow for such movement. HLEF consists of five domains strung together by *connective tissue*—*stakeholders, soft infrastructure, information infrastructure, hard infrastructure*—all leading to *outcomes* (Pinkard, 2019). This paper focuses on the operationalization of soft/hard infrastructures in order to further theorize connective tissue. Soft infrastructures consist of the abstract and institutional agreements which make learning possible, (*domain-specific/topical boundaries and conceptual boundaries of value and goodness of fit*). Hard infrastructure consists of the *physical or material boundaries* of learning such as the buildings, roads, and physical spaces through which learning occurs. Connective tissue serves then as the binding force between infrastructures, and can take many forms including but not limited to: caring adults in spaces that plan carpooling systems to shuttle youth between physical spaces of learning. Nonetheless, connective tissue may go overlooked in the design of learning opportunities, or center dominant forms of access and experience that lead to inequitable outcomes. We highlight these structural inequities and demonstrate some of the ways they are bridged by community stakeholders through the development of relational connective tissue across a learning ecosystem.

HLEF was intended for the collective sensemaking, improvement, and design of collaborative learning environments across different stakeholders of a learning ecosystem. We expand on this purpose by making explicit the pivotal roles various stakeholders play across the learning ecosystem in how learning outcomes are accessed and experienced, which can serve as focal points of design in learning ecologies. For the purposes of this paper, we further theorize connective tissue to focus on the concept of *relational connective tissue*—the relationships that often go “unnoticed,” or unacknowledged, particularly within Communities of Color—to get at the often-invisible dynamics and (re)negotiated solidarities forged between community members, essential to tying together hard/soft infrastructures which constrain and afford freedom of movement for marginalized youth (Pinkard, 2019, p. 44). Our application of the framework presents an opportunity to understand how a marginalized youth experienced learning across an ecosystem across their lifetime, and elucidates some of the many essential relationships and intimacies within their community which connected them to experiences and opportunities which manifested into lasting, material impacts on their future.

Data and methods

This case study was one of 102 retrospective life history interviews, conducted ten years after concluding program participation, as part of a larger project around the long-term effects of participating in community arts programs. Given its holistic, reflective nature, our life history approach lends itself to understanding how learning was

experienced and understood by a participant over the life course, and informed by their movement across physical, domain-specific, and conceptual boundaries. From the start, we bookmarked cases indicating tensions reflective of structural issues of marginalization across domains of their life to better understand how inequities shaped the learning experiences of the youth whom these programs most aimed to serve, both during and beyond the program space and time. Echoing factors of marginalization outlined in the extant literature, many of these cases tended to feature themes around immigration, dual language learning, socioeconomic status, and complex cultural narratives which came in tension with participants' interests and career choices (Gutiérrez & Jurow, 2016).

The study for this analysis was chosen as the only one in the sample for its focus in an understudied area in out-of-school culinary making which encompassed the aforementioned themes, and seeks to generate new insights around learning within this domain. The case is a life history interview with Elias, who at the time of the interview was a 22-year-old former participant of an out-of-school culinary arts program in the urban Los Angeles area. In a two-hour interview, the lead author asked Elias reflective questions spanning various life domains (i.e., home life, childhood, academic experiences, experiences in the OST program, current life and perspectives) to capture the role of relationships in his movement across a culinary learning ecosystem through seemingly disparate, yet interconnected nodes of his life.

Elias's case was chosen for analysis because it centers on how a nondominant learner navigated and experienced infrastructures usually taken for granted in learning: language and cultural acclimation to local space and culture. As a Latinx immigrant who did not know English moving through spaces of learning which lacked formal infrastructures fit for his needs, Elias nonetheless resisted in many ways and formed relationships that helped him participate meaningfully in culinary learning and all that came with it—traversing xenophobic negotiations of acclimation around language and local social dynamics, as well as cultural, gendered narratives around interests, and career aspirations. Through his time in the program and the relationships across his ecosystem, Elias learned English to deepen his culinary learning, and went from being a shy, introverted youth to one who starred in videos speaking enthusiastically about various curricula within the program—and who would later return as an alumnus employed in the culinary industry to speak about his experiences.

We chose Elias's case because it demonstrates the pivotal role of relational connective tissue in allowing not just access to learning opportunities, but *meaningfully experienced* learning for often overlooked marginalized youth that arose through relational histories to supplement minimal or lacking connective tissue in under-resourced areas. Elias's case exemplifies not only freedom of movement across various physical, cultural, and social boundaries for a nondominant learner—but also demonstrates the transformative potential of relationships on learning through the lifecourse across multiple barriers/axes of marginalization.

Analysis

Interviews were audio recorded, transcribed, and deductively coded for *soft infrastructure*, *hard infrastructure*, and *relational connective tissue* (Bingham & Witkowsky, 2021). In the context of our analysis, soft infrastructures consisted of school offerings, out-of-school culinary arts program offerings, and peoples' assumptions of culinary learning (i.e., learning about different countries and their cultural norms/cuisines, hydroponics gardening techniques, business pitch activities, field trips, etc.). The hard infrastructure consisted of the school, the culinary program space, the roads and transportation to each site, the tools students would use in their culinary learning, and the farmers markets, restaurants, and photo stores students would visit to learn about multiple aspects of the food industry. Relational connective tissue was mapped backward from interactions and routines featuring various stakeholders which made it possible for Elias to access these soft and hard infrastructures across the ecosystem (i.e., the friends who walked with him to school and the program through the city).

The lead author wrote reflective memos around excerpts, coded for relational connective tissue to surface insights around how relational dynamics shaped experiences around infrastructures, then clustered these memos and excerpts into the following three specific categories of boundaries traversed under hard and soft infrastructure which relational connective tissue bridged: *physical* boundaries (nested under hard infrastructure), and *domain-specific* boundaries and *conceptual/value-based* boundaries (both nested under soft infrastructure) (Pinkard, 2019).

Findings

In this section, we walk through the relational connective tissue which served as bridges for Elias's movement through physical boundaries, domain-specific boundaries, and conceptual/value-based boundaries. At the time of writing this paper, Elias works as an ingredient consultant and chef at a market/cafe in Los Angeles which offers produce and grocery products from around the world. He immigrated to California from Honduras in 2015, and experienced challenges to his participation in his educational pursuits across familial and academic spaces. In addition to difficulties in acculturating to a new space and common language, he was often bullied at school by

peers, and even by educational staff, for his difficulties with English—describing his experience at school as being “traumatized with being in a cage.” Elias found a “safe spot” in an after school culinary arts program in Los Angeles, and described the many ways his relationships with people in his life were central to moving through culinary learning. We emboldened excerpt segments exemplifying relational connective tissue for emphasis.

Relational connective tissue across physical boundaries

In this section, we analyze Elias’s movement across physical boundaries, and relational connective tissue that aided and hindered such movement across the lived challenges of hard infrastructure for youth situated in downtown Los Angeles. He recalls the distance between his home, school, the culinary arts program, and the relationships around movement between these physical infrastructures (see Table 1).

Table 1

Finding 1: Relational Connective Tissue across Physical Boundaries of Hard Infrastructure

	Excerpts from Elias’s interview	Researcher comments on relational connective tissue
1a	So, but I had to walk like [...] around 10 blocks from my house to the school and I was feeling too scared because I, when I was going to school, I was going with my, one of my best friends , that he is still one of my best friends , since we met in 2017. So we’re still friends, so we were going, he was living close to me [...] sometimes he was like, because schedules change, so we have to um, um go in group because it was nice, you know, sometimes it was still, the light was up , but...[the program] was, it was close to my house, it was not too far, not too close.	Elias experienced safety concerns surrounding hard infrastructure as a lone youth getting around in the city, especially when it got dark. A close friend and group of friends accompanying him on his walk served as relational connective tissue connecting physical boundaries to help him get safely between home, the program, and school.
1b	Sometimes [the program director] was also giving us a ride home so she was very kind and, and very care person that she was like sometimes taking us home if it was super late and we were living super far and we were on her way.	Caring adults like the culinary arts program director comprised additional relational connective tissue between physical boundaries of the program space and home.

This finding exemplifies the importance of considering within a learning ecology how peers’ and adults’ solidarity around youth needs of accessing hard infrastructure play key roles in the ways youth are able to move across spaces of learning. In excerpt 1a, Elias refers to a reality and challenge which many youth face around transportation and safety in the city, and the commonly understood safety practices for youth getting around on foot—to “go in [a] group,” and to do so when “the light was up.” Elias refers to a relational history with one of his best friends that has continued “since [they] met in 2017” when describing the relational connective tissues tacitly understood by marginalized youth in urban settings (walking with friends) bridging his home, school, and subsequently the culinary arts program, which is located near the school.

Elias also speaks of another relational connective tissue to the physical space of culinary learning which highlights the unique affordance of the out-of-school space: the relationships youth form with caring adults in this space that are neither parents, teachers, nor caretakers. The resulting relational connective tissue between material spaces described in excerpt 1b are, in fact, made possible through *affective informality* (Chew et al., 2022) in the space—moments of rupture centering a political commitment to care, which result in new possibilities and intimacies—furthered by the familiar, typically domicile practice of culinary making. There is something to be said about the ways relational connective tissue is negotiated between stakeholders and hard infrastructures in urban settings around marginalized youth—the ways safety and varying resources among stakeholders are tacitly understood and arranged to result in relational connective tissue that makes freedom of movement across physical boundaries of learning possible.

Relational connective tissue across domain-specific/topical boundaries

In this section, we speak to the ways that relational connective tissue bridged physical boundaries to domain-specific/topical boundaries in Elias’s learning. Throughout our talk, Elias spoke of the ways that not knowing English shaped the ways he was able to engage in educational spaces, and the ways people engaged with him—like the peers who bullied him, or the teachers who “[spoke] Spanish but [who] didn’t want to speak Spanish to

[him].” In contrast to these in-school experiences, Elias recalls how relational dynamics differed in the after school culinary arts program, and how they aided his movement through various topical boundaries (see Table 2).

Table 2

Finding 2: Relational Connective Tissue across Topical/Domain-specific Boundaries in Soft Infrastructure

	Excerpts from Elias’s interview	Researcher comments on relational connective tissue
2a	<p>It was super cool because the environment in the program was about making feel people loved and welcome and every time I would say, I wish I can, and I was telling everybody I wish I was, I was, like you, that you know the language you understand everything and if I was you, I would be able to answer all these questions and be on top of it, but unfortunately I am not. And then people were helping me translating to [our program director], [to] our interpersonal person that was helping us with our personal interpersonal skills, you know, it was, it was just a very lovely environment there.</p> <p>And then my English got better, then my anxiety got a little bit down, we learn how to do hydroponics, and interpersonal skills, uh, information about ingredients from other countries’ food, from other countries, and it went so deep that it got my attention so much that [...] it took</p>	<p>Elias’s ability to access domain-specific knowledge shared in the culinary program is blocked by language barriers unaided by a lack of hard infrastructure in translation services. However, surrounding peers and program staff contributed to a positive environment through their patience and translation—serving as relational connective tissue for Elias to move across topical and domain-specific knowledge: linguistic, culinary, cross-cultural, agricultural, and socioemotional learning.</p>
2b	<p>my mind off a little bit from the depression that I was going through, the anxiety I was having, it helped me a lot.</p>	

In excerpt 2a, Elias highlights how his ability to access domain-specific knowledge is blocked by structural barriers of language (“if I was you, I would be able to answer all these questions [...] but unfortunately I am not”). This, in itself, reflects the barriers Elias experienced as an immigrant youth in acknowledgement of the missing connective tissue in place for him to move through culinary learning. However, in contrast to the complex language-based alienation he experienced in school settings, he emphasizes the *relational* connective tissue that allowed him access—the “lovely environment” people around him created which made him feel “loved and welcome,” and the translation that his peers would take up on their own accord since the program director and staff did not speak Spanish.

This finding exemplifies the importance of considering how proximal community members’ attitudes and actions around brokering soft infrastructure affect the degree of freedom of movement youth experience in learning. Where there was no connective tissue to soft infrastructures in place, endeavors of patience and care from the peers and adults in the program knit together the relational connective tissue that allowed Elias to move across topical, domain-specific knowledge (i.e., the linguistic, agricultural, interpersonal, and cross-cultural culinary learning as described in excerpt 2b). This cross-domain learning served meaningful in each domain-specific instantiation, and served as a solid foundation for culinary knowledge and learning which would later assist Elias in his professional journey through the culinary arts. Nevertheless, it also coalesced into an outcome more than the sum of its parts for Elias in the moment: helping him through the depression and anxiety reinforced by his experiences of acculturation. This movement, in tandem with Elias’s other movement through boundaries, exemplifies the potential of how broadened freedom of movement in culinary learning can be experienced, materially leveraged for future goals, and its felt restorative potential for marginalized youth experiencing a complex constellation of structural oppression lived in everyday ways.

Relational connective tissue across conceptual boundaries of value/goodness of fit

In this section, we speak to the relational connective tissue that worked in tension and tandem with Elias’s movement across conceptual boundaries of his values and perceived goodness of fit in culinary engagement. Elias reflects on his movement through how he perceived his goodness of fit in culinary spaces, as impacted through conflicting messages from family members and teachers (see Table 3).

Table 3

Finding 3: Relational Connective Tissue across Conceptual Boundaries of Value/Goodness of Fit in Soft Infrastructure

	Excerpts from Elias's interview	Research comments on relational connective tissue
3a	My dad at first, he wanted me to be a doctor [...] because my dad was a type of person that, who was [like] [...] you have to do something that a man does because the kitchen is only for women because when you come to the home when you, once you're married the woman has to have your food ready. Because, it's a woman thing, you shouldn't be cooking. So a couple of times, he hit me really bad because he found me in the kitchen.	Elias's relationship at home with his father constraints movement across culinary learning. His father expresses gendered perspectives around interests and future careers and punishes him for violating them—instilling in Elias negative perceptions of his goodness of fit in culinary spaces.
3b	But my grandma teaches something else right [...] my grandma was so patient, she was like your dad is wrong [...] So my grandma teach me how to cook. She showed me that not only womans cook, and she showed me the movie Ratatouille , and she said, you see all those people in there? There's only one woman cooking. The rest are mans. Your dad is wrong. And she showed me Master Chef , where I met one of my friends from the competition, and she said, "you see? There's womans and mans cooking, your dad is wrong. "	Elias's relationship with his grandmother in the same familial space grants him movement across cooking, pop culture, and media spaces which allows him to renegotiate his goodness of fit in culinary spaces as a young boy with interests in cooking.
3c	So I got here, and one of my teacher, one day, my ELD teacher, she asked me, " Elias, what do you want to do for life? For your life, for living in your future? " I was like, "I don't know. I...I love cooking," but I felt afraid because of my dad. And I was not living with my dad anymore—but [...] I still felt scared and afraid for my dad—what if he finds out that I'm cooking, and he comes and hit me?	This excerpt highlights the role of caring adults in the learning ecosystem. These adults help Elias reframe his focus on what he wants to do for his future work. This interaction leads to further questions Elias has to negotiate in himself around what he values, is interested in personally and professionally.

In excerpt 3a, Elias describes the ways his relationship with his father around the domain of culinary engagement—and by consequence the gendered narratives his father expressed and punished him for violating—instilled fear and apprehension around the ways Elias regarded his values and goodness of fit in culinary engagement and spaces as a young boy. However, as exemplified through excerpts 3b and 3c, his relationships with his grandmother and ELD (English Language Development) teacher across domestic and in-school settings, Elias was introduced to different conceptual spaces to traverse, and found different narratives and cultural values that countered those shared by his father (that men *can* and *do* cook, and to center what *he* wants to do for the rest of his life) that asserted his personal feelings around goodness of fit in the culinary landscape. His grandmother's use of various food-centered media (Ratatouille, Master Chef), further introduced digital, popular cultural spaces which Elias moved through to renegotiate his understandings of how he fit in culinary spaces as a young boy negotiating gendered conceptions around culinary practice.

These interactions demonstrate the ways that relational connective tissue set up conditions for Elias to move across considering culinary practice as an interest to a career possibility. Despite strong, reinforced discouragement from his father, Elias's relationships with other caring adults in his life who centered and supported his interests in their interactions allowed him to focus on honing his emerging personal values and explore how he perceived his goodness of fit, and ultimately his career path, in the culinary arts. Excerpts 3b and 3c demonstrate how relational connective tissue facilitated movement across conceptual values, which was pivotal in the negotiation of meaningful, lasting material decisions a marginalized youth made around his professional career directions. This finding exemplifies the importance of considering how the conceptual narratives around participation, values, and goodness of fit youth are exposed to through their relationships affect the ways youth are able to and ultimately decide to move—or not move—through learning.

Conclusion, limitations, and future directions

Through our analysis, we demonstrate how theorizing relational connective tissue highlights an undiscussed point of focus in the design and improvement of learning: the roles that various stakeholders play in how marginalized youth may access and experience movement across a learning ecology, across the lifecourse. Elias's case demonstrates the ways in which relationships often undergird lasting, material outcomes on the decisions, directions, and development of marginalized youth. His movement across physical, topical, and conceptual boundaries of culinary learning was made possible through pivotal interactions—not purely one-off, serendipitous interactions, but interactions rooted in relational histories and tacit interpersonal negotiations. Moreover, this mode of navigation speaks to the community cultural wealth (Yosso, 2005) inherent in marginalized communities—that of Elias, his friends, family, and peers—which is apparent through the ways Communities of Color knit relational connective tissue to hold one another, and supplement where connective tissue may otherwise be missing.

By understanding how relational histories tie stakeholders, infrastructures, and outcomes together, frameworks such as HLEF can be leveraged by stakeholders across learning ecologies to ensure that expanded learning opportunities are accessed and meaningfully experienced by marginalized youth in urban settings. Our ecosystemic analysis signals the importance of bringing together various community stakeholders, spaces, and opportunities in the design and support of freedom of movement across a learning ecosystem for youth facing varied, complex barriers to access and participation. Stakeholders across in-school and out-of-school settings can work together to surface the ways relationships are currently supporting or constraining the ways youth access learning infrastructures. With these insights, stakeholders can collaboratively design intentional safeguards and policies that function in ways similar to relational connective tissue to more systematically and equitably support the ways marginalized youth are accessing and experiencing learning across the ecosystem.

Elias's case demonstrates the unique affordance of out-of-school culinary learning as a naturalistic, culturally-imbued venue of learning dynamically cultivated through familial histories, (re)negotiation of tensions, values, and solidarities—rich with potential to study how sociocultural learning map onto issues of equity for nondominant learners through the learning sciences. Future work around culinary learning which examines quotidian relationships “through the prism of race, class, geography, and history” (Pinkard, 2019, p. 44) can speak to ways the domain can be leveraged for democratized learning opportunities and design which support freedom of movement in and beyond currently conceptualized boundaries and spaces, as well as speak to the experiences and realities of people from a range of diverse, marginalized populations.

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