From the Lunch Table, to the Family Table: A Grounded Theory Approach to Understanding Urban Adolescents’ Experiences of Food Culture Mismatch between School and Home Environments

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ABSTRACT
Based on a participatory action research project in New York City from 2012 to 2014, our study compares the experience of black and Latino adolescents between their school and home food environments. Following a photovoice approach, adolescents participated in a “food justice” curriculum, photographed foodscapes, and conducted photo-elicited interviews. Using a grounded theory approach, we found that adolescents had mismatched experiences between school and home food environments under two conditions: sensory-emotional and sociopolitical. Mismatch suggested psychological and behavioral consequences, including skipping or wasting school lunch entrées and consuming energy-dense, nutrient-poor snack foods. We named this middle-range substantive theory food culture mismatch.

KEYWORDS
Adolescence; food environment; home; school; theory

Introduction
Eating and drinking do not occur in a vacuum. Place matters in considering the determinants of diet-related behaviors in children (Casi et al. 2012; Larson and Story 2009). Efforts have identified upstream environmental factors that impact children’s eating and drinking behaviors (Couch et al. 2014; Fox et al. 2009; Williams et al. 2013) and the extent to which they disproportionately impact obesity risk in children of color and low socioeconomic position (Neckerman et al. 2010; Ranjit et al. 2015). This research has lent to evidence-based interventions to promote family meals (Dwyer et al. 2015), reform school lunch policy (Welker, Lott, and Story 2016), and improve access to fresh produce (Budd et al. 2015).

Overlooked in this inquiry has been the intersectionality of children’s various food environments (Myers, Denstel, and Broyles 2016). Most studies concerned with the context of children’s diet-related behaviors continue to be set in
environmental siloes, investigating strictly the home (van der Horst et al. 2007), school (Briefel et al., 2009), or retail setting (He et al. 2012). However, as described in a review of food environment research by Lucan (2015), a lingering limitation has been the assumption that people experience foods in isolation and that foods operate outside of the multidimensional environments where they are consumed. Considering this criticism, some researchers have quantitatively explored diet as a function of children’s multiple food environments (Berge et al. 2014; Seliske et al. 2013). To advance the literature toward theoretical discovery, we conducted a qualitative study to examine the complex phenomena that occur where environments intersect.

Theories of evolutionary and cultural mismatch

First described in 1993 (Riggs), theories of evolutionary mismatch suggest that environments evolve at a rate faster than people’s ability to adapt, resulting in a mismatch or “maladaptation” (p. 1289) between human traits and their sociophysical environments. Applying this to health, Gluckman and Hanson state that mismatch between human biology and environment appears as obesity and other chronic diseases (2006). Stephens and Townsend (2015) further distinguish cultural from evolutionary mismatch in discussing education, suggesting that schools that promote mainstream pedagogical norms may fuel inequality by creating educational barriers to underrepresented groups. However, cultural formations of mismatch have been less explored in the health and nutritional sciences. Cultural mismatch may occur between “microenvironments” (Swinburn, Egger, and Raza 1999, 565), such as homes and schools, each of which operates according to its own physical, economic, political, and sociocultural systems. Linking Stephens and Townsend’s assertion that cultural mismatch can fuel inequality (2015) to conceptions of micro-environments, the possibility of food culture mismatch begins to emerge.

To the best of our knowledge, few studies have examined cultural mismatch between home and school food environments. Our study initially set out to explore food injustices in young people’s communities; however, a grounded theory approach led to discovery of mismatched experiences at home and school food environments that influenced their dietary choices. The purpose of this paper is to partially fill a gap in the literature by describing the conditions and consequences of adolescents’ experiences of food culture mismatch between home and school food environments.
Methods

Participants

A total of 32 adolescents residing in historically marginalized neighborhoods of New York City participated in the study. Half of the participants were recruited from East Harlem, with the remaining divided between the South Bronx (22%) and Washington Heights (25%). All participants were between the ages of 11 and 14 years and enrolled in one of five community sites of a child-focused nonprofit organization. Nearly two-thirds of the participants were female and all but one self-identified as black/African American or Latino. Approval was received by the Hunter College Institutional Review Board. Parental permission and youth assent were obtained prior to the commencement of any study activities.

Data collection

Voices through cameras

The study described in this paper is nested within Voices through Cameras: A New York City Food Justice Photovoice Project, which was a community-based participatory research (CBPR) project aimed at empowering adolescents around food justice issues in their communities. The project was developed, implemented, and evaluated in partnership between: (1) Hunter College; (2) a New York City-based child-focused nonprofit organization; and (3) participating adolescents.

Two phases of the study were conducted between 2012 and 2014. In Fall 2012, we conducted interviews for Phase 1 in our pilot site in East Harlem, NY, selected because it served as an “exemplar case” (Bronk, King, and Matsuba 2013) and magnified extremes in food justice. Findings from Phase 1 were previously published (Leung et al. 2017) and mark the beginning of data collection and analysis for this study. Between Fall 2013 and Fall 2014, we recruited four additional after-school program sites, seeking neighborhoods that resembled our pilot site in East Harlem in terms of poverty concentration, racial demographics, and site proximity to changing foodscapes. With the addition of two sites in the South Bronx, one in Washington Heights, and one new site in East Harlem in Phase 2, we had a total of five sites across both phases.

Six sessions titled, “Exploring Food Justice,” were implemented during both study phases, which introduced adolescents to food justice and offered opportunities to reflect on their food environments and practice collecting data. Adolescents initially participated in two community food assessments of their food environment in response to the prompt: What influences my food choices in my community? We then issued two additional assignments that were completed independently to identify personal food influencers at
Photovoice

Photovoice, also known as photoethnography (Cloutier 2016), was purposefully integrated into the food justice project to enhance adolescents’ participation in programming, particularly community food assessments, and provide adolescents with an avenue by which to document food injustices in their communities. Photovoice uses photographs both as primary data points as well as opportunities to engage in further discussion and reflection with participants during follow-up photo-elicited interviews (Schwartz 1989). Several sessions were designated to train participants in photovoice, covering topics such as visual framing and ethics.

Photographs captured during community food assessments and individual assignments served as foundations for in-depth, semistructured, photo-elicited interviews conducted in proceeding sessions. During interviews, we asked participants to select three photographs that “best” explain what influences their “healthy” and “unhealthy” food choices. Participants were also permitted to select others’ photographs. We led interviews according to the SHOWeD technique (Wang et al. 1998) to progressively challenge participants to describe and reflect on their photographs rather than immediately jump to discussing their meaning. Interviews lasted from 45 min to 1 hour and ranged between one and three adolescents per group. Interviews were audio recorded and transcribed to preserve detail, including vocalizations, interactions, and discourse (Oliver, Serovich, and Mason 2005). We were less concerned about sample size than reaching a level of data “redundancy” by sampling in a manner that was “purposeful” and “criterion-based” (Morrow 2005, 255). Interviews were conducted exclusively in English but research assistants fluent in Spanish assisted in transcribing terms in Spanish whenever necessary.

Data analysis

Data analysis was conducted following the constant comparative method described by Glaser and Strauss (Glaser and Strauss 2006). Researchers repeatedly questioned and checked their biases against the emergent lived experiences and meanings described by study participants and displayed in their photographs. Photographs especially strengthened participant representation and “participatory consciousness” (Morrow 2005, 255). Much of this occurred through field notes, during in-person and remote team meetings, and collaborative coding, memoing, and diagramming. A comprehensive literature review helped validate emergent findings.
**Coding, memoing, and diagramming**

Transcripts served as the primary source of data while photographs assisted in validating emerging themes. Data were coded by two authors. Coding for phases one and two was conducted using Microsoft Excel (Version 14.0) and Dedoose mixed methods analysis software (Manhattan Beach, CA), respectively. Coding began with two transcripts per week during which coders met twice weekly to discuss themes, review discrepancies, and develop a codebook. Any unresolved disagreements were presented to the third author for group consensus. Despite reaching > 80% agreement during training, we decided both coders would code all transcripts, rather than divide them in half, to enhance reliability and strengthen the group validation process.

We began with initial coding (Charmaz 2014; Glaser and Strauss 2006), during which we stayed “close to the data” (Charmaz 2014, 49) and open to emerging themes by utilizing short, descriptive codes that reduced chances of preconceived concepts prematurely explaining data. Due to participants’ fragmented speech, we used a combination of “line by line” and “incident by incident” coding (Charmaz 2014, 50–53). We synthesized data into parent and child codes in selective coding (Charmaz 2014), which operated by a team-based approach using written memos, in-person and virtual discussions, and electronic diagramming between the three authors.

The core category for food culture mismatch did not begin to “crystallize” (Charmaz 2014, 54) until data led us into Phase 2 and prompted us to return and recode data from Phase 1 using the same coding strategy. Then in theoretical coding we used a combination of memoing and diagramming (Glaser 1978) to specify the relationships between the selective codes and “weave the fractured story back together” (Glaser 1978, 72). We referred to Glaser’s “Causes, Contexts, Contingencies, Consequences, Covariances, and Conditions” theoretical coding family (1978) to help reach “theoretical saturation” (Glaser and Strauss 2006, 61). The grounded theory approach was helpful in identifying a “middle-range” (Lofland 1970, 38) “substantive” (Snow, Morrill, and Anderson 2003, 186) theory, that is context-dependent and more applicable to diet-related intervention.

**Results**

Two conditions under which adolescents experienced a food culture mismatch between their home and school food environments emerged from the data. These conditions, sensory-emotional, such as food taste and quality, and sociopolitical, such as rules and choices (or lack thereof), appear to influence the dietary behaviors of adolescents. Figure 1 depicts a conceptual model of how adolescents may experience a food culture mismatch.
The sensory-emotional condition describes adolescents’ experiences with food between home and school, in relation to the food’s taste, quality, preference, trust, nostalgia, and healthfulness.

**Taste**

School lunch, especially its taste, was at the forefront of adolescents’ minds when discussing the school food environment. Adolescents spoke vividly about the taste of school lunch entrées, predominately pizza, mozzarella sticks and fish sticks, variations of chicken (breast, wings, and nuggets), French fries, falafel, cheeseburgers, macaroni and cheese, ravioli, rice and beans, and salad. With some exceptions, adolescents disliked entrées and described them as “nasty,” “watery,” and stressed ingredients do not “blend in well.” Adolescents reported the bread tastes “weird,” the beef is “like a wet mop,” and in reference to mozzarella sticks: “oh my gosh…they made me sick.” Some felt the poor taste of entrées was an indication that they were “healthy.” Fresh fruit, including oranges, bananas, pears, and apples, was an exception. Fruit was also not referred to as “food” like entrées were, “The only thing I eat is the fruits. But the food is nasty.”

**Quality**

Adolescents also stressed the importance of the quality of school lunch entrées, which had more to do with appearance and educated inferences about its physical properties. As one adolescent who enjoyed eating salad at home explained, “But in school when I see it, it looks like… bad.” Another adolescent said her school’s chicken is “filled with fat,” the skin is “fluffy,” and the meat feels “like rubber.” Similar to taste, this led some to correlate...
quality to healthfulness. One adolescent explained that while the pizza at their school is “unhealthy” the rice and beans are “healthy” but “don’t look good.” Those who opted for fresh fruit also emphasized that they needed to be of good quality, not “brown,” “bruised,” or “spoiled.” This extended into packaged foods, such as yogurt containers that sometimes appeared “old” from “bumps and scratches.”

Preference
Some comments regarding school food resembled signs of preferences and suggestive of pickiness, not taste or quality. One adolescent described how his cafeteria serves “curly noodles” while he prefers “regular noodles” and how he prefers green grapes over the red variety at his school. Another adolescent said the pizza has “too much sauce” and one voluntarily listed all the school vegetables she “can” and “can’t” eat due to personal preference. Similarly, first calling salad at school “poisonous,” one adolescent clarified he only ate salad with one type of dressing. Two did not recognize natural red blemishes in their meat:

**Adolescent 1:** Well it’s not that [it doesn’t] taste good it’s just that [it] looks nasty, because the chicken, sometimes there’s pink.

**Adolescent 2:** Yea... change the look of the food.

**Adolescent 1:** Yeah it’s like pink and it’s like –

**Adolescent 2:** Nasty.

Trust
Adolescents further suggested they mistrusted certain school food. Many thought their school food was “fake” because it contained “GMOs” or did not use “real cheese.” Perceptions traveled through word of mouth and personal experience; one adolescent remarked, “I heard that the food is frozen.” Despite being at a new school, another adolescent said she was “surprised” when she saw how lunch was prepared at her old school, referring to her experience as a student worker in the school cafeteria and witnessing how some lunch entrées were frozen or prepared in other unappealing ways. One adolescent suspected that his school served leftover pizza for as long as a week. Mistrust extended to unprepared foods, including beverages; after asking one adolescent for his preference between milk and water with his lunch, he sarcastically replied, “real water.” General mistrust of such foods coincided with perceptions of healthfulness as it led adolescents to negatively stereotype them as “school food.” One adolescent spoke extensively about how much she enjoyed salad at her local deli, but in reference to school, she remarked, “…when I see it, it makes me think, like... ew, stay away, it’s school salad!” (emphasis added).

Adolescents were more trusting in their families cooking, sometimes for reasons that intersected with other constructs, such as healthfulness. For
example, when an interviewer asked an adolescent whether her mother’s food is healthy or unhealthy, referring to a dish of rice, beans, and chicken, she responded, “I would say it’s healthy because mom know why it’s better for your body… like mom’s not… like a good mom that’s responsible for the kids is not going like give them bad food…” Similarly, in describing a dish native to the Dominican Republic (Mangu con Salami), one adolescent was asked to offer a reason for why he felt it was “healthy,” to which he laughed and simply replied, “I don’t know. Because mom made it.” Trust was reinforced by insight into the cooking process, which was more accessible at home. One adolescent remarked that his grandmother’s cooking tastes better than foods he purchases at a corner store simply “Because she always—she always cooks. Every single day. She never stops cooking.” Another adolescent described seeing her mother and grandmother purchase vegetables and seeing them reappear in her meal, which contributed to her perceptions that it was healthy:

> Because those [fruit and vegetable stands] are really healthy choices. I see my grandmother a lot, and my mom getting like, her vegetables and fruits from there… and so she cooks those stuff a lot… so that’s why I think it’s a good choice.

However, some adolescents had idealistic images of the taste and healthfulness of their home food environment. One adolescent explained that her mother does not use heavy amounts of salt in their cooking, but uses Adobo seasoning instead, not realizing it too contains sodium.

**Nostalgia**

With some exceptions, adolescents seldom discussed the taste, quality, or other sensory characteristics of foods they consumed at home, and instead discussed nostalgic eating and drinking experiences. Adolescents carried a sense of nostalgia for homemade meals, especially if they were tied to their cultural heritage and triggered memories of these foods prepared by relatives before they came to the United States (U.S.). For example, in responding to a question about why he preferred a certain meal prepared by his mother, an adolescent responded, “Because I love eating those… Cause in [Dominican Republic] my grandmother used to make them for us.” Another adolescent felt the same way when she said, “most of our favorite meals come from [Dominican Republic].” One adolescent tied this to “tradition”:

> Adolescent: Um, I chose this [photograph] because I mostly eat this every day… cause, like, it’s a tradition.
> Interviewer: So it’s a tradition. Uh, how is it a tradition?
> Adolescent: Cause in DR, like (where) I was born. My grammie used to do this...

While food nostalgia most commonly appeared for adolescents who were born abroad, it also appeared for any food with familial significance. For example,
despite calling it “unhealthy,” a U.S.-born adolescent described his appreciation for his mother’s instant macaroni and cheese because it saves her time in her day. Another adolescent, with memories of her father making tacos in the Dominican Republic, drew a comparison to tacos at school that have an unidentifiable “orange thing” that “doesn’t look good and... doesn’t smell good either.” Another adolescent, raised in the Dominican Republic but now living in the South Bronx, described a photograph she took of a dish prepared by her grandmother, “my grandma knows that I like eating it... Cause I’m used to eating it.” Upon asking her why she does not eat school foods, she responded, “because I’m not used to eating it and it doesn’t taste how I mostly eat it.”

These instances of food nostalgia differ from preferences because they emphasize the connection between adolescent and cook. Nostalgia was also distinct from trust in that these instances were more tied to food memory. For instance, three adolescents were nostalgic of foods they ate growing up in other parts of the United States, not abroad, and some foods were consumed at home but purchased outside. Two adolescents who reported themselves as black/African American suggested that their food culture stems from outside of New York City. One adolescent from “down south” said it is in his culture to eat large amounts of meat and barbeque. He also noted that some family recipes, like the way in which his grandfather cooks fish using eggs, come from generations of “stretching” food. The other adolescent, with memories of North Carolina, referred to a photograph he took at home, “We thought it would be good to like take a trip down memory lane and have some Chinese food because we used to have it all the time [in North Carolina].” Finally, one Latina adolescent moved from rural Ohio where she says her family once had to drive long distances to buy fresh foods. All three adolescents admitted that their families eat healthier at home ever since they moved to New York City given a change in food norms and greater accessibility to healthy foods, but all three labeled school food as “nasty,” “unhealthy,” and “gross,” respectively. Hence no matter if foods were domestic or abroad, “healthy” or “unhealthy,” or associated with family preparation or not, adolescents had positive nostalgic feelings for foods experienced at home, yet not at school.

**Healthfulness**

When asked what “healthy” foods are available in school most adolescents could not recall items beyond fresh fruit: one of the few foods they regarded as both tasty and healthy and hence ate regularly. However, adolescents suggested that school lunch entrées, unlike fresh fruit, had a trade-off between these properties; good-tasting entrées were “unhealthy.” This sometimes clashed with cultural significance. For example, one adolescent described how the mismatch between their home and school food environments was partially realigned with the hiring of a school chef possessing some level of cultural authenticity, but this modification came at a cost:
In my school they have this cook who is like African or something, I don’t know, Jamaican right and she cooks some good broccoli chicken. My friend—a lot of people don’t eat school lunch in my school, but now they actually do and they say that the food is good but the food is unhealthy.

Compared to school foods, trade-offs between taste and healthfulness were not evident for foods at home, which were predominately homemade and more tied to their nostalgic properties. Adolescents were also neutral or unresponsive about the healthfulness of homemade meals. While three adolescents agreed that foods they consume at home are healthier than those they consume outside, most rarely had a direct answer to binary questions about whether homemade foods were “healthy or unhealthy.” Unlike school entrées, which adolescents more easily and voluntarily categorized, adolescents offered responses like “sometimes,” “it depends,” or pointing to portion size as a salient factor contributing to the healthfulness of homemade meals.

Adolescents also did not attribute healthfulness solely to fresh fruit at home, as they did at school, but suggested that health was integrated into their home food environment. For example, one adolescent described a soup that his grandmother prepares every winter comprised of boiled chicken and greens, “so like we don’t get sick that much.” Another adolescent, upon being probed about the healthfulness of a vegetable dish prepared by her parents, which she photographed, tried to justify that it was made out of tradition, not for health purposes:

Where I come from, [the Dominican Republic], we usually cook [this vegetarian dish]. But none of us in my family are vegetarians or vegans. We like meat. We always cook meat.

It was only when homemade foods served a functional purpose, for the promotion of health, that they provoked negative reactions similar to those reported in school. For example, two separate adolescents described a “purple-reddish” concoction prepared by grandmothers sometimes used as a flu remedy or weight loss promoter in the Dominican Republic. When offered to adolescents, they spilled it down the toilet or into a house plant, regardless of nostalgia.

**Sociopolitical condition**

The sociopolitical condition describes adolescent experiences of food at home and at school in relation to rules or regulation (or lack thereof) around eating behaviors, the food actors involved in constructing and enforcing these rules (e.g. family members, cafeteria staff), and adolescent experience of choices or autonomy (or lack thereof) offered to them in home and school settings.
Rules
Adolescents expressed a mismatch between how they experience food access at school compared to home. They expressed that some rules in their cafeteria contradict their intention to promote health. For example, one adolescent spoke of how her school disallows eating in the classroom and does little to offer accessible breakfast options, like apples and eggs, to curb students’ hunger in the morning. More tellingly, some adolescents were concerned about how “strict” rules surrounding school cafeteria meals contributed to food waste. One adolescent describes a mandate for selecting fresh fruit by telling a story of two experiences in his school cafeteria:

I don’t like the way that they treat most students... Because me when um my friends wanted an apple or something. I go in and they are like, ’[You] can’t take an apple’ and I am like, ’Why not? It’s just an apple!’ Also... I had an apple once and I didn’t want it so I was trying to return it back and the lady was being rude and she was telling me that ’You can’t put the apple back because you touched it’... They have sinks in the back why couldn’t they rinse it off?... It is just a bad waste of the food.

Food actors
Adolescents reported most family members engage in purchasing or preparing meals at home, which adds value and mitigates negative experiences, like one adolescent noted by quoting his grandmother, “She said that eating outside is too expensive and it’s better to like eat in—eat like a family meal because it tastes more better...” Grandparents were portrayed as particularly generous, one adolescent mentioning her grandmother, “always gives food to neighbors.” Moreover, one adolescent described how her mother breaks rules if it’s for the betterment of her children. One adolescent even described how her mother “brings fruits in a container and hides it in my bag” when they go to the movie theater. This painted a different portrait from school lunch staff enforcing fruit selection, or counting chicken nuggets:

I think my mom always do the things with love so they just put in the pay... they just... they don’t care... they... [do it] with love and I hate—like when [school cooks] count like they gave you chicken nuggets you like they count them. And if they give you one more they took it off from you.

It was common for adolescents to place blame for school food on school cooks because they had the greatest interaction with these staff. Two remarked, “It’s like they didn’t even try” and “it’s not about the food... it’s like they don’t cook it right.” One adolescent described a staff member who collected feedback, but most still felt cafeteria staff lacked accountability:

To change the food at school I would probably tell the lunch people to like keep in mind that what you guys are cooking we are going to eating and so if we get food poisoning or we throw it away that it is going to be on them.
Choice
Many adolescents felt that their cafeterias did not offer enough options that they enjoyed, which left them to creatively assemble entrées. One adolescent explained that he liked the mashed potatoes, but not the chicken, so he only ate the former. Another described how she does not like the mozzarella sticks so she sticks to a salad made of corn and greens—but only eats the greens. While some noted their school had a fruit or salad bar, this did not grant autonomy to selecting entrées. By the end of the day, navigating their foodscape at school left some adolescents giving in to what is available because they were aware that “food is expensive” and the “board of education” is “cutting funds”:

Adolescent 1: Like when I’m in lunch and I didn’t bring lunch of course I’m going to eat the cafeteria food. Because I know that it’s unhealthy –

Adolescent 2: Yeah… because they have to spend less and unhealthy food cost is cheap… so I guess it’s going to be unhealthy because its they have to… there’s a lot of kids and they have to give to food to everyone and so I think it is unhealthy food. So I just eat it just cause.

Comparatively, adolescents felt they had greater autonomy at home, which sometimes resulted in healthier options. Contrary to cafeteria staff counting chicken nuggets, one adolescent liked selecting his own portion size at home:

[my family] already give us a lot of vegetables with our food… and they give us like a good quantity, and like if they—they ask us—they ask us if we want more and like, if we don’t, they don’t give us… and if we don’t want to eat as much, we just ask them to take off a little bit of food.

Adolescents reported their families playing with ideas to eat in, out, or cook “fast food” indoors, “It’s like Chinese food but like… it’s homemade chicken lo mein.” When eating out, parents gave them options and one adolescent remarked, “sometimes I pick salad because it tastes good.”

Behavioral consequences
Adolescents suggested that the sensory-emotional and sociopolitical conditions for food culture mismatch partially explained a list of behavioral consequences, especially skipping and wasting school lunch entrées and consuming energy-dense, snack foods.
Skipping and wasting of school lunch entrées
Skipping school lunch was a norm. As one adolescent described, “… [in] sixth grade we didn’t really know what we were going to have so some of [the] people decided not to bring their lunch and after the first day everybody started bringing their lunch because they didn’t like the lunch.” Like this adolescent, a majority reported not eating school lunch or eating it only on occasion, such as “three times [per] month.” One adolescent, a fifth grader, said that the last time he ate school lunch was in first grade.

Adolescents who suggested skipping lunch more often meant that they do not consume lunch entrées. Fresh fruit from the cafeteria, on the other hand, was regularly consumed. Some clarified that students still pick up lunch entrees, but seldom finish eating them and throw out the remainder. This behavior was often remedied by families. As noted in this quote, an adolescent described a common scene after school with his grandmother:

Because like she always telling me after school when I get home. She’ll be like, “Oh, did you already eat already in school?” And I say, “No,” she be like, “Oh, come eat.” And she always gives me um, like, soup or—or something to fill me up quick.

Consumption of energy-dense, nutrient-poor snack foods
Food culture mismatch between home and school environments partially encouraged adolescents to seek consolation in “bodegas,” “candy shops,” and “delis.” Adolescents routinely visited food retail stores before and after school to purchase salty snacks, candy, and sugary drinks because compared to foods offered at school, “They look good and taste good.” Retail stores also helped some adolescents curb hunger from skipping lunch entrées at school.

Some adolescents suggested that they held closer connection to the food retail setting than the school cafeteria. For example, some reported purchasing snacks tied to early childhood memories or ethnic origins. One adolescent captured a photograph of a boy sitting next to a fast food sign and when asked what this photo meant to him, he explained, “Because when I was younger about this little boy’s age I used to love going to McDonalds and eating the chicken McNuggets.” Latino adolescents also reported purchasing energy-dense snack foods like Takis, a spicy tortilla-like snack marketed to children of Latino origin. Choices were further influenced by peers who stigmatized “healthy” retail foods and pressured them to “be normal” by purchasing chips. Despite having greater autonomy compared to younger children, adolescents did not suggest that their participation in retail stores was influenced by excitement over foods that appeared new or out of the ordinary. Nevertheless, some adolescents who skipped school lunch entrées did opt for à la carte snack foods, such as peanut butter and jelly sandwiches, cookies, and ice cream, which offered
greater exercise of choice. One adolescent regularly purchased chips from a vending machine in her school’s “family room”.

Thus, adolescents’ search for foods that satisfy their senses, emotions, and sociopolitical needs led them to purchase energy-dense, nutrient-poor snacks. When asked what changes she would make to her school cafeteria, one adolescent suggested making it more like a food retail setting.

**Discussion**

We described the conditions and behavioral consequences of a middle-range substantive theory of *food culture mismatch* experienced by adolescents. Mismatch in sensory-emotional and sociopolitical experiences between school and home food settings had behavioral consequences.

Most evidently, our study highlighted adolescents’ sensory perceptions of school food that resembled findings by Chatterjee et al. (2016). In both studies, children remarked that flavors of school food seldom matched with those they encountered at home, the latter of which were commonly connected to culturally significant foods, and hence, paralleling a growing body of work around “food nostalgia” (Viladrich and Tagliaferro 2016).

Viladrich and Tagliaferro define nostalgic foods as “traditional staples and recipes that are transmitted, prepared, and consumed by immigrants and their families in the host country…” (p. 102). They further explain that such foods “bring up immigrants’ emotional recollections of their homelands” and “represent an intrinsic part of their cultural memorabilia” (p. 102). Hence, nostalgic foods are thought to alleviate immigrants’ feelings of alienation, homesickness, and deprivation in their host environments (Koc and Welsh 2001; Lochere et al. 2005). In a focus group study of Latino immigrants in New York City, Viladrich and Tagliaferro (2016) found these foods were often prepared by “food gatekeepers” (p. 105) who held themselves responsible for preparing “homemade” meals that resonated with memories and emotions. In our study, nostalgic foods were always homemade meals, often prepared to preference by mothers and grandparents. Such foods were not described for their sensory characteristics, but rather connected adolescents to their familial and cultural histories.

However, both our study and Chatterjee et al. suggest that adolescents tend to romanticize nostalgic foods. In the study by Chatterjee, one student’s appeal for a seasoning they use at home (“Can’t we just have some Sazón?”) parallels one adolescent’s remarks in our study about his mother’s refusal to use salt (using Adobo instead). In both cases, adolescents were unaware both contain salt. Adolescents in these situations may be doing what Viladrich and Taliaferro call building an “organic cornucopia” (Viladrich and Tagliaferro 2016, 105), or describing one’s place of origin (in this case, their home) as a place where health is intrinsic to their culture and lifestyle.
However, while generally reserved to the immigrant experience, our study indicates that even microenvironments, such as home settings, may operate as “organic cornucopias,” equipped with their own food gatekeepers, relative to school food environments. In doing so, our study extends this concept beyond the context of immigrant Latino populations living in the U.S. For example, black adolescents in our study too described this phenomenon between parents or grandparents that adopted food cultures from past generations or the American South.

It is also noteworthy that adolescents reported nostalgia for chain fast food restaurants from early childhood (e.g. McDonald’s), snacks foods heavily marketed to Latino-Americans (e.g. Takis), and processed foods prepared by their parents at home (e.g. instant macaroni and cheese). These findings bend current definitions of food nostalgia that lean closer toward the immigrant experience and may not acknowledge the cultural significance of processed foods that disproportionately found their way into select populations.

Aside from taste, Chatterjee et al. (2016) also emphasized the “freshness” of school food in their study. While food quality appeared as a major theme in our study, it extended to appearance of packaged foods, such as yogurt. Additionally, our study showed that food quality was tied to taste, preference, and nostalgia, and difficult to weigh independently.

Our study also found that adolescents’ preconceptions of school food, including its taste and quality, set long-term conditions for trust and shaped future experiences. For example, one adolescent remarked that he has not eaten school lunch for 4 years after not “liking” it in the first grade. Adolescents trusted snack foods more than school lunch likely because the former, despite being “unhealthy,” evoked nostalgia and meaning. “School food,” on the other hand, by the very nature of its title, held its own identity—and stigma—putting into question whether improving the sensory properties of school foods alone would regain the trust of adolescents.

Further, Chatterjee et al. identified that portion size of foods was a major concern in their study. Our data did not uncover this theme, perhaps because our data were collected before the implementation of national school lunch standards (Public Law 111–296, 2010). However, adolescents in our study were more concerned by technical rules in cafeterias, like counting chicken nuggets or disallowing adolescents to return fresh fruit, which contrasted with their home environment. Future studies should consider exploring the questions of portion size, separate from the school lunch service.

Mita, Gray, and Goodell (2015) identified rules, but not choice, as important for building positive mealtime environments, but their findings for Pre-K children are difficult to compare to our sample of adolescents who may desire greater autonomy. While more research is needed on what a positive mealtime environment looks like for adolescents, our study aligns with Chatterjee et al. in that food autonomy remains an important factor in school cafeterias.
Finally, the role of the Board of Education in relation to adolescent experiences with school lunch should not be downplayed. One participant’s rationale that schools offer their students “unhealthy” foods because there is not enough funding available in The Board’s budget to feed otherwise expensive, “healthy” foods to a large number of students suggests that scarcity has been normalized for this participant in relation to healthy eating. More research should look into student’s perceptions of The Boards’ role and value-making in relation to school food and health.

**Consequences**

In the spirit of Stephens and Townsend (2015), we defined *food culture mismatch* as adolescents’ experience of feeling underrepresented at school where the food and food-related practices did not match cultural food norms at home. In questioning whether to adhere to school food norms, *food culture mismatch* partially appeared to lead to several behavioral consequences.

Cohen et al. (2014) examined lunch habits before and after implementation of recent national school lunch standards, concluding that waste remained the same, even with new mandates to select a fruit or vegetable. While these results are promising, our study found that adolescents spoke reductively about healthy foods at school; foods were categorized as “healthy” or “unhealthy,” the former strictly left to fresh fruit, compared to foods at home, which adolescents could not categorize or the healthfulness of which they felt depended on the portion size. These findings suggest that inability to provide entrées that meet the sensory-emotional needs of adolescents may limit knowledge of healthy choices to select foods, such as fruits. In addition to plate waste and food likability, future evaluations should examine how adolescents’ perceptions of food healthfulness change in accordance to nutrition standards, to assess if it extends beyond fruits to more complex meals, such as entrées.

We also found that experience of food culture mismatch partially resulted in the consumption of energy-dense, nutrient-poor snack foods. While others have identified this as a factor (Chatterjee et al. 2016), our study suggests this is a consequence of mismatch between conditions at school and home, rather than merely a preference for snack foods.

**Limitations**

This study has its fair share of limitations that should be noted. While our study employed a grounded theory approach, we stopped data collection and analysis after discovery of *food culture mismatch*, which risks biasing our results favorably toward adolescents. Specifically, it is possible that additional data collection may have led us to uncover phenomena that fall outside of the interests of
adolescents, such as evidence to support that mothers, grandmothers, school cooks, school administrative staff, and staff in food retail stores too felt pressured to balance things they felt were at stake for them—such as finances, time, health—across different food settings. Some of our findings already suggest this may be the case. More research is thus needed to uncover the complexities of food governance among school staff, retail clerks, and family members, the latter of whom were mostly women and already point to an unequal distribution of labor surrounding food preparation. Food governance should likewise extend beyond adolescents’ proximal worlds to include state, federal, and corporate interests. As such, our study does not suggest that solving food culture mismatch between home and school is the responsibility of stakeholders in any single setting, but rather, this study was an exercise in showcasing how food environments should be addressed relationally rather than absolutely.

While we had multiple sources of data, future research may also benefit from triangulating photo-elicited interviews with direct observation and other ethnographic methods to offer a “thick description” of these phenomena (Geertz 1973, 6). For example, one adolescent suggested that her dietary patterns vary and cannot neatly be explained or situated into a single dimension, “Sometimes I order food, sometimes I eat at home, and sometimes I eat in my grandmother’s home.” In the same spirit, literature from the field of education suggests young people’s literacies are not separated between home and school but are “multiply situated” (Bulfin and Koutsogiannis 2012, 344). In that respect, dichotomizing food experiences may grossly understate food culture mismatch, as these experiences are more likely “stretched” and shared between these environments. While we focused on home and school settings, more research is needed to capture the fluidity of eating environments and how adolescents navigate different food identities from setting to setting to meet external demands.

Our study was also conducted in urban after-school sites that catered exclusively to low-income and minority populations, particularly adolescents of color and recent immigrants. However, we are careful not to suggest that our findings are limited to this ethnic, racial, and socioeconomic population. Rather, our findings may speak to a more universal concept of food culture mismatch, one that is especially exaggerated in this population. More research is needed to investigate its presence and operation in other adolescent populations.

A major limitation of this study is that data were collected during implementation of the Healthy, Hunger-Free Kids Act (S. 3307, 2010). Referred to as “a long-awaited victory,” the Act was meant to send sweeping changes to the National School Lunch Program (Lavizzo-Mourey 2010). However, implementation varied by state and most provisions were not scheduled to take effect for another 5 years (S. 3307, 2010). It is unclear what portions of the Act were implemented during data collection for our study and how this
may have impacted our findings. However, this limitation does not influence the theoretical model we developed as much as it may influence its implications. Again, our study is best understood as an exercise in investigating the multidimensionality of food environments as it relates to adolescent health.

**Implications for policy, practice, and research**

Our study highlights the importance of sensory characteristics of school food. By serving as models of healthy eating, schools should ensure that taste and quality standards are met for school meals, particularly entrées, so as not to misinform adolescents that healthy eating only pertains to select foods, like fresh fruit. The Healthy, Hunger Free Kids Act currently includes provisions for higher professional standards for cafeteria personnel (S. 3307, 2010) and initiatives to partner schools with chefs to help optimize school lunch menus (Chefs Move to Schools 2015).

However, our study also found that sensory characteristics only served as one of many factors contributing to adolescents’ school food experiences. Findings suggest that schools could benefit from reinventing their image away from institutions that simply serve nutritional “school lunch” (ie “ew, stay away, it’s school salad!”) to eating experiences that resonate with adolescents’ preferences and nostalgias. For example, studies found that in addition to improving food, school chefs can improve the climate of the cafeteria (Cohen et al. 2012). The hiring of cafeteria staff that resemble the demographics of the student population, as was suggested by one adolescent, may also foster sensory-emotional and sociopolitical ties. Further, staff who act as caring family figures may bridge adolescents’ home and school food environments, such as by tailoring menu options based on feedback. However, this does not imply that schools should adopt characteristics of other environments but identify and amplify those characteristics that adolescents already enjoy about school cafeterias. More research is needed to assess positive lunchroom characteristics to help build this “new school food culture.”

Nevertheless, our study suggests that building ties between school food environments and retail settings may be advantageous. Paraphrasing one adolescent: cafeterias should be more like retail settings. Based on our findings, some favorable characteristics of such settings include the autonomy they offer adolescents, which echoes suggestions by Chatterjee et al. (2016) for schools to introduce more à la carte options. Yet, merging school food environments with those of retail settings is likely not the sole solution. Our findings suggest that schools need to embrace food retailers as natural and habitual parts of adolescents’ multidimensional food cultures that sometimes serve as safety nets when their experiences mismatch between home and school. Partnerships between schools and retail
settings to promote the availability of healthy foods in the latter may serve as an effective harm reduction strategy.

A key takeaway from our study is the importance of the grounded theory approach in children’s food environment research. While food retailers remain change agents in children’s dietary behaviors (Glanz, Bader, and Iyer 2012), our study highlights that the influencers of adolescents’ dietary behaviors are complex and dynamic. We suggest that more research is needed to understand the intersectionality of children’s multiple, fluid food environments.

**Conclusions**

Our study served as an exercise in studying the relational rather than absolute impacts of adolescents’ food environments. Using a CBPR and grounded theory approach, we discovered that low-income urban adolescents of color and immigrants experienced *food culture mismatch* between their home and school food environments. This middle-range substantive theory was experienced under *sensory-emotional* and *sociopolitical* conditions and partially amounted to behavioral consequences, including skipping and wasting school lunch entrées and consuming energy-dense, nutrient-poor snack foods. While we suggested several policies and initiatives to curb these potential consequences, our study also highlights that efforts to understand adolescent eating behaviors should generally focus on the intersectionality of multiple food environments.

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