THE SCHOOL DISTRICT OF PHILADELPHIA

SNAP-Ed Funded School-Community Partnerships: Sustaining Partnerships

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Summary

This report is part of a series of four reports resulting from a case study process evaluation of the SNAP-Ed nutrition education partnership, Eat Right Philly (ERP), in 2018-19. The reports focus on the implementation and effectiveness of SNAP-Ed community partnerships. Additional reports from the evaluation can be found at philasd.org/research.

This report focuses on the mid to late stages of program implementation. We asked: how can ERP implement policy, systems, and environment (PSE) changes that can be sustained over time? We found three key facilitators of sustainability in school-community partnerships: (1) A common understanding of what sustainability means and looks like in a setting; (2) clearly defined roles that each partner is expected to fulfil in maintaining the intervention; and (3) prioritizing the visibility and presence of the community partner in a setting, even as they transfer intervention maintenance to schools. Findings suggest that in order to sustain PSE changes over time, ERP should prioritize factors that facilitate visibility and responsiveness, which lead to deep and consistent relationships. In other words, the depth of key relationships seemed more important than the breadth of program activities.

Contents

Overview

This report is the third in a series of four reports on SNAP-Ed funded school-community partnership implementation and success.[1] The four reports focus on (1) cultivating readiness, (2) supporting implementation (3) sustaining partnerships (this report) and (4) measuring implementation for collective impact.[2] These reports resulted from a case study process evaluation of the SNAP-Ed nutrition education partnership, Eat Right Philly, in 2018-19. Through an in-depth exploration of school community partnerships within one district-wide nutrition program, this case study project provides a nuanced understanding of how schools and community partners can better collaborate to address complex problems, such as malnutrition.

Nutrition is an important consideration in engagement, achievement, and the gap between low-income and higher-income students.[3, 4] Students' mental, social, and emotional needs cannot be "rigidly compartmentalized" or separated from their physical needs.[5] Students who are food-insecure or malnourished, have inadequate water consumption, or lack opportunities to move their bodies through physical activity have a harder time paying attention in class. In fact, a recent study found that children who are non-active and have unhealthy nutrition habits scored lower on standardized test scores when compared with children who are active with healthy nutrition habits.[6] The link between health and academics is especially clear for students living in poverty, who may not have their basic needs met at home. High-poverty schools often require assistance in helping meet the needs of school-dependent students.[7, 8, 9] Assistance often comes through school-community partnerships. Engaging stakeholders at both the school and community level is an

[1] The series of four reports resulting from the 2018-19 Case Studies project defines "implementation" using implementation science. For more information on implementation science see Appendix A.
[2] Additional reports from the evaluation can be found at philasd.org/research.
[3] Charles E. Basch, "Healthier Students are Better Learners: A Missing Link in School Reforms to Close the Achievement Gap," *Journal of School Health* 81, no.10 (2011): 593-598.
[4] Alicia Fedewa and Jennifer Hoffman, "Nutrition and Physical Activity as Protective Factors in Eliminating the Achievement Gap," *Communique* 42, no. 1 (2013): 1-12.
[5] Nell Noddings, "What Does it Mean to Educate the Whole Child?" *Educational Leadership* 63, no.1 (2005): 5.
[6] Fiona M. Asigbee, Stephen D. Whitney and Catherine E Peterson, "The Link Between Nutrition and Physical Activity in Increasing Academic Achievement," *Journal of School Health* 88, no. 6: 407-415.
[7] Lisa Delpit, Multiplication is for White People: Raising Expectations for Other People's Children (New York: New Press, 2012).
[8] H. Richard Milner IV, "Understanding Urban Education from the Outside In and Inside Out," *Urban Education* 47, no. 6 (2012): 1019-1024.
[9] Pedro A. Noguera and Lauren Wells, "The Politics of School Reform: A Broader and Bolder Approach for Newark," *Berkeley Review of Education* 2, no. 1 (2011): 5-25.

effective way to deliver the resources and support schools need[10] and is vital to improving student nutrition.[11]

SNAP-Ed and Eat Right Philly (ERP)

The United States Department of Agriculture (USDA) Supplemental Nutrition Assistance Program Education (SNAP-Ed) provides nutrition education to SNAP-eligible low-income individuals and families. In Philadelphia, SNAP-Ed provides federal funding to seven community partners[12] to implement a nutrition education program known as Eat Right Philly (ERP) in 214 School District of Philadelphia (SDP) schools.

Key Terms

Direct education: Nutrition education lessons delivered through a SNAP-Ed approved curriculum and delivered either by ERP nutrition educators or classroom teachers with support from ERP staff.

ERP partners: Refers to the group of seven community partners that implement Eat Right Philly programming in SDP schools.

ERP programming: The overall set of program components Eat Right Philly delivers to a school or set of schools. Programming is typically made up of either direct education or work related to Policy, Systems, and Environment (PSE).

ERP staff: All staff members who work for Eat Right Philly partners to deliver or manage programming in schools. This includes seven ERP Directors who manage the program at the ERP Partner level, as well as ERP nutrition educators who deliver programming within schools.

Policy, Systems, and Environment (PSE): Interventions meant to facilitate people to act on their education by making healthy choices easier and preferable.

School staff: Refers to all employees who work at a particular school. For the purposes of the case study, we have grouped school staff into four main categories: 1) Administrators (principals and assistant principals), 2) Classroom teachers, 3) Other school staff (climate staff, nurses, counselors, food service managers), and 4) Partnership coordinators (anyone at the school whose key role is to manage partnerships, for example Community School Coordinators or VISTA staff).

SNAP-Ed: The United States Department of Agriculture (USDA) Supplemental Nutrition Assistance Program Education (SNAP-Ed) provides funding for nutrition education to SNAP-

[10] Pedro A. Noguera and Lauren Wells, "The Politics of School Reform: A Broader and Bolder Approach for Newark," *Berkeley Review of Education* 2, no. 1 (2011): 5-25.
[11] Ying-Ying Goh et al., "Using Community-based Participatory Research to Identify Potential Interventions to Overcome Barriers to Adolescents' Healthy Eating and Physical Activity," *Journal of Behavioral Medicine* 32, no. 5 (2009): 491-502.
[12] The seven community partners are the School District of Philadelphia, Drexel University, Agatson Urban Nutrition Initiative, Einstein Medical Center, Vetri Community Partnership, The Food Trust, and Health Promotion Council.

eligible low-income individuals and families.

ERP provides a range of programming to schools related to nutrition and physical activity to align with the SNAP-Ed requirement of using a combination of approaches. These approaches include direct nutrition education, social marketing, and Policy, Systems, and Environmental (PSE) change interventions. PSE changes facilitate people to act on their education by making healthier choices easier and preferable.

The goal of SNAP-Ed programming is to provide consultation and technical assistance to schools so that staff and administration make changes at the school level. While ERP partners provide direct programming and work with schools to implement a variety of initiatives, the school itself is "ultimately responsible for adopting, maintaining, and enforcing the PSE change."[13] Examples of school-level PSE changes include: writing a policy in the parent handbook to limit the amount of unhealthy snacks brought in for school celebrations, adopting a new intervention to increase physical activity during recess, or removing a vending machine that sells ice cream from the cafeteria.

ERP 2018-19 Case Study Project

The School District of Philadelphia (SDP) Office of Research and Evaluation (ORE) conducted a year-long case study project during the 2018-19 school year, which included 19 schools, 119 interviews of school and program staff, 7 focus groups with 41 students, document analysis, 138 hours of participant observation, and analysis of SDP District-Wide Survey (DWS) and School Support Census data.[14][15] The goal of the case study project was to: (1) understand the extent to which contexts (i.e., policies and environments, communities, and interpersonal connections) influence successful implementation of ERP programming, and (2) uncover how the seven community partners who implement SNAP-Ed nutrition education in the SDP can better coordinate programming, elevate the importance of their work to SDP administration and the public, and collect shared measures that will show the collective impact of their work over time. Collective impact is when stakeholders commit to a common agenda for solving a complex social problem that no single organization can solve alone.[16,17]

[13] Supplemental Nutrition Assistance Program Education, FY 2019 SNAP-Ed Plan Guidance (Alexandria: VA, United States Department of Agriculture, 2018), 18.
[14] Analysis of the SDP District-Wide teacher survey was used to inform findings in report one of this series of four reports, "SNAP-Ed Funded School-Community Partnerships: Cultivating Readiness." For more information on the District-Wide teacher survey and our analysis see Appendix C.
[15] Analysis of the SDP School Support Census was used to inform report three of this series of four reports, "SNAP-Ed Funded School-Community Partnerships: Sustaining Partnerships." For more information on the SDP School Support Census and our analysis see Appendix C.
[16] John Kania and Mark Kramer, "Collective Impact," *Stanford Social Innovation Review* 9, no. 1 (2011):36-41.
[17] For more information on Collective Impact see Appendix B.

The series of reports that summarize the findings from the case study project answer four main research questions:

1. What are the factors that facilitate the initial implementation of policy, systems, and environment (PSE) changes? ("Cultivating Readiness")
2. What implementation challenges and successes do ERP partners encounter in their schools? ("Supporting Implementation")
3. How can ERP implement policy, systems, and environment (PSE) changes that can be sustained over time? (This report, "Sustaining Partnerships")
4. What opportunities exist for ERP partners to measure, align, and coordinate programming? ("Measuring Implementation for Collective Impact")

Research Questions Guiding this Report

This report answers one of the research questions that guided the larger case study project: how can ERP implement policy, systems, and environment (PSE) changes that can be sustained over time? To help us answer this question, we considered three more focused questions about the sustainability of partnerships:

1. How do ERP partners and schools understand sustainability and SNAP-Ed's "policy, systems, and environment" (PSE) initiatives?
2. What factors facilitate implementing sustainable PSE initiatives?
3. How do ERP partners and schools understand their roles in the partnership?

Methods

Case studies are especially useful when it is impossible to separate variables from the context, and understanding multiple perspectives is required.[18, 19] The aim of case study research is "particularization," not generalization.[20] Thus, randomized sampling is not desirable for this method; rather, the aim should be to examine a "strategic selection of cases." Instead of examining the "typical case," we looked for "critical cases" that represent different levels of ERP presence or programming at a school.[21] To that end, we created a tiering system to categorize all partners' schools into three tiers based on 2017-18 data, data from the year before we began data collection. We quantified available qualitative data on nutrition lessons and PSE programming in each school to categorize schools into one of three tiers:

Tier 1: Schools with an intensive ERP presence
Tier 2: Schools with less intensive ERP programming

[18] Robert K. Yin, *Case Study Research: Design and Methods 4th Ed*. (Thousand Oaks: Sage Publications, 2008).
[19] Helen Simons, *Case Study Research in Practice* (London: Sage Publications, 2009).
[20] Sharan Merriam, *Qualitative Research: A Guide to Design and Implementation* (San Francisco: Jossey-Bass, 2009), 24.
[21] Bent Flyvbjerg, "Five Misunderstandings About Case-study Research," *Qualitative Inquiry* 12, no. 2 (2006): 229.

Tier 3: Schools with limited ERP presence

We then chose one "critical case" for each tier and each partner for a total of 19 schools. Schools were selected based on their tier level to ensure the inclusion of one school per tier and per partner. The study schools had a variety of other characteristics, including grades served, enrollment, geography, and demographics.

The researchers collected data from various stakeholders at the 19 schools in our sample including 119 interviews of school and program staff, 7 focus groups with 41 students, document analysis, and 138 hours of participant observation.[22] All data was coded by one team member and checked by a second team member using Dedoose.[23, 24] Disagreements about code application were discussed until a consensus was reached.

Analytical Framework

Part of the larger 2018-19 case study project on SNAP-Ed funded school-community partnership implementation and effectiveness described above, this specific report focuses on the third research question: "how can ERP implement policy, systems, and environment (PSE) changes that can be sustained over time?" This report operationalizes implementation using implementation science, which focuses on implementation outcomes. Implementation outcomes are the effects of purposeful actions to implement new programming. For example, the implementation outcome "feasibility" is the extent to which a new intervention can be successfully used or carried out within a given setting. [25] They are useful in evaluations that need to account for the influence of contextual factors when adopting and sustaining interventions in community settings.[26, 27] There are eight implementation outcomes. This report focuses on "sustainability."

In relation to Implementation Science literature, the sustainability of ERP nutrition programming in a school can be understood as the extent to which PSE changes are maintained or institutionalized within the school's ongoing operations, procedures and behaviors.[28] Moreover, the extent to which

[22] A detailed description of the project methods is provided in Appendix C.
[23] Dedoose Version 8.0.35, web application for managing, analyzing, and presenting qualitative and mixed method research data (2018). Los Angeles, CA: SocioCultural Research Consultants, LLC www.dedoose.com.
[24] For our complete codebook see Appendix D.
[25] Enola Proctor et al., "Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda," Administration and Policy in Mental Health and Mental Health Services Research 38, no. 2 (2011): 65-76.
[26] Rachel E. Blaine et al., "Using School Staff Members to Implement a Childhood Obesity Prevention Intervention in Low-Income School Districts: The Massachusetts Childhood Obesity Research Demonstration (MA-CORD Project), 2012-2014," Preventing Chronic Disease 14, no. 3: 2
[27] For a detailed explanation of implementation science and implementation outcomes see Appendix A.
[28] Enola Proctor et al., "Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda," Administration and Policy in Mental Health and Mental Health Services Research 38, no. 2 (2011): 65-76.

PSE changes become routine and a part of the everyday culture and norms of an organization.[29] In general, sustainability is often understood as a program being continued. However, in implementation science, continuation is only part of the picture; a continuing intervention is considered "sustainable" when it is *integrated* into an organization. Sustainability occurs late in the implementation of an intervention. We used implementation science to understand sustainability in the context of a program implemented within a school setting and to tease out the differences between a program continued by an external partner and one integrated into everyday culture and norms of the school.

Findings

How do ERP partners and schools understand sustainability and SNAP-Ed's "policy, systems, and environment" (PSE) initiatives?

The first question we examined focused on how ERP staff and school staff understand sustainability and PSE initiatives. We found that ERP staff tend to view the partnership as one that supports schools in sustaining established PSE changes. In contrast, school staff tend to view the partnership as one that provides schools with continued nutrition programming. Many school staff viewed nutrition programming as supplemental, instead of something that is incorporated into the school curriculum and culture, some were not aware of PSE, and some understood PSE as scaling back programming.

ERP staff view the partnership as one that *supports* schools in sustaining PSE changes

In line with SNAP-Ed guidance, ERP partners aim to build capacity at schools so that schools can sustain well-established nutrition programming in the form of PSE changes. While ERP partners will keep their relationship with the school and provide support, the goal is that PSE changes will eventually be maintained by and integrated into the school community.

An ERP director explained their role in the partnership as establishing initiatives and providing support for the school to maintain those initiatives, such as produce stands: "...someone at the school has to run the produce stand. We do the nutritional education along with it and we can get them kind of set up for the first time, but it should be sustainable within the school." ERP nutrition educators echoed this understanding describing their role at the school as "here to help." One nutrition educator understood PSE as getting schools to start, and then take over healthy habits: "PSE, from what I understand, is more getting the schools to choose more healthy habits, and we introduce to the schools ways they can do that and hopefully they take over. We introduce something, and then they take it over." These two quotes illustrate that ERP staff will establish PSE

[29] Russell E. Glasgow, Thomas M. Vogt, and Sean M. Boles, "Evaluating the Public Health Impact of Health Promotion Interventions: The RE-AIM Framework," *American Journal of Public Health* 89, no. 9 (1999) 1322-1327.

changes in the school, but then expect to move the partnership towards one where schools lead and ERP staff support the school's initiatives.

ERP staff view the aim of the partnership as one that supports schools, as opposed to continuing PSE changes *for* schools. As an example, one nutrition educator worked with their school to initiate a healthy student of the month celebration that they worked to make sustainable:

> ... we did a cooking class where we made pizzas, because they were buying pizzas and sodas. We got whole wheat bagels and pizza sauce and cheese and the kids made the food...But my goal over there was for somebody else to take this on….When we talked to the people involved, they said the hot stuff [pizza] wasn't for them, so our dietician on staff- she came up with an idea where we get these ice cream cone cups and fruit. The kids cut the fruit up and then they get a little whipped cream on the top, and they build a fruit cup, basically, of their own...I'm in the process of training someone at [the school] to take over that from me.

This nutrition educator supported the school in initiating a healthy celebration event and adapting it to be more feasible for school staff to implement. Then, they trained school staff to maintain it themselves.

Despite articulating PSE as something eventually sustained by the school, ERP staff we interviewed did not mention the extent to which they explain that PSE changes are intended to be sustainable to their school partners. When nutrition educators did mention that they explained PSE to their school partners, they did not present a complete picture: "I don't use the word PSE anymore. I did at first and that confused everybody. In conversation with people, I kind of ask them, 'Is there anything health-related at this school that you think we should be improving? We could do different things.'" Another nutrition educator presented PSE to school administration by asking "where do you feel is your weakest area?" In these two cases, they are explaining what PSE is (a change that makes it easier to make healthy choices), but not who is supposed to keep these changes going. This is noteworthy because, as discussed below, school staff did not mention that they were expected to eventually lead PSE changes when they discussed PSE.

School administrators, teachers, and staff do not have a complete understanding of what PSE changes mean for the partnership

Many school administrators, teachers, and staff viewed nutrition programming as supplemental, instead of something that is incorporated into the school curriculum and culture. While ERP strived to make changes to schools' policies and environments that could be sustained by the school over time, school staff perceived the purpose of the program was to fill the gaps in health programming that schools cannot independently do.

When asked about ERP's shift in programming towards PSE changes, many school administrators, teachers, and staff indicated they were not aware of it, even after PSE was explained by the interviewer. For example, at one school a teacher explained that they were not aware of the shift to PSE. "No, the only thing I was aware of was that the person wasn't able to go into the room

anymore. They were just coming and dropping stuff off." This teacher was not only unaware of the shift to PSE, they perceived changes in programming as a decrease in direct education and did not mention any PSE changes in their school.

The respondents who understood PSE or recognized a shift towards PSE in their schools after it was explained felt that changing the school environment to reflect what students are learning through direct education was important. For example, one classroom teacher sees the school as a setting where ERP and school staff can control the health environment:

> So, it's kind of like something that we do need to change for them here. Because you don't, I mean, you really can't change the way they're eating at home, you can encourage it, but the only thing, the only variable we really can change is - so, I think the education and actually implementing it is as important.

On the other hand, many of those who were aware of the shift understood it as limiting direct education or, as one school administrator called it, a "scale back" of programming at their school. One classroom teacher explained the shift to PSE as no longer including direct education in classrooms: "they're changing what they're doing, so they might not be going to classrooms; they may be working with groups of parents and schools in a different way." This change also concerned some administrators, teachers, and staff who felt that education is an especially vital precursor to behavior changes.

What factors facilitate implementing sustainable PSE initiatives?

The second question we examined using case study data from 19 schools focused on the factors that implement sustainable PSE initiatives. ERP and school staff found that when nutrition educators were visible and had a consistent, predictable presence at a school it fostered deep relationships between ERP nutrition educators and key school staff and students that facilitated implementation of PSE initiatives. A deep relationship is one that has been developed over time, involves mutual respect, and is responsive. A key relationship is one between ERP staff and school staff who allow access to the school, communicate with ERP about school events and ERP programming, program champions and school staff who deliver ERP programming such as direct education. ERP and school staff viewed relationships as the foundation for sustainable PSE changes.

In addition to the interview and observation data described above, this section also uses data from the SDP School Support Census to understand how visible ERP is across the District. As discussed below, case study data from 19 schools points to visibility as a key facilitator of PSE. Thus, taking a broader look at ERP visibility across the District points to the extent to which ERP can increase their presence and establish new partnerships at SDP schools. Overall, School Support Census data shows that ERP was the most identified SDP-school partner across the District.

Visibility, consistency, and fostering relationships were understood as the key to implementation of PSE

Once in the door and working with the school, ERP nutrition educators viewed visibility and consistency as vital to the key relationships and partnerships that facilitate establishing, and handing over leadership of, PSE changes. As one nutrition educator explained, ERP viewed established relationships as the foundation for sustainability: "I mean, this relationship wasn't built overnight by any means. It was the last five years and every year we try to improve on what we did the previous year and my goal this year is to try to give things over." Specific nutrition educators have been working, in some capacity, with the 19 schools in this study for periods ranging from 1 year to 18 years. Being at the same school multiple years in a row fosters deep relationships that involve mutual respect and responsiveness. In fact, on average, during the 2018-19 school year, nutrition educators at case study schools with a high level of programming and support/buy-in from school staff had been with the school for almost eight years. In contrast, nutrition educators at schools with less programming and support/buy-in from school staff had been at their school on average for less than two years.[30]

In addition, consistent and frequent direct education was one strategy for maintaining established relationships. Both ERP nutrition educators and school administrators, teachers, and staff felt frequent and consistent direct education contributed to ERP being perceived as visible and to nutrition educators' ability to make PSE changes. One nutrition educator felt that direct education was key to (1) changing student behaviors and (2) getting buy-in from teachers that facilitated larger health changes in the school:

> As far as students changing their behaviors, I think it's good for us to be in the classroom because they remember us and they think it's exciting. I also think it's important for teachers to be more on board with changing the health of the school. When they meet you and see what you do it helps a lot as well...It's like putting a face to a name.

Being present consistently and frequently enough to foster relationships helped get students and teachers on board with PSE changes. A school administrator confirmed this conclusion stating that most people in their school were aware of the nutrition educator because they were "in the classroom with the teacher and the kids."

In contrast to direct education, implementing a PSE change did not emerge as a factor in nutrition educators' perceived visibility or as a way to build relationships. Moreover, school administrator, teacher, and staff turnover can impede sustainability. Unique combinations of these factors meant that the ERP partnerships at each of the 19 schools in this study are in different stages of implementation; and at different points in the common goal of moving towards sustainable PSE changes.

[30] Report one of this series of four reports, "SNAP-Ed Funded School-Community Partnerships: Cultivating Readiness," discusses this finding in more detail and can be found at Philasd.org/research.

Visibility across SDP

Given that visibility is one key factor in implementing PSE changes, we used the School Support Census to understand how visible ERP is across the District and in the 19 case study schools. In 2018-19, 174 of the 207 responding Principals across the District identified ERP as a partner at their school, making ERP the most identified SDP-school partner. Fifteen of the principals at Case Study schools accurately identified ERP as a partner at their school, but the remaining four did not identify ERP as a school partner. While a Principal not identifying ERP as a partner might indicate that ERP is not as visible in that school, it could also be a one-time oversight by that Principal or an indication that ERP communicates more with other staff at that school.

Forty-five of the 207 responding SDP Principals identified ERP as a partner *and* listed "Health and Wellness (e.g., nutrition, sexual health) as an area of critical need at their school; three of those Principals were at Case Study schools (Table 1). It is important to note that in the School Support Census, nutrition is grouped together with other health and wellness issues, such as sexual health. Therefore, Principal responses may indicate a need for support related to other health issues at their school, apart from nutrition. Still, these results point to 45 schools where ERP could follow-up on a potential need for increased presence, and 5 schools where ERP could establish a partnership.

Table 1. Principal Responses from the 2018-19 SDP School Support Census, Identifying SDP-School Partners, and Areas of Critical Need for Support

	Number of Principals (out of 207 respondents)	Number of Principals at Case Study Schools (out of 19 case study schools)
Identified ERP as a partner	174	15
Identified ERP as a partner AND Selected "Health and Wellness (e.g., nutrition, sexual health) as an area of critical need at their school	45	3
Identified "Health and Wellness (e.g., nutrition, sexual health) as an area of critical need at their school, and did NOT identify ERP as a partner	5	0

How do ERP partners and schools understand their roles in the partnership?

Many school staff indicated that they were unsure about what their role in PSE changes should be. Moreover, while school staff found nutrition programming to be vital, they expressed an inability to take on a leadership role because they have too many priorities. Because school staff felt nutrition programming is important, but not something they could take on themselves, schools understood sustainability as a continuation of supplemental programming by the partner within the school, and de-emphasized its integration into school norms and culture. Viewing ERP programming as

supplemental also led to classroom teachers understanding their role in ERP direct education in different ways, which hindered nutrition education becoming an integrated and sustainable part of classroom curriculum.

While sustainability requires the school community to lead, many school staff were unsure about expectations for taking on a leadership role

PSE changes are intended to be led by the school community over time. Yet, school staff were unsure what their role in PSE changes should, and feasibly could, look like. One school staff explained: "everybody has a job, so I can't ask my lunch staff to be blending up smoothies when they're supposed to be watching and moving kids and taking people to the bathroom. So, who and when." Schools do not have enough people to dedicate staff time to nutrition programming. However, one school staff member explained that school staff who have the availability to take on these leadership roles (staff who are not tied to the classroom) are also pulled for leadership roles related to other priorities (i.e., climate teams, instructional teams, etc.):

> We have a core group of people that do everything, so if an issue comes up, it's the group of people that get together and talk about it, so we don't have a team that's labeled [school wellness team], but – you know, when something comes up, there's the safety team, but if something comes up related to health, then the team becomes that. I don't think there are enough people to make as many teams as we need, so everybody seems to become part of every team.

Some school staff expressed during interviews that often other priorities, like academic and climate initiatives, took precedence over health and nutrition activities. This manifested in several ways, ranging from an inability for school wellness teams to find the time to meet, to teachers hesitating to implement movement breaks during state-tested subjects. Moreover, some participants told us they felt like the link between physical health and academic outcomes was ignored. For example, one classroom teacher felt that while mental health and behavior were emphasized, links to nutrition were deemphasized:

> Mental health, behavioral health is such a predominantly— it just takes up so much of our time that nutrition doesn't get talked about...It doesn't make my top 50 things to do, and it should be up there. Healthy minds. Healthy eating produces healthy minds. I get all that, but I don't know why we're not talking about it.

Although they find it important, participants expressed an inability to participate in providing this programming because they have too many priorities to address. One school administrator expressed that they cannot fulfil all of the responsibilities they are tasked with: "we're providing them with their academics that they need. We're trying to provide them with the health and nutrition that they need and feed them and things like that, but at the same time, like something's got to give."

Because school administrators, teachers, and staff felt nutrition programming is important, but not something they could take on themselves, schools understood sustainability as continuation of supplemental programming within the school, and de-emphasized its integration into the school norms and culture. This understanding is in tension with implementing PSE changes that are truly integrated into, and sustainable by, the school.

School partnerships coordinators

At schools with a "school partnerships coordinator," (e.g., Community Schools Coordinator or Americorps Vista) assigned to work with the community, partnerships were described as more "natural" and less "awkward." Partnerships coordinators can increase a school's capacity to participate in successful external partnerships by being the main point of contact communicate about day-to-day programming, facilitate scheduling, and supporting or leading programming at the school. For example, a partnerships coordinator could lead a PSE change such as a healthy fundraiser at a school. One school staff member in a community-school coordinator position described their role as "the liaison and coordinator between them [ERP] and the principal." One important aspect of this role is the flexibility and availability provided by a position not linked to a classroom of students, allowing time to support the work of ERP. One nutrition educator explained that having a staff member in a community partnerships coordinator position means there is someone at the school with the capacity to support ERP programming:

> ... it might be difficult to say to a teacher, "hey listen, I'm giving out water bottles, can you go do a little water bottle or water lesson of the importance," because they have so many other things going on. Whereas the [school partnerships coordinators] are here and I'm able to say, "hey, we're doing a distribution of water bottles," and they can come up with a five to 10-minute spiel about why water is important, go into all the classrooms, pitch that, hand out the water bottles.

A second important aspect of this role is that it provides a clear contact for community partners. One nutrition educator explained that the school partnerships coordinator role prevented them from having to reach out to multiple school staff to find someone willing and able to take a leadership role:

> I think the fact that they have a [school partnerships coordinator] that we can partner with directly has been wonderful in a lot of ways because we kind of have a direct link in. It's someone whose job is in working with projects like this and connecting community partners. I think I would like to highlight that as something the district could encourage other schools to look for.

Partnerships coordinators became key relationships for ERP staff, allowing access to the school, communicating about school events and ERP programming, and championing the program. Although they facilitate sustainability by ensuring someone at the school has the time to liaise, these roles still require front-end work to ensure clarity: "when we create positions like that, a lot of collaboration needs to take place between the district or a representative at the school level, and the teams that are designing these programs so that we come up with a motto and a position and

responsibilities and duties that really fit in line with the school's program... make those positions a little more clear and concise for everyone." The position would benefit from clear role expectations.

Many teachers understand their role in direct education as a "helping hand" as opposed to having a role in maintaining or integrating nutrition education into the curriculum

Viewing ERP programming as supplemental led to classroom teachers understanding their role in ERP direct education in different ways. ERP partners provide direct education on nutrition using several models. The majority of classrooms receive direct education delivered by an ERP nutrition educator. In some schools, nutrition education delivery was shared between the ERP nutrition educator and the classroom teacher, with ERP providing the lesson plans and materials.

In schools where the classroom teacher delivered some or most of the nutrition lessons, time and capacity emerged as barriers to sustainability. One classroom teacher explained that time is a major barrier to integrating ERP nutrition lessons into their classes: "it's all great and I again encourage this type of healthy activity for children but it's just honestly with so much that we have on our plates we really don't have the time to do the lesson." This teacher values the lesson content, but doesn't find lessons feasible due to a lack of time. While they understand their role in maintaining nutrition education, they find it impractical to fulfill.

Still, there are some cases where nutrition education was sustained by the classroom teacher. For instance, one ERP-school partnership involves the classroom teacher delivering weekly nutrition education lessons with plans and materials provided by ERP. The lessons and materials are pulled from the ERP partner's website and printed by the teachers. One nutrition educator emphasized that they wanted teachers to access the materials themselves: "we want it to be a more sustainable method of providing education so they can get this all online and then do it instead of us having to provide everything." Accompanying food tastings are dropped off to the teachers by the ERP partner. Professional development about the nutrition education lessons is provided for the teachers by the partner at the beginning of the year. The partner's nutrition educator also meets with the teachers' grade group monthly to check-in and also gives nutrition lessons in the classroom quarterly.

According to an ERP nutrition educator, the teachers deliver the lessons along with a taste test in their self-contained classrooms on what they call "Tasty Thursdays." They usually devote 45 minutes to an hour to the lessons each week. As an example of what this model looks like in the classroom, during one observation the classroom teacher gathered students on the rug to provide a lesson on the dairy food group. She introduced the food group broadly with an empty carton of milk and plastic ice cream. She then narrowed the lesson to milk and benefits through a read-aloud non-fiction story about how we get the milk that we drink. This was followed by an activity where students identified shapes within a picture of a dairy farm.

Three factors may have contributed to making incorporation of nutrition education into the classroom teacher's routine feasible: (1) the flexibility provided by a self-contained classroom as

opposed to a teacher whose classes operate on a block schedule.[31] (2) The nutrition lessons addressed learning standards related to non-fiction texts and foundational geometry. Classroom teachers could prepare for nutrition education lessons without sacrificing time spent addressing learning standards. (3) The ERP partner's nutrition educator checked-in monthly and this continued visibility maintains the relationship and a related sense of accountability.

When nutrition education was delivered by ERP staff, classroom teachers viewed their roles differently, ranging from being active participants in lessons to being bystanders in the classroom. Many classroom teachers viewed their role as a "helping hand": make sure students are engaged, pass out materials, and/or redirect behavior. Other classroom teachers perceived the time as open to catch up on work. "I know that the teachers are constantly under a lot of stress, and they have a lot to do. Like an unbelievable amount. So, it's helpful because they're able to work while the person's conducting the lesson." While data illustrates that teachers feel they have limited time, this approach does not facilitate nutrition education becoming an integrated and sustainable part of classroom curriculum. Conversely, some ERP partners split the class into groups during cooking lessons and ask the teacher to take a group. Using teacher-led stations solidifies the classroom teacher as a co-teacher of nutrition education. For example, during one nutrition lesson the classroom teacher led a group in chopping vegetables during the lesson.

Our data also reveals a tension between nutrition educators not wanting to be a "guest" or "outsider" in classrooms, but at the same time, needing classroom teacher support. Stemming from the school's understanding of ERP as providing continued supplemental programming, part of the nutrition educator's perceived role as "guest" comes from their perception as someone who brings snacks, instead of a teacher of nutrition. Being perceived as the "snack lady" made it harder for nutrition educators to position themselves as teachers and for nutrition education to be viewed as integral, not supplemental (ERP Director).

Nutrition educators are limited in the time they can spend both preparing to teach and forming relationships with students. Nutrition educators mentioned that they don't get to observe the classes where they will teach before starting, so they have to learn the dynamics of the classroom along the way. Nutrition educators who are not in classrooms consistently are not able to build rapport with students and teachers.

Conclusion/Recommendations

ERP strived to support changes that can be maintained by the school over time. In contrast, school staff understood nutrition programming as supplemental and continued by ERP, instead of incorporated into school curriculum and culture. Many school staff were unsure about PSE initiatives and expectations for leadership of PSE changes. Some school staff saw PSE changes as a

[31] For more information on the extent to which scheduling challenged program implementation see report two in this series of four reports, "SNAP-Ed Funded School-Community Partnerships: Supporting Implementation," at www.Philasd.org/research.

"cutback" of programming, and viewed consistent ERP presence as vital to the deep relationships and partnerships that facilitate sustainable PSE changes— relationships that have been developed over time, involve mutual respect, and are responsive. Viewing ERP programming as supplemental also led to classroom teachers understanding their role in ERP direct education in different ways, which hindered nutrition education becoming an integrated and sustainable part of classroom curriculum.

This study identifies three key facilitators of sustainability: (1) Establishing together, as partners, what sustainability means and looks like in a specific setting. (2) Prioritizing the visibility and presence of the community partner in a setting, even as they hand over intervention maintenance. (3) Clearly defining the roles that each partner is expected to fulfil in maintaining the intervention in each phase of the transition to sustainability. Findings suggest that in order to sustain policy, systems, and environmental changes over time, ERP should prioritize factors that lead to deep and consistent relationships between partner staff and members of the school community. In other words, the depth of key relationships between ERP staff and school staff who allow access to the school, communicate with ERP about school events and ERP programming, program champions, and school staff who deliver ERP programming such as direct education, seemed more important than the breadth of program activities.

The recommendations listed below should be considered when moving partnerships towards sustainability. We also present these recommendations by report research question and related findings (Table 2):

- Ensure schools and partners share a common understanding of the aim of the partnership. Positionality can cause core principles of a partnership (i.e. sustainability) can be understood differently by schools and community partners.
    - Set time to consult about and define the goal of the partnership. Taking time to clarify the aims of the partnership for the school year will make future time put into maintaining the partnership more effective.
    - Hold structured consultations at various points during the school year. Health-related curriculum dissemination efforts can include a series of formal consultations throughout implementation. At the end of yearly implementation efforts, school and project staff can meet to discuss programming; what policy changes, resources, and other supports might be needed to continue; and how to spread use of the curriculum to other teachers.[32] Similar consultations, discussing aims for direct education and PSE changes, could help ERP NEs set goals, target resources, and initiate policy changes for the next school year. While school wellness teams and the SHI may serve this purpose, consultations, in the form of reflective conversations, might be more palatable and feasible for school staff and administration.

[32] Allan Steckler et al., "Measuring the Diffusion of Innovative Health Programs," *American Journal of Health Promotion* 6, no. 3 (1992): 214-225.

    - Ensure school administrators, teachers, and staff have a complete understanding of what PSE changes are, could look like in their school setting, and what this means for their side of the partnership in terms of leadership and maintenance.
    - Work with school administrators to integrate health and nutrition data and programming into the School Improvement Planning process. This process can help align school and program goals, clarify the role of ERP in the school, and how health and nutrition programming fits into the school. In addition, this effort can promote buy-in amongst school staff and leadership, as well as District leadership for health and nutrition programming, which in turn, can help facilitate PSE changes.
- Partners need to remain present/visible to maintain established relationships, even as they move towards sustainability.
    - Frequent and consistent nutrition education is one way to facilitate relationship building by making the Nutrition educator visible to teachers and students. Keep nutrition education frequent and consistent or apply that same frequency and consistency to Nutrition educators' presence at PSE interventions, even if they are led by the school.
- Avoid Nutrition educator turnover whenever possible; prioritize keeping the Nutrition educator at the same school year after year.[33]
- Ensure that schools and community partners are on the same page about roles and expectations. Different day-to-day experiences can cause schools and community partners to perceive the feasibility of role expectations differently.
    - Formalize roles in the partnership. Research shows that formal agreements between partners fosters increased ownership among participants.[34]
    - Develop an onboarding process for each school that details the *purpose and role of ERP within that school* as well as *what is expected of school staff*. In partnership with each school, develop a written agreement about what *the purpose and role of ERP* is at each school and *the roles and responsibilities of each school staff member involved in leading the partnership and implementing direct education*. "...if the enterprise is truly a collaborative effort, then the mutual expectations and division of labor should be articulated so that roles and responsibilities are clear.[35]
    - Specifically, clarify and confirm the role of the classroom teacher during direct education.
    - Take time before direct education starts to draft a co-teaching agreement completed by Nutrition educators and the classroom teacher. "To prevent confusion, disappointment, and wasted effort, partners also need to be explicit and consistent

[33] Report one of this series of four reports, "SNAP-Ed Funded School-Community Partnerships: Cultivating Readiness," discusses how having the same nutrition educator at a school for many years facilitates program implementation. Report one can be found at Philasd.org/research.
[34] Hugh Price, Mobilizing the Community to Help Students Succeed (Alexandria, VA: Association for Supervision and Curriculum Development, 2008), 106.
[35] Hugh Price, Mobilizing the Community to Help Students Succeed (Alexandria, VA: Association for Supervision and Curriculum Development, 2008), 105.

about what is expected of each party."[36] Give Nutrition educators a day to observe the classroom teacher teach in the classrooms they will be providing nutrition education and the opportunity to observe school-wide behavioral techniques.

- Formalize the role of the classroom teacher during direct education and the extent to which they will implement nutrition education independent of the Eat Right Philly Nutrition educator.
- Establish a "partnerships coordinator" role at each school. Recognize and celebrate the school community member who takes on that role.

[36] Hugh Price, Mobilizing the Community to Help Students Succeed (Alexandria, VA: Association for Supervision and Curriculum Development, 2008), 105.

Table 2. Report research questions, key findings, and related recommendations for trying to move partnerships towards sustainability.

Research Question	Finding	Recommendation
• How do ERP partners and schools understand sustainability and SNAP-Ed's "policy, systems, and environment" (PSE) initiatives?	• ERP intended PSE changes to be maintained by the school over time. In contrast, school staff understood nutrition programming as supplemental and continued by ERP.	• Ensure schools and partners share a common understanding of the aim of the partnership. • Set time to consult about and define the goal of the partnership. Taking time to clarify the aims of the partnership for the school year will make future time put into maintaining the partnership more effective. • Ensure school administrators, teachers, and staff have a complete understanding of what PSE changes are, could look like in their school setting, and what this means for their side of the partnership in terms of leadership and maintenance.
• What factors facilitate implementing sustainable PSE initiatives?	• Visibility, consistency, and fostering relationships were understood as the key to implementation of PSE	• Frequent and consistent nutrition education is one way to facilitate relationship building by making the nutrition educator visible to teachers and students. • Keep nutrition education frequent and consistent or apply that same frequency and consistency to Nutrition educators' presence at PSE interventions, even if they are led by the school. • Partners need to remain present/visible to maintain established relationships, even as they move towards sustainability. • Avoid Nutrition educator turnover whenever possible; prioritize keeping the Nutrition educator at the same school year after year.

Research Question	Finding	Recommendation
• How do ERP partners and schools understand their roles in the partnership?	• While sustainability requires the school community to lead, many school staff were unsure about expectations for taking on a leadership role	• Hold structured consultations between ERP staff and school staff involved with ERP programming at various points during the school year. • At the end of yearly implementation efforts, school and project staff can meet to discuss programming. • Work with school administrators to integrate health and nutrition data and programming into the School Improvement Planning process. • Ensure that schools and community partners are on the same page about roles and expectations. • Formalize roles in the partnership. • Develop an onboarding process for each school that details the purpose and role of ERP within that school as well as what is expected of school staff. Develop a written agreement about what the purpose and role of ERP is at each school and the roles and responsibilities of school staff. • Establish a "partnerships coordinator" role at each school. Recognize and celebrate the school community member who takes on that role.
	• Many teachers understand their role in direct education as supporting as opposed to maintaining or integrating nutrition education into the curriculum	• Specifically, clarify and confirm the role of the classroom teacher during direct education. • Take time before direct education starts to draft a co-teaching agreement between nutrition educators and classroom teachers. • Give nutrition educators a day to observe the classroom teacher teach in the classrooms they will be providing nutrition education. • Formalize the role of the classroom teacher during direct education and the extent to which they will implement nutrition education independent of the ERP nutrition educator.

Appendix A

This appendix, Appendix A on Implementation Science, can be found in all four reports in this series on SNAP-Ed funded school-community partnerships.

Implementation Science

As a field of research, implementation science promotes the adoption and uptake of evidence-based practices. Rather than focus on traditional outcomes of interventions or practices, implementation science tries to figure out why an evidence-based intervention is not being implemented (i.e., the barriers and facilitators of implementation).

Implementation outcomes, the effects of purposeful actions to implement new programming,[37] are useful in evaluations that need to account for the influence of contextual factors when implementing change: "Examining implementation outcomes (e.g., extent to which an intervention is adopted by teachers) provides context for intervention outcomes (e.g., change in children's BMI) and is needed to ensure that interventions are effectively adopted, translated, and sustained in community settings."[38] Implementation outcomes are based in the larger field of implementation science, focused on the uptake of evidence-based practices in real-world settings.[39]

With its roots in health-care and public health, implementation outcomes are used increasingly in research on health and nutrition interventions in K12 schools. Implementation Science has been applied in public health and educational research studies on nutrition lessons and related activities[40] as well as PSE changes, such as school food policies[41] and food backpack programs.[42] Prior research has highlighted factors in implementation outcomes, such as the presence of

[37]Proctor et al., "Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda," *Administration and Policy in Mental Health and Mental Health Services Research* 38, no. 2 (2011): 65-76.
[38] Rachel E. Blaine et al., "Using School Staff Members to Implement a Childhood Obesity Prevention Intervention in Low-Income School Districts: The Massachusetts Childhood Obesity Research Demonstration (MA-CORD Project), 2012-2014," *Preventing Chronic Disease* 14, no. 3 (2017): 2.
[39] Martin P. Eccles and Brian S. Mittman, "Welcome to *Implementation Science," Implementation Science* 1, no. 1 (2006): 1-3.
[40] Rachel E. Blaine et al., "Using School Staff Members to Implement a Childhood Obesity Prevention Intervention in Low-Income School Districts: The Massachusetts Childhood Obesity Research Demonstration (MA-CORD Project), 2012-2014," *Preventing Chronic Disease* 14, no. 3 (2017): 1-14.
[41] Claudia-Santi F. Fernandes et al., "Educator Perspectives: Selected Barriers to Implementation of School-Level Nutrition Policies," *Journal of Nutrition Education and Behavior* 51, no. 7 (2019): 843-849.
[42] Russell E. Glasgow, Thomas M. Vogt, and Sean M. Boles, "Evaluating the Public Health Impact of Health Interventions: The RE-AIM Framework," *American Journal of Public Health* 89, no. 9 (1999): 1322-1327.

supportive school staff that can serve as "champions" for the intervention.[43, 44] Prior research has also examined the ways in which implementation outcomes interact, such as higher penetration leading to long-term sustainability.[45]

There are eight conceptually distinct implementation outcomes: acceptability, adoption, appropriateness, feasibility, fidelity, implementation cost, penetration, and sustainability.[46] These outcome categories provide useful short- and medium-term indicators for the successful implementation of ERP programming, which in turn can provide context for evaluations of the effectiveness of the intervention itself. Each of the outcomes is described below.

Acceptability

Acceptability is the perception among stakeholders that an intervention is agreeable, palatable, or satisfactory. Acceptability refers to specific aspects of an intervention, while satisfaction references a general experience. Acceptability is dynamic and should be assessed based on stakeholder knowledge of, or experience with, various dimensions of an intervention, such as its content or complexity.[47] Factors found to influence acceptability include pre-existing wellness activities, parental involvement, strong principal support, and sensitivity to the community.[48, 49]Moreover, acceptability is impacted by changing administrative priorities (e.g., towards standardized testing) that compete with health and nutrition initiatives.[50] As an outcome, acceptability can occur throughout implementation. It needs to occur early for intervention adoption, must be ongoing to facilitate penetration, and must occur late into implementation to allow for sustainability.[51]

[43] Rachel E. Blaine et al., "Using School Staff Members to Implement a Childhood Obesity Prevention Intervention in Low-Income School Districts: The Massachusetts Childhood Obesity Research Demonstration (MA-CORD Project), 2012-2014," *Preventing Chronic Disease* 14, no. 3 (2017): 1-14.

[44] Carmen Byker Shanks and Samantha Harden, "A Reach, Effectiveness, Adoption, Implementation, Maintenance Evaluation of Weekend Backpack Food Assistance Programs," American Journal of Health Promotion 30, no. 7 (2016): 511-520.

[45]Enola Proctor et al., "Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda," *Administration and Policy in Mental Health and Mental Health Services Research* 38, no. 2 (2011): 65-76.

[46]Enola Proctor et al., "Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda," *Administration and Policy in Mental Health and Mental Health Services Research* 38, no. 2 (2011): 65-76.

[47]Enola Proctor et al., "Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda," *Administration and Policy in Mental Health and Mental Health Services Research* 38, no. 2 (2011): 65-76.

[48] Rachel E. Blaine et al., "Using School Staff Members to Implement a Childhood Obesity Prevention Intervention in Low-Income School Districts: The Massachusetts Childhood Obesity Research Demonstration (MA-CORD Project), 2012-2014," *Preventing Chronic Disease* 14, no. 3 (2017): 1-14.

[49] Claudia-Santi F. Fernandes et al., "Educator Perspectives: Selected Barriers to Implementation of School-Level Nutrition Policies," *Journal of Nutrition Education and Behavior* 51, no. 7 (2019): 843-849.

[50] Rachel E. Blaine et al., "Using School Staff Members to Implement a Childhood Obesity Prevention Intervention in Low-Income School Districts: The Massachusetts Childhood Obesity Research Demonstration (MA-CORD Project), 2012-2014," *Preventing Chronic Disease* 14, no. 3 (2017): 1-14.

[51]Enola Proctor et al., "Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda," *Administration and Policy in Mental Health and Mental Health Services Research* 38, no. 2 (2011): 65-76.

Adoption

Adoption refers to the intention, initial decision, or action to try an intervention at the beginning to middle stages of implementation.[52] Supportive school staff that are invested in the intervention, often called "champions," can facilitate adoption by coordinating logistics and garnering school support. The presence of a champion is a critical factor in adoption.[53]It is important to assess adoption readiness at both leadership and staff levels.[54]

Appropriateness

Appropriateness is the perceived fit, relevance, or compatibility of an intervention for a given setting, provider, or consumer and/or the perceived fit of the intervention to address a particular issue or problem. It is salient in early implementation, prior to adoption.[55] Appropriateness is important for understanding pushback to implementation, such as when stakeholders feel an intervention doesn't fit with the mission of a setting or is inconsistent with their role. As an example, research has found educators to be less motivated to implement school food policies intended to encourage healthy eating behaviors because they found the policies incompatible with the culture of the students and families in their school.[56]

Feasibility

Feasibility is the extent to which a new intervention can be successfully used or carried out within a given setting. This outcome is salient early in implementation, during adoption, because an intervention may be appropriate for a setting but not feasible due to a lack of resources.[57] Quality training, competing priorities, and burnout are factors that can impact feasibility. As with acceptability, competing priorities have been found to impact feasibility.[58]

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[52]Enola Proctor et al., "Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda," *Administration and Policy in Mental Health and Mental Health Services Research* 38, no. 2 (2011): 65-76.

[53] Carmen Byker Shanks and Samantha Harden, "A Reach, Effectiveness, Adoption, Implementation, Maintenance Evaluation of Weekend Backpack Food Assistance Programs," *American Journal of Health Promotion* 30, no. 7 (2016): 511-520.

[54] Rachel E. Blaine et al., "Using School Staff Members to Implement a Childhood Obesity Prevention Intervention in Low-Income School Districts: The Massachusetts Childhood Obesity Research Demonstration (MA-CORD Project), 2012-2014," *Preventing Chronic Disease* 14, no. 3 (2017): 1-14.

[55]Enola Proctor et al., "Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda," *Administration and Policy in Mental Health and Mental Health Services Research* 38, no. 2 (2011): 65-76.

[56] Claudia-Santi F. Fernandes et al., "Educator Perspectives: Selected Barriers to Implementation of School-Level Nutrition Policies," *Journal of Nutrition Education and Behavior* 51, no. 7 (2019): 843-849.

[57]Enola Proctor et al., "Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda," *Administration and Policy in Mental Health and Mental Health Services Research* 38, no. 2 (2011): 65-76.

[58] Rachel E. Blaine et al., "Using School Staff Members to Implement a Childhood Obesity Prevention Intervention in Low-Income School Districts: The Massachusetts Childhood Obesity Research Demonstration (MA-CORD Project), 2012-2014," *Preventing Chronic Disease* 14, no. 3 (2017): 1-14.

Fidelity

Fidelity is the degree to which an intervention was implemented as intended and is apparent during the early to middle stages of implementation.[59] SNAP-Ed evaluation materials refer to fidelity as the extent to which the nutrition education program is being implemented as designed.[60] It involves adherence to protocol, the amount of program delivered, and the quality of delivery. It is measured through self-reporting and observations.[61] Fidelity is impacted by administrative changes and turnover.[62]

Implementation Cost

The cost of an implementation effort varies according to (1) treatment complexity, (2) implementation strategy complexity, and (3) setting. Cost-effectiveness is salient throughout implementation: early for adoption and feasibility, middle for penetration, and late for sustainability.[63]

Penetration

Penetration is the integration of a practice within a setting during the middle to late stages of implementation, and is necessary for an intervention to be successful in terms of reach.[64] Reach is defined as the percentage and risk characteristics of persons who receive or are affected by a policy or program.[65] SNAP-Ed evaluation materials refer to reach as helping to quantify the proportion of the target population participating in a program.[66] Penetration is often measured quantitatively as the number of providers who deliver the intervention out of the total number of providers expected to deliver the intervention. Higher penetration may lead to greater long-term sustainability.[67]

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[59]Enola Proctor et al., "Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda," *Administration and Policy in Mental Health and Mental Health Services Research* 38, no. 2 (2011): 65-76.

[60] Altarum Institute and RTI International for the U. S. Department of Agriculture, *Addressing the Challenges of Conducting Effective Supplemental Nutrition Assistance Program Education (SNAP-Ed) Evaluations: A Step-by-Step Guide*. Sheryl Cates, et al. 2014. http://www.fns.usda.gov/research-and-analysis

[61]Enola Proctor et al., "Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda," *Administration and Policy in Mental Health and Mental Health Services Research* 38, no. 2 (2011): 65-76.

[62] Rachel E. Blaine et al., "Using School Staff Members to Implement a Childhood Obesity Prevention Intervention in Low-Income School Districts: The Massachusetts Childhood Obesity Research Demonstration (MA-CORD Project), 2012-2014," *Preventing Chronic Disease* 14, no. 3 (2017): 1-14.

[63]Enola Proctor et al., "Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda," *Administration and Policy in Mental Health and Mental Health Services Research* 38, no. 2 (2011): 65-76.

[64]Enola Proctor et al., "Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda," *Administration and Policy in Mental Health and Mental Health Services Research* 38, no. 2 (2011): 65-76.

[65]Russell E. Glasgow, Thomas M. Vogt, and Sean M. Boles, "Evaluating the Public Health Impact of Health Promotion Interventions: The RE-AIM Framework," *American Journal of Public Health* 89, no. 9 (1999): 1322-1327.

[66] Altarum Institute and RTI International for the U. S. Department of Agriculture, *Addressing the Challenges of Conducting Effective Supplemental Nutrition Assistance Program Education (SNAP-Ed) Evaluations: A Step-by-Step Guide*. Sheryl Cates, et al. 2014. http://www.fns.usda.gov/research-and-analysis

[67]Enola Proctor et al., "Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda," *Administration and Policy in Mental Health and Mental Health Services Research* 38, no. 2 (2011): 65-76.

Sustainability

Sustainability is the extent to which an intervention is maintained or institutionalized within a setting's ongoing operations. It is marked in the late stages of implementation by (1) a transition from temporary to permanent funding, (2) repetitive reinforcement of the intervention through inclusion in organizational or community procedures and behaviors, and/or (3) integration into all subsystems of an organization.[68] Barriers to long term sustainability include staff turnover, lack of leadership from principals, and lack of a champion.[69]

Implementation Science served as a particularly useful framework for this project for three reasons. First, this study takes place in a district where schools take on a variety of educational models and serve a diverse population of students. Implementation outcomes are useful in evaluations that need to account for the variation in school and community contexts: "Examining implementation outcomes (e.g., extent to which an intervention is adopted by teachers) provides context for intervention outcomes (e.g., change in children's BMI) and is needed to ensure that interventions are effectively adopted, translated, and sustained in community settings."[70] Second, this project employs qualitative case study methods, which are used in conjunction with Implementation Science: "qualitative data, reflecting language used by various stakeholders as they think and talk about implementation processes, is important for validating implementation outcome constructs."[71] Across the literature, qualitative methods often include semi-structured interviews to capture the language used by various stakeholders, which can aid in validating implementation outcome constructs.[72] Finally, SNAP-Ed guidance suggests that formative research, process studies, and outcome assessments are useful for evaluating different phases of health and nutrition programming and can inform the ongoing improvement of health and nutrition programming. Formative research develops the implementation of intervention programs and process studies measure the implementation of intervention programs, while outcome assessments examine the extent to which an intervention program achieves its goals.[73] Outcome assessments of an intervention will not show positive outcomes if the intervention was not implemented well.

[68]Enola Proctor et al., "Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda," *Administration and Policy in Mental Health and Mental Health Services Research* 38, no. 2 (2011): 65-76.
[69] Rachel E. Blaine et al., "Using School Staff Members to Implement a Childhood Obesity Prevention Intervention in Low-Income School Districts: The Massachusetts Childhood Obesity Research Demonstration (MA-CORD Project), 2012-2014," *Preventing Chronic Disease* 14, no. 3 (2017): 1-14.
[70] Rachel E. Blaine et al., "Using School Staff Members to Implement a Childhood Obesity Prevention Intervention in Low-Income School Districts: The Massachusetts Childhood Obesity Research Demonstration (MA-CORD Project), 2012-2014," *Preventing Chronic Disease* 14, no. 3 (2017): 2.
[71]Enola Proctor et al., "Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda," *Administration and Policy in Mental Health and Mental Health Services Research* 38, no. 2 (2011): 71.
[72]Enola Proctor et al., "Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda," *Administration and Policy in Mental Health and Mental Health Services Research* 38, no. 2 (2011): 65-76.
[73]Altarum Institute and RTI International for the U.S. Department of Agriculture, *Addressing the Challenges of Conducting Effective Supplemental Nutrition Assistance Program Education (SNAP-Ed) Evaluations: A Step-by-Step Guide*. Sheryl Cates, et al. 2014. http://www.fns.usda.gov/research-and-analysis

Appendix B

This appendix, Appendix B on Collective Impact, can be found in all four reports in this series on SNAP-Ed funded school-community partnerships.

Collective Impact

Collective impact addresses complex problems where the answer is not known and no single entity holds the resources or authority to drive the required change.[74] The concept of collective impact stems from the idea that "large-scale social change comes from better cross-sector coordination rather than from the isolated intervention of individual organizations."[75] There are five conditions of collective impact:[76]

(1) A common agenda that includes a shared vision for change, a shared understanding of the problem and goal, and a joint approach for problem solving.
(2) Shared measurements that involve measuring results based on the same criteria. This facilitates identifying patterns and coming to solutions.
(3) Mutually reinforcing participant activities that are different from, but supportive of and coordinated with, the actions of other participants. In other words, each participant plays a different role based on what they are capable of and where they excel.
(4) Continuous and frequent communication that serves to develop trust among differing organizations and build common vocabulary.
(5) Backbone support organizations that manage the collaboration of participating organizations; for example, handling logistical and administrative details.

The literature on collective impact has helped shape our understanding of the long-term vision of the overall Case Studies project, particularly how shared measurements can be defined and used,[77] as well as common challenges to achieving collective impact among partnership organizations. This literature has also informed how we designed the study, our interview and observation protocols, and our analysis.

[74] John Kania and Mark Kramer, "Collective Impact," *Stanford Social Innovation Review* Winter (2011): 36-41.
[75] John Kania and Mark Kramer, "Collective Impact," *Stanford Social Innovation Review* Winter (2011): 38.
[76] John Kania and Mark Kramer, "Collective Impact," *Stanford Social Innovation Review* Winter (2011): 36-41.
[77] For more information on how shared measurements can be defined and used related to the Eat Right Philly program see report four of this series of four reports, "Measuring Implementation for Collective Impact," located at www.philasd.org/research.

Appendix C

This appendix, Appendix C on the methods and data used in the ERP 2018-19 case study project, can be found in all four reports in this series on SNAP-Ed funded school-community partnerships.

Methods and Data

The ERP community partners seek to understand how to leverage programming and resources to better achieve SNAP-Ed goals given the factors that hinder or facilitate implementation. Case studies are especially useful for this purpose when it is impossible to separate variables from the context and understanding multiple perspectives is required.[78, 79] Case studies are also helpful to understand and explore "the process and dynamics of change."[80]

The aim of case study research is "particularization," not generalization.[81] Thus, randomized sampling is not desirable for this research method; rather, the aim should be to examine a "strategic selection of cases."[82] Instead of examining the "typical case," we should look for "critical cases" that are rich in detail.[83] To that end, we created a tiering system to categorize all partners' schools into three tiers, quantifying the available qualitative data on nutrition lessons and other programming in each school. We then chose one "critical case" for each tier for each partner, for a total of 19 schools.

We created an initial tiering system to ensure that the schools where we conducted research had varying levels of programming. Tier 1 schools were schools with an intensive ERP presence, including in-class nutrition lessons as well as additional programming such as produce stands, lessons offered to parents/caregivers, backpack programs, health fairs, after-school cooking clubs, and school breakfast promotions. Tier 2 schools had less intensive programming, and Tier 3 schools had the most limited ERP presence. Schools were selected based on their tier level to ensure the inclusion of one school per tier and per partner. Our study schools had a variety of other characteristics, including grades served, enrollment, geography, and demographics.

We collected qualitative data from a variety of stakeholders at the 19 schools in our sample during the 2018-19 school year. First, we conducted semi-structured interviews with three to seven key staff per site (e.g., classroom teachers, principals, cafeteria staff, nurses, and health and PE teachers) and ERP program staff, for a total of 119 interviews. Additionally, a total of 41 fourth-grade and fifth-grade students participated in seven focus groups in Tier 1 schools. We also observed 138

[78] Robert K. Yin, Case Study Research: Design and Methods, 4th ed. (Thousand Oaks: Sage Publications, 2008).
[79] Helen Simons, Case Study Research in Practice (London: Sage Publications, 2009).
[80] Helen Simons, Case Study Research in Practice (London: Sage Publications, 2009). 23.
[81] Sharan Merriam, Qualitative Research: A Guide to Design and Implementation (San Francisco: Jossey-Bass, 2009), 24.
[82] Bent Flyvbjerg, "Five Misunderstandings About Case-study Research," Qualitative Inquiry 12, no. 2 (2006): 229.
[83] Bent Flyvbjerg, "Five Misunderstandings About Case-study Research," Qualitative Inquiry 12, no. 2 (2006): 229.

hours of nutrition lessons, recess, lunchtime, and school events. Finally, we conducted a document analysis of statements of work, budgets, grant reporting data, tracking and fidelity tools, and curricula.

We composed analytic memos and met regularly to discuss common codes, categories, concepts, and themes[84] emerging from the data at all stages of data collection. In the first stage of data analysis, we coded interview transcripts using open coding, where any code ideas were recorded to capture all insights and connections.[85] We then developed and revised a working codebook through several iterations of focused and open coding of interview data, resulting in a final codebook of 19 root codes and 25 subcodes.[86] We mapped implementation outcomes onto the codes we saw emerge from the data when applicable.[87] The codebook included a definition and examples for each code to increase inter-rater reliability.

In the second stage of data analysis, we imported our codebook into web-based data analysis software[88] and began focused coding of interview data from Tier 1 schools, revising the codebook as needed. Focused coding takes a more deductive approach, applying codes that represent pre-defined categories.[89]We took a case study approach to coding,[90] treating each tier as a case in order to compare findings across tiers. When a variety of interview transcripts had been coded representing different participant roles (e.g, school nurse, teacher, ERP staff, school administrator) we began to establish inter-rater reliability through Dedoose's training feature as measured by a pooled Cohen's Kappa between 0.6 and 0.8. Research suggests that a pooled Kappa of 0.61–0.8, which constitutes good agreement.[91,92] Each coding team member completed several rounds of training tests using excerpts from a variety of interview transcripts until inter-rater reliability was established. The team discussed results and made changes to the codes, codebook descriptions, definitions, and examples after every test until saturation, when we felt we were no longer making changes to the codebook that moved our data analysis forward.

In the third stage of data analysis, all data across all three tiers was coded by two team members for relevant themes using Dedoose, starting with interview data, followed by observational and focus

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[84] Marilyn Lichtman, *Qualitative Research in Education: A User's Guide,* 3rd ed. (Los Angeles: Sage Publications, 2013).
[85] Robert M. Emerson, Rachel I. Fretz, and Linda L. Shaw. *Writing Ethnographic Fieldnotes*, (Chicago: University of Chicago Press, 2011).
[86] Robert M. Emerson, Rachel I. Fretz, and Linda L. Shaw. *Writing Ethnographic Fieldnotes*, (Chicago: University of Chicago Press, 2011).
[87] For more information on Implementation Science see Appendix A.
[88] Dedoose Version 8.0.35, web application for managing, analyzing, and presenting qualitative and mixed method research data (2018). Los Angeles, CA: SocioCultural Research Consultants, LLC www.dedoose.com.
[89] Robert M. Emerson, Rachel I. Fretz, and Linda L. Shaw. *Writing Ethnographic Fieldnotes*, (Chicago: University of Chicago Press, 2011).
[90] Marilyn Lichtman, *Qualitative Research in Education: A User's Guide,* 3rd ed. (Los Angeles: Sage Publications, 2013).
[91] Richard J. Landis, and Gary G. Koch. "The Measurement of Observer Agreement for Categorical Data." *Biometrics* 33, no. 1(1977): 159-174.
[92]Joseph L. Fleiss, "Measuring Nominal Scale Agreement Among Many Raters." *Psychological Bulletin* 76, no. 5 (1971): 378-382.

group data. The team discussed codes and made changes to the codebook throughout the coding process, collapsing codes or creating new codes as needed. In addition, we used Dedoose's qualitative analysis tools to identify salient categories that needed to be further divided into concepts, or subcodes, for analysis. Initially data were analyzed across the three tiers of schools to identify common implementation outcomes or other common concepts and to develop themes in analytic memos. The team met regularly to discuss our memos and list salient topics for an integrative report that would clarify and relate the analytic memos.[93]

To focus specifically on PSE implementation, we realized that to compare schools with similar levels of PSE programming, we would need to re-tier the 19 case study schools based only on the current data on PSE programming during the 2018-19 school year (which are somewhat different from the original tiers because those included both Direct Education and PSE programming, and used the previous year's data). We separated the schools into four groups based on each schools' level of programming and support/buy-in from school staff and administration. At this point in the data analysis process, we presented our methods, codebook, and findings from our analytic memos to ERP directors and staff. This served as a form of member checking as ERP was invited to ask probing questions and provide feedback.

Integrative report writing was an iterative process of individual and collaborative interpretation and writing. Each team member drafted a report section based on related themes. We drafted our sections individually, but in shared documents where we could provide feedback to team members throughout the writing process. We met regularly to share drafts and provide feedback, which "confirmed and crosschecked" our decisions.[94] After we had established drafts, we again presented our findings to ERP directors and staff for feedback, which was incorporated into this final report. Finally, this report was read by SDP Office of Research and Evaluation staff outside of the Health and Nutrition team who provided critical feedback. The following is a summary of the phases of data collection and analysis.

Phase I: Tiering and Case Study School Selection (Summer 2018)

In order to help ERP community partners understand how to leverage programming and resources to better achieve SNAP-Ed goals, we quantified available qualitative data on nutrition lessons and PSE programming in each school to categorize schools into one of three tiers:

Tier 1: Schools with an intensive ERP presence
Tier 2: Schools with less intensive ERP programming
Tier 3: Schools with limited ERP presence

[93] Robert M. Emerson, Rachel I. Fretz, and Linda L. Shaw. *Writing Ethnographic Fieldnotes*, (Chicago: University of Chicago Press, 2011).
[94] Trena M. Paulus, Marianne Woodside, and Mary F. Ziegler, ""I Tell You, It's a Journey, Isn't It?" Understanding Collaborative Meaning Making in Qualitative Research," *Qualitative Inquiry* 16, no. 10 (2010): 858.

We then chose one "critical case" for each tier and each partner for a total of 19 schools. Schools were selected based on their tier level to ensure the inclusion of one school per tier and per partner. The study schools had a variety of other characteristics, including grades served, enrollment, geography, and demographics.

Phase II: Data Collection (2018-19)

We collected qualitative data from a variety of stakeholders at the 19 schools in our sample during the 2018-19 school year. Table 1 provides an overview of data collected, including details of participants and activities.

Table C1. Data collection

Data Collection Activity	Participants and Activities
Semi-Structured Interviews (119)	• 3-7 key staff per site (e.g., classroom teachers, principals, cafeteria staff, nurses, and health and PE teachers) • ERP Nutrition Educators and Directors
Focus Groups (7)	• 41 fourth-grade and fifth grade students
Observations (138 Hours)	• Nutrition Education Lessons • PSE Activities • School Activities (e.g., recess, breakfast/lunch, physical education classes)
Document Analysis	• Statements of Work • Grant Reporting Data • Tracking and Fidelity Tools • Curricula
Other Data	• District-wide Survey 2018-19 • Support Census 2019

Phase III: Codebook Creation and Data Analysis (Fall 2019)

We composed analytic memos and met regularly to discuss common themes emerging from the data at all stages of data collection. We developed and revised a working codebook through several iterations of coding and discussions, resulting in a codebook of 19 root codes and 25 subcodes. The codebook included a definition and examples for each code to increase inter-rater reliability.

After finalizing the codebook and importing it into web-based data analysis software (Dedoose Version 7.0.23), we began to establish inter-rater reliability through Dedoose's training feature as

measured by a pooled Cohen's Kappa between 0.6 and 0.8, which constitutes good agreement.[95, 96] Each coding team member completed several rounds of training tests using excerpts from a variety of interview transcripts until inter-rater reliability was established.

Finally, the team coded all available data and continued to write analytic memos to explore common concepts and themes. The team met regularly to discuss our memos and list salient topics for a final integrative report, and presented our methods, codebook, and preliminary findings to ERP directors and staff for feedback.

PSE Grouping and Analysis

After data collection and preliminary analysis, we realized that in order to compare schools with similar levels of programming, we would need to group the 19 case study schools based on actual ERP programming during the 2018-19 school year. The 19 case study schools were selected as critical cases from three tiers based on 2017-18 data. Thus, after considering the amount of ERP programming, as well as the level of involvement of school staff in implementing program components in 2018-19, we separated the schools into four groups (Table 2).

Table C2. The groups representing levels of PSE programming in the 19 case study schools

Group	Description	# Schools
Group 1	Schools with a high level of programming and support/buy-in from staff and administration. These are schools where staff members take on a larger role in programming, and the schools have more potential to make PSE changes because of the level of staff involvement.	5
Group 2	Schools with a medium to high level of programming. Programs are mostly ERP-led and have less involvement from school staff, which means there is less potential for PSE changes.	4
Group 3	Schools with a medium to low level of programming. Programming is mostly Direct Education, and any PSE is ERP-led with little to no staff involvement. ERP staff report actively trying to increase programming in these schools and struggle to increase engagement and buy-in.	5
Group 4	Schools with little to no programming, and ERP is not trying to increase activities due to a lack of capacity, ERP staff turnover, or other higher-level programming decisions.	5

[95] Richard J. Landis and Gary G. Koch. "The Measurement of Observer Agreement for Categorical Data." *Biometrics* 33, no. 1(1977): 159-174.

[96] Joseph L. Fleiss, "Measuring Nominal Scale Agreement Among Many Raters." *Psychological Bulletin* 76, no. 5 (1971): 378-382.

2018-19 District-Wide teacher survey

In addition to case study interview data with ERP and school staff, ORE used data from the 2018-19 District-Wide teacher survey[97] to analyze differences in the school culture, leadership, and staff capacity that determined the ability of the school to implement *any* interventions across and between schools and PSE Groups. We selected three District-Wide teacher survey questions to highlight key factors that might influence a school's ability to implement innovations, including student behavior, principal leadership, and staff time constraints:

1. To what extent is student behavior a challenge to student learning at your school? (*A great challenge, a moderate challenge, a slight challenge, not a challenge*)
2. The principal at this school creates buy-in among faculty. (*Strongly Agree, Agree, Disagree, Strongly Disagree)*
3. To what extent is the lack of teacher planning time built into the school day a challenge to student learning at your school? *(A great challenge, a moderate challenge, a slight challenge, not a challenge)*

These three District-Wide teacher survey questions were used to look at differences in question responses by school and by PSE Group in order to determine the extent to which attributes of a school (student behavior, principal leadership, and teacher planning time) affect their capacity to implement new programming.

2018-19 School Support Census

We used the School Support Census to understand (1) how visible ERP is across the District and in the 19 case study schools and (2) how many schools identified health and wellness as an area where their school needs support. In the fall of each school year, the School Support Census asks principals of 215 SDP schools (excluding charter schools) to confirm which partners from the previous school year are maintaining support in the current school year and what new partners are working in their schools. The School Support Census also asks principals to select from a list of general need areas (e.g., health and wellness supports, behavior supports, or support with sports) and indicate if their school is in current need of support in that area. Principals identify each area on a scale of "no need" to "slight" to "moderate" to "critical."[98] In the School Support Census, nutrition is grouped together with other health and wellness issues, such as sexual health. In 2018-19, 207 Principals responded to The School Support Census. There are limitations to the School Support Census data. While a principal not identifying ERP as a partner might indicate that ERP is not as visible in that school, it could also be a one-time oversight by that principal or an indication

[97] The District-Wide teacher survey asks SDP teachers their perspective on numerous topics related to their work. For more information on the SDP District-Wide teacher survey see https://www.philasd.org/research/programsservices/district-wide-surveys/.

[98] For more information on The SDP School Support Census see https://www.philasd.org/research/programsservices/projects/school-support-census/.

that ERP communicates more with other staff at that school. In addition, because nutrition is grouped together with other health and wellness issues, such as sexual health, principal responses may indicate a need for support related to other health issues at their school, apart from nutrition.

Appendix D

This appendix, Appendix D listing the Codebook used in the ERP 2018-19 case study project, can be found in all four reports in this series on SNAP-Ed funded school-community partnerships.

Codebook

Category/Code	Subcodes
Key Quote	N/A
Program Structure	Importance of Frequency/Visibility Lack of Awareness/Confusion Decision Making Description Staffing
Coordination/Communication (School Level)	N/A
Direct Education	N/A
PSE	Activities (What ERP is Doing): *Hydration* *Movement Breaks* *Produce Stands* *Backpacks* *Event Tabling* *Healthy Fundraisers* *Healthy Celebrations* *Gardening* *Promotion*
ERP Parent/Family Engagement	N/A
Taste Test	N/A
Opportunities (What ERP Could Do)	N/A
Successful Outcomes	N/A
Ease/Difficulty of Implementation	N/A
Family/ Neighborhood Context for Health/Nutrition	N/A

School/District Context	School Climate Competing Priorities Parent Engagement School Staff Turnover
Health/ Nutrition Context	District Food Service Wellness: School Wellness Teams, SHI, Wellness Policy School: *Health/PE class* *Recess/Movement breaks*
School Staff	School Staff Roles Satisfaction/Acceptability School Staff Buy-in
Relationships	N/A
Student Reactions to ERP	Engagement Acceptability Awareness
Resources/ Materials	N/A
Nutrition Educator Delivery	N/A
Sustainability	N/A