UNIVERSITY OF CALIFORNIA
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Evaluation Report Attachments #1-7:

UC CalFresh Annual Report

FFY 2018

UNIVERSITY OF CALIFORNIA
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FFY 2018 Annual Report Evaluation Attachments

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Project: Shaping Healthy Choices Program (SHCP)

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Evaluation Report Attachment #1:

Process and Outcome Evaluation: Tracking Policy, Systems, and Environmental Change (PSE) Activities through Program Evaluation and Reporting System (PEARS)

Project: UC CalFresh SNAP-Ed Activities in 32 California Counties

Project Goals:

This evaluation most directly assesses the following California SNAP-Ed State Level Goal:

- Goal 4: Increase access to and/or appeal of healthy dietary choices and decrease access to and/or appeal of unhealthy dietary choices where people eat, live, learn, work, play, or shop.
- Goal 5: Increase access to and/or appeal of physical activity opportunities for SNAP-Ed eligible populations.

However, these environmental changes are also intended to impact the additional individual-level SNAP-Ed State Level Goals:

- Goal 1: Increase Consumption of Healthy Foods and Beverages and Decrease Consumption of Unhealthy Foods and Beverages
- Goal 2: Increase Physical Activity

Evaluation Design:

All UC CalFresh County programs used PEARS to report Policy, Systems and Environmental (PSE) activity implemented during FFY2018. As described in the PEARS PSE module, "*at the environmental level, the focus of evaluation is not on measuring changes in individuals, but rather changes in settings or venues in low-income areas where nutrition education is [typically] provided".* PSE activities were reported for a total of 404 sites/organizations. Program implementation and data collection occurred over the entire FFY2018.

Results:

Policy, Systems, and Environmental (PSE) Sites and Reach

UC CalFresh worked on policy, systems, and environmental (PSE) changes in 404 total sites/organizations (all stages of implementation). When examining only those who reported implementing or maintaining changes, a total of 1,126 PSE changes were adopted reaching 142,028 SNAP-Ed eligible individuals in 350 sites/organizations across all settings (see Table 1). These results reflect PSE changes adopted in 31 of the 32 counties served by UC CalFresh. PSE efforts in Nevada County are primarily implemented by another LIA (the Nevada County Public Health Department). However, the UCCE Nevada County is currently exploring the integration of PSE efforts into the Tweens-as-Teachers youth engagement program they are piloting in Nevada County.

Table 1: Total PSE Sites/Organizations and Number with One or More PSE Change Adopted and Reach by County and Statewide

COUNTY	# of PSE Sites/Orgs *(All Stages of Implementation)*	# of PSE Sites/Orgs with Changes Adopted*	# of Schools *(K-12, Elementary, Middle, and High)* *	# of Early Care and Education*	# of Before/ Afterschool Programs*	# in Other Settings*,‡	COUNTY REACH TOTALS
Alameda	29	29	0	28	0	1	**1,905**
Amador (cluster)	5	5	4	0	0	1	**4,072**
Calaveras	8	7	6	0	0	1	**2,578**
El Dorado	16	13	8	1	2	2	**2,249**
Tuolumne	3	3	1	0	0	2	**288**
Butte (cluster)	8	7	6	0	0	1	**2,370**
Colusa	4	2	1	0	1	0	**618**
Glenn	3	2	2	0	0	0	**852**
Sutter	12	2	2	0	0	0	**5,389**
Yuba	16	7	6	0	1	0	**2,287**
Contra Costa	1	1	0	0	1	0	**527**
Fresno (cluster)	15	14	11	2	0	1	**7,429**
Madera	21	21	4	1	16	0	**4,755**
Imperial	20	20	9	6	0	5	**4,561**
Kern	7	7	4	3	0	0	**215**
Kings	33	30	17	1	11	1	**21,041**
Tulare	17	13	12	0	0	1	**7,176**
Merced (cluster)	3	3	3	0	0	0	**13,626**
Stanislaus	9	9	6	0	3	0	**18,241**
Placer (cluster)	5	3	3	0	0	0	**639**
Nevada	0	0	0	0	0	0	**0**
Riverside	27	22	11	7	2	2	**8,091**
San Francisco	9	9	1	8	0	0	**2,096**
San Mateo	24	21	12	3	6	0	**5,135**
Santa Clara	22	18	8	4	6	0	**4,089**
San Joaquin	26	23	9	9	2	3	**4,244**
San Luis Obispo	7	7	6	0	0	1	**2,187**
Santa Barbara	6	6	5	0	0	1	**5,052**
Shasta (cluster)	22	22	12	0	0	10	**7,248**
Tehama	4	4	3	0	1	0	**1,510**
Trinity	6	6	5	0	0	1	**828**
Yolo	16	14	0	7	7	0	**730**
STATE PSE SITES	**404**	**350**	**177**	**80**	**59**	**34**	
STATE REACH		**142,028**	**126,634**	**4,273**	**4,999**	**6,122**	**142,028**

*Other includes community centers, community organizations, family resource centers, farmers' markets, food banks and pantries, public housing, residential treatment centers, shelters, and other places people live/live nearby, learn, and/or work.

‡Summary statistics include only those PSEs in the implementation and maintenance stages.

PSE efforts in the implementation and maintenance stages were most frequently reported by UC CalFresh county programs in the three settings where direct education is also most commonly delivered:

1. **177 Schools** (K-12, elementary, middle, and high) reaching over 126,634 students,
2. **80 Early care and education** (ECE) sites reaching 4,273 preschoolers, and
3. **59 Before/after school programs** reaching nearly 5,000 youth.

The remaining settings had fewer than 10 PSE sites each in the implementation and maintenance stages (see Table 2). Still, nearly 2,000 SNAP-Ed eligible individuals were reached by PSE changes adopted in community centers and over 1,000 at public housing sites.

Table 2: Number of PSE Sites/Organizations and Reach by Setting for Implementation and Maintenance Stages

Setting	Number of PSE Sites (n=350)	Reach
Schools (preschools, K-12, elementary, middle, and high)	177	126,634
Early care and education	80	4,273
Afterschool programs (includes before school programs)	59	4,999
Community centers	5	1,856
Public housing	9	1,097
Food banks and pantries	4	961
Residential treatment centers	4	552
Community organizations	3	205
Farmers markets	2	400
Other places people go to "learn"	2	261
Shelters	2	100
Family resource centers	1	465
Other places people go to "work"	1	155
Gardens (stand-alone)	1	70

Programs, Packages and Initiatives Supporting PSEs

UC CalFresh county programs incorporated several programs, packages, and initiatives to support their PSEs in an effort to build comprehensive and mutually reinforcing interventions (see Table 3). Counties reported delivering Coordinated Approach to Child Health (CATCH) at 123 sites which represented over one-third (35%) of the PSE sites. The Smarter Lunchrooms Movement (SLM) was also commonly utilized to support PSE changes at 102 sites – just under one-third (29%) of the PSE sites. County programs reported working on School Wellness Policy efforts at 62 PSE sites (18%). Although ‘gardens’ was not included in the drop down list of programs, packages and initiatives supporting PSEs, county programs reported ‘other’ and added “gardens’ at 46 PSE sites, representing the importance of this as a key component of their intervention strategies. Additional UC CalFresh programming included Farm-to-School work and Harvest of the Month efforts at 30 sites each, playground stencils at 26 sites, Rethink Your Drink at 23 sites, as well as California Thursdays and the Shaping Healthy Choices Program at 12 sites each. Table 3 provides a complete list of the programs, packages, and initiatives used to support UC CalFresh PSE efforts.

Table 3: Number of Sites/Organizations Delivering Programs, Packages, and Initiatives to Support PSEs*

Which of the following programs, packages or initiatives were used as part of the PSE efforts?	Number (%) of PSE Sites (n=350)
Coordinated Approach to Child Health (CATCH)	123 (35%)
Smarter Lunchrooms Movement (SLM)	102 (29%)
School Wellness Policy – updating and/or implementing	62 (18%)
Farm-to-School	30 (9%)
Harvest of the Month (HOTM)	30 (9%)
Playground Stencils	26 (7%)
Rethink Your Drink (RYD)	23 (7%)
California Thursdays	12 (3%)
Shaping Healthy Choices Program	12 (3%)
EatFresh.org	9 (3%)
Healthy Apple Rewards	7 (2%)
Sports Play Active Recreation for Kids (SPARK)	7 (2%)
Youth Participatory Action Research Projects (YPAR)	7 (2%)
Safe Routes to School (SRTS)	5 (1%)
Children's Power Play Campaign	3 (1%)
Farm to Fork	2 (1%)
Others: ***Gardens (46)****, UC CalFresh curricula (9), Walking clubs/Pedometer challenges (3), Fuel Up To Play 60 (2), Healthy school farmers' market (1), Teens as teachers (1), Partner with food service on cafeteria taste tests to improve appeal/acceptability of FV (1)*	63 (18%)

*Summary statistics include only those PSEs in the implementation and maintenance stages.

Policy, Systems, and Environmental (PSE) Changes Adopted

The following table displays the PSE changes adopted related to nutrition, PA and both nutrition and PA across all settings reported by UC CalFresh county programs in PEARS. As previously stated, a total of 1,126 PSE changes were adopted reaching 142,028 SNAP-Ed eligible individuals in 350 sites/organizations across all settings. Over half (59%) of the PSE changes adopted were related to nutrition (n=667), approximately one-third (35%) addressed physical activity (PA; n=397), and 6% were associated with both nutrition and PA changes (n=62). In total, 273 sites/organizations (78%) in 29 counties made at least one nutrition supports related PSE change and 182 sites/organizations (52%) in 27 counties made at least one PSE change related to PA or reduced sedentary behavior. Tables 4a, 4b, and 4c provide statewide summaries across all settings of the nutrition-related, physical activity-related, and nutrition and physical activity-related PSE changes reported by UC CalFresh county programs at 2 or more PSE sites/organizations in FFY 2018.

Table 4a: Nutrition-Related Policy, Systems, and Environmental (PSE) Changes Adopted Across All Settings*

Type of PSE Changes Selected	Number of Changes
Nutrition	**667**
Edible gardens (establish, reinvigorate or maintain food gardens) (23 new school gardens)	136
Initiated or expanded use of the garden for nutrition education	91
Improved layout or display of meal foods/beverages to encourage healthier selections (e.g. Smarter Lunchrooms)	61
Initiated or improved point-of-purchase, decision, and/or distribution prompts (including information intended to influence choices at the point of decision)	31
Initiated or expanded farm-to-table/use of fresh or local produce	30
Improved child feeding practices (e.g. served family style, adults role model healthy behaviors, etc.)	29
Improved menus/recipes (variety, quality, offering lighter fares)	28
Ensured meal service staff encourage healthy selections	23
Initiated or expanded implementation of guidelines on use of food/beverages in the classroom, as rewards, or during celebrations or educational programs	20
In partnership with food service program, conducted cafeteria taste tests to improve appeal and acceptability of fruits and/or vegetables.	20
Improve appeal, layout or display of snack or competitive foods to encourage healthier selections	19
Initiated or expanded use of onsite garden produce for meals/snacks provided onsite	19
Initiated or expanded a mechanism for distributing onsite garden produce to families or communities	13
Improved or expanded cafeteria/dining/serving areas or facilities	12
Established or improved salad bar	11
Improved enrollment procedures to increase NSLBP meal participation including universal breakfast/ lunch	10
Initiated or expanded implementation of guidelines for healthier snack options or healthier competitive food/beverage options	10
Initiated, improved or expanded healthy fundraisers	10
Improved free water access, taste, quality, smell, or temperature	6
Began offering a federal food program	5
Began offering a federal food program (CACFP, TEFAP, summer meals, etc.)	5
Eliminated or reduced amount of competitive foods/beverages	5
Improved food purchasing/donation specifications or vendor agreements towards healthier food(s)/beverages	5
Initiated or enhanced limits on marketing/promotion of less healthy options	5
Initiated or expanded the collection of excess wholesome food for distribution to clients, needy individuals, or charitable organizations	5
Improved quality of healthy options	4
Increased space/amount/variety of healthy options (includes shelf space, number of booths, options on menus)	4
Initiated or improved menu labeling, e.g. calories, fat, sodium, added sugar counts	4
Expanded Federal Food Program (Summer Meal site) by increasing participating through promotion and outreach.	4
Improved hours of operation or time allotted for meals or food service to improve access or convenience	3
Improved hours of operation to improve access/convenience	3
Improved or expanded kitchen/food preparation facilities	3
Implemented universal school breakfast and lunch at all school sites in this school district	3
Initiated or expanded implementation of guidelines for meal foods/beverages	2
Prioritizing farm-to-table/increase in fresh or local produce	2
Expanded Federal Food Program (Summer Meal site) by increasing participating through promotion and education.	2
Improved the appeal, space, and exposure of local produce at farmers market	2
Improve access to fresh fruits, vegetables, and/or other healthy foods. (FoodLink Donations to kids farmers market)	2

*Table only displays PSE changes reported at 2 or more PSE sites.

The most frequently reported nutrition changes related to edible gardens, the Smarter Lunchrooms Movement (SLM), farm-to-school, and school wellness policy implementation (see Table 4a). Overall 136 PSE sites worked to maintain or expand edible gardens with 23 of these PSE sites reporting new gardens in FFY 2018. Several additional PSE changes were incorporated to support garden utilization: using the gardens for nutrition education was most commonly reported (n=91), followed by incorporating garden produce into the meals and snacks served onsite (n=19), and developing a mechanism for distributing onsite garden produce to families or communities (n=13). SLM changes commonly adopted include improving the:

- layout or display of 'foods/beverages' and 'snack/competitive foods' to encourage healthier selections (n=61 and n=19, respectively),
- point-of-purchase or distribution prompts to influence choices at the point of decision (n=31),
- menus and/or recipes (variety, quality, offering lighter fares; n=28), and
- cafeteria, dining, and/or serving areas or facilities (n=12);
- as well as ensuring meal service staff encourage healthy selections (n=23).

Some SLM strategies overlap with farm-to-school and farm-to-table efforts, such as partnering with food service to conduct cafeteria taste tests to improve appeal and acceptability of locally grown fruits and/or vegetables (n=20), expanding the use of fresh or local produce (n=30), and establishing or improving salad bars (n=11).

Several PSE changes reported in FFY 2018 highlighted efforts to support wellness policies such as:

- the implementation of guidelines for
    - the use of food and beverages in the classroom (such as for rewards and during celebrations or educational programs; n=20) and
    - healthier snack or competitive food/beverage options (n=10),
- improved enrollment procedures to increase NSLBP meal participation including universal breakfast/ lunch (n=10),
- initiating, improving, or expanding healthy fundraisers (n=10), and
- improved free water access, taste, quality, smell, or temperature (n=6).

Lastly, nutrition-related PSE efforts to improve child feeding practices (served family style, adults role model healthy behaviors, etc.) were also commonly reported (n=29), but exclusively in the ECE settings. To examine nutrition-related changes reported less frequently but more than once, please refer to Table 4a.

Table 4b: Physical Activity-Related Policy, Systems, and Environmental (PSE) Changes Adopted Across All Settings*

Type of PSE Changes Selected	Number of Changes
Physical Activity	**397**
Improved quality of structured physical activity	88
Increased access/opportunities for structured physical activity on-site	86
Increased or improved opportunities for unstructured physical activity time/free play	44
Improved or expanded physical activity facilities, equipment, structures	43
Initiated or improved playground markings/stencils to encourage physical activity	30
Improved quality of physical education	28
Increased access/opportunities for structured physical activity before/after school	19
Initiated or expanded restrictions on use of physical activity as punishment	14
Initiated or expanded incorporation of physical activity into the school day or during classroom-based instruction (not recess/free play or PE)	13
Increased or improved opportunities for physical activity during recess	12
Increased school days/time spent in physical education	4
Increased access or safety of walking or bicycling paths	4
New or improved access to structured physical activity programs	4
Increased school days/time spent in physical education	4
Increased access or safety of walking or bicycling paths	4
New or improved access to structured physical activity programs	4
Improvements in access to safe walking or bicycling paths, or Safe Routes to School or work	2

*Table only displays PSE changes reported at 2 or more PSE sites.

When examining physical activity-related PSEs reported in FFY 2018, the changes most frequently reported were improvements in the quality of structured physical activity both on-site (n=88) and during physical education (n=28). UC CalFresh county programs also worked to increase access to or opportunities for structured physical activity on-site and before or after school (n=86 and n=19, respectively), as well as unstructured physical activity or free play (n=44); improve physical activity facilities, equipment, or structures (n=43); add playground markings/stencils to encourage physical activity (n=30); incorporate physical activity into the school day or during classroom-based instruction (not recess/free play or PE; n=13); and increase opportunities for physical activity during recess (n=12). In addition, wellness policy efforts focused on implementing restrictions on the use of physical activity as a form of punishment (n=14). Table 4b includes additional physical activity-related PSE changes reported less frequently but more than once.

Table 4c: Nutrition and Physical Activity-Related Policy, Systems, and Environmental (PSE) Changes Adopted Across All Settings*

Type of PSE Changes Selected	Number of Changes
Nutrition & Physical Activity	**62**
Established or improved food/beverage, physical activity and/or wellness-related policies	46
Established or improved a monitoring or reporting system for food/beverage, physical activity, and/or wellness related policy	14

*Table only displays PSE changes reported at 2 or more PSE sites.

At the site level, improvements in wellness policies (n=46) and monitoring wellness policy progress (n=14) were the most commonly reported PSE changes related to both nutrition and physical activity (see Table 4c). For the first time in FFY 2018, we are also presenting a summary of the PSE changes (n=65) reported at the organization level by 15 organizations or districts (see Table 4d). These represent a subset of the statewide PSE changes (n=1,126). Organization and district-wide PSE efforts most frequently aimed to improve food and beverage,

physical activity and/or wellness-related policies, which included both guidelines on the use of foods and beverages in the classroom (as rewards, during celebrations, or for educational programs) and for healthier snacks or competitive food and beverage options. Specific examples of wellness areas targeted by organizations/districts include improving the quality of physical education; increased opportunities for structured physical activity before and after school as well as during classroom-based instruction; improving physical activity facilities, equipment, or structures; establishing new edible gardens used for nutrition education, incorporating healthy fundraisers, and improving menus/recipes along with enrollment procedures to increase participation in school meals.

Table 4d: Organization/District Level Policy, Systems, and Environmental (PSE) Changes Adopted Across All Settings (n=15)*

Type of PSE Changes Selected	Number of Changes
Nutrition	**36**
Initiated or expanded implementation of guidelines on use of food/beverages in the classroom, as rewards, or during celebrations or educational programs	7
Eliminated or reduced amount of competitive foods/beverages	2
Ensured meal service staff encourage healthy selections	2
Established a new edible garden	2
Improved enrollment procedures to increase NSLBP meal participation including universal breakfast/ lunch	2
Improved menus/recipes (variety, quality, offering lighter fares)	2
Initiated or expanded implementation of guidelines for healthier snack options or healthier competitive food/beverage options	2
Initiated or expanded use of the garden for nutrition education	2
Initiated or improved point-of-purchase, decision, and/or distribution prompts (including information intended to influence choices at the point of decision)	2
Initiated, improved or expanded healthy fundraisers	2
Nutrition & Physical Activity	**11**
Established or improved food/beverage, physical activity and/or wellness-related policies	8
Established or improved a monitoring or reporting system for food/beverage, physical activity, and/or wellness related policy	3
Physical Activity	**18**
Improved quality of physical education	5
Increased access/opportunities for structured physical activity before/after school	3
Improved or expanded physical activity facilities, equipment, structures	2
Initiated or expanded incorporation of physical activity into the school day or during classroom-based instruction (not recess/free play or PE)	2
Grand Total	**65**

*Table only displays PSE changes reported at 2 or more PSE sites.

Needs and Readiness Assessments

Out of the 404 sites working on PSEs, 95 sites completed needs assessments or environmental scans, 3 assessed organizational readiness, and 3 examined staff readiness in FFY 2018. The most common needs assessments completed in coordination with PSE site staff were the Smarter Lunchrooms Scorecard (n=74) and the Shaping Healthy Choices School Health Check (SHC^2; n=10). UC CalFresh county programs who conducted readiness assessments tended to utilize the WellSat (n=2) and principle interviews (n=4).

Table 5: Number of PSE Sites/Organizations with Needs and/or Readiness Assessments*

Number sites/organizations with PSE Assessments	# of Sites (n=404)
Needs assessment/environmental scan	**95**
Smarter Lunchrooms Scorecard	74
Shaping Healthy Choices School Health Check (SHC[2])	10
Playground Stencil assessment	8
Other: *Marysville School District Wellness Policy Evaluation Form (6), interview public housing residents (1), informal survey topics of interest with students (1)*	8
Organizational Readiness	**3**
WellSat tool	2
Principal Interview	1
Staff Readiness	**3**
Principal Interview	3

*Reported for all PSEs.

Complementary Strategies Implemented

The PEARS PSE data provide UC CalFresh with the ability to examine the layering of complementary strategies to achieve multi-component interventions. In total, 347 (99%) of the 350 sites/organizations reporting PSE changes incorporated at least one complementary strategy during FFY 2018. As shown in Table 6, evidence-based education (82%) and staff training on continuous program and policy implementation (68%) were the two complementary approaches most frequently incorporated as part of the UC CalFresh multi-component PSE interventions. These findings illustrate the layering of UC CalFresh direct education with one or more PSE approaches to achieve more comprehensive nutrition programming and PA integration and facilitate healthy lifestyle changes among SNAP-Ed eligible individuals. Only 31 (9%) of the 350 sites/organizations reporting PSE changes implemented all four complementary strategies in coordination with their PSE efforts to enhance the likelihood of impact and sustainability. This is an area identified for improvement in FFY 2019. With the continued use of PEARS in future years, UC CalFresh will be able to examine progression over time in the implementation of multi-component PSE interventions.

Table 6: Number of PSE Sites/Organizations Implementing a Multi-Component Intervention*

Of Those Implementing or Maintaining PSE Changes Adopted	Number (%) of Sites (n=350)
Evidence-based education	288 (82%)
Marketing	79 (23%)
Parent/ community involvement	144 (41%)
Staff training	239 (68%)

*Summary statistics include only those PSEs in the implementation and maintenance stages.

Sustainability Plans

In total, 257 (64%) of 404 sites at all stages of PSE work reported that efforts had been taken to support the sustainability of the PSE changes adopted (see Table 7). At those sites with sustainability efforts, nearly all (92%; n=235) of the sites reported that at least one sustainability mechanism was either “in process” or already “in place”. The vast majority (84%; n=215)

reported multiple sustainability mechanisms. Of those reporting a sustainability plan, nearly half (47%) reported support from stakeholders is in place to ensure the sustainability of the PSE, 44% indicated that another organization or group (not SNAP-Ed) has assumed responsibility for sustaining the PSE, and 37% have dependable, on-going sources of funding and/or support (not SNAP-Ed). Additional sustainability efforts reported less often are included in Table 7.

Table 7: Number of Sites/Organizations that Implemented Mechanisms to Support Sustainability of the PSE Changes*

PSE Sites Reporting a Sustainability Plan	**Number (%) of Sites* (n=404)**
Sites/organizations reporting a sustainability plan - across all PSE stages	257 (64%)
Of Those Reporting a Sustainability Plan	**Reporting "In Place" or "In Process" (n=257)**
Support from stakeholders is in place to ensure the sustainability of this PSE work	188 (47%)
Organization or group not dependent on SNAP-Ed funding has assumed responsibility for sustaining the efforts	178 (44%)
A dependable, on-going source of funding and/or support (other than SNAP-Ed) has been identified	151 (37%)
One or more policies was adopted, requiring the changes to be maintained	124 (31%)
A monitoring and reporting system has been implemented	115 (28%)

*Reported for all PSEs.

Conclusions and Next Steps:

In summary, UC CalFresh county programs reported considerable achievement in both the number of sites implementing and maintaining PSE changes as well as the number and variety of PSE changes adopted in FFY 2018. The number of PSE sites in all implementation stages and the total PSE changes and reach statewide grew from 353 sites/organizations with 965 changes reaching 134,549 SNAP-Ed eligible individuals in FFY 2017, the first year of PEARS reporting, to 404 sites/organizations with 1,126 changes reaching 142,028 SNAP-Ed eligible individuals in FFY 2018. Overall, UC CalFresh PSEs tended to be implemented in school, ECE, and afterschool settings mirroring those where direct education is typically delivered and therefore primarily reached children and youth. Key PSE accomplishments supported improvements in both nutrition and physical activity integration and continue to be in areas the state office has focused efforts with training and technical assistance to strategically build capacity in CATCH, SLM, and SHCP (edible gardens, school wellness). In addition to site level changes, UC CalFresh expanded its work at the organizational level in FFY 2018, primarily through engaging with school districts on wellness policies and improving physical activity access and quality. Furthermore, nearly all PSE sites incorporated at least one complementary strategy to support their PSE efforts and the majority also reported having a sustainability plan underway or already in place to maintain the PSE changes adopted. However, two areas identified for improvement in FFY 2019 include expanding the proportion of PSE sites (1) implementing all four complementary strategies to support their PSE efforts (currently only 9%) and (2) with a sustainability plan in progress or in place (currently 36% without a plan).

In FFY 2019, UC CalFresh will continue to track PSE progression using the new PEARS reporting system and aims to explore and establish common metrics for comprehensive programming. We are looking forward to the further development of the PEARS Indicator Metrics tables, which would greatly assist providing timely PSE summary results aligned with the SNAP-Ed Evaluation Framework. Focus will also be placed on training and technical assistance to improved PEARS quality control. To achieve this, the state office evaluation team will host monthly office hours for UC CalFresh county programs and conduct quarterly reviews of the program data and surveys entered into PEARS.

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This material was produced by the University of California CalFresh Nutrition Education Program with funding from USDA SNAP, known in California as CalFresh (formerly food stamps). These institutions are equal opportunity providers and employers. CalFresh provides assistance to low-income households and can help buy nutritious foods for better health. For CalFresh information, call 1-877-847-3663.

Evaluation Report Attachment # 2:

Formative, Process and Outcome Evaluation: Smarter Lunchrooms Movement (SLM) Self-Assessment Scorecard Data School Year 2017-18

Project: Smarter Lunchrooms Movement of California Collaborative (SLM of CA)

Background

The Smarter Lunchrooms Movement (SLM) developed by the Cornell Center for Behavioral Economics in Child Nutrition Programs (BEN Center) provides schools with low-cost and no-cost lunchroom changes designed to encourage students to make healthier food choices. Lunchroom makeovers that improve the convenience, attractiveness, and normativeness of healthy options help to increase the selection and consumption of fruits and vegetables. UC CalFresh is part of the SLM of CA together with the Dairy Council of California (DCC), California Department of Education (CDE) and California Department of Public Health (CDPH). In partnership with the BEN Center, the SLM of CA Collaborative provides training and support to disseminate the SLM intervention in California.

Since 2014, trained UC CalFresh and Dairy Council SLM Technical Assistance Providers (TAPs) have reported SLM Scorecard data into a single online portal. UC CalFresh TAPs are community educator staff of the University of California Cooperative Extension (UCCE) funded through the California SNAP-Ed Program. Dairy Council of California (DCC) TAPS are employees of the non-profit agency who provide nutrition education services to schools and other community partners. Working with food service staff, TAPS use the BEN Center's SLM Self-Assessment Scorecard to assess whether evidence-based strategies for food service operations, cafeteria layout and design are observed or being practiced. The scorecard helps food service staff and TAPs identify specific changes for potential improvement as well as aspects of the cafeteria operations that already reflect behavioral economic principles. The original SLM Scorecard included 100 items; however, an updated version streamlined the scan to 60 items.

Beginning with the 2017-18 School Year, the SLM of CA transitioned to the shorter 60-item SLM that focuses on strategies found to be especially promising. It also introduces new strategies such as offering taste tests and self-serving spices and seasoning stations aimed at improving the acceptability of fruits and vegetables. The updated version is more user friendly and reduces item redundancy. While an overall improvement, the adoption of the new 60-item scorecard undermines the ability to track change over time for school sites previously assessed with the 100-item scorecard. For this reason, the results here are limited to just the 60-item SLM scorecards collected during this past year without comparison to possible previous 100-item assessments conducted at the same school.

This report by no means captures all the SLM assessments conducted throughout the state. For example, CDPH SNAP-Ed funded contractors have participated in various SLM trainings and are using the SLM scorecard at their school sites; however, since they are not consistently participating as TAPS, very few report through the online portal. Similarly, over the last several years, hundreds of district and school-level food service staff have also participated in SLM of CA trainings; but, since they are not part of the TAPS infrastructure, their scorecards data is also not available for summary.

2016-2017 School Year

Table 1 summarizes the SLM scorecard assessments reported for the 2017-2018 School Year – from late August 2017 through early June 2018. A total of 148 SLM scorecard assessments were conducted at 115 schools. Almost three quarters (73%) of the schools were assessed only one time during the year. Just 31 schools were assessed two or more times. Forty-three TAPS entered scorecard results with UCCE TAPS entering the largest number, followed by DCC TAPs. The 4 "Other" scorecards were conducted in San Joaquin schools for the Local Health Department's Prevention First Grant. The UCCE schools were exclusively low-income SNAP-Ed eligible schools meaning that at least half the students were eligible for the Free or Reduced Priced Meal Program based on SY17-18 California Department of Education (CDE) data or school site data. The majority (60%) of the DCC schools were also SNAP-Ed eligible. Across schools completing the SLM Scorecard, the potential reach is over 70,000 students enrolled at these schools.

Table 1: SLM assessments reported 2017-2018 School Year	Total	DCC	UCCE	Other*
Total # of SLM scorecard assessments conducted	148	50	94	4
Total # of TAPs reporting assessments	43	9	34	0
Total # of schools assessed	115	40	71	4
# of schools assessed 1 time only	84	30	50	4
# of schools assessed 2 times	29	10	19	0
# of schools assessed 3 times	2	0	2	0
Total # of students at schools assessed	71,844	29,963	39,463	2,418
Total # of SNAP-Ed Eligible schools (≥50% Free or Reduced Price Meal)	104	30	71	4
Total # of students at SNAP-Ed eligible schools (≥50% Free or Reduced Price Meal)	61,241	19,825	39,463	2,418
*Other are scorecards conducted in San Joaquin for the Local Health Dept's Prevention First Grant.				

First SLM Assessment

Since the 60-item SLM scorecard is new this past year, all schools were considered to have had a first assessment. Summarized in Table 2 are these first assessment total and sub-category scores.

Table 2: SLM first time assessments - 2017-2018 School Year	Total	DCC	UCCE	Other*
Total # of schools assessed for the 1st time	115	40	71	4
Average First Total Assessment Score (max=60)	28.3 (47%)	28	27.4	45.5
Focusing on Fruits (max=6)	2.8 (47%)	2.7	2.7	5.25
Vary the Vegetables (max=8)	4.5 (56%)	4.8	4.3	6
Highlight the Salad (max=4)	2.1 (53%)	2.7	1.6	3.8
Move More White Milk (max=5)	3.1 (62%)	2.8	3.2	4.25
Boost Reimbursable Meals (max=11)	3.2 (29%)	2.8	3.2	7.3
Lunchroom Atmosphere (max=10)	6.2 (62%)	6.3	6	8
Student Involvement (max=6)	2 (33%)	1.5	2.1	3.5
School Community Involvement (max=10)	4.4 (44%)	4.5	4.3	7.5

Across the 115 schools, the first assessment score was on average 28.3 which is 47% of the maximum possible score of 60. The schools assessed by both the DCC and UCCE TAPS had very similar average first scores. However, the four schools assessed for the San Joaquin County Local Health Department had a considerably higher average score. These four schools were observed to already be implementing many more of the SLM strategies than the typical school assessed during the year.

The SLM assessments are intended to help identify at the specific school site practices for improvement. Still, comparison of the average sub-scores across schools also highlights which category of strategies is showing relatively higher and lower adoption in the school cafeterias and food service programs. These 115 schools were more likely to be practicing the SLM practices related to “Move More White Milk” and “Lunchroom Atmosphere” with almost two thirds of the strategies in these areas observed during the first assessment. An example of a milk-related SLM strategy is whether white milk is displayed in front in all coolers. There are twice as many SLM strategies related to Lunchroom Atmosphere which has 10 of the scorecards 60 items. SLM strategies in this category include factors such as staff greeting students, clear traffic flow, lightening, trash, menu boards and cafeteria decoration.

“Student Involvement” and “Boost Reimbursable Meals” were the two sub-categories with relatively lower initial performance. The 115 schools had an average “Student Involvement” score of 2 or just 33% of the maximum 6 points. Examples of strategies in this category are displaying student artwork, having students provide feedback for menu development and involving students in the creative names of menu items. “Boost Reimbursable Meals” was the category with the fewest strategies observed on average just 3.1 or 29% of the 11 possible strategies. Strategies in this sub-category pertain to factors such as staff prompting, creative naming, positing of menu items as well as other specific strategies such as offering a grab-and-go meal, pre-ordering lunches and offering student taste tests of new entrées. Additional support materials and technical assistance might be developed to further support TAPS technical assistance in these areas identified from the first assessments as relatively low performing.

Second or Third SLM Assessment

Summarized in Table 3 are the second or third assessment total and sub-category scores for the 31 schools assessed more than once during the school year. Only schools assessed by DCC or UCCE TAPS are included since none of the four “other” schools was assessed at least twice.

Table 3: SLM 2nd or 3rd assessments - 2017-2018 School Year	Total	DCC	UCCE
# of schools assessed for the 2nd or third time	31	10	21
Average Second or Third Score (maximum score=60)	33.7 (56%)	31.5	34.7
Focusing on Fruits (max=6)	3.3 (55%)	3.8	3
Vary the Vegetables (max=8)	5 (63%)	5.2	5
Highlight the Salad (max=4)	2.2 (55%)	2.3	2.1
Move More White Milk (max=5)	3.6 (72%)	3.4	3.7
Boost Reimbursable Meals (max=11)	4.3 (39%)	3.2	4.8
Lunchroom Atmosphere (max=10)	7.1 (71%)	6.8	7.3
Student Involvement (max=6)	2.5 (42%)	2	2.8
School Community Involvement (max=10)	5.7 (57%)	4.8	6.1

Across all 115 schools, the average score of the most recent – either 2nd or 3rd – assessment was 5.4 points higher than the average initial score with 56% of the 60 SLM strategies observed compared to 47%. Each sub-category score was also higher for the 31 schools assessed more than once than the initial scores for all 115 schools. Determining actual change; however, requires limiting the comparison to just those schools assessed two or more times during the school year.

Change in SLM scores over the School Year

Table 4 includes a summary of the first and most recent total scores for just the 31 schools assessed more than once during the school year. Overall the total SLM Assessment scores increased by 6 points from the first to the 2nd or 3rd assessment. On average, scores increased somewhat higher for the ten DCC schools than the 21 UCCE schools with an increase of 6.3 and 5.9 points respectively. However, the DCC schools started with a lower initial average score. The average length of time between the first and most recent assessments was relatively short – on average 4.9 months – and in all cases less than a full school year.

Table 4: First and most recent - 2nd or 3rd -SLM assessment scores for schools assessed more than once - 2017-2018 School Year	Total	DCC	UCCE
# of schools assessed more than once	31	10	21
Average length of time btw first and most recent scorecard (in months)	4.9	4.2	5.2
Average Second or Third Score (max score=60)	33.7	31.5	34.7
Average First Score (max score=60)	27.7	25.2	28.8
Average Change in score	6.0	6.3	5.9

The average values in Table 4 mask the considerable variability across the 31 schools in the magnitude of change from the first to the most recent assessments. The school that showed the greatest improvement had a 20 point increase from 19 points in November to 39 points the following June. On the other end of the spectrum, three schools had either no improvement or even a lower total score when assessed the second time. Table 5 indicates that the pattern of score changes is relatively similar for the UCCE and DCC TAPS. Approximately, a quarter to a third of the schools showed considerable increases of 10 or more points while 10% of the schools showed no improvement. It would be useful to follow-up with TAPS to better understand why some schools were able to achieve a high degree of improvement over the course of the school year while others did not.

Table 5: Change in Total Score from First to Most Recent - 2nd or 3rd - SLM assessment - 2017-2018 School Year	Total	DCC	UCCE
# of schools assessed more than once	31	10	21
Increase 10 or more points	8	3 (30%)	5 (24%)
Increase 5 - 9 points	10	2 (20%)	8 (38%)
Increase 1 - 4 points	10	4 (40%)	6 (29%)
No increase or a decrease in points	3	1 (10%)	2 (10%)

Table 6 presents the change in sub-category scores for schools assessed more than once. On average, the greatest improvement was seen for the “Focus on Fruits” sub-category with a 0.9 point or 15% increase while no improvement was evident for the “Highlight the Salad” category. Most sub-categories showed approximately a 10% improvement between the first and the second or third assessments.

Table 6: Change in sub-category scores for schools assessed more than once - 2017-2018 School Year	Total	DCC	UCCE
Change in Focusing on Fruits score (max=6)	0.9 (15%)	1.4	0.6
Change in Vary the Vegetables score (max=8)	0.8 (10%)	0.8	0.9
Change in Highlight the Salad score (max=4)	0	-0.4	0.1
Change in Move More White Milk score (max=5)	0.7 (14%)	0.8	0.6
Change in Boost Reimbursable Meals score (max=11)	0.7 (6%)	0.6	0.8
Change in Lunchroom Atmosphere score (max=10)	1 (10%)	0.6	1.1
Change in Student Involvement score (max=6)	0.8 (13%)	0.8	0.8
Change in School Community Involvement score (max=10)	1.1 (11%)	1.7	0.8

Conclusion

The SLM of CA Collaborative and the UCCE and DCC Technical Assistance Providers (TAPS) have successfully transitioned to the new 60-item SLM scorecard which is evident by the 148 assessments conducted at 115 school throughout the state. “Student Involvement” and “Boost Reimbursable Meals” were two sub-categories identified as having relatively lower initial performance. Additional support materials and technical assistance might be especially beneficial to further support TAPS technical assistance in these areas. For schools assessed more than once, the change in SLM scores was highly variable. An important next step would be to follow-up with TAPS to better understand why over the course of the school year some schools were able to achieve a high degree of improvement while others did not. Many of the schools were only assessed one time during this past school year so it will really be into this current school year when it will be possible to have a better picture or longer view on SLM strategies changes schools are adopting.

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This material was produced by the University of California CalFresh Nutrition Education Program with funding from USDA SNAP, known in California as CalFresh (formerly food stamps). These institutions are equal opportunity providers and employers. CalFresh provides assistance to low-income households and can help buy nutritious foods for better health. For CalFresh information, call 1-877-847-3663.

EVALUATION REPORT #3:

Process and Outcome Evaluation: Results from Tray Waste Assessments at Schools Implementing Smarter Lunchrooms Movement (SLM) and Nutrition Education

Project: Smarter Lunchrooms Movement and Nutrition Education at an Elementary School in the Roseville City School District

Background

During the 2016-2017 School Year (SY), UC CalFresh Nutrition Education Program State and UC Cooperative Extension (UCCE) Placer and Nevada Counties staff conducted tray waste observations during lunchtime at one of the elementary schools in the Roseville City School District. The observations occurred over a total of four days – two days in the fall and two days in the spring. The objective was to evaluate the impact of Smarter Lunchrooms Movement (SLM) changes to the cafeteria setting, nutrition education, and student engagement activities on students' lunchtime plate waste and menu item selection.

The assessment was conducted at an elementary school, in collaboration with Roseville City School District (RCSD) Food Service Program (FSP) staff at both the school and district level. RCSD was awarded a Team Nutrition Grant by the California Department of Education (CDE) to assist with the adoption of Smarter Lunchrooms Movement (SLM) strategies at two school sites. UCCE community educators in Placer County have worked for many years with school staff and teachers to deliver evidence-based nutrition education with funding from the US Department of Agriculture's (USDA) Supplemental Nutrition Assistance Program Education (SNAP-Ed). During SY 2016-2017, their technical assistance also included a closer relationship with RCSD to support SLM adoption as well as a closer linkage between nutrition education and the FSP through cafeteria taste tests and the establishment and support of a new Student Nutrition Action Committee (SNAC). The UC Davis Office of Research Institutional Review Board (IRB) approved the protocol for the tray waste assessment.

Intervention

During the year, RCSD FSP staff participated in and conducted a number of trainings to support the adoption of SLM strategies. Specific SLM strategies adopted at the school site during the school year included:

- Involving students in the selection of creative names for fruit and vegetable menu items
- Improving the salad bar structure and displaying cards on the salad bar with these creative names
- Making fruit available at two different locations on the service line (e.g. salad bar and a fruit bowl positioned at check out)
- Offering taste tests of fruit and vegetable menu items (e.g. Opal apples in January 2017 and multi-colored bell peppers in March 2017)
- Establishment of a Student Nutrition Action Committee (SNAC) committee of interested students to assisted in conducting taste tests and the promotion of healthy eating lessons and messaging to other students

- Displaying posters, a nutrition information board, and SNAC member-created artwork promoting healthy eating in the cafeteria
- Posting of school meal menus at multiple points on campus and promoting new menu items via social media platforms

Even prior to the 2016-2017 school year and the CDE Team Nutrition funding, RCSD was adopting SLM strategies. For example, a colorful wall mural was added during the 2016 summer, which contributed to a more attractive and positive cafeteria atmosphere.

Teachers at the school signed up to receive nutrition education materials from either UC CalFresh or Dairy Council. For many years, UC CalFresh educators have provided nutrition education at the school as well as supported classroom teacher "extenders" to deliver UCCE nutrition education curricula to their students. During SY 2016-2017, eleven teachers at the elementary school registered to be UC CalFresh "extenders." In addition, UC CalFresh educators delivered one nutrition education lesson to the eleven enrolled classrooms during the fall and one lesson in the spring. During the 2016-2017 School Year, UC CalFresh educators coordinated with FSP staff to link the nutrition education and taste tests more closely to the cafeteria offerings. In addition, UC CalFresh staff educators worked with school administrators to establish and support a SNAC that more directly engaged students in nutrition promotion efforts. Approximately two dozen, primarily 4th grade, students participated in the SNAC group, which met during lunchtime on a monthly basis. SNAC members were actively involved in a variety of nutrition promotion efforts over the year, including cafeteria taste tests, creating of artwork displayed in the cafeteria, and creating an informational tri-fold displayed in the front office. SNAC members also visited nine classrooms and taught a short, approximately 10-minute, lesson on healthy snacks versus treats.

Lunch Operations

At the elementary school site, the lunch service is organized in two shifts over a one-hour period, as follows:

- 12:00-12:25 PM: Kindergarten, 1st Grade, and 2nd Grade students are scheduled to enter the lunch room at noon and exit at 12:25 PM, at which point they have a free play period.

- 12:30-12:57 PM: Following a period of free play, students in grades 3-5 are scheduled to enter the lunchroom at 12:30 PM and exit at 12:57 PM.

Organized in single file, the students take a tray and walk first past the milk refrigeration cases, then a serving window where they select one of two entrées, followed by a salad bar, and, finally, the checkout cashier. The salad bar is set up with pre-packaged items (in either plastic cups, bags, or whole fruit), juice boxes, and condiments such as ranch dressing or, depending on the entrée of the day, ketchup. In the post-assessment period, a bowl of fruit was placed at the checkout station. In both the pre and post periods, the staff person managing the checkout process was observed checking trays and prompting students when the school lunch was incomplete (e.g. lacking a fruit or vegetable).

The elementary school is very fortunate to have highly experienced cafeteria staff, as well as a full kitchen with stoves, refrigeration, a sink, and workspace for on-site lunch preparation. Two kitchen staff prepare, serve, and "checkout" more than 350 students in a single hour. Several lunch monitors – and most days, the school principal, - assist with the service flow and student supervision during the lunch period by responding to dozens of requests for assistance with packaging, table dynamics, or visits to the restroom. Lunch monitors also collect menu items students do not want in a "share box," used to redistribute food to other students. A single custodian has chief responsibility for transforming the auditorium to a cafeteria and back again for both the breakfast and lunch services, as well as bagging and disposing all trash.

Methodology

The Quarter-Waste observation method was used to estimate the amount of uneaten edible food or beverages that were discarded by students. With this method, a workstation is set up where students are asked to deposit their trays at the end of lunch period. Only students who brought a lunch from home dispose of their lunch trash themselves. Working in pairs, a trained observer looks at the tray and estimates whether none, ¼, ½, ¾, or all of an item was wasted. A recorder notes the estimates in prepared sheets listing each menu item using the following "scores": no waste equals 0, ¼ waste equals 1, ½ waste equals 2, ¾ waste equals 3, and all wasted equals 4. Because liquids in juice boxes are not easily observable, they were weighed on a food scale, and the amounts were converted to the closest quarter-waste measure. In a few cases, two servings of a menu item were observed on a single tray. In those cases, the waste for each item was recorded and a code was assigned for the overall waste observed for that item. In addition, on the observation days, the "share box" system was maintained but items were only added after being recorded by the observation team.

An effort was made to serve the same menu items during the "pre" assessment in the fall as the "post" assessment in the spring with a few exceptions (see items in *italics* and blue font in Table 1). Due to scheduling, menu items served on Day 1 during the "pre" assessment were served on Day 2 of the "post" assessment and vice versa for the Day 2 items; however, this sequencing was not likely to have any influence on waste or selection outcomes. For both the pre and post assessment periods, the same entrée items were observed – mini cheeseburgers (sliders) and chicken tenders with waffles on one day and chicken nuggets, crunchy beef tacos, and potato wedges on another. On all four days, both fat-free chocolate milk and 1% low-fat white milk were served.

A few menu items differed for the pre and post assessments mainly due to the adoption of specific SLM strategies. Most notably, a greater variety of fresh fruit was served during the post assessment – with 4-5 different fruits per day as compared to just two fruit options per day during the pre-assessment. The number of different vegetable options —three — remained consistent for the pre and post assessment days. Bell peppers were intentional offered as a menu item in the post assessment period as a result of a cafeteria-wide taste test conducted by the SNAC and UC CalFresh educator several weeks prior. One of the post fruit items, Opal apples (sliced), was a featured taste test item earlier in the year. In addition, the number of different fruit juice flavors was reduced from three in the pre-assessment to just one in the post-assessment. While not an SLM strategy, the Food Service staff was interested to determine

whether fewer juice options might be associated with a shift in student selection toward whole or fresh fruit menu items.

Table 1. Fruit and Vegetable Menu items by Food Category in Pre and Post Assessment Days

Menu Items	Vegetable(s) Pre	Vegetables Post	Fruits - fresh Pre	Fruits - fresh Post	Fruits - juice Pre	Fruits - juice Post
One Day	**3 items** • Salad – lettuce & cherry tomato • Carrots – bagged • Broccoli-bagged	**3 items** • Salad – lettuce & cherry tomato • Carrots –bagged • Broccoli-bagged	**2 items** • Grapes-(bagged) • Pear – (whole)	**5 items** • Grapes-(bagged) • Pear – (whole) • *Orange – (whole)* • *Apple – (whole)* • **Apples – (sliced)*	**3 items** • Cranberry Raspberry Juice • Apple Juice • *Orange Tangerine Juice*	**1 item** • Cranberry Raspberry Juice
Another Day	**3 items** • Salad – lettuce & cherry tomato • Carrots – bagged • Peas-cooked	**3 items** • Salad – lettuce & cherry tomato • Carrots –bagged • **Bell Peppers-bagged*	**2 items** • Grapes-(bagged) • Apple – (whole)	**4 items** • Grapes-(bagged) • Apple – (whole) • *Orange – (whole)* • *Banana – (whole*	**3 items** • Apple Juice • *Orange Tangerine Juice* • *Fruit Punch Juice*	**1 item** • Apple Juice

**Item was featured in a cafeteria taste test during the SY2016-17. Items in italics and* blue *font were offered in post but not pre assessment days.*

The Quarter-Waste "scores" were analyzed in two ways.

- First, an estimated average percent waste for the item was calculated based on all the observations recorded. This is truly an "estimated" average since only waste in 25% increments was recoded (i.e. 0%, 25%, 50%, 75%, and 100%).

- Second, the percentage of trays having 75% or greater waste observed for a specific menu item was also calculated. For example, if 50 trays were observed as having crispy beef tacos, and ten trays had 75% or greater waste, then 20% of the trays would be reported as having 75% or greater waste.

Student selection of menu items was also assessed. Many of the SLM strategies are designed to "nudge" or influence students' selection of the healthiest menu items. Selection was assessed in terms of the total number of items observed. Since each student has a tray, reporting the number of trays with a waste observation for a given item is very similar to reporting the number

of students selecting the item. However, there were a few cases when a single student selected two of the same item. For example, a tray might have been observed to have two bags of carrots – one completely eaten and one-half eaten. For the waste analysis, 50% would be assigned to reflect the fact that, overall, 50% of a bag of carrots was observed as discarded on this tray. However, for the selection analysis, two carrot menu items would be counted for this single tray. The frequency that double items were observed on the same tray was a relatively rare occurrence (16 times in the pre and 9 times in the post period) and less than 1% of the menu item observations recorded.

Results

For the “pre” and “post” data collection periods, a similar number of trays were observed, although the per-day variability was greater in the follow-up period due to one of the classes having an alternative lunchtime activity. Over the school year, the teams observed 743 lunch trays (see Table 2).

Table 2: Number of Trays Observed by Day

	PRE – October 4th & Oct 12th	POST – April 5th & April 6th
Day 1	184	171
Day 2	185	203
Total Number of Trays Observed	369	374

Average Waste Comparison

All menu items were categorized into five groups. The estimated average waste across all the menu items in that category that were observed during the two-day period is summarized below. Overall, the estimated average waste was very similar between the pre and post periods, especially for the Entrées and Milk Categories – both having less than a 1 percentage point difference. The average waste for the Fruits - juice Category and Vegetable Category decreased by only 1.3 percentage points and 2.5 percentage points, respectively, and increased by only 1.6 percentage points for the Fruits - fresh Category. In both the pre and post assessment periods, the ranking of food category with the relatively lowest to highest average waste remained consistent with Fruits - juice having the lowest average waste (28.7-30.0%), followed by Entrées (31.6-31.9%), Fruits - fresh (42.4-44%), Milk (46.9-47.6%), and, finally, Vegetables having the highest average waste (56-58.5%).

Table 3: Average Waste Comparison

	PRE (N=369)		POST (N=374)		
Food Category	**Total Number Observed/ Selected (two days)**	**Average % Waste per Tray Reported**	**Total Number Observed/ Selected (two days)**	**Average % Waste per Tray Reported**	**% Change From Pre to Post**
Entrées	691	31.6%	695	31.9%	0.3%
Vegetables	132	58.5%	137	56.0%	-2.5%
Fruits – fresh	197	42.4%	240	44.0%	1.6%
Fruits – juice[1]	283	30.0%	289	28.7%	-1.3%
Milk[2]	311	46.9%	309	47.6%	0.7%

1. Two juices spilled in post period so missing waste measure. 2. One chocolate milk spilled in pre period so missing waste measure.

The estimated average waste of individual menu items demonstrated larger percentage point changes between the pre and post periods. For example, the following individual menu items had average waste changes of 5% points or greater:

Decrease

- Apple Juice served 2-days in the pre and 1-day in the post had a decrease of 6.4 percentage points.
- Salad (lettuce & cherry tomato) served 2-days in both the pre and post periods had a **decrease** of 5.6 percentage points
- Chicken Tenders served 1-day in both the pre and post periods had a **decrease** of 5.0 percentage points

Increase

- Whole Pear served 1-day in both the pre and post periods had an increase of 14.0 percentage points
- Whole Apple served 1-day in the pre and 2-days in the post had an **increase** of 10.5 percentage points
- Crunchy Beef Taco served 1-day in both the pre and post periods had an **increase** of 9.9 percentage points
- Mini Cheeseburger (sliders) served 1-day in both the pre and post periods had an **increase** of 5.5 percentage points

Additional detail is available that provides the estimated average waste measures and changes for menu items for either a single day or over two days depending on how often they were served.

Majority Waste Comparison

Similar to the average waste results, the majority waste results showed little overall difference between the pre and post assessment periods by the Food Categories (see Table 4). “Majority” waste refers to waste observations of 75% or greater or the percentage of observations where

the majority of the item was not eaten. For the Entrees, Fruits - juice and Fruits – fresh Categories, the difference between the pre and post assessment periods was less than 2 percentage points. The percentage of trays with 75% or greater waste for the Vegetable Category increased a little - only 2.7 percentage points - and decreased a little - only 2.5 percentage points - for the Milk Category. In both the pre and post-assessment periods, the ranking of food category with the relatively lowest and highest majority waste remained fairly consistent with Entrées having the lowest majority waste (24.9-25.3%) and Vegetables the highest majority waste (46.2-48.9%). Fruits - juice ranked second lowest in both periods but the Fruits - fresh Category ranked second highest in the post and third highest in the pre-assessment period.

Table 4: Majority Waste Comparison

	PRE		POST		
Food Category	**Total Number Observed/ Selected (two days)**	**% Trays with 75% or Greater Waste (N=369)**	**Total Number Observed/ Selected (two days)**	**% Trays with 75% or Greater Waste (N=)**	**% Change From Pre to Post**
Entrées	691	25.3%	695	24.9%	-0.4%
Vegetables	132	46.2%	137	48.9%	2.7%
Fruits – fresh	197	36.0%	240	37.5%	1.5%
Fruits – juice[1]	283	27.2%	289	26.1%	-1.1%
Milk[2]	311	38.1%	309	35.6%	-2.5%

1. Two juices spilled n post period so missing waste measure. 2. One chocolate milk spilled in pre period so missing waste measure.

Again, individual menu items demonstrated larger percentage point changes in percentage majority waste between the pre and post periods as compared to the Food Categories. For example, the following individual menu items had majority waste changes of 5% points or greater:

<u>Decrease</u>

- Chicken Tenders served 1-day in both the pre and post periods had a **decrease** of 8.4 percentage points
- Apple Juice served 2-days in the pre and 1-day in the post had a **decrease** of 7.5 percentage points.
- Waffles served 1-day in both the pre and post periods had a **decrease** of 6.5 percentage points

<u>Increase</u>

- Broccoli served 1-day in both the pre and post periods had an **increase** of 25.2 percentage points
- Whole Apple served 1-day in the pre and 2-days in the post had an **increase** of 16.3 percentage points

- Pear (whole) served 1-day in both the pre and post periods had an **increase** of 14.7 percentage points
- Mini Cheeseburger (sliders) served 1-day in both the pre and post periods had an **increase** of 11.9 percentage points
- Crunchy Beef Taco served 1-day in both the pre and post periods had an **increase** of 9.9 percentage points
- White Milk, 1% Low Fat served 2-days in both the pre and post periods had an **increase** of 5.2 percentage points

Additional detail is available that provides the estimated majority waste measures and changes for menu items for either a single day or over two days depending on how often they were served.

Selection Comparison

Another outcome of interest is the frequency by which menu items are selected by students. As mentioned above, this number is very similar to - but not the same as - the number of trays with a waste observation, due to some students selecting two of the same items. Table 5 summaries the total number of menu items observed by Food Category.

Table 5: Selection Comparison

	PRE (N=369 Trays)		Post Food (N=374 Trays)		
Food Category	**Total Number Observed/ Selected (two days)**	**% Selected of Trays Observed**	**Total Number Observed/ Selected (two days)**	**% Selected of Trays Observed**	**% Change From Pre to Post**
Entrées	694	188.1%	697	186.4%	-1.7%
Vegetables	138	37.4%	139	37.2%	-0.2%
Fruits - fresh	199	53.9%	241	64.4%	10.5%
Fruits - juice	287	77.8%	291	77.8%	0%
Milk	312	84.6%	311	83.2%	-1.4%

The number and percentage of menu items selected by Food Category remained relatively consistent between the pre and post assessment periods with one exception – Fruits - fresh. For Entrées, Milk, Fruits – juice and Vegetables, the difference between the pre and post assessment periods was less than 2 percentage points. However, the number of fresh fruit menu items observed increased from 199 (53.9% of the total trays observed) to 241 (64.4% of the total trays observed) or a percentage point increase of greater than 10%.

In both the pre and post-assessment periods, the ranking of food categories selected most frequently remained consistent. Not surprisingly, the Food Category with the highest number of observations was Entrées. In fact, because a “complete” entrée was typically comprised of two menu items - Chicken Tenders and Waffles or Pancakes, Chicken Nuggets and Potato Wedges, and Beef Tacos and Potato Wedges - the number of entrée observations as a percentage of

trays observed was greater than 185% in both periods. The next most frequently selected Food Category was Milk (83.2-84.6%) followed by Fruits - juice (77.8%), Fruits - fresh (53.9%-64.4%) and, least frequently selected, Vegetables (37.2-37.4%). While the ranking for Fruits - fresh remained consistent, compared to the total number of trays observed, the percent increased from just over half in the pre-assessment to almost two-thirds in the post-assessment period. Interestingly, while the variety of fruit juice flavors was more limited during the post-assessment period – only 1 compared to 3 – the percent of juices selected relative to the number of students (or trays) was exactly the same in both periods.

Two menu items observed during the post-assessment period – Bell Peppers and Opal Apples (sliced) – were featured during cafeteria taste tests. Unfortunately, since neither item was observed during the pre-assessment period, a comparison of these items' popularity before and after the taste test is not possible. However, it is possible to observe that Bell Peppers were the single most frequently selected Vegetable menu item in the post assessment period. In fact, they were selected more frequently than Carrots, which had been the most frequently selected item in the pre-assessment period (see Table 6).

Table 6: Vegetable Menu Items Selected per Day

Vegetables	PRE – Veg Menu Items Observed		POST – Veg Menu Items Observed	
	Day 1	Day 2	Day 1	Day 2
Salad (lettuce & cherry tomatoes)	24	15	15	13
Carrots (raw)	43	24	25	29
Broccoli (raw)	17	-	-	23
Peas	-	15	-	
Bell Peppers (raw)	-	-	34	-
TOTAL	**138**		**139**	

However, while Opal apples (sliced) were more frequently selected then several of the other fresh fruit menu items, including pears (whole) and apples (whole), grapes were by far the most frequently selected fresh fruit menu item in both assessment periods (see Table 7). During the pre-assessment period, considerable variability is evident in the number of fresh fruit menu items selected - 58 items for one day and 141 on the other. By comparison, the number of fresh fruit items selected each day in the post assessment period was much more consistent, with 117 and 124 items per day. Other possible factors, such as a more popular variety of grapes, or more active "prompting" or "suggestive selling" by staff at checkout, might influence student selection. Unfortunately, systematic information about the frequency of staff prompting and students' opinions and preferences about specific fruits or vegetables was not collected as part of the tray waste assessment.

Table 7: Fresh Fruit Menu Items Selected per Day

Fruits – fresh	PRE – Fruit Menu Items Observed Day 1	Day 2	POST – Fruit Menu Items Observed Day 1	Day 2
Grapes	46	93	66	69
Pear (whole)	12	-	-	18
Apple (whole)	-	48	41	5
Apples (sliced)	-	-	-	28
Orange (whole)	-	-	3	4
Banana (whole)	-	-	7	-
TOTAL	**199**		**241**	

Conclusion

For both waste measures – estimated average waste and majority waste – little change was evident from the pre to the post assessment periods in the percentage waste of any of the Food Categories. Student selection also remained relatively consistent with the exception of fresh fruit menu items, which demonstrated an increase of just over 10 percentage points across the two days. The increased variety of fresh fruit items served and their placement at the checkout in addition to the salad bar, may have contributed to this increased selection in the post-assessment period; however, less clear are the reasons for the high variability in the number of fresh fruit items selected during the two pre-assessment days. The fruit and vegetable menu items featured during cafeteria taste tests seemed to be relatively popular; however, there was incomplete information for an actual pre to post comparison. Further analysis will apply statistical tests as well as explore differences by grade levels and scheduling such as free play before versus after lunch. However, the preliminary analysis indicate the SLM strategies, student engagement efforts, and nutrition education did not translate into reduced food waste, although there was some evidence that they may have contributed to increased selection, and therefore potentially consumption, of fresh fruit menu items.

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This material was produced by the University of California CalFresh Nutrition Education Program with funding from USDA SNAP, known in California as CalFresh (formerly food stamps). These institutions are equal opportunity providers and employers. CalFresh provides assistance to low-income households and can help buy nutritious foods for better health. For CalFresh information, call 1-877-847-3663.

Evaluation Report Attachment #4:

Formative and Outcome Evaluation: Measuring UC CalFresh's Direct Education Success via Adult & Youth Evaluation Tools

Project: UC CalFresh SNAP-Ed Activities in 32 California Counties

All UC CalFresh UCCE county programs conduct outcome evaluation of their education activities applying the UC CalFresh Evaluation Taskforce recommended evaluation tool(s) and Specific, Measurable, Agreed Upon, Realistic, and Time-Based (SMART) objectives assigned to the specific curricula or workshop topic they are implementing. Depending on the direct education curricula and/or education format used, UC CalFresh county programs complete the recommended evaluation tool and enter the data throughout the year into statewide data entry portals. The UC CalFresh state office analyzes and shares back with the county programs county and aggregated state-level evaluation results relative to the SMART objectives.

The FFY 2018 UC CalFresh direct education evaluation results are summarized below grouped according to two of the statewide behavioral outcome areas with findings from the adult and youth programs presented separately. In addition, statewide results for the SNAP-Ed Evaluation Framework individual-level priority indicators are summarized in Template C.

California Statewide Goals and Objectives

Goal 1: Increase Consumption of Healthy Foods and Beverages and Decrease Consumption of Unhealthy Foods and Beverages

- By September 30, 2019, improve the dietary quality of meals and snacks consumed by the SNAP-Ed eligible population (consistent with the current Dietary Guidelines for Americans) by 3%.
- By September 30, 2019, increase consumption of fruits and vegetables among the SNAP-Ed eligible population by 3%.
- By September 30, 2019, decrease consumption of added sugar from food and beverages among the SNAP-Ed eligible population by 3%.

Adult Program – FFY 2018 Evaluation Results

For the healthy foods and beverages objectives, adult evaluation results from three different evaluation tools are summarized below.

- **Intent to Change Survey (ITC) for short duration series or single lessons/workshops**: Due to participant availability and venue specific opportunities and/or limitations, nutrition education delivery varies for adult audiences. For this reason, a simple evaluation instrument was developed for use with a single lesson of a multi-lesson series or one-time workshops. The ITC questionnaire is brief (only three questions) and focuses on a single current and intended future behavior as well as an open question to solicit feedback about the workshop/lesson. While not ideal for measuring outcomes, the ITCs do provide useful information about participants' current behaviors and their readiness to change. In addition, asking participants to reflect upon and report their intentions regarding a specific behavior can help to "nudge" or encourage participants to take action.
- **Adult Taste Testing Tool:** Many of the lessons and workshops include food tastings in an effort to increase exposure, willingness, and ultimately consumption of healthy foods such as vegetables. The Adult Taste Testing Tool was developed to capture adults' response to the taste test.
- **Food Behavior Checklist (FBC) pre/post surveys for multi-session curricula**: The visually enhanced FBC pre/post survey is the evaluation tool used for outcome evaluation of several

curricula e.g. Eating Smart Being Active, Eat Smart Live Strong, Learn at Home and MyPlate for My Family. Of the three evaluation tools, this is the one best suited to measuring reported behavior change.

Intent to Change (ITC) – Increasing Consumption of Healthy Foods and Beverages

The tables below summarize the 8,875 UC CalFresh ITC survey results across 25 counties in terms of:

- the number of participants surveyed,
- the percentage not currently practicing the desirable healthy eating behavior and
- of those not currently practicing the desirable behavior, the percentage who reported the intention to practice the desirable behavior "more often" in the next week.

Table 1. Intent To Change for Behaviors Related to Increasing the Consumption of Healthy Foods and Beverages

Current Behavior Questions			Intended Behavior Questions*		
During the past week, did you eat [or drink]…	**N**	**% not practicing the desirable behavior**	**Within the next week, how often will you eat [or drink]…**	**N**	**% reporting intent to do it "More Often"**
Lower-fat milk products at least 2 times a day?	282	38%	Lower-fat milk products?	107	53%
Whole grains or whole grain products every day?	201	36%	Whole grains or whole grain products?	73	66%
A breakfast that included at least 3 food groups?	43	26%	A breakfast that includes at least 3 food groups?	11	64%
Foods from all 5 food groups each day?	2,380	23%	Foods from all 5 food groups each day?	555	79%
Fruit at least 2 times a day?	144	24%	Fruit?	34	82%
More than 1 kind of vegetable each day?	993	20%	More than 1 kind of vegetable each day?	200	80%
Choose a smaller amount of food or beverages at least 1 time?	402	13%	Choose a smaller amount of food or beverages?	54	54%

NOTES: *Of those not currently practicing desirable behavior.

Of the seven ITC healthy eating behaviors (Table 1), drinking lower-fat milk products at least 2 times a day had the highest percentage of participants (38%) reporting that they did not currently practice the desirable behavior. Of those participants not already practicing the healthy eating behaviors, approximately 53-82% reported the intention to practice the desirable behavior "more often" in the next week. For several of ITC topics, the majority of participants report already practicing the desirable behavior. These results suggest either spending less time on those topic workshops, or changing the questions to better reflect the targeted behavior we want to measure. The State Office continues to work with counties to use their evaluation results to help refine their program delivery by holding webinars, face-to-face trainings and ongoing technical assistance.

Intent to Change (ITC) – Reducing Consumption of Less Healthy Foods and Beverages

Three of the ITC topics addressed reducing consumption of less healthy foods or beverages (Table 2). As summarized in the table, nearly three-quarters of participants reported that they drank a sweet beverage every day in the past week, while well over half had eaten fast food in the past week and fried foods at least twice in the past week. Of those participants who reported practicing these undesirable behaviors, after the workshop 75% reported the intent to drink sweet beverages "less often", 68% intend to eat fast food "less often" in the next week, and 68% reported the intent to eat fried food "less often". These results indicate considerable progress could still be made in reducing the consumption of less healthy foods and beverages and highlight for counties key topics for future educational workshops.

Table 2. Intent To Change for Behaviors Related to Reducing the Consumption of Less Healthy Foods and Beverages					
Current Behavior Questions			**Intended Behavior Questions***		
During the past week, did you eat [or drink]…	**N**	**% practicing the undesirable behavior**	**Within the next week, how often will you eat [or drink]…**	**N**	**% reporting intent to do it "Less Often"**
a sweet beverage every day?	1,258	71%	a sweet beverage?	892	75%
fast food?	179	59%	fast food?	106	68%
fried foods 2 or more times?	64	59%	fried foods?	38	68%

NOTES: *Of those not currently practicing desirable behavior.

Adult Taste Testing Tool (n=435 tastings with 4,357 participants)

This evaluation tool is used to capture adult response to food tastings in an effort to increase exposure, willingness and ultimately consumption of healthy foods such as vegetables. The county nutrition educators fill out the Adult Taste Testing Tool by asking participants five questions about their taste testing experience.

Results

Eighteen counties utilized this tool with adult participants and found the following:

- 53% had ever tried the target food prior to the tasting
- 97% actually tried the target food in the tasting
- 92% would be willing to try the food again
- 89% were willing to serve the target food at home to their families

These results demonstrate that **a large majority of adults (over 90%) introduced to novel foods** (only half ever tried previously) **find them acceptable enough to try again in the future and nearly 90% would serve them to their families.** Successful food tastings offer a means of increasing the quantity and variety of foods recommended on USDA's MyPlate to the CalFresh population. Sharing recipes featuring the target food provides information and skills required to incorporate the food into the household. In each county, UC CalFresh strives to use vegetables and fruits grown locally in taste testing and to encourage planting a garden with region/climate appropriate fruits and vegetables. In FFY 2019, county programs will continue to incorporate the promotion of local farmers' markets that accept CalFresh EBT and Market Match. These aspects of the UC CalFresh program help to create important linkages within the community and environmental spheres of the Socio-Ecological Model (SEM).

Visually Enhanced Food Behavior Checklist (FBC) Evaluation (n=846)

Background

This was the fourth year that county programs administered the Visually Enhanced FBC to participating adults. The pre/post survey includes 16 questions. Of the curricula which use the FBC as the evaluation tool, the Eat Smart Being Active curriculum is the most commonly delivered adult series. Seven counties collected surveys from a total of 846 adult participants. Of these participants, a majority (68%) self-identified as Hispanic/Latino and were mostly (92%) female.

For the pre- and post-surveys, participants are asked to report the frequency that they ate or drank a variety of foods and beverages as well as respond to questions about their food security and general health. Results were analyzed in two ways:

- **Percentage of participants showing improvement from pre- to post-survey**: First, the percentage of participants with any increase or improvement in their responses from pre to post is reported. We defined the percent with improved behavior as the percentage of participants with any increase in the desirable behaviors and with any decrease in the undesirable behaviors. For example, an increase in a desirable behavior would be if a participants responded "no" to the question "*Do you eat fruits and vegetables as snacks?*" for the pre-survey but for the post-survey responded either yes - sometimes, yes- often, or yes- everyday. An example of an improvement in an undesirable behavior would be a participant who responded "yes - everyday" to the question "Do you drink regular soda?" in the pre-survey and then at the post-survey responded "yes- sometimes".
- **Statistically significant change from pre- to post-survey:** In addition, analysis was done to compare pre and post results for statistically significant differences.

Results

Participants making improvements in any of the desirable eating or drinking behaviors ranged from just one in ten (10% drink milk or use milk on cereal in the past week) **to over two-thirds** (68% improvement in cups of fruits and vegetables eaten in a day) **of participants**. The percentage of participants who reported improved desirable eating behaviors are presented below in declining order:

- 68% - Increase in daily fruit + vegetables eaten (in cups)
- 59% - Increase in daily vegetables eaten (in cups)
- 57% - Increase in daily fruit eaten (in cups)
- 44% - Eat more than one kind of vegetable each day
- 44% - Eat more than one kind of fruit each day
- 44% - Eat 2 or more vegetables at main meal
- 42% - Eat fruits or vegetables as snacks
- 36% - Take skin off chicken
- 31% - Drink milk
- 23% - Have fish (in past week)
- 14% - Eat citrus or drink citrus juice (past week)
- 10% - Drink milk or use milk on cereal (past week)

Both SMART objectives in this area were **exceeded** (e.g., more than 40% of participants increased their reported frequency for eating more than one kind of vegetable and more than one kind of fruit each day).

The percentage of participants who reported improvement by reporting less frequently practicing or experiencing the undesirable behaviors were:

- 33% - Drank regular soda less frequently
- 29% - Drank fruit drinks, sport drinks or punch less frequently
- 25% - Ran out of food before the end of the month less frequently

The SMART objective that 20% or greater participants would report **improved food security** was also **achieved**.

The FBC also includes a food resource management behavior question which showed:

- 50% of participants reporting improvement in using the nutrition facts labels when they shop.

Again, the SMART objective of at least 50% of participants showing improvement was **met**.

Youth Program – FFY 2018 Evaluation Results

The majority of UC CalFresh nutrition education is provided to preschool and school age children. Two evaluation tools are the most commonly used across multiple direct education curricula.

- **Teacher Observation Tool (TOT):** This tool was developed to create a retrospective evaluation measure that could be used with the various curriculum delivered by UC CalFresh youth programs. Teachers, youth program leaders, and other extenders at the participating sites are trained to deliver UCCE CalFresh nutrition curricula such as *Happy Healthy Me*, *Eating Healthy from Farm to Fork*, *My Amazing Body*, *Good for Me and You*, and *It's My Choice*. The TOT collects information on teachers' perceptions and observations related to the changes in knowledge and behavior among students as well as changes in their own nutrition related practices after delivering UC developed nutrition curricula.
- **Teacher Taste Test Tool (TTT):** In collaboration with the Evaluation Taskforce members, UC CalFresh has developed and validated a simple TTT to evaluate youth response to food tastings that are coupled with classroom nutrition education. These findings are included in a paper that has been published in the *Journal of the Academy of Nutrition and Dietetics*[1].

In addition, several curricula such as *EatFit* and *Hunger Attacks* have curricula specific evaluation tools. However, in FFY 2018, these were only used by a small number of counties and so they are not reported here.

Teacher Observation Tool (TOT) Results (n=724 classes with 17,099 students)

In 2018, 724 teachers completed the retrospective TOT questions on behalf of their 17,099 students across 22 counties. Thirty-eight percent of these students were 1st-3rd graders, 19% were 4th-6th graders, and the remaining 43% were preschool or kindergarten students. Slightly less than half (45%) of these TOTs were collected in urban settings; 44% in rural settings, and the remaining 11% in suburban settings.

As a result of UC CalFresh nutrition education, the following **percentage of teachers** "Strongly Agree" or "Agree" that **more** students **now**:

- 97% - Are able to identify healthy food choices
- 92% - Are willing to try new foods offered at school
- 86% - Wash hands more often
- 69% - Choose fruits and/or vegetables in the cafeteria or during classroom parties
- 61% - Bring fruit as a snack

Furthermore, compared to the beginning of the school year **teachers also reported changes in their own behaviors**. Some highlights include teachers who report "A lot more often" engaging in the following:

- 57% - Encourage students to be physically active
- 51% - Encourage students to eat breakfast
- 42% - Make healthier personal food choices
- 38% - Remind families to bring healthy snacks for school parties
- 34% - Offer healthy food choices to students (at parties, snacks, rewards)

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[1] Kaiser LL, Schneider C, Mendoza C, George G, Neelon M, Roche B, Ginsburg D. Development and Use of an Evaluation Tool for Taste Testing Activities by School-Aged Children, *J Acad Nutr Diet* 2012; 112:2028-2034

Many of these positive changes in teacher and child behaviors move beyond the individual factors of the Socio-Ecological Model (SEM) and are affecting environmental settings. Additionally, these findings are supported by county reports, which highlight changes in access to structured PA, and classroom PA breaks, closer collaboration between classroom and cafeteria through coordinated tastings, staff wellness efforts, and SLM strategies as well as UC CalFresh staff participation on school and district School Wellness Committees.

Taste Testing Tool (TTT) Results (n=4,342 tastings with 89,758 duplicate students)

Exposure to healthy foods is particularly important for children in low-income households where availability of fruits and vegetables is low, and limited resources discourage parents from experimenting with new foods that their children might reject. A goal of the UC CalFresh youth program is to increase willingness to try new healthy foods and encourage children to ask for these foods at home. Other studies have shown willingness to try fruits and vegetables and children asking parents to buy these foods are associated with greater household purchases of fruits and vegetables[2] and fruit and vegetable consumption in school-aged children[3].

Overall, 4,342 tastings were conducted with 89,758 students from 26 counties in FFY 2018. These numbers are compiled from multiple tastings in the classrooms sometimes with the same students. Across all categories of healthy food items tasted in the UC CalFresh youth program:

- 51% of youth reported having tasted the target food before,
- 92% actually tried the food featured for the tasting,
- 67% reported willingness to eat the food again at school, and
- 63% reported being willing to ask for the food at home.

The results are promising in determining the students' willingness to try the targeted foods and their willingness to ask for this food at home. County programs can use their TTT results to make informed choices about which foods and food groups to target next year. Findings can also be used to increase the variety of food preferences by pairing foods less desired or novel with those generally considered as highly appealing for food tastings to reinforce the nutrition education messages delivered.

One of the SMART objectives for this evaluation tool is to have less than 40% of students report ever trying the target food before. The intent is to expose novel foods to students (such as fruits and vegetables that are not commonly eaten). This objective was not achieved in FFY 2018. Counties have expressed concerns about meeting the 40% threshold established for the SMART objective when they intentionally expose students to the same target on multiple occasions using different forms (fresh avocado, guacamole, avocado and lime salad, etc.), as the literature shows that it often takes multiple exposures to increase the appeal of new foods among children. In FFY 2018, the TTT was revised to capture data on the frequency of target food tastings. The state office plans to explore these data in FFY 2019 to examine the frequency of target food tastings along with potential variations in students' intentions to taste the target foods following multiple exposures. The findings of this analysis will be used to reevaluate the current UC CalFresh SMART objectives for the TTT.

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[2] Busick DB, Brooks J, Pernecky S, Dawson R, Petzoldt J. Parent food purchases as a measure of exposure and preschool-aged children's willingness to identify and taste fruit and vegetables. *Appetite* 2008; 51(3): 468-473.

[3] Sandeno C, Wolf G, Drake T, Reicks M. Behavioral strategies to increase fruit and vegetable intake by fourth- through sixth-grade students. *J Am Diet Assoc*. 2000;100(7): 828-830

California Statewide Goal and Objectives

Goal 3: Improve Food Resource Management

- Annually at least 80% percent of surveyed SNAP-Ed adult participants report improving at least one food resource management behavior (such as reading labels, shopping with a list and comparing prices to maximize use of limited resources to support a healthy diet).
- Annually at least 30% of surveyed SNAP-Ed adult participants report increased food security (defined as not running out of food at the end of the month.

Adult Resource Management – FFY 2018 Evaluation Results

Food resource management (FRM) education is one of the most requested educational trainings that UC CalFresh offers eligible clients. The ability to successfully procure healthy foods throughout the month while reducing instances of food insecurity (running out of food by the month's end) can be positively influence by an individual's ability to assess nutritional values of available food resources, their ability to budget their limited food dollars and their ability to critically assess the impact of food marketing on their buying behaviors. UC CalFresh includes food resource management in two evidence based curricula: *Making Every Dollar Count* and *Plan, Shop, Save, Cook*. Three evaluation tools are used by county programs to assess food resource management behaviors.

Intent to Change (ITC) – Increasing Food Resource Management Practices

Beginning in FFY 2017, the county programs began using four new sets of ITC questions (make a list, plan meals, compare unit prices, and use "Nutrition Facts") that align with the SNAP-Ed Evaluation Framework indicators for food resource management (ST2).

Summary results from the second year using these ITCs (Table 3) show that from one-third to over one-half of participants did not currently practice these food resource management behaviors. Out of the four ITCs, using the "Nutrition Facts" when shopping had the highest percentage (57%) of participants not practicing the desired behavior. Of those participants not already practicing the desired food resource management behaviors, 69% reported the intent to make a list and a majority (70%) intend to plan meals before going to the store next time they buy food. Additionally, 64% reported the intent to compare unit prices before choosing foods and 71% use the "Nutrition Facts" the next time they shop. These results indicate considerable need for food resource management skills among SNAP-Ed participants and provide an opportunity for counties to recruit participants for more in-depth series based education on these key topics.

Table 3. Intent To Change for Behaviors Related to Increasing Food Resource Management Practices

Current Behavior Questions			Intended Behavior Questions*		
The last time you…	**N**	**% not practicing the desirable behavior**	**The next time you…**	**n**	**% reporting intent to do it "Yes"**
Shopped, did you use the "Nutrition Facts" on the food label to choose foods?	1,584	57%	Shop, will you use the "Nutrition Facts" on the food label to choose foods?	896	71%
Bought food, did you make a list before going to the store?	652	40%	Buy food, will you make a list before going to the store?	262	69%
Shopped, did you compare unit prices before choosing foods?	319	39%	Shop, will you compare unit prices before choose foods?	123	64%
Bought food, did you plan meals before going to the store?	374	33%	Buy food, will you plan meals before going to the store?	125	70%

NOTES: *Of those not currently practicing desirable behavior.

Making Every Dollar Count (MEDC) Evaluation (n=1,000)

Background

For this retrospective survey, participants are asked to rate their knowledge and skills on a scale of 1 (Low) to 5 (High) on concepts related to setting goals, resource management, meal preparation, and food advertising both BEFORE and AFTER the program. We defined the percent with improved knowledge as the percentage of participants with any increase or improvement on the scale from pre- to post-program. For example, a participant could indicate BEFORE the program "Knowing simple healthy meals to make" is "1-Low" and then a "2" AFTER the program, and that participant would count as an individual with an increase in knowledge. In reality, participants do not report having such small incremental improvements. The distribution of participants' ratings BEFORE (Pre-survey) and AFTER (Post-survey) is provided in the large table displayed on the next page.

Results

A total of 1,000 adults provided retrospective survey responses representing MEDC participants in nine counties. Forty-six percent of participants attended classes in Spanish, while the remaining adults attended classes in English. A majority (89%) of attendees identified as female. Just under a third (30%) of participants completed the eight-lesson MEDC series.

Overall, **approximately three-quarters (78%-88%) of participants made improvements in knowledge and skills for each of the MEDC measures**. The three FFY 2018 SMART objectives for MEDC were provided as a reference for gauging program performance. These are defined as a specific minimum percentage of participants demonstrating an increase on: knowing easy ways to save money on food (≥50%); knowing simple healthy meals to make (≥50%); and understanding food ads (≥50%). Results for MEDC **exceeded** all three SMART objectives where 83%, 80%, and 83% of participants demonstrated improvements in knowledge respectively (Table 4).

In addition to gaining knowledge, the majority of participants reported that because of the MEDC program they gained skills to change their behaviors (Table 5). These include setting personal goals, using the choice-making steps with a decision they need to make, identifying community resources they can use if needed, checking to see if they are eligible for Earned Income Tax Credit, using one of the 'easy ways' to save on food, and determining if using a coupon is better than buying the store brand. In addition, slightly less than half (44%) of participants reported saving money, and nearly three-quarters (73%) were able to make their food last until they had money to buy more. These findings capture critical positive outcomes in resource management among MEDC participants.

Lastly, most participants who responded to the evaluations provided feedback about the program by answering the question "How much has the MEDC program been worth to you?" A vast majority (92%) rated it 4 or 5 (on a 5-point scale with 5 representing the highest score), indicating it was a valuable program for participants.

Table 4. Comparison of Pre- and Post-Survey Responses for *Making Every Dollar Count* (n=1000)										
Knowledge	**Setting personal goals**	**Understanding values**	**Knowing difference between need & want**	**How to make choices**	**Knowing personal skills & resources**	**Knowing community resources**	**Using resources to make money go further**	**Knowing easy ways to save money on food**	**Knowing simple healthy meals to make**	**Understanding food ads**
Pre-Survey										
1 Low	10%	8%	8%	6%	7%	10%	8%	6%	6%	11%
2	27%	24%	24%	20%	25%	28%	24%	23%	23%	26%
3	38%	36%	28%	38%	38%	36%	37%	37%	33%	33%
4	16%	21%	23%	25%	19%	17%	22%	23%	24%	19%
5 High	8%	11%	17%	11%	10%	9%	9%	12%	14%	11%
Post-Survey										
1 Low	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
2	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
3	6%	5%	4%	3%	6%	6%	6%	4%	4%	7%
4	37%	34%	27%	30%	35%	36%	30%	26%	27%	30%
5 High	57%	60%	70%	66%	58%	57%	64%	70%	69%	62%
% Improved Knowledge	88%	84%	78%	83%	85%	86%	85%	**83%**	**80%**	**83%**
Smart Objective	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	≥ 50%	≥ 50%	≥ 50%

Table 5. Reported Behaviors as a Result of *Making Every Dollar Count* (MEDC) (n=1000)			
Because of the MEDC program have you:	**Yes**	**No**	**Plan To**
Written a personal goal?	65%	6%	29%
Used the choice-making steps with a decision you needed to make?	71%	5%	24%
Identified community resources you can use if needed?	75%	4%	21%
Checked to see if you are eligible for Earned Income Tax Credit?	42%	23%	36%
Used one of the easy ways to save on food?	80%	3%	17%
Determined if using a coupon is better than buying the store brand?	73%	7%	21%
Saved money?	44%	9%	47%
Made your food last until you have money to buy more?	73%	4%	23%

Plan, Shop, Save, Cook (PSSC) Evaluation (n=1,221)

Background

This was the seventh year for the statewide use and collection of data for the UC CalFresh signature adult curriculum: *Plan, Shop, Save, Cook* (PSSC). This curriculum consists of four lessons. As previously described, PSSC was adapted based on program evaluations and participant comments so that the core lessons could be delivered in a four-lesson series.

Evaluation of PSSC consists of a 7-item food resource management behavior pre- and post-test. Fourteen counties collected surveys from a subset of 1,221 participants who attended the PSSC series. Of these participants, the majority identified as female (86%) and reported an ethnic background of Hispanic or Latino descent (78%).

For the pre- and post-surveys, participants are asked to rate the frequency on a scale of 1 (Never) to 5 (Almost Always) in which they engage in food behaviors related to resource management and meal planning. We defined the percent with improved behavior as the percentage of participants with any increase or improvement on the scale of 1 to 5 from the pre- to post-survey. For example, a participant could indicate "How often do you run out of food before the end of the month?" at pre-survey is "4-Most of the time" and then at post-survey indicate "3-Sometimes", and that participant would be counted as a participant with an improvement. The distribution of participants' ratings for both the pre- and post-survey are provided in the table below.

Results

Participants reporting improvements in the seven PSSC behaviors and food security condition ranged from just over one-third (36% improved food security by running out of food less often) **to nearly two thirds** (64% improved frequency of using MyPlate to make food choices) **of the participants**. The six PSSC FFY 2018 SMART objectives are provided as a reference for gauging program performance (see table below). The results indicate that the FFY 2018 SMART objectives were **met** for all six objectives listed below:

- At least 40% will increase their frequency of meal planning
- At least 40% will increase their frequency of using a grocery list when shopping
- At least 50% will increase their frequency of using the "Nutrition Facts" on the food label to choose foods
- At least 25% will increase their frequency of comparing unit food prices
- At least 30% will report that when deciding what to feed their family, they think about healthy food choices
- At least 30% will report greater food security (not running out of food at the end of a month)

The **statewide objective was also met that at least 80% of surveyed SNAP-Ed adult participants will report improving at least one food resource management behavior**. Of the 1,221 participants completing the PSSC pre/post survey **84% reported improvement** in the frequency of using at least one of the following five food resource management behaviors:

- Meal planning
- Shopping with a list
- Comparing unit prices
- Thinking about healthy food choices, and
- Using "Nutrition Facts" labels.

In addition, the number of participants who reported “Almost always” or “Most of the time” improved from the pre- to post-survey and was **statistically significant (p<.001)** for all six PSSC behaviors (Table 6):

- Up by 32% for using MyPlate to plan meals
- Up by 27% for using nutrition facts label
- Up by 22% for shopping with list
- Up by 18% for planning meals
- Up by 15% for thinking about healthy food choices
- Up by 14% for comparing unit prices.

In addition, there was a statistically significant improvement in food security from pre to post with the percent of participants who reported that they “never” or “seldom” ran out of food before the end of the month increasing from 45% to 57% (p<.001). Although food security is impacted by a multitude of factors beyond food resource management behaviors, over a third of the PSSC participants surveyed (36%) reported greater food security from pre to post, thereby surpassing the SMART objective (≥ 30%) for “not running out of food at the end of a month”.

The percent of participants reporting “almost always” or “most of the time” for all five key PSSC behaviors (i.e. plan, prices, shop, think, facts) increased from about one in ten (11%) at pre to almost one-third (32%) of adults at post (p<.001). These findings demonstrate both the **significant gains in food resource management behaviors** as well as the **positive impact on food security** among PSSC participants.

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Table 6. Comparison of Pre- and Post-Survey Responses for *Plan, Shop, Save, Cook* (n=1,221)							
Behavior	**Plan meals**	**Compare unit prices**	**Shop with list**	**Think about healthy choices**	**Use "Nutrition Facts" label**	**Use MyPlate**	**Run out of food**
Pre-Survey							
Almost Always	18%	23%	22%	24%	11%	5%	8%
Most of time	28%	28%	22%	39%	18%	13%	14%
Sometimes	35%	28%	29%	28%	32%	28%	33%
Seldom	12%	11%	14%	6%	22%	16%	24%
Never	6%	11%	14%	3%	18%	38%	21%
% Always / Most	**46%**	**51%**	**44%**	**62%**	**29%**	**18%**	**45% Never / Seldom**
Post-Survey							
Almost Always	26%	30%	33%	35%	21%	15%	5%
Most of time	38%	35%	33%	42%	35%	35%	11%
Sometimes	29%	24%	23%	19%	32%	30%	28%
Seldom	5%	8%	8%	3%	9%	11%	35%
Never	2%	3%	4%	1%	4%	9%	22%
% Always / Most	**64%**	**65%**	**65%**	**77%**	**56%**	**50%**	**57% Never / Seldom**
% Decreased Behavior	14%	19%	13%	14%	11%	8%	20%
% Unchanged	44%	37%	42%	47%	34%	28%	45%
% Improved Behavior	**42%**	**44%**	**45%**	**38%**	**55%**	**64%**	**36%**
Smart Objective	≥ 40% will increase frequency	≥ 25% will increase frequency	≥ 40% will increase frequency	≥ 30% will increase frequency	≥ 50% will increase frequency	NA	≥ 30% will report greater food security

This material was produced by the University of California CalFresh Nutrition Education Program with funding from USDA SNAP, known in California as CalFresh (formerly food stamps). These institutions are equal opportunity providers and employers. CalFresh provides assistance to low-income households and can help buy nutritious foods for better health. For CalFresh information, call 1-877-847-3663.

Evaluation Report Attachment #5:

Process and Outcome Evaluation: Shaping Healthy Choices Program (SHCP) Evaluation Report FFY 2018

Submitted by Center for Nutrition in Schools – UC Davis

Project: SHCP Pilot Counties – Butte, Madera, Riverside San Joaquin, Santa Barbara, Shasta, Sutter, Tulare, Yuba

The Shaping Healthy Choices Program (SHCP) is a multi-component, evidence-based, school intervention that is based upon the Social Cognitive Theory and the Social Ecological Model to improve children's health and nutrition-related behaviors with a long-term goal of reducing childhood obesity. The SHCP pilot implementation undertaken by UC CalFresh to better address the need for a multi-level comprehensive delivery of an evidence-based nutrition and health program, and to address the policies, systems, and environmental components of the school community. The program was initially for efficacy during the 2014-2015 academic year in four schools within three counties (Butte, Placer, and Santa Barbara Counties). During the 2015-2016 academic year, UC CalFresh continued to pilot the SHCP and expanded into five additional counties (San Joaquin, El Dorado, Calaveras, Sutter, and Yuba). The SHCP was implemented in FFY17 in 2 additional counties (Tulare and Riverside Counties) and discontinued in El Dorado and Calaveras Counties; in FFY18, the SHCP expanded into Fresno/Madera, Stanislaus/Merced, and Shasta counties and discontinued in Placer County. While Stanislaus/Merced implemented the SHCP in three classrooms in one school in Merced County, they are not included in the report as no data were collected.

This report summarizes several assessments used to evaluate the SHCP in FFY18:

- Nutrition Knowledge: assessed pre and post-implementation using a 35-item questionnaire.
    - Individual – pre- and post-tests matched using individual identifiers specific to this project
    - Aggregate – no individual identifiers are used and pre- and post-tests are not individually matched
- Anthropometrics: height and weight measured pre and post matched using individual identifiers specific to this project
- Vegetable Identification: ability to correctly identify 10 different vegetables pre- and post-tests matched using individual identifiers specific to this project
- Curriculum Fidelity: educator assessment conducted during a lesson by an observer using a checklist to record completion of lesson components and student engagement

In FFY18, students (n = ~900) from 30 classrooms received nutrition education either from UC CalFresh Educators or trained teacher extenders with support from UC CalFresh Educators (Table 1).

Table 1: Schools, classrooms and assessment by county.

	Schools	Classrooms	Assessments
Butte County Cluster	4	13	2 classrooms: Aggregate nutrition knowledge 11 classrooms: Individual nutrition knowledge, anthropometrics, vegetable identification
Madera County	1	1	Aggregate nutrition knowledge, fidelity
Riverside County	2	3	Aggregate nutrition knowledge, fidelity
San Joaquin County	1	1	Aggregate nutrition knowledge
Santa Barbara County	2	6	Aggregate nutrition knowledge
Shasta County	1	2	Aggregate nutrition knowledge
Tulare County	1	1	Aggregate nutrition knowledge, fidelity
Total	**13**	**30**	

Process Evaluation: Fidelity of Nutrition Education Delivery

During the FFY 2018 implementation of the SHCP, fidelity observations were collected on educators responsible for facilitating lessons in the classroom. These observations were executed by Advisors, Supervisors, Program Managers, and classroom teachers. Fidelity observations are an integral process to ensure proper curriculum implementation in the classroom. Observations provide educators with feedback and tools to help better align implementation with curriculum objectives and procedures. Total fidelity is the sum of the four lesson activity sections that are each assigned two possible points, contributing to a total possible score of eight. The four sections are:

1. Opening Questions
2. Procedure (Experiencing)
3. Sharing, Processing, and Generalizing
4. Concept and Term Discovery/Introduction

Full fidelity is considered to be achieved when the following occurs: all components of the lesson are fully delivered, youth are interested and engaged in the lesson (Youth Engagement I), youth are attentive and actively participate in the discussion (Youth Engagement II), youth are engaged in peer-to-peer discussion for more than 75% of the lesson (Youth Participation), and the lesson concepts are discovered by the youth (Concept Discovery/Introduction).

Table 2: Average fidelity of implementation of the SHCP Nutrition Education Component by County

	Range	Combined (number of observations)	Fresno (number of observations)	Riverside (number of observations)	Tulare (number of observations)
Total fidelity[a]	1-8	7.63 (29)	7.66 (9)	7.45 (8)	7.78 (12)
Opening Questions	0-2	2.00 (29)	2.00 (9)	2.00 (8)	2.00 (12)
Procedure (Experiencing)	1-2	1.92 (26)	1.86 (7)	1.88 (7)	2.00 (11)
Sharing, Processing, & Generalizing	0-2	1.95 (21)	1.80 (5)	2 (7)	2.00 (9)
Concept, Term Discovery/ Introduction	0-2	1.75 (20)	2.00 (4)	1.57 (8)	1.78 (9)
Evidence of open-ended questions[b]	1-4	3.81 (16)	4.0 (3)	3.83 (6)	3.71 (7)
Youth Engagement I[c]	0-4	3.45 (20)	3.50 (6)	4.00 (6)	2.88 (8)
Youth Engagement II[d]	1-3	2.63 (19)	2.50 (6)	3.00 (6)	2.71 (7)
Youth Participation[e]	1-3	2.42 (19)	2.67 (6)	1.89 (6)	2.14 (7)
Concept Discovery/ Introduction[f]	0-2	1.88 (17)	1.60 (5)	1.83 (6)	2.00 (6)

Notes:

[a]Total fidelity is the sum of the four activity sections with a total possible score of 8: opening questions; procedure (experiencing); sharing, processing, and generalizing; and concept and term introduction/discovery. Each category: 0 = Did not do; 1 = Partially delivered according to the curriculum; 2 = Fully delivered according to the curriculum

Observations of use of inquiry-based education strategies:

[b]Open-ended questioning: 1 = Between 0 and 24%; 2 = Between 25 and 49%; 3 = Between 50 and 74%;
4 = Between 75 and 100%.

[c]Youth are interested and engaged: 0 = None; 1 = about 25%; 2 = about 50%; 3 = about 75%; 4 = 100%

[d]Overall, youth look: 1 = bored and/or preoccupied; 2 = attentive but silent; 3 = attentive and engaged in discussion

[e]Youth participation compared to leader participation, youth talked: 1 = less than 25% of the time; 2 = about 50% of the time; 3 = more than 75% of the time

[f]Concepts were discovered/introduced during the sessions: 0 = No concepts introduced/discovered; 1 = Concepts were not discovered and were partially introduced by educator; 2 = Concepts were discovered and/or fully discussed by youth or educator

Lesson observation sheets were to be collected for each educator as many as 8 times (one observation per one lesson in each module). However, most counties did not report fidelity observations for each county and reported incomplete data. Incomplete reporting is reflected in the inconsistent number of observations reported in the above table. Due to incomplete data reporting, it is unclear if overall total fidelity to the curriculum increased in FFY 2018 compared to earlier years. The data provided appears to indicate that overall fidelity is still quite high, which is consistent with positive nutrition knowledge results observed in most counties.

However, data suggest that components that occur later in the lesson may have lower fidelity, although this is difficult to fully assess from the above data as latter questions on the observation sheet are more likely to be left blank.

Going forward, it is recommended that fidelity observations continue to be administered to ensure implementation in the classroom matches the curriculum. The importance of collecting complete data will be emphasized to enable analysis of implementation of all modules. One suggestion that the CNS team will make for future years of implementation to reduce burden is to reduce the number of required fidelity observations. In addition, the CNS team will also complete fidelity observations when conducting informal SHCP-specific site visits.

Outcome Evaluation: Aggregate Nutrition Knowledge

Nutrition knowledge was assessed pre and post-implementation using a 35-item questionnaire. Because individual identifiers were not used, an independent samples t-test was used to compare pre and post scores. Nutrition knowledge analyses were completed using SPSS 25 (IBM Corp., Armonk, NY, 2017).

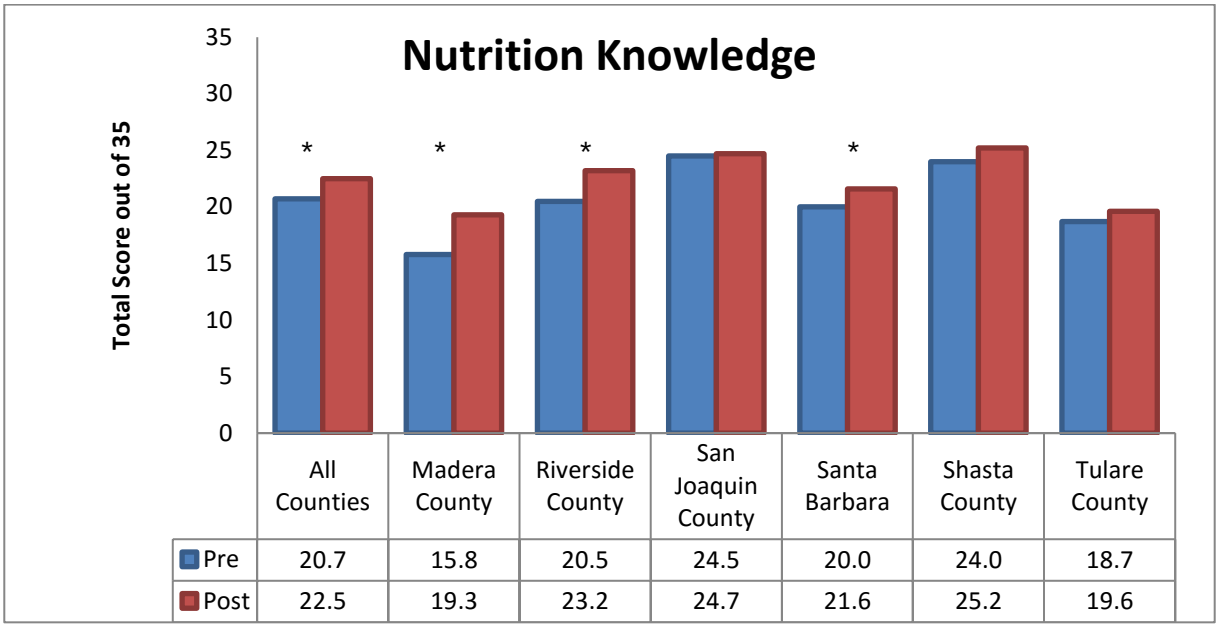
Fourteen classrooms in eight schools collected aggregate nutrition knowledge. A total of 497 students completed a pre-assessment and 411 completed a post assessment (Table 3). One county (Butte) did not return post-assessments; these were excluded from the analysis, bringing the n-pre to 395,

Table 3: Aggregate nutrition knowledge sample sizes pre- and post-implementation

County	n-pre	n-post
Madera	29	27
Riverside	115	104
San Joaquin	28	30
Santa Barbara	147	173
Shasta	57	57
Tulare	19	20
Overall	395	411

*post data were not returned to the CNS

A statistically significant increase in nutrition knowledge was observed from pre-implementation (20.7 ± 4.6) to post-implementation (22.5 ± 4.6; $p < 0.001$). (Figure 1).



*p<0.05

Figure 1: Pre- and post-implementation nutrition knowledge scores by county.

The implementations in San Joaquin, Shasta, and Tulare Counties did not result in statistically significant increases in nutrition knowledge. In San Joaquin and Shasta, pre-test scores were higher than post-test scores in all other counties, which may have resulted in limited room for improvement in knowledge in these counties. Tulare County had a comparatively small sample size, which may have limited the ability to detect differences from pre to post.

Outcome Evaluation: Individual-level Nutrition Knowledge, Vegetable Identification, and Anthropometrics

Of the four SHCP schools in Butte County Cluster, three participated in a pilot to assess SHCP implemented in novel ways. The first model is a 2-year pilot with the goal of evaluating program effectiveness when the full curriculum and program activities are split across two years. The second model is a 3-year pilot to evaluate program effectiveness when students are exposed to the garden-enhanced curriculum *Nutrition to Grow On* (NTGO) followed by SHCP curricula and program activities, split over two years. It is hypothesized that a 3-year implementation may increase subject retention, while both pilots concurrently address the need to split the program into more manageable sections. The results below present intermediate data from Y1 of the pilots.

Project Goals:

This evaluation supports the following California SNAP-Ed State Level Goal:

- Goal 1: Increase Consumption of Healthy Foods and Beverages and Decrease Consumption of Unhealthy Foods and Beverages

Evaluation Design:

Evaluation participants: Five fourth-grade classrooms in one school participated in Y1 of the 2-year pilot and received inquiry-based, garden-enhanced nutrition education from the

curriculum *Discovering Healthy Choices* (DHC) as well as cooking demonstrations from *Cooking up Healthy Choices* (CUHC). This pilot will be complete at the end of FFY19. Six third-grade classrooms in two schools from two counties participated in Y1 of the 3-year pilot. This pilot will be complete at the end of FFY20. Assessments are to be collected Spring and Fall for each year of the pilots.

Two-Year Pilot:

- FFY18: Students receive first half of DHC and CUHC curricula in fourth grade.
- FFY19: Students receive second half of DHC and CUHC Curricula in fifth grade

Three-Year Pilot:

- FFY18: Students receive NTGO curricula in third grade.
- FFY19: Students receive first half of DHC and CUHC curricula in fourth grade.
- FFY20: Students receive second half of DHC and CUHC Curricula in fifth grade

Assignment to intervention:

Unit of Assignment: Unit of assignment was school, with 1 school (5 classrooms) assigned to the 2-year pilot, and 2 schools (6 classrooms) assigned to the 3-year pilot.

Group Assignment: These assignments were not random and were based on existing relationships with the schools.

Outcome Measures, Data Collection, and Results:

Nutrition Knowledge

Nutrition knowledge was assessed pre-year 1 and post-year 1 in fourth grade classrooms using a 35-item questionnaire. In third grade classrooms, nutrition knowledge was assessed with at 29-item questionnaire. Paired t-tests were conducted to assess the changes in nutrition knowledge from pre to post. Nutrition knowledge analyses were completed using SPSS 25.0. (IBM Corp., Armonk, NY, 2017).

Nutrition Knowledge – Third Grade

Six classrooms collected nutrition knowledge. A total of 82 students completed pre-year 1 and post-year 1 assessments. No statistically significant increase in nutrition knowledge was observed from pre-implementation to post-implementation in third grade students (pre = 14.7 ± 2.8; post = 14.6 ± 3.3; $p = 0.80$). (Figure 2).

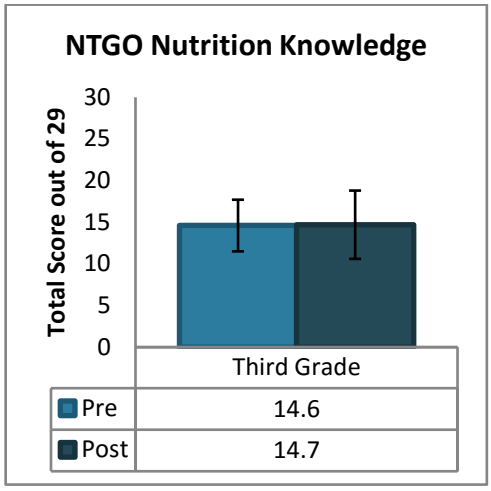


Figure 2: Differences in nutrition knowledge pre- and post-implementation in third grade students.

Nutrition Knowledge – Fourth Grade

Five fourth grade classrooms collected nutrition knowledge. A total of 49 students completed pre-year 1 and post-year 1 assessments. A statistically significant increase in nutrition knowledge was observed from pre-implementation to post-implementation (pre = 17.8 ± 3.1; post = 20.3 ± 4.1; $p < 0.001$) (Figure 3).

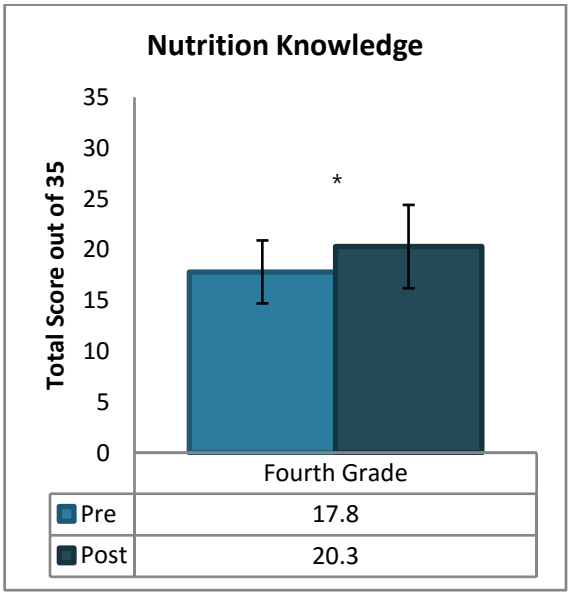
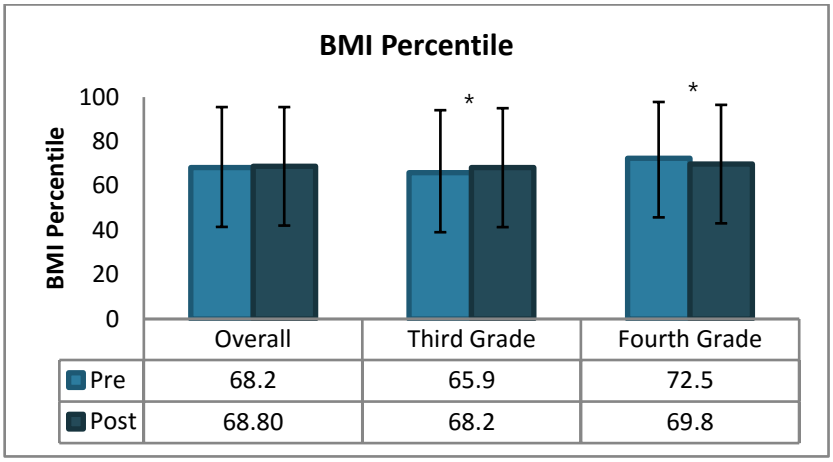


Figure 3: Differences in nutrition knowledge pre- and post-implementation in fourth grade students.

Anthropometrics

Height and weight were assessed pre-year 1 and post-year 1 and were used to calculate body mass index (BMI) percentile. A total of 120 students completed pre- and post-assessments (third grade n = 79, fourth grade n = 41). A statistically significant increase in BMI

percentile was observed from pre-implementation to post-implementation in third grade students (pre = 65.9 ± 28.2; post = 68.2 ± 26.8; p = 0.019). In the fourth-grade group, a statistically significant decrease was observed from pre to post (pre = 72.5 ± 25.3; post = 69.8 ± 26.7; p = 0.026) (Figure 4).

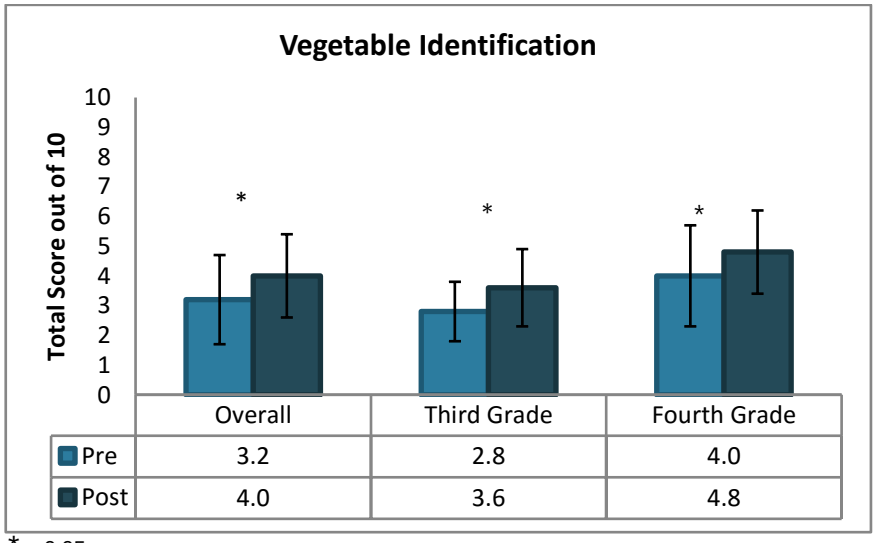


*p<0.05

Figure 4: BMI Percentile pre and post

Vegetable Identification

Ability to identify ten different vegetables was assessed pre- and post-year 1. In addition to vegetable identification, students were also asked if they consumed the food at home, if they would ask their family to purchase this food, and if they would eat this food as a snack (data not shown). A total of 135 students completed pre- and post-assessments (third grade n = 84, fourth grade n = 51). A statistically significant increase in overall vegetable identification was observed from pre-implementation to post-implementation in both the third-grade group (pre = 2.8 ± 1.0; post = 3.6 ± 1.3; p < 0.001), and the fourth-grade group (pre = 4.0 ± 1.7; post = 4.8 ± 1.4; p = 0.01) (Figure 5).



*p<0.05

Figure 5: Vegetable Identification by Treatment Group

Description of how evaluation results will be used:

The evaluation results will be used to continue to make research-based improvements to the SHCP. However, these pilot projects are still underway, and conclusions will be unable to be made until the completion of this project.

Outcome Evaluation: Shaping Healthy Choices School Health Check (SHC²)

The Shaping Healthy Choices Program has created a tool, known as the Shaping Healthy Choices School Health Check (SHC²), which allows school site stakeholders to evaluate how well their site is complying with school wellness policy requirements. The tool is formatted to resemble a rubric, with scores ranging from “Not in Place” and “Meets Standard” to “Exceeds Criteria”. The tool includes questions that align with the four components of the Shaping Healthy Choices Program, Nutrition Education and Physical Activity Promotion, Family and Community Partnerships, Foods Available on Campus with an emphasis on Local and Regional Agriculture, and School-site Wellness. The tool also includes a summary sheet that highlights specific questions that were marked lower than the standard, as well as a goal setting sheet designed to promote partnerships in achieving successful site changes.

Compliance with wellness policy requirements was assessed for each school pre- and post-implementation and a paired-samples t-test was conducted to compare responses. Only schools in which there were both pre- and post-data were included in the analyses. Statistical analyses were conducted using SPSS 25 (IBM Corp., Armonk, NY, 2017).

Overall, there was no statistically significant increase from pre- (48.3 ± 16.1) to post-implementation (52.5 ± 9.6) in total SHC^2 percent ($p = 0.224$) (Table 4). A statistically significant increase ($p = 0.013$) in Family and Community Partnerships was observed from pre- (41.7 ± 22.3) to post-implementation (51.7 ± 18.1). Increases were observed in all other categories with the exception of Regional Agriculture, however these were not statistically significant.

While the majority of sections and overall score was not found to be significant, the observed increases suggest that schools that participate in the SHCP are maintaining or continuing to improve their adherence to wellness policy requirements.

Table 4: Pre- and post-implementation SHC[2] percent.

SHC[2] Section (n)	Pre SHC[2] Percent (SD)	Post SHC[2] Percent (SD)	p-value
Nutrition Education and Promotion (14)	48.3 (16.1)	52.5 (9.6)	0.224
Family and Community Partnerships (14)	41.7 (22.3)	51.7 (18.1)	*0.013*
Foods Available on the School Campus (14)	70.7 (17.6)	71.0 (14.6)	0.939
Regional Agriculture (14)	48.8 (25.9)	45.2 (21.1)	0.662
Wellness (14)	56.3 (23.7)	56.6 (23.7)	0.959
Overall (14)	52.4 (16.3)	55.8 (12.3)	0.288

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This material was produced by the University of California CalFresh Nutrition Education Program with funding from USDA SNAP, known in California as CalFresh (formerly food stamps). These institutions are equal opportunity providers and employers. CalFresh provides assistance to low-income households and can help buy nutritious foods for better health. For CalFresh information, call 1-877-847-3663.

Evaluation Report Attachment #6:

Process and Outcome Evaluation: Moving from Serving Youth to Engaging Youth – Youth-led Policy, Systems, and Environmental Change Interventions in UC CalFresh Nutrition Education

Project: UC CalFresh Youth Engagement Initiative

MOVING FROM SERVING YOUTH TO ENGAGING YOUTH

Youth-led Policy, Systems and Environmental Change Interventions in UC CalFresh Nutrition Education

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CENTER FOR REGIONAL CHANGE

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This material was produced by the University of California CalFresh Nutrition Education Program with funding from USDA SNAP, known in California as CalFresh (formerly food stamps). These institutions are equal opportunity providers and employers. CalFresh provides assistance to low-income households and can help buy nutritious foods for better health. For CalFresh information, call 1-877-847-3663.

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Agriculture and Natural Resources

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INTRODUCTION

HOW TO USE THIS REPORT

This report examines 3 case studies from UC CalFresh SNAP=Ed nutrition education county programs who facilitated a youth-led participatory action research (YPAR) project as part of the Youth Engagement Initiative during federal fiscal year 2017. It is designed to highlight the YPAR process and inspire other SNAP-Ed programs to adopt similar approaches for authentically engaging young people in policy, systems and environmental (PSE) change strategies focused on nutrition, wellness, food access and physical activity.

Following a description of and reflection on UC CalFresh's Youth Engagement Initiative, along with brief descriptions of SNAP-Ed requirements and evaluation metrics related to this work, each UC Cooperative Extension YPAR case study is examined according to these key areas of consideration:

1. Project Overview
2. Main Adult Ally & Project Facilitator
3. Setting
4. School/Community Partnership(s)
5. Youth Recruitment & Demographics
6. Programmatic Structure
7. Calendar & Schedule of Events
8. Technical Assistance, Coaching & Support from the Public Health Institute Center for Wellness and Nutrition and the UC Davis Center for Regional Change;
9. Issue Identification
10. Data Collection & Analysis
11. Use of Data & Mapping
12. Recommendations & Action
13. Outcomes
14. Next Steps & Program Sustainability.

In addition, each case study contains youth and adult ally reflections on the project and their key lessons learned from each stage in the process, as well as links to relevant materials.

This resource is meant to complement the Stepping Stones curriculum[1] and other YPAR curricula by highlighting real world examples of programs implementing this youth engagement strategy within the SNAP-Ed framework, demonstrating the wide range of possibilities available, and detailing the resources, support and intentionality that are required to do this work successfully. Since no two YPAR projects are ever the same, the following information is meant to serve as a reference guide rather than a step-by-step manual. Youth engagement program facilitators should examine these case studies and their promising practices as they craft their own youth-led PSE change efforts that fit the specific needs and circumstances of their unique communities.

THE DOCUMENTATION PROCESS

Information about these program sites was collected through a number of sources and approaches, including monthly check-in calls and additional technical assistance conversations with individual counties; statewide youth engagement conference calls that occurred every other month and involved all UC CalFresh counties engaged in this work; site visits and in-person meetings; end-of-year exit interviews with adult allies; youth-produced final reports, videos, and presentations; UC CalFresh retrospective YPAR student surveys; adult ally self-reporting through Google docs; archived items and program documents from counties; and extensive field notes compiled by staff from the Public Health Institute Center for Wellness and Nutrition and the UC Davis Center for Regional Change.

THE UC CALFRESH YOUTH ENGAGEMENT INITIATIVE

Launched in federal fiscal year 2016, UC CalFresh's Youth Engagement Initiative is exploring innovative strategies to shift from a focus on serving youth to engaging youth in nutrition and physical activity. Projects within this initiative seek to empower young people from vulnerable communities to lead efforts to improve the environments where they live, play, eat, shop, and learn.

The motivation for creating this initiative arose out of an appreciation for core youth development principles, as well as USDA SNAP-Ed's requirement that states implement PSE change efforts—like multi-level interventions and community and public health approaches—in addition to providing direct nutrition education.[2]

Approaching this work through the lens of the Social-Ecological Model "illustrates how all sectors of society combine to shape an individual's food and physical activity choices…According to the [Dietary Guidelines for Americans], consistent evidence shows that implementing multiple changes at various levels of the Social-Ecological Model is effective in improving eating and physical activity behaviors." [3]

"[USDA's Food and Nutrition Service] recognizes the potential impact environmental factors, such as institutional policy, neighborhood design, food access, and advertising, may have on eating and physical activity behaviors. States must incorporate PSE change interventions into their SNAP-Ed Plans." [4]

With PSE change interventions now required by SNAP-Ed, UC CalFresh recognized that youth who would be impacted by those decisions should be involved in identifying, planning, implementing and evaluating the change interventions themselves. The goal of this initiative is to build the capacity of youth to contribute to PSE changes that help make the healthy choice the easy and preferred choice, while developing their leadership abilities, sense of self-efficacy, civic engagement, and college and career readiness.

DEFINING PSE CHANGES[5]

Policy: A written statement of an organizational position, decision, or course of action. Ideally policies describe actions, resources, implementation, evaluation, and enforcement. Policies are made in the public, non-profit, and business sectors. Policies will help to guide behavioral changes for audiences served through SNAP-Ed programming.

Systems: Systems changes are unwritten, ongoing, organizational decisions or changes that result in new activities reaching large proportions of people the organization serves. Systems changes alter how the organization or network of organizations conducts business. An organization may adopt a new intervention, reallocate other resources, or in significant ways modify its direction to benefit low-income consumers in qualifying sites and communities. Systems changes may precede or follow a written policy.

Environmental: Includes the built or physical environments which are visual/observable, but may include economic, social, normative or message environments. Modifications in settings where food is sold, served, or distributed may promote healthy food choices. Social changes may include shaping attitudes among administrators, teachers, or service providers about time allotted for school meals or physical activity breaks. Economic changes may include financial disincentives or incentives to encourage a desired behavior, such as purchasing more fruits and vegetables.

YOUTH-LED PARTICIPATORY ACTION RESEARCH (YPAR)

YPAR promotes process-oriented, reflexive research and activism that are driven by youth's perspectives and strengths, allowing young people to study and address social issues that impact them in ways that build their capacities as civic actors[6]

YPAR is recognized by SNAP-Ed as a practice-tested PSE strategy and an "intervention designed for youth ages 12–18 to identify nutrition and physical activity environmental issues in their community, develop an action plan to resolve the issues, and implement the plan to improve their community."[7]

YPAR projects provide youth with the opportunity to "engage in leadership, critical thinking, problem solving, strategizing skills, and service learning to address their target issue related to nutrition and physical activity."[8]

CAPTURING YPAR THROUGH SNAP-ED EVALUATION TOOLS

The impacts of YPAR projects in the UC CalFresh Youth Engagement Initiative can be captured at both the Individual and Environmental Settings levels in the SNAP-Ed Evaluation Framework.[9]

- The Individual level tracks impacts on youth participants' own health-oriented behaviors in both the short term goals and intentions—ST1: Healthy Eating and ST3: Physical Activity and Reduced Sedentary Behavior—and the medium term behavioral changes—MT1: Healthy Eating and MT3: Physical Activity and Reduced Sedentary Behavior.
- The Environmental Settings level is where YPAR efforts' PSE changes are captured. In the short term, ST6: Champions and ST7: Organizational Partnerships are particularly relevant to this work. Medium term indicators at this level pertain to the PSE changes (i.e. supports) that are adopted. Long term indicators track organizational implementation and effectiveness and community involvement in PSE intervention efforts, particularly LT5: Nutrition Supports Implementation, LT6: Physical Activity Supports Implementation and LT10: Planned Sustainability.
- At some point in the future, YPAR and PSE change intervention impacts should be able to be captured at the Sectors of Influence level as well.

The new Program Evaluation and Reporting System (PEARS),[10] which is being implemented by UC CalFresh and SNAP-Ed programs in over 20 states, will be able to capture whether youth were actively involved in shaping a PSE change effort in its PSE module.

CONCLUSION

COMBINING DIRECT NUTRITION EDUCATION WITH YOUTH-LED PSE CHANGE INTERVENTIONS

These case studies demonstrate the potential cumulative impact that can be achieved when direct nutrition education is administered in conjunction with a youth-led PSE change strategy like YPAR.

- For program facilitators new to YPAR, implementing direct education programming helped them build the foundation for their eventual PSE change interventions. Starting with direct education curricula either at the beginning of the school year or during the previous year allowed them to establish relationships with local partners and youth through programming that may have been more comfortable and familiar.
- Program facilitators also recognized the benefits of utilizing direct nutrition education to develop young people's critical understanding of key SNAP-Ed topics in order to more effectively move towards issue identification and a PSE change intervention that was relevant and SNAP-Ed allowable.

COMBINING COLLECTIVE TRAININGS WITH INDIVIDUALIZED TECHNICAL ASSISTANCE

While a series of regional trainings focused on key youth engagement topics was utilized to support UC CalFresh nutrition education county programs, individualized technical assistance was also recognized as critical to staff capacity building and the success of their youth-led PSE change interventions.

- Providing ongoing technical support and guidance through one-on-one check-in calls, site visits, and online communication channels helped build on the lessons learned during training sessions and troubleshoot issues as they emerged.
- Individualized technical assistance also helped establish a continual practice of reflection and evaluation with nutrition education county program staff, supporting program assessment and improvement throughout all stages of the YPAR process. This was particularly important because no two YPAR projects are ever the same and conducting a youth-led PSE change intervention is significantly more complicated than facilitating a step-by-step direct education curriculum.

LEVERAGING LOCAL PARTNERSHIPS

In many ways, the success of these projects also depended on the relationships they cultivated and the collaborations they established with key local stakeholders.

- All of these youth-led PSE change interventions were collaborative efforts between UC CalFresh nutrition education county programs and teachers, afterschool program facilitators, and school and district staff members.
- Partners played vital roles in each project, providing UC CalFresh staff with access to youth, meeting spaces, assistance with logistics, co-facilitation of programming, additional resources, and pathways to decision makers.

ACKNOWLEDGING THE PACE OF CHANGE

These examples demonstrate how long it can take to enact a PSE change through an authentic, youth-led process, highlighting the importance of recognizing this work as a process-oriented approach, setting realistic expectations for adults and youth, and celebrating successes along the way.

- All three program facilitators used the entire school year to the best of their abilities, and yet only one project was able to get through all of the steps in the YPAR process in that approximately nine-month time frame. The other two projects had to continue the action phase of their efforts into the summer months and the following school year in order to try and enact the PSE changes sought by their youth participants.

CAPTURING YOUTH REFLECTION & PROGRAM EVALUATION

To support continual program development and improvement, strengthen youth leadership and ownership, and capture youth voice and qualitative data in addition to quantitative data, it is recommended that adult allies build in ample opportunities for consistent, youth-led reflection and program evaluation throughout the entire YPAR process. Establishing these practices as a regular facet of all meetings, activities, and end-of-year celebrations from the beginning helps to build youth capacity and ensure that this critical data is captured in the face of inevitable time constraints.

- While the adult allies in these programs had multiple opportunities to reflect on and debrief their YPAR projects throughout the year via regular check-in calls and training sessions with the Youth Engagement Initiative technical assistance team, not as much intentional reflection and debriefing occurred with youth participants.
- There was also not much consistency across these three case study sites regarding the methods that were used for youth evaluation or the frequency with which these activities transpired: all of the programs documented here generally had informal conversations with youth to evaluate the progress of their projects, while two sites administered the UC CalFresh-designed, IRB-approved Retrospective YPAR Student Survey, one site also administered the UC CalFresh YPAR Project Assessment Survey, and one site facilitated a focus group reflection session at the end of the year.

NEXT STEPS

Moving into federal fiscal year 2018, the UC CalFresh Youth Engagement Initiative aims to build on its significant programmatic successes. In an effort to provide even greater support to counties implementing youth-led PSE change strategies, a cohort model will be adopted for training and technical assistance. The youth engagement cohorts will encourage collective learning and mentorship at the regional level and support sustainable statewide youth engagement. Additionally, this initiative will continue to expand upon collaborations with key program partners like the UC Division of Agriculture and Natural Resources and the California Department of Public Health. Together, the goal is to continue shifting from a focus on serving youth to engaging youth in nutrition and physical activity in more and more communities across the state.

What follows are the three UC CalFresh Youth Engagement case studies, providing a deeper examination of the opportunities and challenges for youth-led PSE change work in SNAP-Ed.

EL DORADO

MRS. BROWN'S 6TH GRADE CLASS AT GEORGETOWN ELEMENTARY SCHOOL

PROJECT OVERVIEW

El Dorado County UCCE staff facilitated PhotoVoice exercises and a YPAR project with an entire class of 27 6th grade students at a rural elementary school. Meetings and activities were conducted for one hour each week during class in partnership with the teacher, with some additional class time devoted to the project as well. Through photography, reflective writing and guided discussions, youth identified a number of issues and focused in on the need for access to healthy snacks on campus. The group recommended purchasing a healthy vending machine and researched options for making that goal a reality. They presented their findings to the principal, food services staff, teachers and their 5th grade peers, and also produced a video documenting their efforts. This project will continue with a new cohort of youth next year, and the hope is to keep working on this initiative to bring a healthy vending machine to the school.

MAIN ADULT ALLIES & PROJECT FACILITATORS

Monica Drazba, UCCE Community Educator (Summer of 2016 – November 2016)

She had extensive experience with direct nutrition education with youth but was new to participatory and process-oriented youth engagement approaches like PhotoVoice and YPAR.

PHI CWN staff, Metria Munyan and Jesse Tedrick (November 2016 – February 2017)

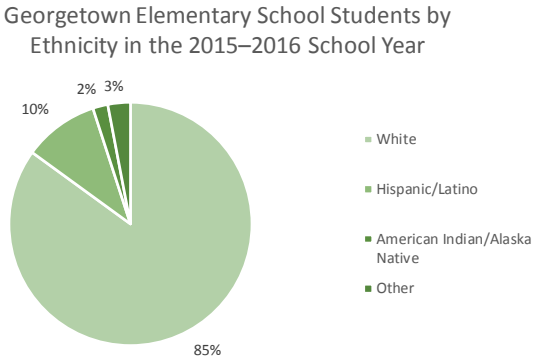
Miranda Capriotti, UCCE Community Educator (February 2017 - Summer 2017)

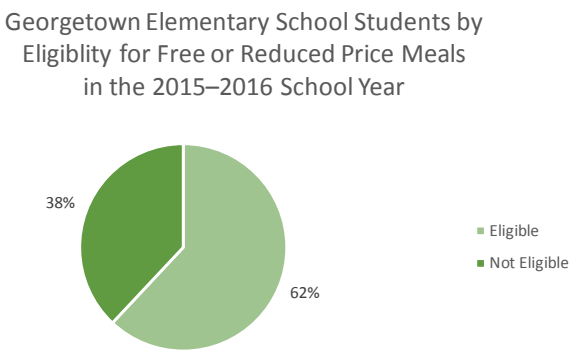
While she brought with her a wealth of nutrition education experience, this was her first experience with youth engagement and YPAR and she had never heard of either one before she started working with this group. She worked with youth in school gardens as a college student, but none of the projects were youth-led.

SETTING

This project took place at Georgetown Elementary School in Black Oak Mine Unified School District. This district serves a rural region known as the Georgetown Divide, which is situated along the border of El Dorado and Placer Counties. Due to its geographic isolation from the rest of the county, it is a tight-knit community where the schools also serve as important hubs for community life. Overall district enrollment has been decreasing steadily since the mid-1990s.

Due to the presence of many youth-related issues, a number of youth-serving nonprofits have served the region and promoted youth development for over a decade, including Divide Ready by 5 and Divide Ready by 21.





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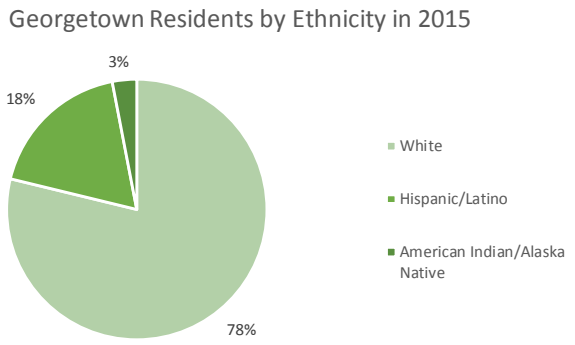
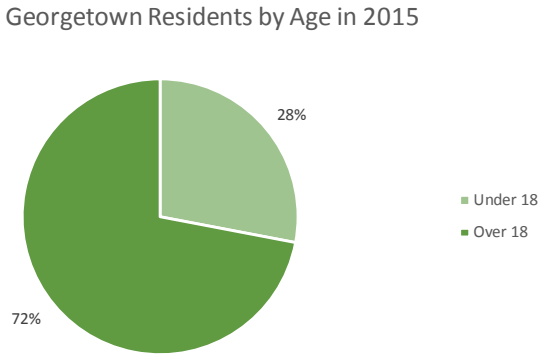
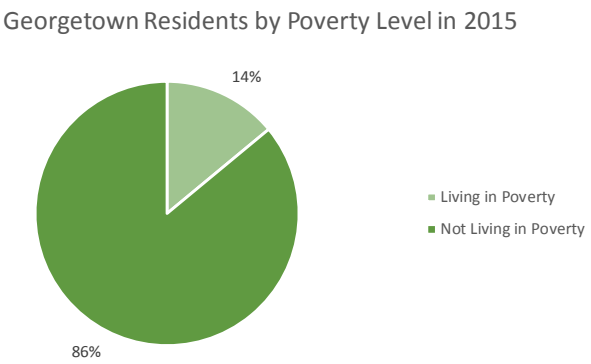






N=2,473; Source: ACS 5-Year Estimates

SCHOOL/COMMUNITY PARTNERSHIP(S)

This youth engagement project was organized and facilitated in partnership with Mrs. Annie Brown's 6th grade class at Georgetown Elementary School.

- Monica started building relationships with the school, the students and their teacher the previous school year by providing nutrition education. So, she had established relationships with the key stakeholders before she proposed doing a youth engagement project.
- Annie Brown, the students' teacher, was a major ally for this project. She coordinated scheduling, helped with classroom management, helped advance project tasks/goals outside of regular meeting times during class, and helped advocate for the project to school administration.
- Although new to the school this year, the principal was also very excited about and supportive of the youth engagement project and wants to continue it next year. Miranda did not have any contact with her until the end of the school year because Georgetown's previous principal left her position mid-way through the semester and she was not hired until May. Monica had met with the former principal on a few occasions at the beginning of the year, though.

Lessons Learned

- It was extremely helpful to partner with a teacher who was invested in and committed to the project. Mrs. Brown gave the students extra time throughout the week to work on the project and always stayed in the classroom when Miranda worked with the students to assist with classroom management.

YOUTH RECRUITMENT & DEMOGRAPHICS

Since this project involved all 27 students in Mrs. Brown's 6th grade class and took place in school during class time, no further youth recruitment was conducted. The main recruitment effort occurred during the previous year's nutrition education programming and relationship building.

Lessons Learned

- Involving all of the youth from the same classroom in the project made recruitment easy and guaranteed a consistent group of participants throughout the year. However, it also forced young people to participate and did not give them the option to opt-out of the project. For some youth, this negatively impacted their sense of ownership over the project, their buy-in and their level of engagement. Many students did not take real interest in the project until the end, and even then, some of them still were not really motivated to participate.

PROGRAMMATIC STRUCTURE

This was a classroom-based youth engagement effort that started in October under Monica's leadership as a PhotoVoice project examining the school campus.

- Monica used the *Snapshots and Stories: My Voice, My Community* PhotoVoice curriculum, although they did not work through the full process.
- With the involvement of first PHI and then Miranda following Monica's departure, the photography aspect of the project ended with the students identifying an issue they wanted to focus on. At that point, the Stepping Stones curriculum was introduced to guide the rest of the YPAR process and incorporate additional research methods into their work.
- Activities were normally conducted in 1-hour work periods, once a week, in the classroom and were scheduled with Mrs. Brown. They generally were organized in the hour before students were released from school for the day. Some activities required additional time and Mrs. Brown allowed students to work on these project tasks during regular class time.

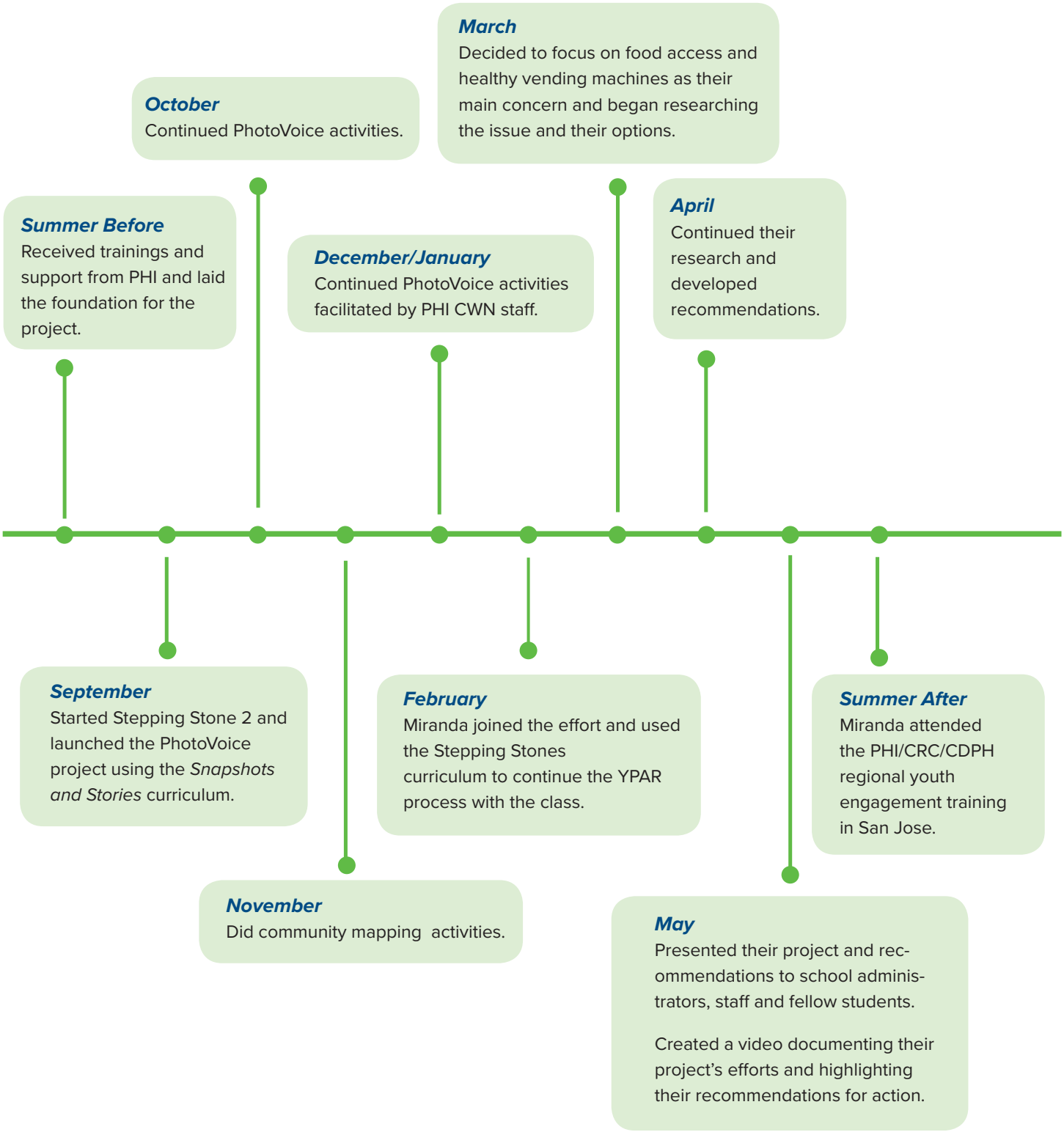
Integration with other SNAP-Ed programming/activities

Monica Drazba worked with a number of classrooms at the beginning of the semester on garden and nutrition education. She also provided nutrition education to the same cohort of students in Mrs. Brown's class the previous school year.

Lessons Learned

- As a classroom-based project involving 27 6th grade students, it was a very large group to manage—especially during the last hour of the day—and student buy-in was always an issue. To address this, Miranda broke the class up into 5 separate committees—the Presentation, Fundraising, Solutions, Survey, and Visual Aid action teams—to give everyone more specific tasks and give them some ownership over what they did and how they were involved in the project. This also helped with classroom management for such a large group of students.
- Incorporating hands-on activities into the lessons and discussions was really helpful and Miranda would have liked to include even more of them. For example, she noticed a clear positive change in group dynamics and engagement when she brought in camcorders and let the group start filming their own video.
- One's youth engagement approach very much depends on the age group, as well as the time of the school year, since youth develop and change throughout the year, too. Miranda felt the level of youth participation in the program hovered between being consulted and informed about adult decisions and making joint decisions with adults based on adult initiative. Ideas for the project came from the students, but not without heavy coaching by adult allies.
- With Monica leaving during the first half of the school year, staff turnover was a challenge. Maintaining consistency at the school site and with the youth was integral to the success of the program, so PHI CWN staff temporarily stepped in to provide youth engagement activities and support the project until Miranda was fully transitioned into the adult ally role.

CALENDAR & SCHEDULE OF ACTIVITIES



TECHNICAL ASSISTANCE, COACHING & SUPPORT FROM PHI & CRC

The project at Georgetown Elementary School received a great deal of direct support from PHI in particular, which included PHI staff members taking over the main adult ally role of running the project, facilitating meetings, and maintaining relationships with the teacher and the students during the UCCE staff transition to keep project momentum going.

Aside from PHI's direct involvement, UCCE staff also participated in monthly check-in calls and bimonthly All-County Youth Engagement calls and received additional support through site visits.

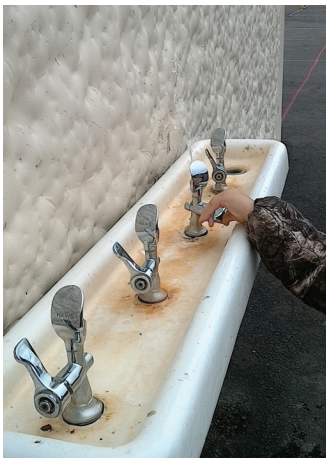
Lessons Learned

- Miranda felt that it would be very beneficial to learn about classroom management strategies within a youth engagement setting. In particular, helping adult allies find the delicate balance between free interaction and expression on one hand—so youth interact and feel comfortable expressing themselves—and a focused group and atmosphere on the other so it remains productive and things do not get out of hand.
- Miranda felt the monthly check-in calls with PHI and CRC were very helpful and supportive and it was good to keep in touch on a regular basis.
- It is important to provide adequate training up front before people get involved in a YPAR project or other youth engagement effort. Miranda did not know much about youth engagement when she joined this project midway through the school year, and she felt she could have benefitted from some initial training going into it.

ISSUE IDENTIFICATION

The PhotoVoice process was utilized at the beginning of the year to explore youth perspectives about what made the school a healthy place. However, this youth engagement strategy and research method was not fully realized due to Monica's departure.

To assist with issue identification and move the YPAR project forward, PHI staff facilitated an exercise using the Virtual Healthy School interactive online tool from the Centers for Disease Control and Prevention (CDC). Youth explored this virtual setting to think about amenities their school lacked and come up with a list of priority issues to make their school healthier.



After initially identifying 6 potential issues, students narrowed their focus down to 3 top priorities:

- Acquiring healthy vending machines for the school.
- Fixing the school water fountains.
- Acquiring new PE clothes for students to support increased physical activity.

To focus in on just one priority, students were split up into teams and each team was assigned one of the different initial issues they identified. As a group, they then had to explore the pros and cons of their issue and present a case to their peers advocating for why it should be their top priority. After the presentations, youth voted for their favorite issue.

As a group, they decided to focus on acquiring a healthy vending machine.

- There is a lack of healthy snacks available at the school and youth get hungry during the day.
- Only staff have access to the single vending machine on campus and it is not stocked with healthy options anyway.

Research question: How can we get a healthy vending machine to improve students' access to healthy foods?

Lessons Learned:

- Youth had many great ideas that took them off the main track a bit but were still worth exploring, so it was important to have patience and maybe allot extra time to allow for this.
- As part of their team presentations, youth were taught to differentiate between short-term and long-term goals and came up with a list of both for each issue. In the end, understanding this multi-tiered, multi-year process for change helped participants recognize that not completing their eventual long-term goal within the year's timeframe did not constitute a failure, since they still accomplished a number of their short-term goals and next year's youth cohort could continue their advocacy effort.

DATA COLLECTION & ANALYSIS

- The Survey Team created a set of questions to gauge support amongst their peers for a healthy vending machine. They did a trial run with other students in the class to test it out and they wanted to administer it online, but they did not have enough time to conduct it in the school.
- As a class, they identified and voted on the top 13 healthy snack items that they would want to include in a healthy vending machine.
- Participants researched possibly selling snack items during lunch or allowing students to add a snack item to their cafeteria meal. But they learned that they have to be aware of laws that do not let them sell anything else that might detract from school meal participation.
- They also explored how they could raise money to fund this project and get the machine, and how vending machines could help the school raise additional money.

Lessons Learned

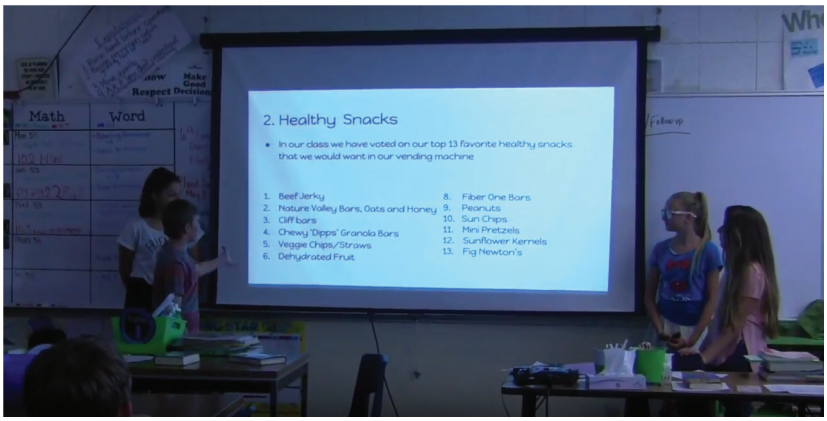
- It would have been beneficial to do lessons that prepared youth for key activities—like survey design—ahead of time. While time is always an issue, it can be very challenging to rush through these processes. Youth need adequate training and support to build their capacity to do effective research and advocacy.

USE OF DATA & MAPPING

- Utilized a community mapping exercise with the class to support issue identification, critical reflection and discussion.
- Collected data related to fundraising, purchasing and stocking a healthy vending machine.
- Youth planned to collect primary data at the school through a survey, but this activity was postponed due to lack of time.
- Miranda was not able to incorporate the CRC's mapping and data tools into the group's work this year but is planning to utilize them with next year's cohort to explore how food and vehicle access data align with students' own analyses of their school and community. She also thinks their local youth-serving nonprofits could benefit from these resources and there might be increased opportunities for collaboration with them along those lines.

RECOMMENDATIONS & ACTION

- The group gave a presentation about their project and recommendations to the principal and food services director.
- Youth participants also gave a second presentation to their 5th grade peers, 5th grade teachers and the principal again. They used this opportunity to ask them for their support and hopefully inspire next year's cohort to continue the project. This presentation was filmed and shared online.
- The group also filmed their own video documenting their project, their research and their recommendations. Footage was captured by youth and they conducted interviews with their peers and the principal. Miranda supported their effort by editing the footage and posting it online.



OUTCOMES

- The group started investigating the funding process for a vending machine and they're exploring their options but they do not have a clear path forward just yet.
- Although the principal seems to be supportive of their proposed change, food service staff appear to be a bit more reluctant to the idea. They are worried about the added workload involved in maintaining a new vending machine, so they would rather explore other ways to get healthier foods into the cafeteria.
- Through this process students were able to increase youth voice and engagement to advocate for nutrition and physical activity changes within the school environment.

"I am pro vending machines if they're dispensing healthy foods. I think it's a great way for students to access healthy food when everybody else is busy, so they can be independent and get good food at their own convenience." – Principal Westsmith

Lessons Learned

- Presenting to their peers provided a good moment of reflection for the youth participants as they answered questions and explained the project to younger students.
- According to Miranda she really loved this project, despite it being challenging at times. She felt YPAR and youth PSE change advocacy take more work than direct education, but also can be more powerful.

NEXT STEPS & PROGRAM SUSTAINABILITY

- Miranda administered the UC CalFresh YPAR Retrospective Surveys to evaluate the project's impact and plan for the coming year's effort.
- Regarding youth recruitment for next year, Miranda will be working with the same teacher at the school and the same class, she will just have a new cohort of 6th grade students.
- This year's participants are all moving on to middle school next year and Miranda had to help them come to terms with the fact that they would not see their change occur while they were still students at Georgetown. The hope is that the new batch of youth participants will continue with the project's current focus.

EL DORADO YOUTH REFLECTIONS

"I've learned that this school has, um, needs improvement, um, and I think that we can do that."

ONE THING ABOUT THIS PROJECT THAT REALLY STOOD OUT FOR ME

"It serves a great role in leadership and responsibility."

"That we could accompish [sic] so much."

"How much work we put into this project."

"The importance of the outcome."

"Is how much I learned."

"Is that people can come together and do things."

"Was that you need to be active."

"Listening to the questions that other kids asked."

"That my school has kind of a lot of unhealthy things that need to be improved."

"I loved narrowing down our options and how in depth the project is."

ONE THING I WOULD LIKE TO CHANGE ABOUT THIS PROJECT

"Start this project earlier in the year!"

"I would like to change nothing because I think that we did an awesome job."

"Is starting sooner."

IMPERIAL

MEADOWS UNION ELEMENTARY SCHOOL'S HELPING HANDS ACTIVE KNIGHTS (HHAK)

PROJECT OVERVIEW

Imperial County UCCE staff facilitated a YPAR project with 10 6th and 7th graders in collaboration with the local After School Education and Safety (ASES) Program. The group met weekly on campus after school and focused on the lack of physical activity equipment and options for 6th-8th graders. Youth participants mapped out their school resources, surveyed their peers, and analyzed publically-available physical fitness and obesity data for the school, advocating for new physical activity equipment and approval of a playground stencil project. After presentations to school and district officials and their 5th grade peers, their recommendations were approved and are currently being implemented at the school with the group's assistance.

MAIN ADULT ALLY & PROJECT FACILITATOR

Paul Tabarez, UCCE Community Educator

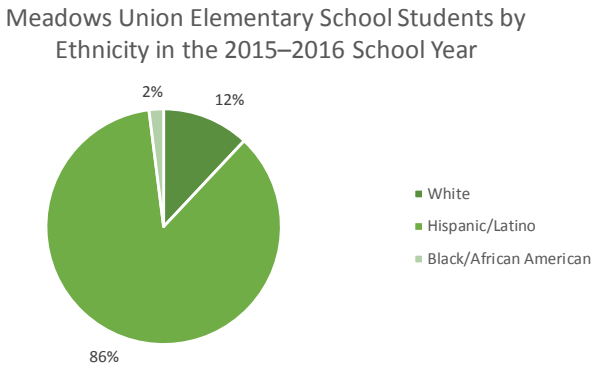
Strategized overall youth engagement programming and the YPAR project, including planning and facilitating all youth group meetings and activities.

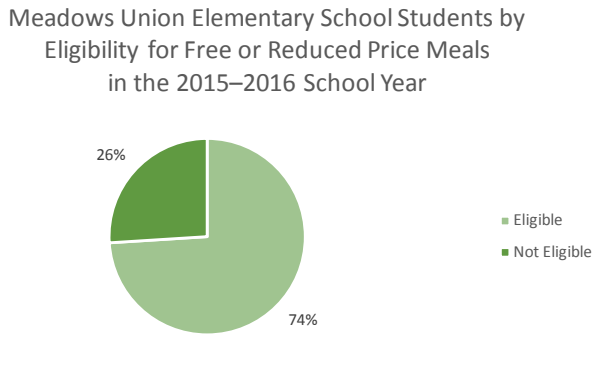
- Before joining UCCE, Paul attempted to do a YPAR project with high school students previously as a sub-contractor with the local food bank. But they started the project late in the school year in the spring without technical assistance or resources beyond an introductory youth engagement training, so the project did not really get off the ground.

SETTING

This project took place at Meadows Union Elementary School, a rural K-8 school surrounded by agricultural fields with mobile home parks interspersed throughout the region and no walkability. This is the only school in the Meadows Union School District and it is located in the desert about 5 miles east of El Centro and 6 miles west of Holtville.

- Half of all students were Spanish-speaking English Language Learners in the 2015 to 2016 school year.
- According to the school, approximately 40% of their students' parents work in agriculture.





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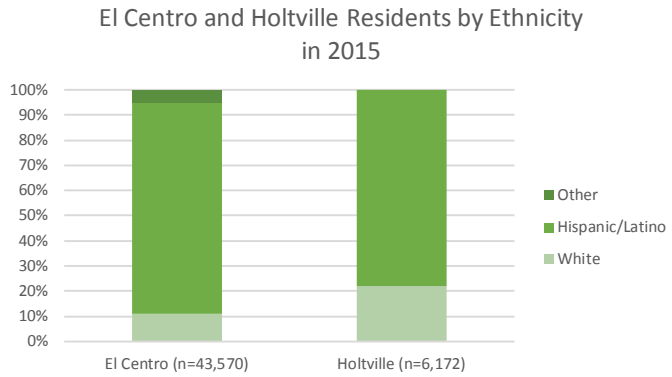
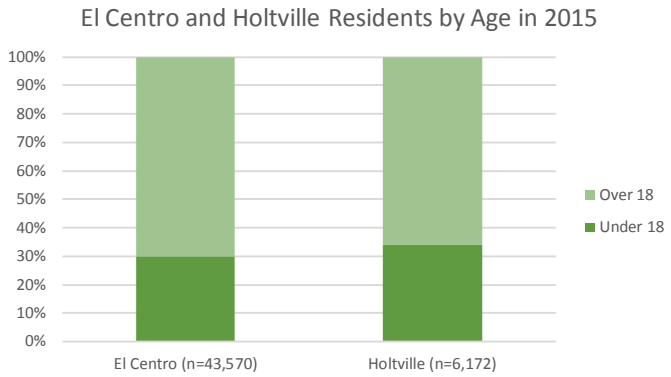
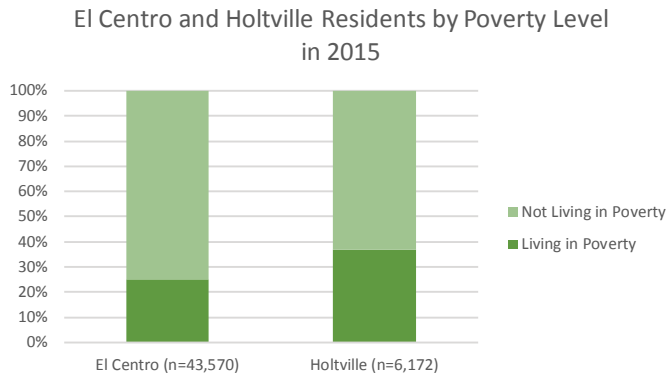






Source: ACS 5-Year Estimates

SCHOOL/COMMUNITY PARTNERSHIP(S)

This YPAR project was organized as an afterschool youth engagement effort at the school site in collaboration with the local After School Education and Safety (ASES) Program.

- ASES provided coordination and logistical support, as well as some vital financial assistance—they donated funds for group t-shirts and also provided transportation for field trips. Paul's relationship with Edith Martinez, the local ASES Coordinator, developed into a very beneficial partnership that also provided Paul with a direct connection to the school's principal.
- Both the principal and the superintendent were very supportive of the YPAR group and its project. Mary Welch-Bezemek, the UCCE Nutrition Program Coordinator, already had a strong relationship with the superintendent before the project started, which helped them get going and build support at the school early on. The district was also focusing more on career readiness and youth leadership development, so Paul was able to speak to these potential benefits of a YPAR project when promoting his program.

Lessons Learned

- It is important to keep in mind the different variables involved when dealing with an afterschool program, particularly logistical concerns. These can include youth leaving meetings early due to transportation requirements or other commitments, dealing with different competing activities at different times of the year (e.g. sports, talent shows, end-of-year events, etc.), and meeting locations that may not always be conducive to the work. Try to anticipate potential issues ahead of time and work around them.

- Building a close working relationship and maintaining open communication with the afterschool program coordinator was key to help work through logistical challenges. This eventually allowed Paul and the coordinator to deal with issues that arose as a united front, improving programmatic organization, backing each other up and supporting the youth from multiple angles.
- Strong relationships—and a diverse portfolio of partnerships—were key to this program's success overall, including relationships with the afterschool program coordinator, the superintendent, the principal, and the team of young people. Although the superintendent, one of their main champions, left his position at the end of the school year, this change did not really hurt their project because they were also working closely with the principal and it is a small, intimate school district.

YOUTH RECRUITMENT & DEMOGRAPHICS

Paul started out doing nutrition education and CATCH physical education in collaboration with the ASES afterschool program. This allowed him to get to know the youth, foster interest in a potential YPAR project and recruit participants. This also allowed him to build a relationship with the ASES Coordinator, who worked with him to develop and implement a recruitment plan for the YPAR project.

- The YPAR project was introduced to the young people in October and a group of youth from the afterschool program split off to participate with Paul.
- The YPAR group was composed of 6th and 7th graders, although the majority were in 6th grade. There were 10 youth participants in total, with about 6 of those being core group members who were the most consistent and committed throughout the year.

Lessons Learned

- It was sometimes difficult to manage younger students' shorter attention spans and keep them engaged. Being patient was key and Paul may have had to help them out a little more than older youth. This situation might be easier with next year's effort, given the maturity, experience and leadership gained during this year's project.
- It is important to keep in mind that we do not always know what is going on in students' lives outside of the program.
- Regarding youth commitment, it is important to include language about commitment in the group agreements at the beginning of the program and hold each other accountable. Having key individual youth leaders step up and commit set a strong example for the rest of the group as well.
- Would have liked to have more incentives for youth participants, such as gifts, stipends, and other ways to show appreciation, acknowledge their contributions, and compensate them for their time and effort.

PROGRAMMATIC STRUCTURE

This youth engagement effort was organized as a YPAR project utilizing the PHI Stepping Stones curriculum. Weekly meetings took place afterschool at the school site. As the end of the school year approached, they started meeting twice a week so they could accomplish all of their goals in the shortened timeframe.

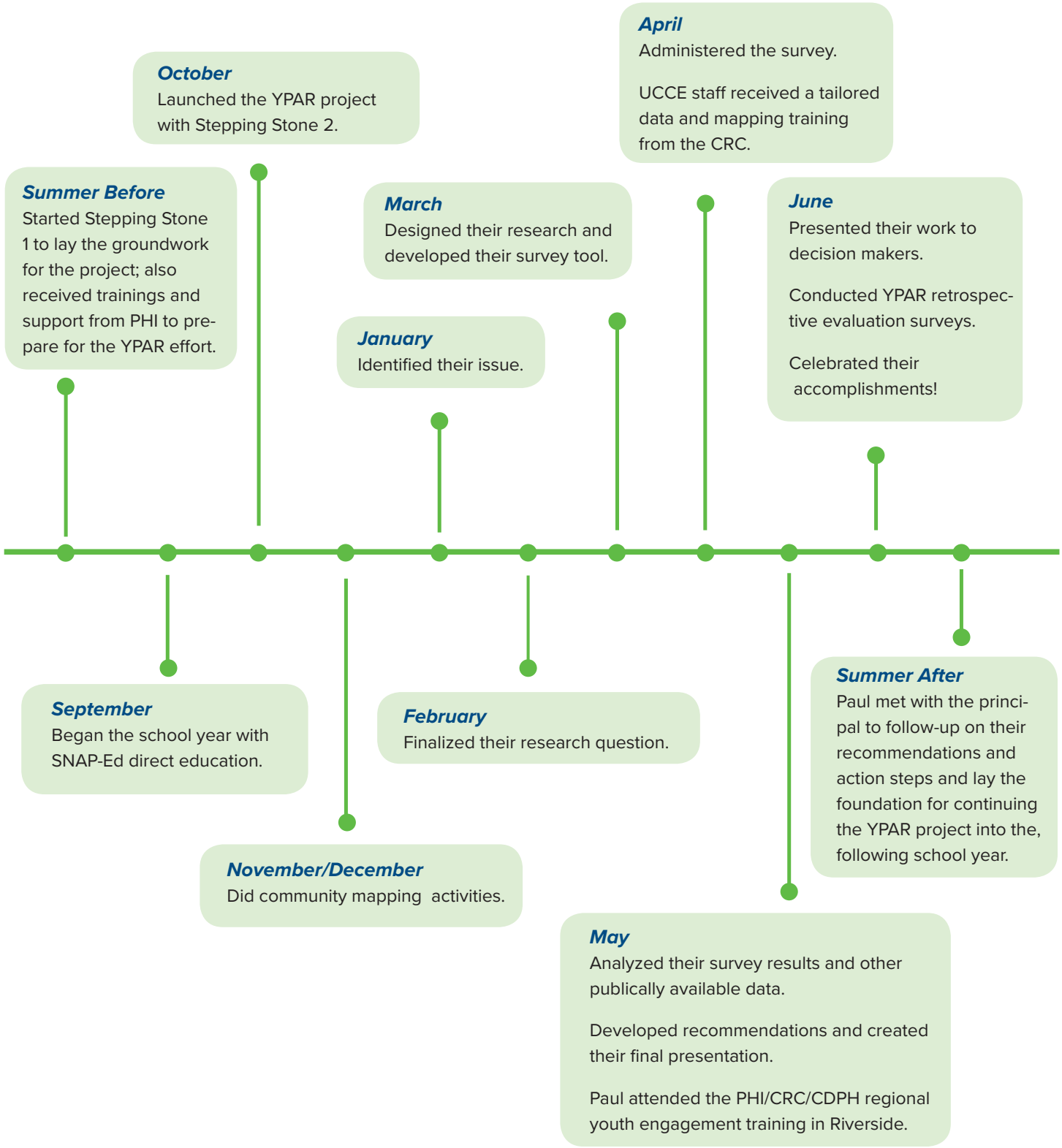
Integration with other SNAP-Ed programming/activities

- Paul started the school year doing nutrition and physical activity education before introducing the idea of a YPAR project to the youth; however, once the YPAR group launched, direct education was not incorporated specifically into the project.
- UCCE staff were also involved in Local School Wellness Policy efforts, including plans for a WellSAT analysis of the school conducted along with the superintendent. While an attempt was made to involve youth in this process it is not clear what the final outcomes were from this effort.

Lessons Learned

- In Paul's opinion, it would have been more beneficial for the group to meet twice a week from the beginning, since a YPAR project often takes a lot more time than expected. Setting up the meeting location with ASES and the principal ahead of time would have made things easier, since they had to jump around a lot at first to find a good, productive meeting space.
- It is important to follow through and be consistent as the adult ally, so youth hold you accountable and can rely on you as well. According to Paul, "Leave a little bit of yourself to build a connection with your participants." This entails being genuine, and allowing yourself to open up as well to build authentic, real relationships with your youth participants.
- Paul felt the youth had "a lot" of control over the program this year and he always let them "bring their ideas." He sometimes had to gently steer them back to more productive routes, but they were the ones who ultimately made the decisions.
- Doing this YPAR project helped Paul get into the school site and plan and implement other activities and projects as well.

CALENDAR & SCHEDULE OF ACTIVITIES



TECHNICAL ASSISTANCE, COACHING & SUPPORT FROM PHI & CRC

Paul was very interested in training and always sought out resources and support. He had very regular contact with PHI and CRC beyond just the monthly check-in calls, including additional phone conversations, regular email contact, and in-person meetings whenever he was in Davis for a SNAP-Ed training or event.

- In addition to general technical assistance with planning, reflecting and troubleshooting, PHI and CRC provided tailored training workshops, sample activities, feedback on their research design and survey tool, data entry support for their survey results, and feedback on their final presentation.

Lessons Learned

- According to Paul, the Stepping Stones YPAR curriculum was a useful guide because it clearly laid out the entire YPAR model and provided helpful activities for every step in the process. The technical assistance and support provided by PHI and CRC staff was "super helpful", as was being able to contact them at any time.
- For those who have not done a YPAR project yet, you often do not know exactly how to get things going at the beginning of the school year and tend to end up starting later in the year as a result. So assistance with strategic planning before the school year started was really helpful. As Paul learned from his previous attempt to facilitate a YPAR project, he had different outcomes when he didn't have technical assistance or support and tried to start a project at the end of the school year.

ISSUE IDENTIFICATION

To identify their focus area of concern, the group did a school mapping activity, looking at places and resources that did or did not promote health on the school site. They also utilized tools and strategies from the PhotoVoice project model, taking photos around their school to highlight areas and issues of concern and to prompt reflection and discussion. These and other Stepping Stones activities led them to initially identify 3 potential issues to work on:

- Physical activity: Lack of physical activity equipment in the playground, lack of engagement and options for 6th-8th graders in particular, and unsatisfactory PE classes.
- Water access: The need for water/hydration stations at school.
- Healthy food and food waste in the cafeteria

After doing the "Choosing an Issue" activity and working through a research question development activity for all 3 potential issues, they decided to focus on physical activity.

Research question: "Why aren't 6th-8th grade students playing during recess?"

DATA COLLECTION & ANALYSIS

YPAR members conducted a paper survey of their peers, asking about their physical activity levels, recess habits and feelings about existing physical activity opportunities and equipment. They prepared for it by doing activities from the YELL curriculum and Stepping Stones, analyzing sample surveys and questions. After developing the survey tool, they also did a dry run with their own group members to test it out.

- The group conducted the survey in conjunction with a lunchtime tasting of real fruit punch from the Rethink your Drink program, so students who took the survey got the tasting as an added incentive. They surveyed 61 4th-8th grade students out of a pool of 257 4th-8th grade students. They primarily surveyed 6th, 7th and 8th graders, though (58 of the 61 respondents).
- PHI helped with data entry to put the results in SurveyMonkey. Then Paul analyzed the results with the youth.
- Overall, 70% of respondents felt physical activity during school time was very important, 71% rated the school's physical activity equipment as medium to low quality, and 74% said they would be more physically active during recess if new physical activity equipment was available.

Lessons Learned

- Youth participants were a little dismayed with some of their survey results and questioned the validity of some of the answers they received related to some unexpectedly high physical activity levels at their school. However, the data was still mostly in-line with what they expected to see. Paul also helped them understand and frame the results to support their message and narrative.

USE OF DATA & MAPPING

- Paul used a community mapping exercise with youth to support issue identification, critical reflection and discussion. The group also collected its own primary data at the school through their survey.
- Paul was trained to use CRC's Regional Opportunity Index and Putting Youth on the Map online tools, which he used to research physical fitness data in the area. He also was trained to conduct activities from the CRC's Making Youth Data Matter curriculum.
- After a targeted training with CRC, Paul found and utilized obesity and physical activity data from KidsData and EdData that were specific to his school site and district. He presented this information to the youth after analyzing their survey results to give them additional data supporting their recommendations.
- The final PowerPoint presentation for the project included data from their survey results paired with obesity and physical activity data from publicly-available online sources.

Lessons Learned

- They did not have computer access in their meeting space, so it was challenging to fully incorporate the CRC online mapping tools into their youth meetings. This barrier can be overcome by researching and printing out relevant maps and data ahead of meetings and bringing them in to spark discussions with youth participants.
- Since Meadows Union is a K-8 school, it was a challenge to find relevant physical activity data for their grades on the Putting Youth on the Map Youth Well-Being Index, which relies on California Healthy Kids Survey data at the high school level. However, this data can still be used to highlight general trends in the district/area and the future that younger youth may have ahead of them if current conditions are not improved. Additionally, this data can be used in conjunction with primary, youth-collected data and other publically available online data sources specific to the school and elementary district.

RECOMMENDATIONS & ACTION

- After conducting their research and analyzing the results, youth members recommended that the school purchase new physical activity equipment: basketballs, soccer balls, jump ropes, hula hoops, nets, volleyballs, and a freshly painted playground. Youth also proposed doing a playground stencil project to support the school's kindergarteners.
- Paul helped youth create a PowerPoint presentation, which included photos they had taken, key results from their survey, additional publically-available school-wide data, personal testimonies, and their recommendations for change. Youth did a practice run of the presentation to role play and get comfortable with it, and they were assisted by the ASES Coordinator.
- They gave their presentation to school and district administrators, including the principal, superintendent, ASES Coordinator, and other key adults. The group also presented to the 5th grade class to highlight their findings and as a recruitment tool to inspire them to join the YPAR effort next year.
- Overall, both Paul and the youth felt really good about how they did in the presentations. The principal said everything they asked for was achievable and new physical activity equipment would be purchased. HHAK youth would also be in charge of helping to plan out how to maintain the new equipment. Additionally, the group received the administration's approval to do the stencil project in the fall.

Lessons Learned

- It took the group a little while to develop a firm, clear ask for school officials, but Paul worked closely with them to solidify their ideas and build their case.
- While Paul could have just brought CATCH and other resources to the school on his own to address some of their physical activity needs, he helped youth become an integral part of this PSE change and gain ownership over the project and process while developing their own skills and sense of efficacy. His efforts also helped normalize and institutionalize youth leadership efforts in the district.

OUTCOMES

- Paul has been in contact with the principal over the summer to stay on top of communication with her and make sure things get done as promised. The principal is very excited about the continuation of the YPAR program and wants to be more involved during the coming school year.
- Some of the physical activity equipment has already been purchased and the youth will work with the administration to make sure the rest of the items are acquired. They are moving forward with plans for the playground stencil project this coming year, too. Youth also already started discussing strategies for maintaining the equipment, such as color-coding items for each different grade.
- The group got some great recognition of their efforts from the Imperial County Office of Education as well and their efforts were included in a ICOE promotional video about school culture.

NEXT STEPS & PROGRAM SUSTAINABILITY

- Paul conducted the UC CalFresh YPAR Retrospective Surveys to evaluate the project's impact and plan for the coming year's effort.
- Since the group was comprised mostly of 6th graders and their school is K-8, all of the current members are looking to stay involved next year. Youth also want to implement more of an application process and interview process for recruitment of new members.
- For their next potential YPAR issue, the group is interested in focusing on water/hydration stations during the coming year. This was their second choice this year and there also could be some possibilities for collaboration with high school students in a community health worker class at nearby Southwest High School. This high school already has champion teachers and is SNAP-eligible, and students there might be able to help the YPAR group test the quality of their water and advocate for change.

IMPERIAL YOUTH REFLECTIONS

"Meadows Union Elementary School's Helping Hands Active Knights came together to give back to their community."

ONE THING ABOUT THIS PROJECT THAT REALLY STOOD OUT FOR ME

"Was how I learned about leadership."

"How healthy fruits can be."

"That I know now I have a voice to speak."

SAN MATEO

PESCADERO HIGH SCHOOL'S YOUTH FOOD ALLIANCE

PROJECT OVERVIEW

San Mateo County UCCE staff facilitated an in-school YPAR project with 8 high school students at Pescadero's joint high school-middle school. They met every other week on campus during lunch and focused on improving the school meals program and communication between students and decision makers. Youth surveyed their peers and conducted taste tests before advocating to add smoothies to the lunch menus at all district schools. After presentations to school and district officials, their peers and attendees at the Childhood Obesity Conference, their recommendations were approved and smoothies were served starting in May.

MAIN ADULT ALLIES & PROJECT FACILITATORS

Melissa Morris, UCCE Community Educator

Strategized overall youth engagement programming and the YPAR project, including planning and facilitating all youth group meetings and activities. Also oversaw the 4-H Healthy Living Ambassadors garden site and programming.

- Melissa worked with Project EAT in Alameda County and helped pilot YPAR work through UC CalFresh and CDPH. Facilitating yearly YPAR projects through their preexisting youth programs gave her a wealth of experience in this field prior to joining the efforts in San Mateo.

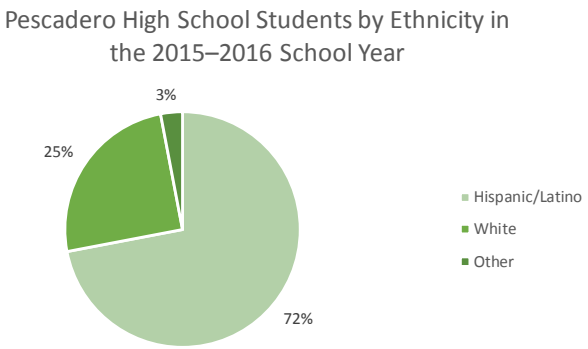
Michaela O'Conner, La Honda-Pescadero Unified School District Community Liaison

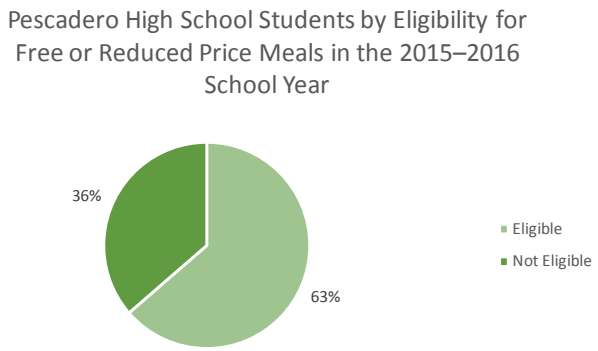
Helped run the youth group with Melissa and secured donated food from local family farms.

SETTING

This project took place at Pescadero's combined high school and middle school facility in the La Honda-Pescadero Unified School District. Both the high school and middle school students share the same cafeteria at the small, rural campus.

- 46% of students were Spanish-speaking English Language Learners in the 2015 to 2016 school year.

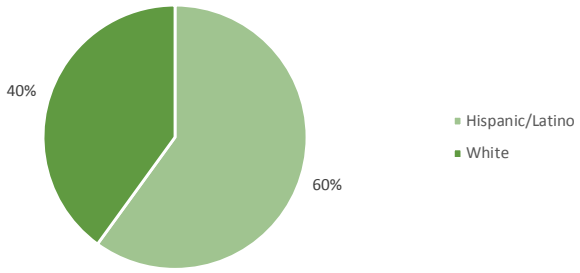




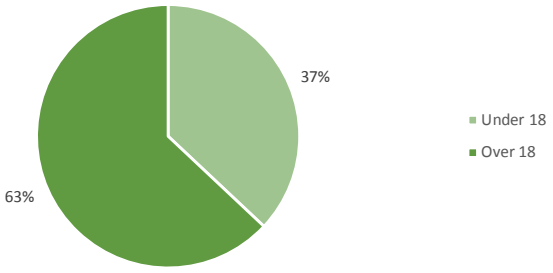
N=96; Source: CDE

"Our school, Pescadero High School, is very small, everyone knows everyone. We are in the country, about one hour from San Francisco."

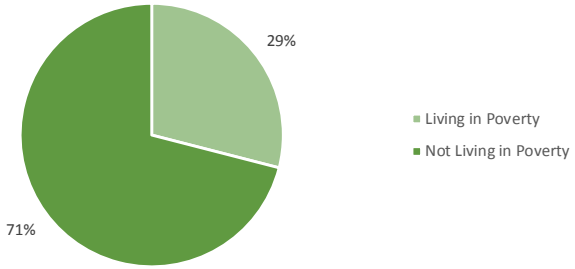
Pescadero Residents by Ethnicity in 2015



Pescadero Residents by Age in 2015



Pescadero Residents by Poverty Level in 2015



N=1,026; Source: ACS 5-Year Estimates

SCHOOL/COMMUNITY PARTNERSHIP(S)

The La Honda-Pescadero Unified School District (LHPUSD) actively sought youth input for their school meals program because they were losing money, so they helped provide an opportunity and support for the initiation of a youth engagement effort.

- Melissa initially established relationships with the school and youth as a student teacher working towards her master's degree and teaching credential at Pescadero High.
- The LHPUSD Adult Food Alliance—a group comprised of adult stakeholders in the district's school meals program—held monthly meetings before Melissa started her YPAR effort. Melissa started attending these meetings at first to get the lay of the land and to help inform the needs and supports for the YPAR group. They were looking to improve the school meal program with local produce and were already involved in Harvest of the Month.
- The Center for Ecoliteracy Food Lab was involved on campus as well. Students cooked a lunchroom item once a week and provided feedback on the recipe. They also designed specialty menu items. This youth group prepped the tastings for Youth Food Alliance members to promote.
- Food donations were received as in-kind support from local family farms.

Lessons Learned

- The principal and teachers at Pescadero High School were not really involved in the YPAR project, beyond having to sometimes pull students out of class to participate. However, Melissa coordinated her work with a number of other district staff members and managed to take advantage of preexisting efforts focused on nutrition and food access.
- The small size of the school and district meant the group had more opportunities for impactful work and allowed them to have closer relationships with staff members.

YOUTH RECRUITMENT & DEMOGRAPHICS

To recruit participants, Melissa used fliers, classroom announcements, daily bulletin announcements, schoolwide intercom announcements, and direct outreach to specific students that were identified by their teachers.

- Students received community service hours for their involvement in the group.
- The group was comprised of 8 students, with 5 seniors, 2 juniors and a sophomore. 7 participants identified as Latino and 1 identified as White. There were 4 female members and 4 males.

Lessons Learned

- Melissa initially considered working with the youth from the Ecoliteracy Food Lab to do a YPAR project, but she wanted students to elect to be in the group and not just be forced to participate. This led her to recruit students she got to know through her student teaching instead.
- Melissa indicated it would have been beneficial if she could have provided the youth with a stipend to compensate them for their time. Youth were paid for other activities they were involved in in the community and it helped them stay committed, and this benefit might also motivate them to stay afterschool. It would have also been nice to have additional funding to support field trips and foster connections to other schools and youth-led efforts, such as having youth visit other schools' cafeterias and connect with other youth groups.

PROGRAMMATIC STRUCTURE

This youth engagement effort was organized as an in-school YPAR project with high school students at Pescadero's joint high school-middle school campus.

- The group met every other week at the school site for 30 minutes during lunch and also used independent study time for research work and survey data collection. They chose lunch time because there were no afterschool programs other than sports and there was no culture of afterschool participation. Additionally, they could not pull students out of their classes during the school day.
- Melissa reported to LHPUSD Administrator Kristen Lindstrom and LHPUSD Community Liaison Michaela O'Conner every week after each youth meeting so they could coordinate all the different food-focused efforts at the school. Administrators also wanted to make sure they had realistic goals for the youth project.

- Melissa acted as a go-between from the YPAR group to the adults, and ideas would travel from the youth, to Melissa, to administration, and then back again. Logistically it was not possible for any youth group members to attend these meetings because of timing conflicts between youth schedules and adult schedules.

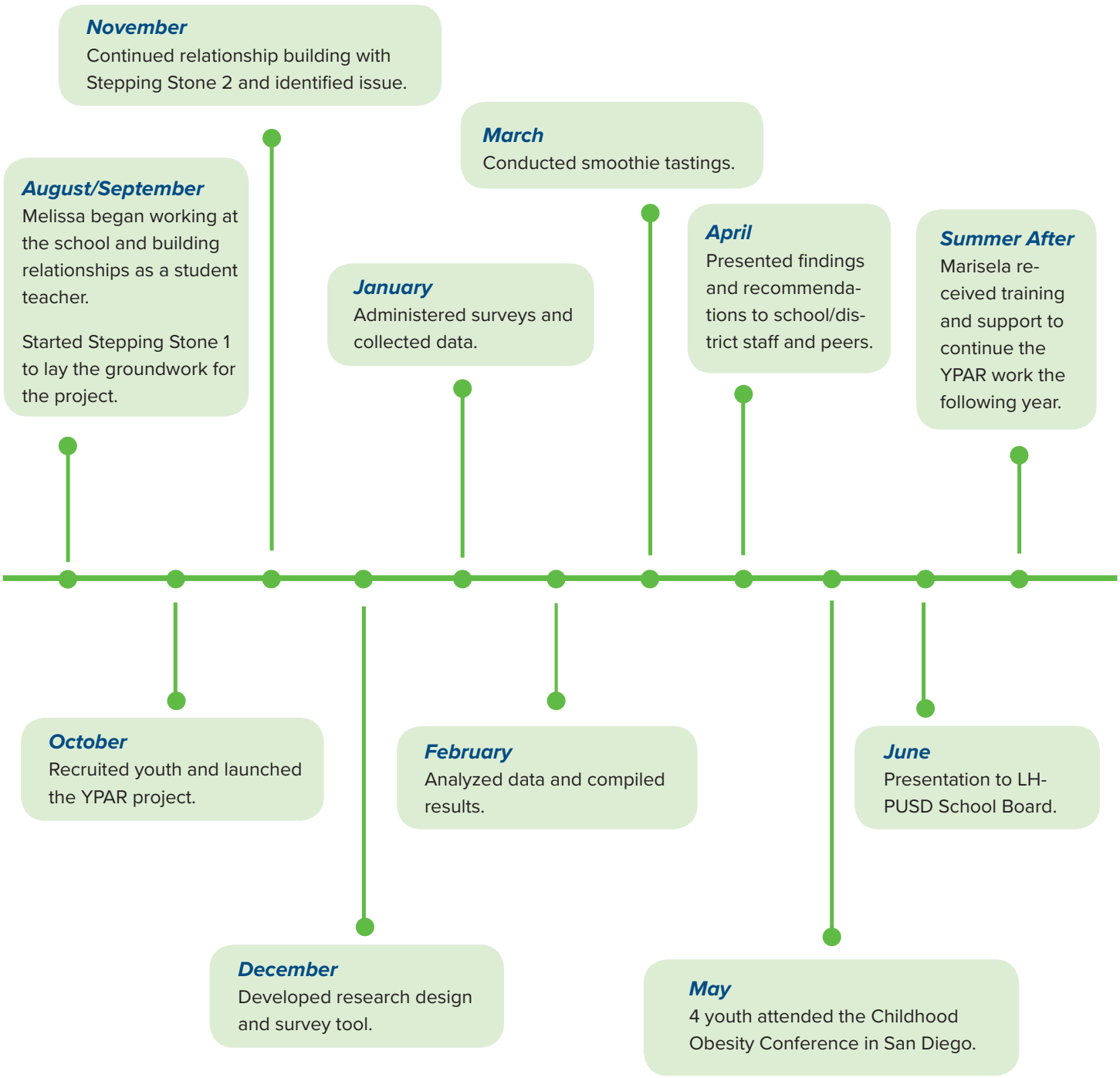
Integration with other SNAP-Ed/ANR programming/activities

The Healthy Living Ambassadors (HLA) program started again in the spring with middle and high school students from around the county teaching nutrition lessons and garden activities to students at El Granada Elementary School in Cabrillo Unified School District. However, the HLA garden site was not located in LHPUSD, so there were not any opportunities for coordination with the YPAR group.

Lessons Learned

- Having Melissa serve as a go-between for communication between the youth and adults turned out to be a successful arrangement, but it could have been better if LHPUSD Administrator Kristen Lindstrom or Food Service Director Regina Silveira attended at least a few of their YPAR meetings instead. This arrangement resulted in a great deal of back and forth, so having them attend meetings could have resulted in clearer messaging so youth better understood the limitations of their requests.
- With youth and administrators not speaking directly with one another, there were too many opportunities for filtering or miscommunication. This was also a missed opportunity to build youth capacity to productively interact with adults. If separate meetings must be held between the adult ally and school administrators, perhaps a youth liaison can be designated to attend these meetings on the group's behalf and spearhead coordination with key decision makers?
- It was hard to get everything done when meeting during lunch in such a limited time period. Melissa recommended facilitating the program with a specific class or using a combination of lunchtime and independent study to get adequate time for the project.
- In addition to working with high school students, Melissa also attempted to coordinate a separate YPAR effort with middle school students at the joint campus. However, they stopped meeting after winter break due to lack of adequate meeting time and Melissa's competing responsibilities. High school and middle school schedules also did not really match up, so working together as a combined group would have been great but was not possible.
- Youth participants lacked a solid foundation in nutrition education, which became apparent in some of their early discussions regarding healthy school food. So, it would have been beneficial to incorporate direct ed programming into the group before they started their YPAR effort to establish a common baseline from which to build. Melissa recommended approaching a teacher and doing nutrition lessons in a class first to recruit for the YPAR group while also developing critical nutrition knowledge.
- The UC 4-H HLA program might have some expanded opportunities for collaboration with the YPAR effort in the coming year. Their goal for the program is to work with the teens year-round and build in more opportunities for youth leadership and ownership of the program.
- Melissa had to take on more roles because of time limits and not wanting to pull youth out of classes to do things. Within the limits of their scope, though, youth had a great deal invested in the project.

CALENDAR & SCHEDULE OF ACTIVITIES



TECHNICAL ASSISTANCE, COACHING & SUPPORT FROM PHI & CRC

Melissa had regular contact with PHI and CRC staff through monthly check-in calls and additional phone conversations. In-person meetings were also conducted with Interim County Co-Director and NFCS Advisor Wei-ting Chen whenever she was in the Davis or Sacramento area for other SNAP-Ed trainings or events.

- In addition to general technical assistance with planning, reflecting and troubleshooting, PHI and CRC provided sample activities, feedback on their research design and survey tool, data entry support for their survey results, and logistical assistance before and during their participation in the Childhood Obesity Conference in San Diego.
- During the following summer, PHI and CRC also assisted San Mateo County staff with a debrief and planning session for their HLA program and supported the personnel and programmatic transition for the YPAR program in Pescadero with the departure of Melissa and most of the youth group members.

ISSUE IDENTIFICATION

Since the school district actively sought youth input for their school meals program, this project focused on an issue that had already been identified by adults from the beginning; however, even though the impetus came from the adults, the young people agreed with the issue and got passionate about it themselves.

- Through the group's own analysis and discussions, they chose to focus on school meal presentation and options, along with doing outreach at the elementary school.
- The issue of food presentation came up in an initial discussion with youth and provided them with an early campaign win and some positive momentum to build upon. Youth were unhappy with the fact that school meals were being served directly onto food trays without any plates or dishes. When Melissa shared this feedback during a regular meeting with school administrators, a change was implemented almost immediately. But they quickly realized there was not a system in place for handling the new dishes, students did not know what to do with them when they were finished eating, and they often just threw them away. So, administrators went back to the youth group to help figure this out and youth made signs to advise their peers on what to do with their plates. After this win, the youth became the go-to group for school officials to help them figure out their meal program concerns.

From there, the group's main concerns became:

- Improving school meals and securing more locally-sourced food. This included getting students more involved in creating menu items and developing more culturally relevant menu items for the school's large Latino population. Also involved promoting new seasonal menu items to the entire school district, based on a request from food services staff.
- Improving dialogue between school administration, foodservice staff and students. This included learning how to navigate complex bureaucracies and rules at the school and district level.

Research questions:
"What do people think of our school food?"
"What do people like and dislike about school food, and what foods do people want to eat?"

Lessons Learned

- While having a predetermined focus worked for the program's first year, Melissa felt it would be better to go through the whole YPAR process with youth next year to identify their own issue and be more youth-driven from the beginning.

DATA COLLECTION & ANALYSIS

The group designed a survey for their peers and younger students to investigate food preferences, levels of cafeteria food consumption, and the perceived quality of school meal options. Surveys were administered to high school, middle school and elementary school students—as well as teachers—at Pescadero and La Honda.

- At Pescadero High/Middle School, they surveyed 87 students out of 162 total students, a 54% response rate.
- The group combined their survey at the elementary schools with monthly tastings they conducted. Elementary schools got a slightly different survey to reflect the differences in their school meal programs. They interviewed the youngest students (grades kindergarten through 2nd grade) using the same questions as the survey, since those students were too young to fill it out themselves.
- The group used Survey Monkey to collect and compile the data, with data input assistance from PHI, and then they did their own data analysis. Their overall conclusion: "People aren't eating the school meals because they don't like the menu options." Also, 95% of respondents wanted more drink options at lunch—rather than just water or milk—and were interested in smoothies in particular.

Lessons Learned

- Acccording to the youth participants, "It was hard to get the teachers to give the survey to the students on Survey Monkey instead of paper. When they did it on paper, we had to input all of that information online after. Also, the teachers were not always supportive of letting us go and do the tastings at the elementary schools and middle school. We really all wanted to do this because it was an important part of our project."
- According to the youth participants, "We think that if this were to happen again, it would be better to know what their limitations were before we went and asked people about certain things on our survey."
- Students receiving the surveys expressed frustration that assessments are often done but nothing changes and no actions tend to result from them. This tends to be a common criticism of participatory projects involving youth and underscores the importance of the action phase of a YPAR project.

USE OF DATA & MAPPING

- The group collected its own primary data at the school sites through their surveys and interviews. Data from their survey results was included in the project's final report, as well as in presentations to school board members, school officials, and attendees at the Childhood Obesity Conference in San Diego.
- Melissa was not able to incorporate the CRC's mapping and data tools into the group's work this year, but she was interested in exploring how they could be utilized with the group in the future. In particular, she was interested in maps and data that could highlight local racial/ethnic disparities between the community's predominant Hispanic/Latino and non-Hispanic White populations. She was also interested in maps and data that could support a campaign focused on access to clean drinking water at the school site.

Lessons Learned

- Since Pescadero is located in a very rural, sparsely populated region with large census tracts, Melissa was concerned about finding relevant, disaggregated data for their community that did not encompass a wider geographic scope. Mapping and data can still effectively support a rural community, though. Larger census tracts provide youth participants with opportunities for ground-truthing (i.e. comparing publicly available data about an area with the lived experiences and knowledge of people on the ground to see what rings true and what gaps may exist in the official database). For example, youth can compare the boundaries of a rural census tract with the areas where people actually live to see who is and is not represented in the data.

RECOMMENDATIONS & ACTION

- Based on their survey results, the group focused on getting smoothies added to lunch menus as a healthy drink option. They did tastings of different flavors using a smoothie bike with all 3 schools and it was a huge hit, with mango/strawberry being the clear winner across all of the sites.

- Youth developed an action plan, identifying allies and possible solutions to get smoothies added as a menu item at both schools in Pescadero.
- The group presented their survey and tasting results to school administrators, food service staff and their peers to try and implement their proposed changes to the school lunches this year.
- Following these presentations, though, youth had to work through a number of initial setbacks: School staff initially only planned to serve smoothies one time—rather than make them a regular menu item—due to a number of logistical and bureaucratic barriers: they lacked sufficient funds, the district kitchen did not have blenders, and the monthly lunch calendar was already built out. Additionally, although staff at the high school and middle school were supportive of their recommendations, elementary school staff were hesitant to adopt the changes.
- Melissa organized a separate retreat at the UC Cooperative Extension facilities at Elkus Ranch to do a deeper reflection session with the youth and craft their project's final report, along with their presentation and poster for the Childhood Obesity Conference.
- 3 youth from their group were able to join the Youth Advisory Council for the 9th Biennial Childhood Obesity Conference in San Diego as well. They created a poster about their research, presented the poster at the conference, and gave feedback to the event planners about the conference's structure and its accessibility and relevance for youth attendees.
- At the end of the project, Melissa gave a presentation to the LHPUSD School Board, reporting back on what they did, the contents of their final report and what was presented at the conference in San Diego. Although the presentation went well and the school board was very impressed with their work, none of the youth could make the meeting because they had to work or were out of town.

Lessons Learned

- For the group retreat and drafting of the final report, they could only get 5 of the 8 group members to attend. So, they did not get input from everyone and the whole process felt a little bit thrown together in Melissa's opinion. She recommended having all members present for this critical activity and allowing enough time for it at the end of a project so it does not feel rushed.
- Regarding their participation in the Childhood Obesity Conference, having youth attend a big event at the end of the year was a great way to wrap it all up, reflect on what they did and tell peers and adults about their accomplishments. Some logistical elements required additional staff planning, though, including the coordination of chaperoning duties between multiple staff members to avoid overtime and the purchasing of youth meals while traveling.

OUTCOMES

- As a result of youth's advocacy work with school administrators and food service staff, they ended up selling smoothies every Friday in May and sales increased each week; however, they were not able to serve the flavors they initially taste-tested because the school got different fruit donated.
- Smoothies had to be ordered with lunch orders in 1st period and they charged an extra $1.50 for them, but the youth group helped coordinate this process. Youth also helped create an avenue for communication between the students and decision makers.
- While youth were initially disappointed and lost some of their motivation as a result of earlier challenges following their presentations, they persevered and were ultimately pleased with their accomplishments and the success of their project.
- This was a solid first year for the program at a school that had never had a YPAR project before. The adult allies were able to follow through on commitments with the youth and youth followed through on their commitments to the program.

Lesson Learned

- While the district said it was open to youth input and encouraged students to participate in and contribute to the process of improving their school meals program, adults were still a bit hesitant to fully and authentically share power with young people when it came down to actual decision making. Even if a situation seems tailor-made for youth involvement, youth participants and adult allies should still be prepared to receive pushback from decision makers when it is time to advocate for and implement youth recommendations for change.
- Youth learned some valuable lessons about navigating bureaucracies and how decisions are made, which is often hidden and inaccessible to young people. The key is to then find out where and how they can be involved in and influence these decision-making processes moving forward.

NEXT STEPS & PROGRAM SUSTAINABILITY

- Although Melissa left her position at the end of the school year and most of the youth participants graduated, San Mateo County staff would still like to continue the YPAR program in Pescadero.
- Marisela Ceron was able to join Melissa and the youth at the Childhood Obesity Conference to help with chaperoning but also to continue building relationships for a smooth staff transition. Melissa had a unique position in and relationship to the school to help facilitate the process but Marisela does not have all of those relationships yet, so they have to get reestablished for the coming school year.
- Perhaps 2 students from last year's cohort will be returning to the school—providing some continuity and opportunities for expanded leadership—and Melissa helped identify 2 key teachers to reach out to.
- Possible issues for the next YPAR cohort to focus on include implementation of the Local School Wellness Policy and poor water access for students.

Lessons Learned

- When handling staff turnover with adult allies, it is important to have a transition period so community partners and, above all, youth can slowly develop a level of comfort and trust with a new person. Marisela was involved throughout the year, first getting to know youth participants through tastings and then building relationships with them over an extended period of time, culminating with her involvement in the San Diego conference trip.

SAN MATEO YOUTH REFLECTIONS

"It was a way to have my opinion heard."

"I got involved with the Youth Food Alliance because they were serving healthy food, and I stayed involved because I was making the community healthier."

"It is important that we did this research rather than adults because we are the students and we are the ones that eat the food and most of it gets thrown away."

"I got involved with the Youth Food Alliance because it gave me a chance to change and give my opinion about our school food."

"I am a Youth Food Alliance member because I like to make food taste and look better. I like the Food Alliance because it gave me healthy food and community service."

ENDNOTES

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For more information, program partners can be reached via the following links:

UC CalFresh: uccalfresh_support@ucdavis.edu
UC Davis Center for Regional Change: crcinfo@ucdavis.edu
Public Health Institute Center for Wellness and Nutrition: info@wellness.phi.org
UC Division of Agriculture and Natural Resources: ucanr.edu/Comments_and_questions

UNIVERSITY OF CALIFORNIA

Nutrition Education

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University of California

Agriculture and Natural Resources

Evaluation Report Attachment #7:

Process and Outcome Evaluation: Results from Physical Activity Evaluation Tool Piloting at Preschools and Schools with Playground Stencils and/or Implementing CATCH

Project: UC CalFresh SNAP-Ed Activities in 6 California Counties

Project Goals:

This evaluation most directly assesses the following California SNAP-Ed State Level Goal:

- Goal 5: Increase access to and/or appeal of physical activity opportunities for SNAP-Ed eligible populations.

However, these environmental changes are also intended to impact the additional individual-level SNAP-Ed State Level Goals:

- Goal 2: Increase Physical Activity

Introduction:

Recognizing that both children's diet and physical activity (PA) levels play key roles in childhood obesity prevention, the UC CalFresh Nutrition Education Program (UC CalFresh) administered by UCCE offices in 32 counties reaching approximately 100,000 youth annually incorporates playground stenciling projects as one approach to integrate PA into nutrition education in preschools and schools. Recent literature reviews indicate that playground markings alone show inconsistent findings related to children's PA levels (Broekhuizen et al., 2014; Escalante et al, 2014). Therefore, it is critical to employ more comprehensive approaches which engage and build capacity among key stakeholders along with institutional changes that support the utilization of playground stencils for multiple purposes — PA promotion as well as reinforcement of nutrition education and academic concepts. In addition, developing a practitioner-friendly evaluation tool is critical given the lack of evaluation tools with adequate specificity to capture and describe effective playground stenciling projects and helps showcase the value of policy, system, and environmental (PSE) strategies that integrate PA into SNAP-Ed programming to promote a healthy weight status among youth.

To address this, UC CalFresh worked with county programs to develop a practitioner-oriented pre/post playground stencil assessment to capture changes in the physical and social environments of SNAP-Ed eligible preschools and schools, as well as the proportion of children actively playing or being sedentary before and after applying playground stencils. The purpose of this evaluation is to examine the impacts of UC CalFresh playground stenciling on students' physical and sedentary activity during outside play times (am/pm breaks, recess, lunch, etc.) in a convenience sample of the FFY 2017 stencil sites. In addition, when adequate data are available, the evaluation aims to explore teaching staff participation and practices (training, engagement level, role modeling), and other policies and practices that may promote or inhibit physical activity levels during outside play times. This study will test the following two hypotheses:

- Do playground stencils applied at school/preschool sites improve the proportion of children actively playing (total and in stencil space) and reduce the proportion of children who are sedentary based on pre/post stencil assessment observations conducted during outdoor play times?
- Do playground stencils training and resources provided to teaching staff at school/preschool sites improve their promotion of student PA, PA facilitations skills, and role modeling during outdoor play times?

Intervention:

To undertake a stenciling project, the UC CalFresh State Office requires county programs to complete a stencil application to ensure that any SNAP-Ed funding of a playground stencil project is well thought out, behaviorally focused, and clearly linked to a larger multi-component nutrition education and physical activity intervention at the site. Sites must receive pre-approval for designs and are strongly encouraged to primarily use the pre-made stencils promoted by CDPH's Prevention First program and the Nutrition Education and Obesity Prevention Program (NEOP). UC CalFresh county programs engage with parents, teaching staff, school administrators, and in some cases community members to be actively involved in supporting the stenciling projects.

Following the design, volunteer engagement, and approval stages, teaching staff are consulted to identify any training or resources they may need to support the use of the playground stencils. Teaching staff are offered CATCH training, provided with support materials explaining how they can engage students in age-appropriate physical activities using the stencils, and linked to educational standards for movement. For example, in Alameda, Kern, Shasta, and Tehama, teachers were provided with a playground stencil activity guide to support integration of the stencils into every day play, such as "Stencil Art Activities, A Grown-up's Guide."

PSE data reported in PEARS help to illustrate the multi-component interventions implemented at sites with stenciling projects in FFY 2017. UC CalFresh county programs reported working on playground stencils at a total of 17 sites (8 schools and 9 early care and education (ECE) sites) reaching 3,672 youth (2,772 students at schools and 900 preschoolers) across nine counties (Alameda, Butte, El Dorado, Glenn, Imperial, Kern, Shasta, Tehama, and Tuolumne). Of these 17 sites, 15 were new stencil projects painted in FFY 2017 and 2 were stencils originally painted in FFY 2016 and continuing implementation in FFY 2017. County programs often reported multiple PSE changes (up to 14) at sites with stencil projects. Three-quarters (76%) of the stencil sites incorporated both nutrition and PA related PSE changes, with the remaining one-quarter (24%) focusing solely on PA related PSEs.

All PSE sites with stencil changes reported at least one complementary activity, while nearly half implemented all four to maximize the overall reach and effectiveness and help sustain the PSE changes over time. As displayed in Table 1, evidence-based education was reported most frequently (94%), followed by staff training (82%) and parent and community involvement (76%).

Table 1: Number of Sites Reporting Complementary Activities to Support PSEs at Sites with a Stencil Change Adopted (n=17)*

Complementary Activities	# of PSE sites	% of PSE sites
Evidence-based education	16	94%
Marketing (Advertising, Promotion, etc.)	8	47%
Parent / community involvement	13	76%
Staff training on continuous program and policy implementation	14	82%

*Only includes those PSEs in the implementation and maintenance stages reported in PEARS during FFY 2017.

When examining the programs, packages, and initiatives delivered as part of the PSE efforts at stencil sites, nearly half (47%) implemented CATCH, two out of five (41%) were engaged in work on wellness policies, and approximately one-third (29-35%) implemented Smarter Lunchrooms strategies, Farm-to-Preschool/School efforts, and Rethink Your Drink. Table 2 includes a complete list of the programs, packages, and initiatives delivered to support PSEs at sites with stenciling projects. These findings illustrate the intentional layering of PSE approaches at stenciling sites often targeting both nutrition and PA behaviors to achieve more comprehensive SNAP-Ed programming and facilitate healthy, active lifestyle choices among preschool and school children.

Table 2: Number of Sites Delivering Programs, Packages, and Initiatives to Support PSEs at Sites with a Stencil Change Adopted (n=17)*

Which of the following programs, packages or initiatives were used as part of the PSE efforts?	# of PSE sites	% of PSE sites
Playground Stencils	17	100%
Coordinated Approach to Child Health (CATCH)	8	47%
School Wellness Policy	7	41%
Smarter Lunchrooms Movement	6	35%
Farm to Preschool/School	5	29%
Rethink Your Drink	5	29%
Harvest of the Month	4	24%
NAP SACC	4	24%
Shaping Healthy Choices Program	2	12%
Safe Routes to School	1	6%

*Only includes those PSEs in the implementation and maintenance stages reported in PEARS during FFY 2017.

Evaluation Design:

A convenience sample of preschools and schools implementing stencil projects in FFY 2017 agreed to administer the UC CalFresh pre/post playground stencil assessment. The tool was designed to assess the physical environment, teaching staff training and practices, and the number of students physically active, not active, and actively playing on the stencils. These

measures aim to capture changes in the physical environmental, students' behaviors, and teaching staffs' training, practices, and promotion of physical activity. The stencil assessment consists of two parts: (1) the pre and post playground scan observation and (2) the pre and post teacher survey. UC CalFresh county program staff conducted the environmental scan on similar days of the week and times of day at pre and post. They also collected the teacher surveys by interview (when possible) or alternatively asked teachers to complete and return a hard copy.

The pre-assessments were collected during outdoor playtimes (am/pm breaks, recess, lunch, etc.) approximately 2 weeks prior to the stencil painting days and scheduled during the school year when students were using on the playground. In FFY 2017, one site in El Dorado (n=22 students) was excluded from the environmental scan analysis, because the pre-assessment was conducted during the summer when students were not present on the playground. The post-assessments were completed at least 2 weeks following but within two months of the unveiling of the painted stencils. This provided county programs with adequate time to train teaching staff and review relevant resources to support stencil use at the site. Pre/post assessments were entered into an online portal and data were downloaded for cleaning and analysis. The state office followed-up with county programs regarding any missing data or questions about the data entered.

In FFY 2017, county programs agreed to administer the UC CalFresh pre/post assessment tool to evaluate their stencil projects at over half (60%) of the 15 preschool and school sites working on new playground stencils. Results from the nine SNAP-Ed sites implementing the stencil assessment tool are presented below.

Results:

Nine sites (6 preschools and 3 elementary schools) across six counties (Alameda, Kern, Tehama, Shasta, El Dorado, and Glenn) implemented a stencil project and the pre and post playground stencil assessment in FFY 2017. In total, 68 new stencils were painted on the playground or play area at these nine sites reaching 958 students (see Table 3).

Table 3: Total Playground Stencils Observed from Pre to Post Stencil Application

Environmental Scan (Pre N=9; Post N=9)	Number of Stencils		
	PRE	POST	# of New Stencils
Number of stencils painted on the playground	2	70	68

Notes: Playground stencils are quantified based on the stencil types applied rather than counting each individual painted item (letters/numbers, footsteps, shapes, etc.) to ensure a standard protocol across assessments.

As shown in Table 4, the types of stencils most commonly applied were: hopscotch with numbers (n=8), playground ponds with plants and animals living in that habitat (n=8), words related to movement (crawl, cross, hope, swim, walk, fly; n=8), and a variety of vegetables (n=8) and fruits (n=7).

Table 4: Types of Playground Stencils Observed from Pre to Post Stencil Application

Environmental Scan (Pre N=9; Post N=9): Types of Stencils Painted on the Playground					
Stencil Type	**PRE**	**POST**	**Stencil Type**	**PRE**	**POST**
None/NA	7	0	Wall target toss	0	0
Spanish letters (ll, ch, rr, and ñ)	0	1	Words (crawl, cross, hop, swim, walk, fly)	0	8
Number Hopscotch	2	8	Footprints	0	3
Letter Hopscotch	0	0	Fruits	0	7
Bull's Eye Toss	0	2	Vegetables	0	8
Shapes (circle, square, diamond, pentagon, heart, star)	0	5	Traffic (bike, cross walk, yield, stop, speed limit)	0	4
Numbers 0-9	0	3	Playground Paths	0	2
Letters A-Z	0	5	MyPlate (four square)	0	5
Playground pond (frog, lily pad, dragonfly, duck, turtle, cattails, fish)	0	8	Other: Water cycle/plant cycle.	0	1

Many teaching staff were interested in training to support students in using the playground stencils. Some teaching staff specifically requested training on CATCH to support student engagement in physical activity. However, in both the pre and post stencil assessment fewer than one-third of teachers reported being trained to deliver CATCH. This is an area for improvement in FFY 2019. The majority (59%) of teachers in the post-survey reported that they had been trained, more generally, on how to facilitate physical activities for students using the playground stencils, which represents a total of 4 sites who improved in this area from the pre-survey.

Table 5: Changes in Teacher Reported Training and Practices that Support Student Activity

Teachers Interviews (Pre N=22; Post N=21)	PRE (% YES)	POST (% YES)	Number of Sites Improved
Have you been trained on CATCH?	27%	18%	--
Have you been trained on how to facilitate physical activities for students using the playground stencils?	5%	59%	4
Do you use the playground to teach academic concepts through movement?	68%	77%	3

Notes: Glenn did not collect any pre teacher surveys. Sometimes different teaching staff completed the pre and post assessments and fewer teachers completed the post survey, making it difficult to draw direct comparisons between the pre and post survey data.

In addition to the changes to the physical environment and the training provided to teaching staff, improvements were also observed from the pre to post environmental scans in students' physical activity behaviors. The data collection team observed a total of 269 students during the pre-scan and 249 students during the post scan. Measures of individual

effectiveness (*LT6: Physical Activity Supports*) for the nine UC CalFresh stenciling projects assessed are summarized below.

Improvements in Student Physical Activity and Sedentary Behavior

- Overall, the proportion of students observed actively playing in the play space at recess increased by 23 percentage points from before the stencils were painted on the playground compared to after (60 percent vs. 84 percent; see Table 6). This represents improvements from pre to post at six of the eight stencil project sites with student data available.
- When examining only the stencil areas, increases were also seen in the percentage of students playing on the playground stencils or play space where the stencils would be painted from the pre to post assessment at seven sites. Across all sites, 30 percent of students were observed playing on the playground stencils or play space pre-stencil compared with 61 percent post-stencil, a difference of 31 percentage points.
- Seven sites also showed a reduction in sedentary behavior from the pre to post period from 40 percent down to 16 percent, a difference of 23 percentage points of students observed sitting down, not walking, or very inactive.
- In addition to the direct observation data, nearly all (90%) of the teaching staff who were interviewed (post n=21) also reported seeing changes in students' physical activity since the playground stencils were painted.

Table 6: Changes in Students Activity from Pre to Post Stencil Application

Environmental Scan (Pre N=8; Post N=8)	Number or % of Students*		
	PRE	POST	Differences between PRE and POST**
How many total students are in the play space?	269	249	-20
How many total students are actively playing in the play space?	162	208	46
Percent of Students	**60%**	**84%**	**23%**
How many students are playing on the playground space where the stencils will be painted (pre) or on the playground stencils (post)?	81	152	71
Percent of Students	**30%**	**61%**	**31%**
How many students are sedentary? (Sitting down, not walking or very inactive)	107	41	**66**
Percent of Students	**40%**	**16%**	**23%**

Notes: *This table excludes one site in El Dorado (n=22 students), because the pre assessment was conducted during the summer when students were not on the playground; **Percent values are adjusted for differences in the number of students observed at pre and post.

Teaching staff reported improvements in both the promotion of physical activity and teaching practices that incorporate physical activity following the application of the stencils and teacher training at these nine sites.

Enhanced Teaching Practices and Promotion of Physical Activity

- As shown in Table 7, data from the environmental scans indicated that the majority (88%) of the teaching staff observed were encouraging students to be physically active both before and after the stencils were painted, demonstrating strong teacher support for student physical activity at these sites. The observational results were supported by teacher responses (Table 8) that showed all (100%) of the teaching staff interviewed (n=21) reported encouraging students to use the playground stencils (reported post-stencil only).

Table 7: Proportion of Teaching Staff Encouraging Student Activity at Recess

Environmental Scan (Pre N=8; Post N=8)	PRE (% YES)	POST (% YES)	Number of Sites Improved
Do teaching staff encourage students to be physically active?	88%	88%	--

Notes: This table excludes one site in El Dorado, because the pre assessment was conducted during the summer when students were not on the playground.

- Interviews/surveys with teaching staff observing students during outdoor play times such as am/pm breaks, recess, and lunch found that (see Table 8; reported post-stencil only):
    - 86 percent of the teacher staff reported participating in physical activities with students using the playground stencils,
    - 76 percent of the teaching staff reported facilitating physical activities for students using the playground stencils, and
    - 62 percent of the teaching staff reported using the playground stencils to infuse physical activity into the school day outside of the regularly scheduled outside play times (am/pm breaks, recess, and lunch breaks).

Table 8: Teacher Reported Practices Post-Intervention that Support Student Activity

Teachers Interviews (Post N=21)	POST (% YES)
Do you encourage students to use the playground stencils?	100%
Do you participate in physical activities *with students* using the playground stencils?	86%
Do you facilitate physical activities for students using the playground stencils?	76%
Do teachers use the playground stencils to infuse physical activity into the school day outside of recess and lunch breaks?	62%

Notes: Questions only included in the post interviews/surveys conducted with teachers.

- Finally, the majority of teaching staff used the playground to teach academic concepts through movement at both the pre and post stencil assessment (see Table 9), increasing students' access to physical activity while learning. In addition, three sites showed improvements in this area from the pre- to post-stencil survey.

Table 9: Changes in Teacher Reported Training and Practices that Support Student Activity

Teachers Interviews (Pre N=22; Post N=21)	PRE (% YES)	POST (% YES)	Number of Sites Improved
Do you use the playground to teach academic concepts through movement?	68%	77%	3

Notes: Glenn did not collect any pre teacher surveys. Sometimes different teaching staff completed the pre and post assessments and fewer teachers completed the post survey, making it difficult to draw direct comparisons between the pre and post survey data.

Conclusions and Next Steps:

The FFY 2017 stencil evaluation provides promising findings related to improvements in the physical environments of preschools and elementary schools, the successful institutionalization of social support for student physical activity among school staff, and increases in student activity levels both on the playground stencils and throughout the play space during outdoor play times, along with decreases in student inactivity. These results continue to build the evidence highlighting the value of incorporating playground stencils as a critical component of comprehensive preschool and school programming in SNAP-Ed. One area identified for improvement in subsequent stencil projects is increasing the number of teaching staff who observe outdoor play times that receive training to facilitate CATCH activities. This is a key strategy to ensure that stencils are used throughout the school day.

In FFY 2018 and 2019, we will be working with the stencil assessment data to develop a standardized reporting protocol operationalizing pre/post assessment scores, so that county programs can include their stencil assessment results related to environmental improvements and individual effectiveness in PEARS.

In FFY 2019, the UC CalFresh evaluation team will be looking for opportunities to incorporate a more rigorous physical activity observation method (SOPLAY) to evaluate stencil project outcome in the preschool and school settings. This will allow us to assess the validity of the existing practitioner-oriented pre/post stencil assessment tool while continuing to capture changes in the physical environmental, students' behaviors, and teaching staffs' training/practices and promotion of physical activity. We plan to examine playground stencil project successes particularly regarding coordination with CATCH delivery, and will continue to refine the recommendations and resources developed for implementing playground stencil projects to maximize the impact in SNAP-Ed eligible settings.

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