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Nourishing a Partnership to Improve Middle School Lunch Options

A Community-Based Participatory Research Project

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Community-based participatory research is predicated on building partnerships that tackle important issues to the community and effectively improve these issues. Community-based participatory research can also be an empowering experience, especially for children. This article describes a university-community partnership in which students at a low-income middle school worked to improve the quality of the cafeteria food provided to the 986 students eligible for free and reduced price lunches. The project led to menu changes, improved communication between youth, school administrators, and district staff, and enabled youth to enact school improvements that were beneficial for their health. **Key words:** *community-based participatory research, free and reduced lunch, school-based intervention, youth, youth participatory action research*

RESEARCH and intervention with youth often takes a top-down approach, in which experts design studies and programs to address expert-identified needs. Youth are rarely involved in the process of identifying or addressing their own needs.[1] However, evidence from community-based participatory research (CBPR) has demonstrated that when communities help identify and define the problem, commit to addressing it, have voice in the process, and develop skills for sustaining efforts to address the problem, then change is often effective and sustainable, especially if the process involves equal partnership and capacity building.[2-7] This approach, although rarely used with children, who generally have fewer rights and less autonomy than adults,[1] can be particularly useful. Both the process and the outcomes of CBPR can help improve students' motivation and school engagement and "promote positive identity development."[8(p54)]

This study describes a semester-long CBPR project, in which a small group of sixth- to eighth-grade students, in partnership with university-based researchers, selected and defined a school problem to address, designed the methods to collect data about the problem, collected and analyzed data, and presented their findings and recommendation to key school administrators and district personnel. Through collaboration, research support, and equal voice in the process,[6] these youth impacted the types of food served to their 986 classmates through the National School

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Lunch Program (NSLP), a change that can substantively impact their nutritional intake. Students also learned about conducting research, thinking critically about social issues, using their voice and abilities to enact change, and partnering with adult allies.

A MIDDLE SCHOOL CBPR PROJECT

As part of a doctoral seminar in a school of education, graduate students partnered with a local middle school to address issues affecting the students. Spartan Middle School was selected because of its history of having both administrative and student challenges ranging from high staff turnover to numerous expulsions and arrests of students during school hours. The appointment of a new administration committed to creating school-wide change created the supportive environment necessary for taking on a collaborative and empowering project for the students, since full participation, commitment, and shared decision-making are crucial for successful CBPR.[9,10] The administration welcomed the project, scheduled meetings during school hours, and provided invaluable assistance, such as allowing students to interview key staff members and offering technical support (eg, laptop use, LCD projectors), which demonstrated to the students that the administration supported their efforts to promote change at their school.

Spartan is a large middle school in an urban area in California, serving predominately low-income (100% Free and Reduced Price Lunch Program), Hispanic (97%) students. For this project, administrators identified 14 student leaders (7 males and 7 females) who were able to influence others around them to participate in this project. This leadership ranged from promoting positive school efforts (eg, leaders in clubs, academic high performers) to contributing to negative and delinquent behaviors on campus (leaders in groups known for fighting, truancy, acting out in class). Participation was voluntary and students were allowed to return to class if they did not want to participate. Because of the age range (sixth grade to eighth grade) and the various social groups in which the students were embedded, few of the 14 students knew each other. Contributing to this project from the local university were 5 doctoral students (3 females and 2 males) and a female professor.

BUILDING CONSENSUS AND DEFINING THE PROBLEMS

Since CBPR is an approach that actively involves and engages community members in identifying issues of importance and means of addressing these issues,[7,9,10] the researchers explicitly stated that their goal was to help the students be change agents[8] who could identify and tackle issues in their school.[11] Throughout 2 brainstorming sessions, the youth identified several issues that they wished to change at their school. These ranged from problems with the physical space, such as the "gross" state of the bathrooms, to difficult interactions with adults, such as the disrespectful ways teachers and security guards treated them. The group eventually decided to address the quality of the food served at lunch and the lack of activities, especially access to the field and sports equipment, during the lunch period. Students each selected one issue to work on intensely, but all students participated in activities related to both projects. For this article, the lunch project will be discussed; 9 students focused primarily on this project.

Nasty food no one eats!

From the first meeting, students were quite vocal about disliking the food, which all Spartan students are served (100% NSLP eligible). Students conveyed deep dislike for the food (eg, "the food is so gross," "the beans look like dog food and the salad is frozen"), concern that no one eats the food ("people pick up food, drink the juice and just throw everything else away," "it's not worth wasting time to get the food, just go outside"), and a sense of helplessness in changing the menu ("no one cares, they serve what they want,"

"I can't say nothing to my mom, she just says be grateful they give me food for free").

The CBPR necessitates defining the problem and understanding it in the context in which it exists.[12] Thus, the students acknowledged that to enact change, they would need to understand more about the food system, including how and by whom decisions are made about the menu, in order to persuade adult decision-makers that they should care or want to change the food. The Spartan students decided that "evidence" of a problem was needed and how to use that evidence was dependent on understanding the way the school food system worked.

NSLP: Importance and challenges

The federally-funded NSLP provides free or reduced-cost lunches to more than 31 million low-income children every day at a cost of more than $11 billion annually.[13] The program is based on schools preparing food that meets federal requirements to ensure proper nutrient intake and reduce children's consumption of sugar, sodium, and fat.[14] For students in NSLP, the majority of fruits and vegetables consumed daily are eaten through these lunches.[15,16] Furthermore, making school meals more nutritious is associated with higher standardized test scores, reduced school absences due to illness,[17] and increased academic achievement.[18,19] Poorly nourished children are at greater risk of school failure (eg, repeating grades and failing subjects),[20] and longitudinal studies show that well-nourished students do better in school and learn more during class.[19,20]

However, complaints about NSLP food quality and low participation and consumption rates are common.[21] For low-income children, such as those at Spartan, NSLP meals may represent the only guaranteed source of food each day. Palatability and quality of the food provided are the top reasons given for low participation or consumption rates,[22-25] and low consumption rates lead to approximately $1.2 billion of wasted/thrown away NSLP food each year.[23] This concern about food quality and taste was stressed by the Spartan members of the research team. Several reported that they and their peers often bought chips and sugary drinks from the cafeteria and ate these for lunch instead of the more healthful NSLP meals, and many abstained from eating or picking up meals, which could have significant negative health implications.

To date, several interventions have attempted to address these issues with NSLP.[19,26-28] Unfortunately, few have succeeded, as they are typically orchestrated and carried out by third-party researchers[24,26,28] without the active involvement of students, who although directly affected by the lunch choices are rarely involved beyond the role of survey respondents, interviewees, or focus group participants. Even successful parent-led initiatives tend to treat students as passive recipients, not equal partners.[24,26] In other words, those students who have to eat the lunch have little role in shaping the process of change. Consequently, it is difficult for researchers to identify which foods are appealing to students, which may be the reason for continued low meal consumption.[24] By employing CBPR and including students and administrators as key partners in the research and intervention process, the current project addresses some of the problems that other intervention studies face.

LEARNING ABOUT RESEARCH AND CONCEPTUALIZING THE PROBLEM

From the initial meetings, most of the Spartan students identified a global issue of disliking the cafeteria food, but lacked any understanding of the context of how their food was selected or prepared, and were unaware that policies dictated which foods are served. In CBPR, being able to clearly define the problem within its context[29] and utilizing methods that will help better understand and intervene with that problem[30,31] are necessary for success. The CBPR teams must understand the problem as it exists in the context of the community (ie, critical consciousness), and the community members, with support

from researchers, must learn to utilize research tools to address the issue (ie, capacity building).[9,32] When working with children, the process of critical consciousness raising and capacity building may develop throughout the process, with data analysis often providing a deeper understanding of the issue and broader context.[33] Thus, the process of involving youth as change agents can not only facilitate their learning about the issues they are addressing but also enhance their knowledge and skills regarding research, collaboration, critical thinking, and communication.[8] Therefore, understanding how Spartan food was selected and prepared, as well as the context in which these decisions were made, became an important early goal for this project.

Collecting evidence

Initially, the students felt a need to document that cafeteria food was of poor quality and not being eaten. When probed about what kind of "evidence" would support that claim, the youth were rich with creative ideas that were promising but not feasible (eg, sifting through trash to find the number of uneaten entrees). Because one of the strengths of CBPR is the varying expertise each member of the team brings to the project,[29,31] the university-based researchers were able to discuss strengths and weaknesses of the students' ideas. Together, the team identified ways to systematically collect and use "evidence." For instance, students started with, "we'll tell Mr Sterling [the principal] that lots of kids throw food away." When asked why he would believe them, students said, "we'll just watch at lunch and tell him." After greater discussion of how to quantify that, the students decided to stand near the trashcans in the lunch area and tally discarded uneaten food. To do this, they designed recording forms, which became more efficient once the university-based researchers worked with them to help organize and create tables. Similarly, students' first effort to interview classmates about school food generated questions such as, "Do you think the food is nasty here? (yes/no)." After learning about interviews as a research method, the students constructed less leading, more open-ended and informative questions. Although these initial data were not presented to Mr Sterling, they helped the team to better understand the types of data available and developed students' research skills.

After attempting to tally trash, interview classmates, take or draw pictures of food that was gross, and draft field notes about the food eating/throwing away patterns and classmates' facial expressions while eating, the students began to realize that we, as a research team, did not understand how the food was prepared or what limits the Spartan administration had in the types of foods offered. The university-based researchers, in discussion with the administration, arranged a tour of the school's kitchen and interview with Hector Jimenez, the head of Spartan's food services and his staff (known affectionately as the "lunch ladies"). In preparing for the interview, students developed their often leading and insulting questions (eg, "Why do we have nasty food?" "Would you eat this food?!") to be more open-ended and informative (eg, "How do you decide what to serve each day?" "Do you make all the food here in the kitchen?").

Hairnets and notebooks

The visit to Spartan's kitchen and interview with kitchen staff greatly increased the students' interest and excitement in the project while shedding light on the multifaceted nature of the issue. All 14 students were overjoyed to gain access to an exclusively adult space. They were giddy with excitement as they put on their hairnets (as required by food safety regulations), carried their notebooks, and inspected the large walk-in freezers, large counters, and industrial ovens. Although the university-based researchers had only ever heard complaints about the lunch food, the kitchen visit was narrated with effusive statements such as, "Oh yum, I love that!" "Can I just have a bite?" When a lunch lady began to slice a pizza wedge (a pepperoni pizza with a quesadilla crust), the students began to rave that the wedge was one of their

favorite meals. Thus, it became clear to the research team that not all food was "nasty."

The kitchen staff explained that all food in the district was prepared in 1 of 3 central kitchens; the Spartan kitchen staff then heated, divided into portions, and distributed the meals. Some side dishes, for example, rice and side salads, were prepared on-site, but the staff was prohibited from seasoning or altering the food sent by the district. Each week, Hector reported to the central kitchen the numbers of meals served and ordered meals for the next week on the basis of their popularity. Hector explained the importance of students scanning their identification (ID) cards so that he could keep track of how many meals were distributed. He also explained that federal regulations governed why every tray had particular items (for each food group), why each item was a certain portion size, and why students were required to take all the components of the lunch. Throughout the interview, Hector reiterated that he welcomed students' feedback and encouraged students to approach him with concerns and suggestions. Although the menus were largely based on district- and national-level policies, he did have some flexibility in number of meal options he ordered. He also shared his belief that the food was good and well prepared and frustration that students were reluctant to try new things, often throwing them away without even tasting. In response to his statements, students followed up with questions such as, "What info do you need to choose what you order?" and "Then who is the boss that decides [the menu]?"

REFLECTION AND REVISING THE PROBLEM DEFINITION

Following this field trip, a deeper conversation unfolded within the research team about the financial investment the school district made to provide meals, how parameters for change were constrained by regulations, who the decision-makers were outside of Spartan, and how students' perceptions of the food quality might vary greatly across the school.

Hector also helped clarify which issues they could reasonably hope to address (eg, wanting more of some menu items) and which were not likely to change (eg, wanting bigger juice containers). In thinking about how to frame the issue, it became clear to the whole research team that the goal should not be to "stop nasty food" but to identify which foods students liked best and least and encourage serving more desirable and less undesirable foods for lunch.

Understanding the financial components of NSLP

After learning the importance of scanning their IDs, the students became interested in how money was allocated to provide meals to Spartan. To help with this, 2 of the university-based researchers created a presentation on the NSLP, including the program's rationale, cost per meal, and the reimbursement system, which is based on the number of meals picked up (not necessarily consumed). After realizing that reimbursement was tied to scanning ID cards in the cafeteria, students found a reason for the administration to care, stating, "They [Spartan] lose money when we don't eat the food!" "If the food is nasty, less people will get lunch and the school lost money." Other students then noted, "even if they get the food, they don't eat it. Then they are hungry or can't do good in class." Thus, by collecting more information on the issue of school lunches, the students' concerns evolved from general complaints of low-quality food to an issue of documenting a problem with the rates of NSLP utilization, identifying foods within the current menu that Spartan students would want to eat and increasing their presence at lunchtime as well as determining which foods were disliked and eliminating them from the menu.

Surveying Spartans

After developing a clearer objective, the students quickly decided, "Oh! We can start a survey!" The entire research team then helped identify topics for the survey. Prior to creating items, the university-based researchers

conducted a survey-writing workshop about important aspects of surveys (eg, exhaustive and mutually exclusive choice options, cognitive load, leading/biased item stems and responses). The students then worked to create survey items in small groups, which were placed into an online questionnaire using Qualtrics software. The students conducted cognitive interviews with the research team and revised the survey. For example, students identified ambiguity in the initial question, "How many times a week do you throw away food?" By asking "does that include food you ate?" they modified the question to "untouched food" and finally to "uneaten food." They then noted a gap in their response options of 1, 2, 3, 4, or 5 days of throwing away food, as "0" was missing—"if you don't throw anything away." Finally, the students realized that it was easier to remember when they ate something than when they threw it away, and so changed the question to "How many days a week do you eat any of the following foods," with each category of food (entrée, vegetable, fruit, milk, juice) listed. The final survey included general questions about how often students got lunch from the cafeteria and how often they ate or drank each part of the meal, as well as specific questions of how much they ate of each entrée served in the last month.

Drafting the survey provided the research team more opportunity to think critically about the issue. For instance, one student expressed concern about getting rid of food that only some liked ("If we get rid of that, what about the people who like the food that most people don't like?"), which sparked a conversation about whether it is better to have more of the food that most people like or items that only a few people like. From this, the students agreed that providing likeable foods to the most people was better.

Collecting and analyzing data

As winter break approached, the team opted to survey as many students as possible through the school's computer lab in 1 week in order to analyze and disseminate findings before school closed for the holiday. In 5 days, students completed 435 surveys (44% of the student body). Prior to using the data, the university-based researchers created activities for the 14 students that demonstrated how to analyze and present data. For instance, students asked each other close-ended questions (eg, Who would you like to meet?) and consolidated their findings into a brief report form (eg, __% of people would like to meet Michael Jackson, while __% would like to meet Andy Biersack). The students then presented their findings to the group with accompanying graphs projected on a screen.

Once students understood ratings, percentages, means, and frequencies, the research team looked at the survey data together. Of the 435 students surveyed, 44% got school lunch every day and, on average, students got lunch 3.7 times a week. Immediately, the students exclaimed, "that's less than half!" and expressed concern that kids must be hungry at school and that the school must be losing money. The survey also confirmed that although students tended to drink the juice, they often threw away other items on the tray, especially the vegetables and milk, and that some items were eaten more frequently than others (eg, 40% of students ate all or most of the cheeseburger sliders, while only 4% ate most or all of the pork chili verde bowl).

Disseminating findings and recommending change

After finding that many (56%) students were not consuming lunch daily and that some foods were much more desirable than others, students decided that the key findings should be shared with Spartan's administration as well as with decision-makers at the district level. Thus, the university-based researchers invited the Spartan principal, head of food services, and the school districts' nutrition manager, director of nutrition services, field operations manager, and nutrition specialist to a student presentation of findings. Thanks to the district's desire to improve

issues at their schools, the district's food personnel were eager to visit the school and talk with the whole research team once invited.

For this meeting, the students created a 15-minute PowerPoint presentation, focusing on the importance of nutritious food for students' academic success and the cost to the district when students do not pick up or consume NSLP meals. The students presented their survey findings and made recommendations for changes, suggesting that the district make more effort to obtain regular feedback to better understand which foods students like and dislike. Students highlighted the items they recommended be removed from the menu and those they encouraged serving more frequently. After the presentation, the students, principal, and district personnel engaged in an hour-long discussion and brainstorming session on how to increase Spartan students' consumption of cafeteria food. For example, the district liked to introduce new menu options monthly but found that students rarely ate these items. Several Spartan students responded that trying new menu items was risky: "I'm not gonna try nothing new. If I don't like it, I throw it out. Then, I don't get lunch that day." Ways to reduce the risk were then discussed (eg, conducting taste tests, letting students sample a small bite "Like Panda Express does with the toothpick," or exchanging meals that they disliked for a different item). The students learned about nutritional differences between food prepared by the district and food sold in the community ("Like why there's no grease on my pizza like at Pizza Hut") and why some foods could only be served once a month ("we [district] lose money with chicken wings because they are more expensive to make") while others could be served more often. The district agreed that more cold sandwiches, especially the beloved peanut butter and jelly ones, could be available as an alternate option when the main meal was not desirable.

Unexpectedly, the district personnel were deeply interested in the students' input and were very complimentary of the data they collected, wanting a copy of the students' presentation and full survey results. They noted their desire to prepare food that students would eat and were eager to find ways to get regular student input, although they acknowledged some difficulty serving tasty meals that met federal nutrition guidelines ("at our office we eat the same food we serve you, but we are able to add some salt to ours"). Most importantly, the group discussed ways to continue communication between students, the school's kitchen, and the district kitchen, ranging from online surveys to suggestion boxes in the cafeteria.

CONCLUSION: POSITIVE YOUTH DEVELOPMENT AND SUSTAINABLE CHANGE

In just 1 semester, 14 middle school students learned that they could be active change agents[8] in their school and that the adults in the school community supported them. They learned about the value and utility of research and how to navigate traditionally adult spaces (from the kitchen to meetings with district personnel). These students, with support from university researchers and their schools administration, changed future menu options and opened new, direct lines of communication between students and the district's food services staff.

The CBPR "joins together partners with diverse skills, knowledge, expertise and sensitivities to address complex problems."[31(p180)] When working with children, CBPR is benefitted by the unique perspective of those with differing levels of maturity, voice, autonomy, and experience. Researchers learn more about the complexities of real-world settings, better understand how youth view problems in their setting, and appreciate that enacting meaningful change occurs in partnership, not as a top-town process. The youth in this partnership learn about the utility of research methods, how to think critically about issues in their immediate environment, ways to enact change, and gain appreciation of their own competencies and efficacy in changing their environment. Statements

that some Spartan students made to teachers and security guards at school demonstrated this (eg, "I'm changing things here" "I'm gonna change this school, just you watch"). The CBPR is a co-learning and empowering process[31] in which all members of the partnership benefit.[34] In just a few months, all members of this CBPR project clearly benefitted.

Israel and colleagues[12] have identified 5 key steps to successful CBPR. These include (1) forming and maintaining a partnership, (2) assessing the community's needs, (3) defining the issues to be addressed, (4) documenting and evaluating the partnership, and (5) providing feedback, interpretation, dissemination, and application of the results. This semester-long CBPR project utilized all 5 of these steps. The partnership was possible because of the commitment of Spartan's new administration to change the school environment, the university-based researchers' keen interest in working with the students on an issue of their choice, and the students' decision and desire to improve the nutritional experience for their school. Nonetheless, there were challenges. For instance, some students' conduct at school resulted in negative interactions with the principal or teachers during the semester, which led to lower motivation and engagement. However, because of the administration's commitment to the project, students were never restricted from participating in research meetings or activities. Throughout the project, students, in partnership with the university-based researchers, explored the student body's (community's) needs by brainstorming together. They also discussed the CBPR project with their classmates at Spartan and brought back the community's thoughts and experiences to the research group. As the project progressed, some of the steps became iterative. As students considered the problem with school lunch and collected data, they revisited the issue and redefined their perceptions of the problem. As the problem was clarified, the data collection process, interpretation, and dissemination plan evolved. Over just 1 semester, these 5 steps were well connected and revisited. The students' presentation to district nutrition staff and the staff's desire to develop and maintain structures that enable regular feedback from the students demonstrated the value of this project to all who were involved.

Working in partnership as university-based researchers, school administrators, and middle school students, this project was able to address an important health concern for very low-income, predominately Hispanic middle school students. By including youth as partners, the team generated new ideas that were unlikely to be considered by adults. In addition, we gained a deeper understanding of the lack of utilization of NSLP by many qualifying students. As a result, mechanisms for improving food consumption at school were identified. Consequently, the project also helped raise the district staff and school administration's appreciation of how students can be valuable partners in tackling issues of importance at school. Hopefully, this CBPR will be "a launching pad for change,"[29] not just for Spartan's cafeteria menu but for the involvement of students in the improvement of their health and school.

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