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**Improving Elementary Nutrition Education Curriculum in San Francisco - A Program
Analysis of the Food Education Project**

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MPH 683-28 Integrated Learning Experience

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Table of Contents

<i>Abstract</i>	3
<i>Introduction</i>	4
<i>Background and Literature Review</i>	5
The Problem.....	5
The Scale and Scope	6
Current Interventions	12
Gaps	16
<i>Methods</i>	17
<i>Recommendations</i>	19
Recommendation 1: Needs Assessment	20
Recommendation 2: Update Materials.....	22
Recommendation 3: Pilot Program	23
Implementation Strategy	24
Evaluation	24
Funding	25
<i>Implications and Discussion</i>	26
Limitations	28
Next Steps	28
<i>Conclusion</i>	30
<i>References</i>	31
<i>Appendices</i>	37
Appendix A: Socioecological Model (SEM)	37
Appendix B: Current Interventions.....	38
Appendix C: Needs Assessment Surveys (Parents)	41
Appendix D: Forces of Change Analysis Framework	43
Appendix E: Program Timeline	44
Appendix F: Mid-Year Surveys (Students, Parents, Educators)	45
Appendix G: MPH Competencies.....	48

Abstract

Childhood obesity and food insecurity are problems within San Francisco, California. The purpose of this program analysis is to assess the Food Education Project (FEP), which is one of many projects addressing nutrition education and the long-term public health impact is to solve the problems of food insecurity and childhood obesity. Through primary data collection, students shared their honest feelings about food and were able to openly discuss what they know and do not know about food. A literature review was conducted through research from various databases from the University of San Francisco to identify not only current interventions but gaps in knowledge surrounding this problem. From the literature review and primary data collection, a three-step recommendation was developed for consideration. The steps of the recommendations included a needs assessment specific to McKinley Elementary School, updates to current materials, the creation of a training and orientation guide for health educators and interns, and a pilot program. The purpose of the pilot program is to identify further areas of improvement and enhance the hope for the sustainability of the project and expansion beyond McKinley. The overall impact of the project and analysis is to address childhood obesity and food insecurity. Through early childhood education, there can be a step toward helping children understand where their food comes from and how to build a sustainable, affordable healthy lifestyle.

Keywords: nutrition education, elementary schools, San Francisco, childhood obesity, food insecurity

Introduction

Childhood obesity and food insecurity are great public health problems in the United States. Though current interventions are at play, there needs to be more re-evaluation of these interventions in order to better address the specific needs of the various populations. This analysis, however, will only be focusing on one program in San Francisco.

A detailed program analysis of the Food Education Project (FEP) will be provided with the purpose of identifying existing assets and areas for potential improvement. The target audience of this analysis is elementary school students ages 5-12 years old, parents, and educators from McKinley Elementary School located in San Francisco's Castro District.

The following recommendations are to be considered. First, a needs assessment of the current population, McKinley Elementary School, needs to be conducted to proceed. Without knowledge and concrete data on the current needs of the school, the curriculum cannot be accurately tailored and prepared. Second, revisiting orientation and training materials will be beneficial. Updating and reviewing current materials will improve the curriculum to best adhere to current best practices. Third, a pilot program needs to be strategized and implemented. In the second year of the implementation process, a pilot program will be conducted in order to assess necessary changes. Sustainability will be important to identify in this process and if improvements need to be made to keep the program functioning, this pilot program will be the place to do so.

Early education is important when it comes to nutrition and food. Building healthy habits at a young age will hopefully invoke long-term habits the students will carry into their adulthood. The ripple effect of the change will empower students to live healthier lives and influence their peers, family members, and friends to do the same.

Background and Literature Review

The Problem

Students in the United States are receiving less than eight hours of the required nutrition education each school year. Between 2000 and 2014, the percentage of schools providing required nutrition instruction decreased by 10.5% (CDC, 2019). The drastic decrease in nutrition and dietary health education is a concern and needs to be addressed.

Best practices for teaching include creating an environment of student-centered learning rather than teacher-centered teaching. Teacher-centered teaching is when educators present information while students passively receive the presented knowledge (University of San Diego, 2022). This way of teaching may seem simple and tangible, however, the focus is then taken off the students. If students feel their teachers are not invested, then they are not going to be invested. Building authentic relationships with students creates boundaries and openness for discussion. Adapting is another key factor in effective teaching (Fairfax County Public Schools, n.d.). Some classes learn differently than others, and it is important to meet students where they are to be able to teach them effectively. Each student needs to be challenged in a way that they receive information and it cannot be assumed that each student will respond to a certain method the same way. Involving students in activities and discussions allows them to strengthen their voices to speak up. Lecturing at them is mundane, especially with the younger children (State University of New York at Oswego, n.d.).

Through a systematic review of identifying factors contributing to nutrition education, effective interventions included face-to-face conversations with children, parents, and schools. By identifying specific behaviors and trust in educators, intended behavior change was achieved (Murimi et al., 2018). Among 30 teachers from eight Michigan elementary schools, there were

barriers to learning, despite teachers' positive attitudes toward nutrition education. The main barrier was time management of the curriculum and dedicating consistent time throughout the year to meet standards (Boguslawski et al., 2021). In both the systematic review and study, the importance of attitudes and honest conversations was apparent for effective intervention implementation. Nutrition education has a strong effect on behavior change and build self-efficacy and motivation to live a healthier life.

The problem is the remaining existence of childhood obesity and food insecurity. The lack of quality food education programs may not be a direct cause of childhood obesity, however, the lack of it contributes to the problem. In this program analysis, the scope will focus on food and nutrition education as a community-level intervention to address childhood obesity and food insecurity within San Francisco. There is a lack of research focused on nutrition education and more specifically, surrounding San Francisco elementary schools. The needs of each community differ and by conducting a needs assessment, a narrowed focus can be addressed. Through the literature, there are clear details of best educational practices, nutrition education, and determinants to focus on when addressing elementary school students in San Francisco.

The Scale and Scope

According to available data through San Francisco's Health Improvement Partnership (SFHIP), nearly two-thirds of children and teens in San Francisco are eating less than five servings of fruits and vegetables. There are several determinants of health, such as income, race and ethnicity, and location that contribute to children not meeting dietary recommendations. In the San Francisco Unified School District (SFUSD), 53% of students qualify for free or reduced

meal prices meaning over half of the families in the district cannot afford meals for their children (SFHIP, 2020).

The Food Education Project

The Food Education Project (FEP), a community-based organization that aims to spread environmental awareness through food and nutrition education in San Francisco, California, is the focus of this program analysis. Taught by a group of public health students, chefs, educators, and clinicians, FEP provides hands-on experience with cooking, gardening, and meal planning. Contracted health educators have trained annually and are provided with the curriculum and necessary materials for the school year. This is an after-school program paid for by the participating students' families.

The curriculum included but was not limited to: knife handling skills, cultural food lessons, seasonal fruits and vegetables, meal planning on a budget, and body systems. Each lesson and activity is carefully planned and executed by a health educator. However, each school and class are different and are subject to changes based on the needs of the students. Since the COVID-19 pandemic, adjustments had to be made in terms of food handling and food safety. Unfortunately, students were unable to be as involved in the cooking portion of the food education classes. The curriculum needed to be updated and activities had to fit into proper social distancing protocols.

Overall, the integrity of FEP has remained the same throughout the pandemic with the necessary precautions. Each year, depending on the lead health educator, the food education classes have looked different. The curriculum is mostly, but due to the nature of ever-changing

rules, regulations, and personalities of the students and educators, the refreshing new perspectives help the program flourish.

Childhood Obesity

Obesity is defined as "...abnormal or excessive fat accumulation that presents a risk to health. A body mass index (BMI) over 25 is considered overweight, and over 30 is obese" (World Health Organization, n.d.). There are other measures of weight status by categories including: underweight, healthy weight, overweight, then obesity. In children, BMI cutoffs are intended to reliably mark a level to assess whether or not a child is more at risk for obesity-associated diseases or health outcomes (CDC, 2021).

According to the Centers for Disease Control (CDC), from 2017 to 2020, the prevalence of childhood obesity was 19.7% and affected nearly 14.7 million children and adolescents. Childhood obesity may affect the risk of mortality in early adulthood. In the obesity cohort, 0.55% of children died before the second follow-up versus 0.19% in the comparison group. Other contributing factors included sex and low parental socioeconomic status (SES) (Lindberg et al., 2020). As of 2019, obesity costs the United States approximately \$173 billion annually. Productivity also decreased due to the time taken off work for obesity-related issues (CDC, 2022).

Children who are obese are at a higher risk for long-term health problems, such as high blood pressure, asthma, joint problems, type 2 diabetes, and early maturation (Let's Get Healthy California, 2022). California ranks number 28 of the 50 states in terms of childhood obesity rates and this is determined by the 15% of children ages 10-17 who are obese (State of Childhood Obesity, 2020). There are several contributing factors to obesity in California, such as physical

activity levels, dietary behaviors, and breastfeeding (CDC, 2012). In the following sections, current interventions surrounding California's childhood obesity problem will be discussed.

Minority children make up 59.8% of San Francisco's population compared to the 70.2% of California's children in 2021 (Kids Data, 2021). With a majority of the population being minorities, the cultural makeup needs to be considered. In a study conducted in 2012 reviewing the acculturation and dietary practices concerning the risk for childhood obesity among Latino students in the San Francisco Bay Area, it was concluded that interventions should focus on making sure children eat a balanced and nutritious breakfast (Wojcicki et al., 2012). In another study focused on nutrition programs in urban communities, it was evident that an increased intake of fruits and vegetables is not directly correlated with the increase in childhood obesity rates (Prelip et al., 2011). Both studies show the effectiveness of education and how to specifically address one portion of nutrition at a time rather than overwhelming students with too many topics. Culture also needs to be taken into consideration when implementing nutrition education programs. Eating habits differ among cultures and proper identification of differences improves education. Dietary practices can have a strong influence on eating behaviors and recognition of cultural factors can improve the effectiveness of nutrition education (Atoloye et al., 2021). As the studies above showed, the approaches to urban and rural communities will be different, as will ethnically dominant areas.

Food Insecurity

Childhood nutrition focuses on what children are eating, what they are not, and how their bodies are affected. Food security is defined as "...all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their food preferences and

dietary needs for an active and healthy life" (IFPRI, 2022). According to Healthy People 2020, food insecurity is defined as "...the disruption of food intake or eating patterns because of lack of money and other resources" (Healthy People 2020, 2020). Within insecurity, there are two additional levels: low food security and very low food security. Levels of food insecurity are defined by the frequency of disrupted eating patterns and reduced food intake.

Food insecurity can be temporary or permanent and those at risk have limited transportation options or nearby supermarkets. Transportation is a significant social determinant of health (SDOH) and when addressing the issues of food access, how residents are getting from one place to another must be addressed. The inability to easily transport from one stop to another creates an access barrier to healthy foods. Transportation is a factor influencing the food security of a person, family, and community.

In 2020, 85.2% of households with children (under the age of 18) were food secure (USDA, 2020). However, 7.6% of homes with children were still food insecure, which is equivalent to approximately 2.9 million households and 6.1 million children (*see Figure 1*). There are current federal interventions that have aimed to reduce food insecurity, such as the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and the Supplemental Nutrition Assistance Program Education (SNAP-ed), which will both be discussed further in the paper.

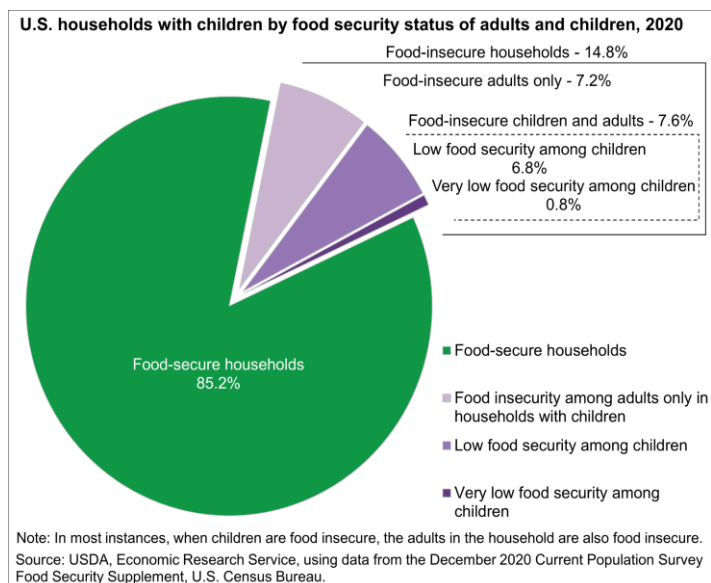


Figure 1. U.S. household with children by food security status of adults and children, 2020 (USDA, 2020).

In comparison to the rest of the United States, the prevalence of food insecurity in California is lower than the national average (10.7%). However, 1 in 5, approximately 8 million Californians are unsure of where their next meal will come from (California Association of Food Banks, 2020). 1 in 8 children is facing hunger, which is nearly 1.5 million children in California

alone (Feeding America, 2022). Of the 4 million Californians participating in the Supplemental Nutrition Assistance Program (SNAP), approximately 2 million are children (State of Childhood Obesity, 2020).

In San Francisco, 1 in 4 residents face food insecurity and it is mainly due to socioeconomic status, another SDOH (SFDPH, 2022). According to Feeding America, the average meal cost in San Francisco is \$4.59 per meal, \$1.57 above the national average. Additionally, the cost of living is higher than average in San Francisco, creating other stressors for families and forcing them to live paycheck to paycheck.

Childhood Obesity and Food Insecurity in San Francisco

Without specific knowledge of the needs of McKinley, research surrounding obesity and food insecurity is important. Whether the population needs to know how to minimize sugar intake or budget their groceries, research needs to be readily available to address the problems.

Obesity and food insecurity have drastically differing outcomes that need to be considered, however, without knowledge of the specific population, one cannot be dismissed. Until concrete specific data about McKinley is obtained and analyzed, background information on obesity and food insecurity is needed.

Current Interventions

Through the use of the Socioecological Model (SEM, *see Appendix A*), different levels of interventions were identified surrounding childhood nutrition and nutrition education.

Federal Policy Level

The WIC program targets low-income and those who are nutritionally at risk. WIC is federally granted through approval from Congress each year and the benefits include: supplemental nutritious foods, nutrition education, and referrals to other social services (U.S. Department of Agriculture, 2013). The SNAP-ed, known as CalFRESH in California, is a federally granted program aimed to help people live healthier lives and partners with state and local organizations. The goal of SNAP-ed is to address the problem of obesity prevention and nutrition education (U.S. Department of Agriculture, 2010). Though not a policy, Former First Lady, Michelle Obama, founded Let's Move!, a federal level healthy eating campaign. Let's Move! provides various resources on health topics including food, nutrition, and physical activity. Parents, political leaders, educators, and children are targeted to move in a positive direction to address obesity (Obama, 2010). Each of these interventions supports and encourages the goal of improving health in the community from low-income to families to pregnant mothers.

State Policy Level

The fiscal year 2022-2023 California Governor's Budget Summary Proposal states that approximately \$80.2 billion of the total go towards education K-12. Of the total, \$72.1 billion of the total state funds will go towards the Department of Education, which includes special programs involving nutrition and food education (State of California, 2022). Let's Get Healthy California is a statewide collaborative with a systematic approach for assessing and monitoring the health status of California. The purpose of this collaborative is to identify and prioritize opportunities for health improvement and to promote actions toward solving the root causes of California's most pressing health challenges (Let's Get Healthy, 2021).

Let's Eat Healthy is an initiative aiming to elevate the health of children with the long-term goal of families maintaining lifelong healthy eating habits. The initiative conducted pre- and post-assessments during the 2020-2021 school year from over 10,000 K-12 students in California who used nutrition education resources. The survey results show that "...students demonstrated improved nutrition knowledge, ability to identify and correctly understand how to read a nutrition facts label, and confidence in their ability to choose healthy snacks and meals" (Robertson, 2021). Not only did this assessment find students benefiting from nutrition education, but teachers and educators as well. Educators became more aware of what foods they were consuming, resulting in: fewer sugar-sweetened beverages, increased consumption of fruits and vegetables, improved eating patterns, and increased consumption of milk and dairy foods. Teaching by doing showed to be one of the greatest ways to encourage positive behaviors. This ripple effect made a visible difference in the lives of students and teachers, creating an increase in positive health behaviors throughout the community (Let's Eat Healthy, 2021).

Community Level

A children-run community garden in Santa Clara County showed increases in home cooking, physical activity, consumption of fresh foods, and a decrease in fast food consumption (Palar et al., 2019). The Food Education Project (FEP) is created and taught by a team of clinicians, chefs, and educators with a mission to improve health through environmental awareness. At McKinley Elementary School in San Francisco, FEP has started a school garden to grow a visual and tangible way for students to learn where their food comes from. As this Santa Clara community has done, the hope for the FEP school garden is to inspire students to start a garden of their own.

Organizational Level

In San Francisco Unified School District (SFUSD), there are currently interventions at play to address the need for nutrition and food education. Student Nutrition Services (SNS) works to provide students with the equitable support they need to succeed through proper nourishment. During the summertime, SNS provides free meals for all youth and during the school year, breakfast, lunch, snacks, and dinner are offered. Within these meals, students have options of various fruits, usually apples, pears, or oranges, and 1% or fat-free milk along with a meal of protein, grains, and vegetables (SFUSD, 2022). The current food and health education policy is that students receive a minimum of 20 health lessons per grade per year. The curriculum recommendation has a variety of health topics (*see Table 1*).

3 Lessons	3 Lessons Grades 3-5	3 Lessons	3 Lessons	3 Lessons	3 Lessons	2 Lessons
Mental, emotional, social health (including violence prevention)	Growth and development (including HIV prevention, safe touch, puberty)	Alcohol, tobacco, other drugs	Nutrition, physical activity	Personal, community health	Family diversity	Other health content areas and relevant health issues based on students' needs and concerns

Table 1. SFUSD recommended health curriculum plan requires 20 lessons per year in elementary schools with designated health-related topics (SFUSD, 2022).

Interpersonal Level

Peer-led nutrition education programs are becoming more popular, but there have not been studies assessing their direct impact on health outcomes. Studies of smaller scale schools and primarily teacher-led education have been conducted, but due to methodical limitations, significant conclusions were unable to be made (Yip, et al., 2016). Though there may not be direct impacts on the benefits of peer-led education programs, students talking with one another can be beneficial.

Individual Level

Students participating in FEP have provided feedback regarding their personal choices when it comes to cooking. They have used chia seeds, avocados, and even spinach in their smoothies, which many did not think they would like. Part of the curriculum was to create a monthly meal plan to follow if desired. From this activity, students were able to recall what different fruits, vegetables, grains, dairy products, and proteins they have tried during the program. Some even began creating their own recipes and combining the foods they enjoyed to

see if they would like the ingredients altogether. *More details about each intervention are provided in Appendix B.*

Gaps

There are many successful, evidence-based interventions surrounding childhood obesity, food insecurity, and nutrition. From federal to state to city, there are many ways various communities are making moves forward to addressing these problems, however, there is a lack of data specific to San Francisco being collected. San Francisco County is spending \$1.57 more per meal than the national average, which shows the need for education surrounding food budgeting, identifying budget-friendly grocery stores, and even encouraging community gardens.

Within San Francisco, there is a need for food education and there is a gap in knowledge about knowing what the struggles of the community are. San Francisco's Department of Public Health (SFDPH) provides public information about race, ethnicity, income status, and other demographics, but there is a lack of information about the "why." The "why" is the cause of unhealthy eating or lack of access to better grocery stores. This paper intends to create a survey that will gather data specific to San Francisco from parents and focus on the reasons behind the statistics. Again, there are interventions aimed at addressing childhood obesity and food insecurity specific to San Francisco children, but there is a gap in data about how families ended up in the positions they are in. Problems cannot be solved if the root cause is unknown.

Methods

Through the University of San Francisco's Gleeson Online Library, PubMed was the primary database conducted for the literature review research. The main topics of research were: childhood obesity, food insecurity, food security, and effective teaching methods. Keywords used for research included: health education, San Francisco, elementary school, effective education, youth, food education, nutrition, children, best practices, food programs, nutrition programs, California and health educators.

Through other online sources, general searches were conducted to gather data on national, state and local levels. The dates of data ranged from 2010 to 2022. These sources included: Centers for Disease Control and Prevention, San Francisco's Health Improvement Partnership, San Francisco Unified School District, Let's Get Healthy California, Healthy People 2020, Special Supplemental Nutrition Program for Women, Infants and Children, Supplemental Nutrition Assistance Program Education, United States Department of Agriculture, Feeding America, State of Childhood Obesity, San Francisco Department of Public Health, Let's Move!, California Governor's Budget Summary Proposal, World Health Organization, Fairfax County Public Schools, and State University of New York at Oswego.

Primary Data Collection Methods

After working with students for a few months, it was clear they were retaining information more when they were actively discussing and getting involved in activities. These activities involved writing down recipes, adding ingredients to the stove, playing food education jeopardy, and other creative activities. Originally, the structure of the classes was to lecture and then do the activity or cooking, depending on the day. However, after lecturing a few times, it

was clear students were not engaged. Since this was an after-school program, students were already tuned out from intentionally learning and sitting for long increments of time. Through this observation, changes were made and students were more receptive to the information being taught. The games and trivia were especially beneficial and gave students confidence in what they learned and retained.

Recommendations

Through health and food education, some behaviors surrounding eating can be modified. Students are expected to take in knowledge, so integrating smaller, indirect information into their current learning environment can be beneficial. It is important to note that health and food education does not necessarily mean specific lessons aimed at a specific goal. Recognition and repetition are key for young learners and adding fruits and vegetables into their reading guide, for example, will help them learn to recognize foods positively.

After reviewing the current literature and conducting a program analysis for FEP, these are the three recommendations to consider (*see Table 2*). This is a two-year multi-step recommended process, beginning with a needs assessment to identify specific needs of McKinley. Updating materials based on the assessment will allow for necessary improvements of the curriculum to enhance cultural awareness to dietary habits. Lastly, a pilot program will create a space to identify adjustments needed to ensure sustainability.

Recommendation 1: Needs Assessment	<p>Conduct a needs assessment of the current population, McKinley Elementary School, needs to be conducted in order to proceed. Without knowledge and concrete data of the current needs of the school, curriculum cannot be accurately tailored and prepared.</p> <p>Action: Force Field Analysis</p>
Recommendation 2: Update Materials	<p>Revisiting orientation and training materials will be beneficial. Updating and reviewing current materials will improve the curriculum to best adhere to the current practices.</p>
Recommendation 3: Pilot Program	<p>A pilot training and orientation along with a pilot program year needs to be planned. A comprehensive pilot period will ensure necessary review of the program and changes can be made through this process to enhance the curriculum and training.</p>

Table 2. There are three proposed recommendations needing to be implemented within the next two years.

Recommendation 1: Needs Assessment

In the first semester of the first year, a needs assessment specific to McKinley Elementary School needs to be conducted and will provide tailored data, such as demographics, learning needs, and student interest in healthy eating. The first step in conducting a needs assessment is to gain funding. Before additional steps can be taken, the Executive Director must secure funding for additional materials and another educator to take the role of the project coordinator to conduct the assessment. An action item for the needs assessment is to create a survey to figure out the needs of McKinley beyond online research (*see Appendix C*). Another

action item for this recommendation is to utilize the Force Field Analysis Framework (FFAF). This framework will showcase the desired outcome and provide forces that are for and against the outcome or change (*see Appendix D for an example*). Each force for or against change will have a score of 1 to 5. 1 being the lowest force and 5 being the highest.

Feasibility

The feasibility of a needs assessment is high because there are not many materials required, surveys need to be created and the relationship with McKinley has already been established and cultivated. Obstacles are likely to arise, such as parental participation, timeliness of surveys being returned, and time taken to analyze collected data. To combat and address these obstacles, ample time will be allocated to complete each part of the needs assessment, and notices to parents will be provided regarding the start of the survey distribution and a reminder at the midpoint. Through the After School Enrichment Program (ASEP), FEP can partner with them to help encourage parents and students to participate in the survey.

Acceptability

FEP has a strong relationship with McKinley Elementary School, creating ease of acceptability. There will be a challenge, however, to gain parental participation. Students are constantly being sent home with forms, papers, and notices, so an additional survey to fill out and return can limit responses.

Recommendation 2: Update Materials

In the second semester and summer of the first year, the updating of materials will be done. Since 2017, FEP materials have not been updated and a training or orientation guide has not been created. There have been many changes to student needs, curriculum, and the healthcare world in general, especially since the COVID-19 pandemic. The protocols for cooking and social distancing have changed and will continue to change if new variants arise. For example, students are unable to cook together over the hotplate and the educator needs to be aware of this change. One student at a time is allowed to pour something into the pot to limit exposure to other students. The Executive Director and health educators will be responsible for identifying necessary updates to the curriculum and training guides. The materials needing an update include: lesson plans, activities, protocols, teaching methods, and current school policies. After the needs assessment is completed, the materials and training guide can be tailored specifically to McKinley. To ensure materials are specific to McKinley, collaboration with ASEP will be beneficial, because the staff knows the students and can offer new perspectives about potential changes.

Feasibility

Updating materials and developing a training guide is highly feasible, however, will take a significant amount of time and attention to detail. This is a necessary step because without current information, teaching methods and curriculum will be incorrect, setting students up for being misinformed and unprepared to carry out healthy lifestyles.

Acceptability

The training and orientation guide need to be developed by the Executive Director. Without a training handbook, there is a risk of uneven training among educators. An anticipated obstacle will be time to create these materials. Similar to the needs assessment, having enough time to research and develop new materials as needed will be challenging, however, necessary to improve the project.

Recommendation 3: Pilot Program

During the summer and beginning of the second year, implementation of a pilot program will happen and is vital for the success of a new and improved Food Education Project. Over the course of one year, a pilot program will be conducted using the data collected from the needs assessment and the updated materials and training guide. This process will be gradual and there will be checkpoints throughout the year to ensure proper evaluation for potential long-term implementation.

Feasibility

In comparison to the previous recommendations, a pilot program is less feasible, because it will involve taking an entire year rather than a semester as well as additional resources. Overall, the pilot program will also take an entire year, rather than a semester. An obstacle will be the willingness of new health educators to take on the role of implementing an updated new program than what has been done in the past. Another obstacle will be the attitude of the program coordinator and executive director. Patience and open-mindedness are important for

implementing an updated program. It will take time and there will be conversations surrounding successes and areas of improvement.

Acceptability

The goal of updating FEP is to better educate students and empower them to live a healthy lifestyle. With that goal in mind, this pilot program will be highly acceptable, because the overall benefit is for the students. A potential obstacle could be parents not wanting their children to be in the "trial program" if they are paying for a fully established program and that is a valid concern. To address this concern, it is important to be completely transparent with parents and students from the needs assessment stage that FEP is working to improve the curriculum to best educate students. Drastic changes are not being made, but some materials may change because FEP wants to create more specific lessons for the current population.

Implementation Strategy

Over the course of two years (June 2023-July 2025), recommendations 1, 2, and 3 will be implemented and evaluated. Allowing two years for program analysis and improvement provides the necessary time to fully and accurately re-develop FEP. An example of a potential program timeline can be found in Appendix E.

Evaluation

Mid-year surveys (*see Appendix F*) will be given to parents, students, and health educators/interns during the implementation process. There are several surveys given at the beginning and end of each semester to assess student learning. However, in this program

analysis, there will be new surveys created to gain knowledge of how the students, parents, and educators are taking in the information and to identify further areas of improvement.

Sustainability is important to identify in the evaluation process. By having solid shared goals, funding, a realistic timeline, and regularly gaining feedback, a successful pilot program can happen (Ashkenas & Matta, 2021).

Funding

FEP's mission is to "improve health through environmental awareness." Based on the previous history of funding and funding available with alignment between FEP and the funder's missions, the following are realistic options: Whole Foods, California Wellness Foundation, and San Francisco Public Health Foundation.

Whole Foods' mission states "Our purpose is to nourish people and the planet. We're a purpose-driven company that aims to set the standards of excellence for food retailers. Quality is a state of mind at Whole Foods Market" (Whole Foods, 2022). To FEP's mission and goals, Whole Foods focuses on nourishment through excellent standards for their food. FEP health educators are encouraged to grocery shop for lessons at places with healthy standards, Whole Foods being one of these entities.

California Wellness Foundation's (CWF) mission and vision statements state "Our vision is for every resident of California to enjoy good health and experience wellness. Our mission is to protect and improve the health and wellness of the people of California by increasing access to health care, quality education, good jobs, healthy environments, and safe neighborhoods" (Cal Wellness, 2018). The alignment of FEP with CWF is the emphasis on quality education and

healthy environments. Without effective education and healthy environments, students will have difficulty cultivating healthy habits.

Lastly, the San Francisco Public Health Foundation's mission states "Our job is to streamline and simplify our community health partners' paths to successfully serve San Francisco's most vulnerable citizens" (SFPHF, 2022). SFDPH being specific to San Francisco brings a unique connection to FEP, because they are serving the same broad community and environment. Keeping San Francisco healthy through nutrition education in elementary schools helps promote this mission and vision.

Implications and Discussion

In terms of the larger public health issue of childhood obesity and food insecurity, the recommendation to conduct a needs assessment will aid in addressing specific needs within McKinley Elementary School. The specific needs of the assessment will be looking at the barriers to a healthy lifestyle in households. As seen in Appendix C, there is a section in the survey aimed to assess the willingness and access to eating healthily. Some neighborhoods, for example, may not need to be as conscious about budgeting as others and by asking specific questions, these answers can be revealed, and the curriculum can be more sensitive to that need.

By starting with a smaller scope of McKinley, changes can be made and altered to fit a larger population, such as San Francisco elementary schools as a whole. Students in San Francisco are impacted by outside factors (SDOH) differently than those in another region of California. The background information and literature review can be applied to schools and programs across San Francisco. San Francisco Health Improvement Partnership (SFHIP) provides information regarding health outcomes and data specific to the city reducing rates of childhood obesity and food insecurity.

The recommendations can be applied to start the process of addressing specific needs in each community. Overall, the desired public health implications of the recommendations are to use community-level data to promote food and nutrition education that is specific to and more effective for San Francisco elementary school students. All in all, using community-level data will be a means for creating a healthier community.

Limitations

The major pitfall of this approach is the narrow scope of the program analysis. McKinley Elementary School is the only school with primary data. No research has been conducted on the similarities between all elementary schools in San Francisco, creating another information gap. A needs assessment can be transferred to different settings; however, the strategy of a pilot program will vary. This program analysis focuses only on FEP, meaning the recommended improvements and next steps are specifically geared towards one project. The outcomes of the analysis are potentially generalizable to a larger population but will need to be revised. Another limitation to this approach is the size of the action itself. A needs assessment is a basic step towards addressing larger problems, so at first glance, the approach to begin here seems small with the end goal of solving childhood obesity. Some of the literature is not from within the past five years. Though available data that may not be as current is still necessary to identify trends, outdated information can be misleading to the state of the problem. At the start and end of the Fall 2021 semester, four surveys were given to students. These surveys were the same at the beginning and end of the term to assess pre- and post-knowledge. However, through reading the questions and aligning with the curriculum, the surveys did not accurately assess what students were learning. COVID-19 also needs to be taken into account in terms of their learning styles and attention spans to deeper concepts.

Next Steps

To further address the impact of childhood obesity and food insecurity, there is a multitude of steps that can be taken. However, based on the aforementioned recommendations, the next appropriate step would be to assess the current curriculum and materials for FEP. The

needs assessment conducted will show gaps in knowledge and areas of improvement, which is where the assessment of materials will be beneficial. Once the current materials are reviewed and updated to fit McKinley's needs, a team will be gathered to strategize a pilot program implementation plan. Though the project is already in motion, a pilot program with the new changes will be necessary to ensure the effectiveness of materials and teaching strategies. During this pilot program, further improvements can be made. The impact of the piloted program would set up for further program evaluation of FEP.

Currently, the impact of a needs assessment will show the specific needs of McKinley Elementary School, however, the project is not solely focused on one school. In the past, Daniel Webster and Immaculate Conception Academy High School were partners and if there is a potential continuation of the partnership, a needs assessment needs to be conducted for those schools as well. Specific assessments of partnering schools will be potential next steps if this project were to expand.

Aside from the project itself, the impact of the recommendations could stem from further research regarding childhood obesity in San Francisco. The general background information on the social determinants of health can be used as a backbone to gain an overall view of children's health in the city. Further research can be done to evaluate other programs and even go as far as to connect them to grow a stronger force to tackle the problem at hand. A lesson learned from this program analysis is the need to focus on a specific intervention, such as nutrition education, in one community, McKinley, to make a more effective and efficient change. However, the data needs to be collected and as mentioned as a gap in information, needs assessments focusing on specific communities can help bridge the gaps of knowledge and move local programs towards planning for effective change.

Conclusion

Childhood obesity and food insecurity are public health problems that will not be solved in a day. There are countless interventions ranging from federal to state to local and community levels that are striving to improve children's health. However, there is a gap in knowledge surrounding specific communities and their needs. Through the recommendations for improving the Food Education Project, a program analysis is aimed at identifying the specific needs of McKinley Elementary School (FEP) located in the Castro District of San Francisco, California. These specific needs include identifying potential barriers to healthy eating in households, such as income, access to grocery stores, and even time to prepare home-cooked meals. One of FEP's goals is to educate children on how to live healthier in the hopes of them retaining information to carry throughout their lives. By understanding McKinley's needs, materials can be tailored to fit their community, creating a more effective and efficient program. The potential impact of this program analysis is to spark the need for more specific interventions to effectively create change. The next step would be to identify other nutritional programs within San Francisco and conduct needs assessments for the communities they are working with to develop more specific tactics to address their needs. Childhood obesity and food insecurity are significant problems that are going to take a team and together, San Francisco can make its way to creating a healthier environment for its children.

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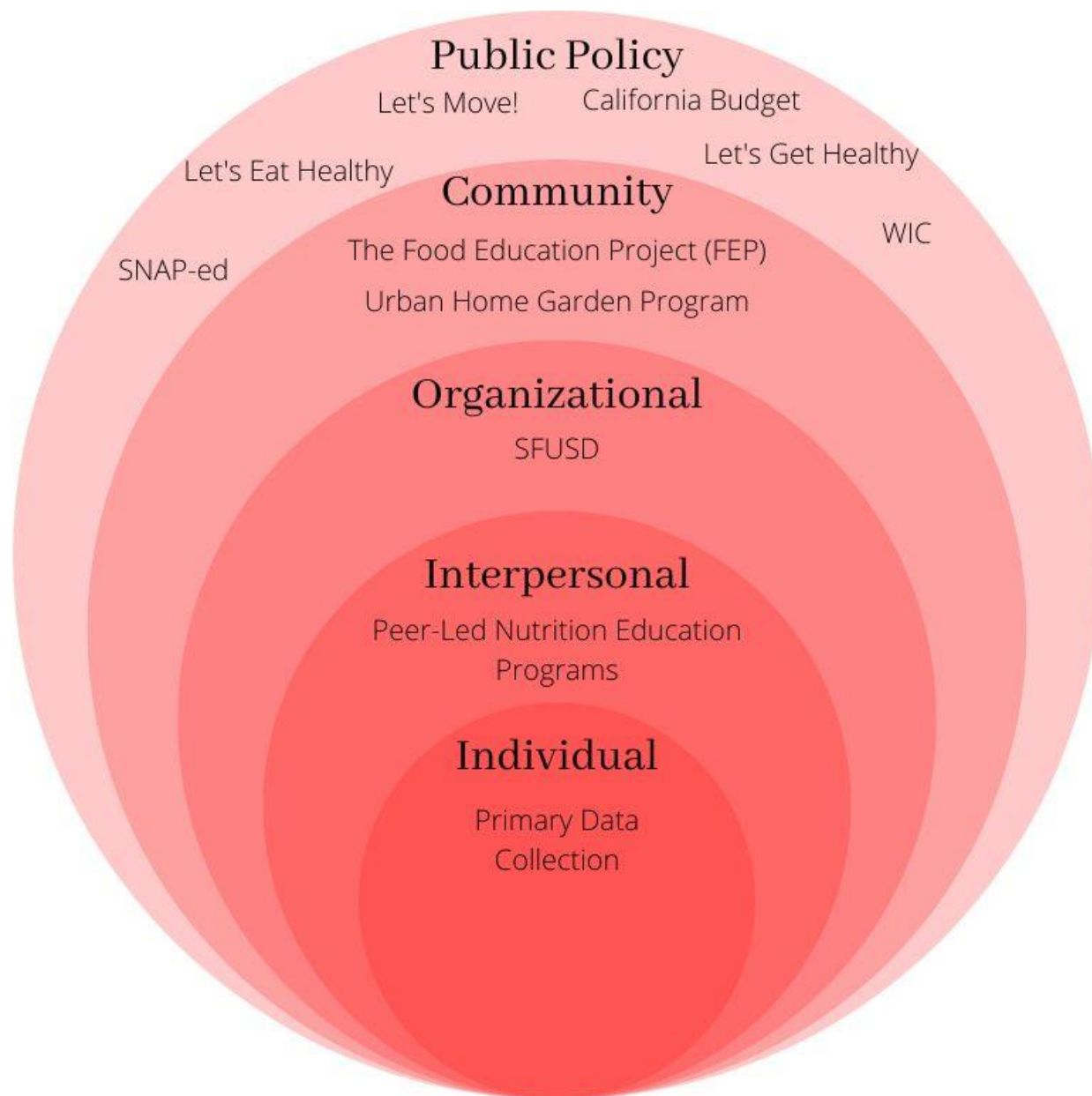
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APPENDICES

APPENDIX A: SOCIOECOLOGICAL MODEL



APPENDIX B: CURRENT INTERVENTIONS

Type	Intervention	Description
Federal Policy	Let's Move!	A healthy eating campaign founded by Former First Lady, Michelle Obama. The focus of the initiative is to solve the problem of childhood obesity. <i>Let's Move!</i> provides various resources on health topics including food, nutrition and physical activity. Parents, political leaders, educators and children are targeted to move in a positive direction to address obesity (Obama, 2010).
Federal Policy	WIC	The Special Supplemental Nutrition Program for Women, Infants and Children (WIC) targets low-income and those who are nutritionally at risk. WIC is federally granted through approval from Congress each year. Benefits include: supplemental nutritious foods, nutrition education and referrals to other social services (U.S. Department of Agriculture, 2013).
Federal Policy	SNAP-ed	The Supplemental Nutrition Assistance Program Education (SNAP-ed) is a federally granted program aimed to help people live healthier lives and partners with state and local organizations. The goal of SNAP-ed is to address the problem of obesity prevention and nutrition education (U.S. Department of Agriculture, 2010).
State	California Budget	The 2022-2023 California Governor's Budget Summary Proposal states that approximately \$72.4 billion of the total go towards education K-12. Of the total, \$63.1 billion will go towards the Department of Education, which includes special programs involving nutrition and food education (State of California, 2022).
State	Let's Get Healthy	"Let's Get Healthy California provides an ongoing statewide collaborative and systematic approach for assessing and monitoring the health status of California, identifying and prioritizing opportunities for health improvement, and promoting collective action towards comprehensive solutions that address the root causes of California's toughest health challenges."
State	Let's Eat Healthy	Let's Eat Healthy conducted pre and post assessments during the 2020-2021 school year from over 10,000 K-12 students in California who used nutrition education resources. The survey results show that "...students demonstrated improved nutrition knowledge, ability to identify and correctly understand how to read a nutrition facts label, and confidence in their ability to choose healthy

		snacks and meals” (Robertson, 2021). Not only did this assessment find students benefiting from nutrition education, but teachers and educators as well. Educators became more aware of what foods they were consuming, resulting in: fewer sugar sweetened beverages, increased consumption of fruits and vegetables, improved eating patterns and increased consumption of milk and dairy foods. Teaching by doing showed to be one of the greatest ways to encourage positive behaviors. This ripple effect made a visible difference in the lives of students and teachers, creating an increase in positive health behaviors throughout the community (Let's Eat Healthy, n.d.).
Federal/State	CalFresh	CalFresh is SNAP for Californians designed for low-income families who meet eligibility (California Department of Social Services CalFresh Program, n.d.)
Community	The Food Education Project	Created and taught by a team of clinicians, chefs, and educators, The Food Education Project's mission is to improve health through environmental awareness! Through four major components -- health, nutrition, environment, and food curricula, students engage in hands-on material that improves their knowledge about how food affects the body and health. As a community-based behavioral intervention and the "new health curriculum" in San Francisco, and soon-to-be expanding to the East Bay, we introduce lesson plans on farming techniques, health education, diabetes, and globally diverse nutritional concepts (just to name a few) to grades K-12, adhering to the eight core standards of the Department of Education. FEP is currently serving McKinley Elementary School located in the Castro District in San Francisco.
Community	Urban Home Garden Program: Santa Clara County	A community garden in Santa Clara County showed increases in home cooking, physical activity, consumption of fresh foods and a decrease in fast food consumption (Palar et al, 2019).
Organizational	SFUSD	The current food and health education policy is that students receive a minimum of 20 health lessons per grade per year. The curriculum recommendation goes as follows: <ul style="list-style-type: none"> • 3 lessons on mental, emotional, and social health (including violence prevention) • 3 lessons on growth and development (includes HIV prevention, safe touch, and puberty for 3rd, 4th, and 5th grades) • 3 lessons on alcohol, tobacco, and other drugs

		<ul style="list-style-type: none"> • 3 lessons on nutrition and physical activity • 3 lessons on personal and community health • 3 lessons on family diversity • 2 lessons on other health content areas and relevant health issues based on students' needs and concerns (SFUSD, 2021). <p>In San Francisco Unified School District (SFUSD), there are currently interventions at play to address the need for nutrition and food education. Student Nutrition Services (SNS) works to provide students with the equitable support they need to succeed through proper nourishment. During the summertime, SNS provides free meals for all youth and during the school year, breakfast, lunch, snack and dinner are offered. Within these meals, students have options of various fruits, usually apples, pears or oranges, and 1% or fat free milk along with a meal of protein, grains and vegetables (SFUSD, 2022).</p>
Interpersonal	Peer-Led Nutrition Education Programs	Peer-led nutrition education programs are becoming more popular, but there have not been studies assessing its direct impact on health outcomes. Studies of smaller scale schools and primarily teacher-led education have been conducted, but due to methodical limitations, significant conclusions were unable to be made (Yip, et al., 2016).
Individual	Primary Data Collection	Students participating in FEP have provided feedback regarding their personal choices when it comes to cooking. They have used chia seeds, avocados, and even spinach in their smoothies, which many did not think they would like.

APPENDIX C: NEEDS ASSESSMENT SURVEY - PARENTS
McKinley Elementary School Health Needs Assessment Survey

Household Information

1. How would you describe yourself? (Circle all that apply)

- a. White
- b. Black or African American
- c. American Indian or Alaska Native
- d. Asian
- e. Native Hawaiian or Other Pacific Islander
- f. Other: _____

2. Are you of Hispanic, Latino or of Spanish origin? (Circle one)

Yes	No
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3. Are you the head of the household? (Circle one)

Yes	No
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4. How many people (including yourself) live in your household? _____

Community/Household Needs

5. How would you rate the following for your household? (Check all that apply)

	Not Often	Somewhat Often	Often	Very Often
Home cooking				
Eating take-out				
Home gardening				
Grocery shopping with your student				
Talking about food and nutrition with your student				

Eating a balanced diet (fruits, vegetables, dairy, grains, protein)				
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6. Which of the dietary needs apply to your household? (Select all that apply)

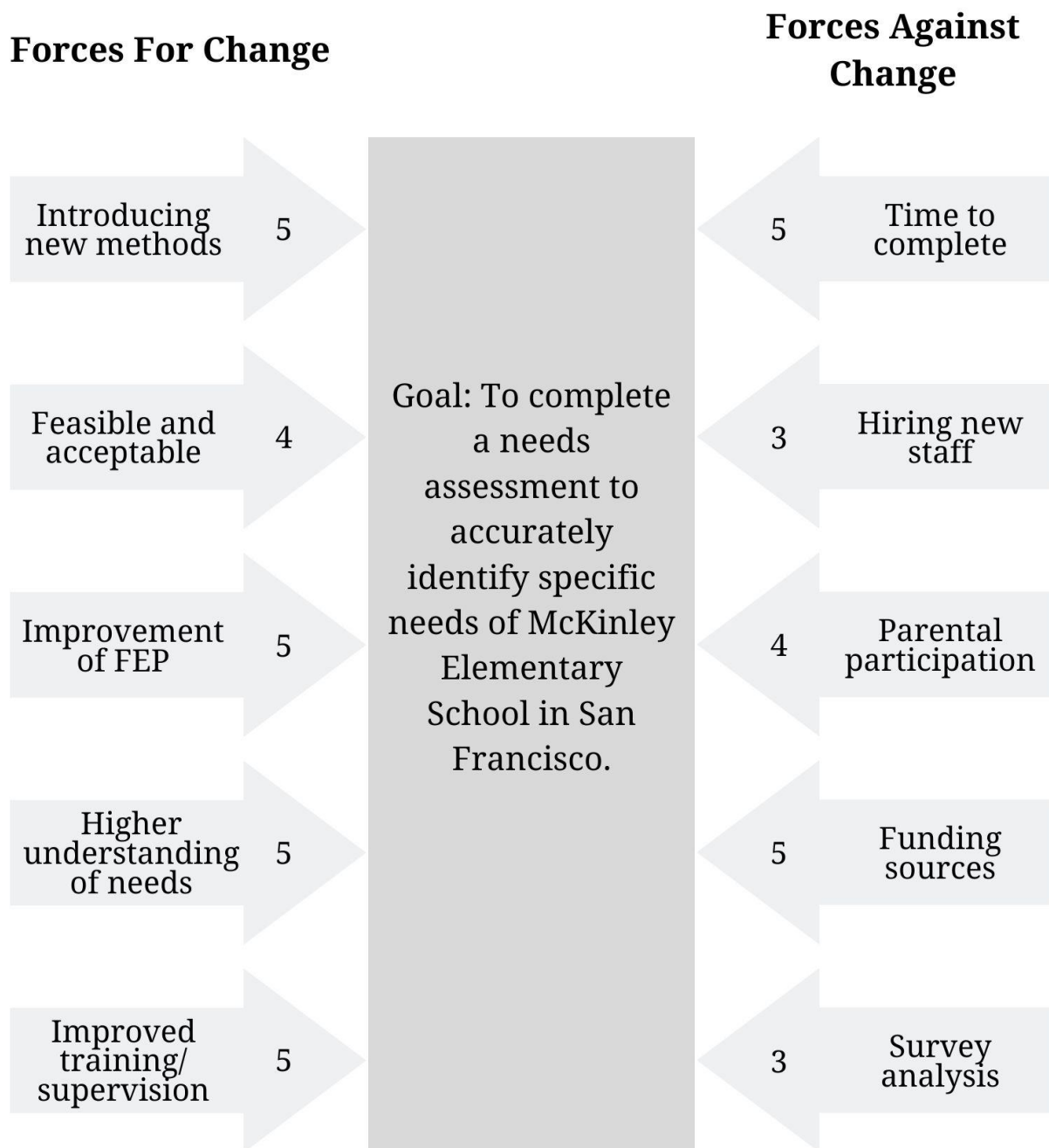
Dietary Need	Check if Applicable
Vegetarian/vegan Gluten free	
Sugar free	
Food allergies	
Religious reasons	

7. How would you rate the following problems for your household that may be barriers to healthy eating? (Select all that apply)

	Serious Problem	Moderate Problem	Not a Problem	N/A
Income/wages				
Lack of time to prepare meals				
Work schedule				
Lack of transportation to a grocery store				
Unaware of healthy eating habits				

8. Is there anything specific to your household you would like to share with us so we can best serve your students?

APPENDIX D: FORCE FIELD ANALYSIS FRAMEWORK



APPENDIX F: MID-YEAR SURVEYS - STUDENTS

Food Education: End of the Semester Survey

Name _____ Grade _____ Semester _____

1. What was your favorite part about food ed? (Circle all that apply)

- a. Cooking
- b. Games (bingo, musical chairs, red light green light, trivia)
- c. Recipe books
- d. Other _____

2. What would you like to see more of?

3. List 2 things you learned during food ed.

- 1. _____
- 2. _____

4. What was your favorite recipe? (Look back at your recipe book!)

5. Will you be joining food ed next year? (Circle one)

- a. Yes
- b. No

APPENDIX F: MID-YEAR SURVEYS - PARENTS

Food Education: End of the Semester Survey

Name _____

Semester _____

1. On a scale of 1-5 (1=low, 5=high), do you think your child benefited from the food education classes? Why?

2. What would you like to see or hear more of in food ed?

3. How often does your child talk about food education at home? (Circle one)

- a. Not at all
- b. Sometimes
- c. Often
- d. All the time

4. Would you send your child back to food ed next semester? (Circle one) Why or why not?

- a. Yes _____
- b. No _____

5. Do you have any additional comments, questions or concerns?

APPENDIX F: MID-YEAR SURVEYS - EDUCATORS

Food Education: End of the Semester Survey

Name _____

Semester _____

1. On a scale of 1-5 (1=low, 5=high), did you feel the training you received was sufficient?

2. If you did not feel like you received sufficient training, please explain where improvements can be made and what information you wish you had?

3. Were the materials provided accurate to the needs of the students? (Circle one)

- a. Yes
b. No
c. If “no”, please explain

4. What worked and did not work for you in the classroom?

5. Any other comments

APPENDIX G: MPH COMPETENCIES

CEPH Foundational Competencies

Competency	Anticipated FW Activity
Evidence-Based Approaches to Public Health	
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software as appropriate	Conducting a literature review of existing health education training materials and practices
4. Interpret results of data analysis for public health research, policy and practice	Analyzing and interpreting existing literature to improve the training materials of the Food Education Project.
Planning & Management to Promote Health	
7. Assess population needs, assets and capacities that affect communities' health	Assess the specific needs of McKinley Elementary School and Daniel Webster Elementary School in order to create materials specific to their health needs.
8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs	Utilize personal experience, awareness and observations to create the most effective training materials for the identified population.
9. Design a population-based policy, program, project or intervention	A training guide for health educators based on existing projects and policies will be designed.
Policy in Public Health	
15. Evaluate policies for their impact on public health and health equity	Research and evaluate existing policies with in SFUSD in order to develop the most effective training materials
Systems Thinking	
22. Apply systems thinking tools to a public health issue	Write reflections upon the different systems that work together within the school system and nutrition

MPH – Health Policy Leadership Competencies

Competency	Anticipated FW Activity
3. Formulate efficient health policy change recommendations through the analysis of proposed health policy initiatives that could affect health outcomes of vulnerable populations	Create a training guide with potential health policy recommendations based upon current interventions.
4. Develop recommendations to improve organizational strategies and capacity to implement health policy	Develop a training guide and other materials for on-boarding and current health educators of the Food Education Project