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# The Impact of Health Education Among Communities w/ The Food Education Project: Exploring Healthy Eating to Modify Health Behaviors Among Youth, A Primary Intervention

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The Impact of Health Education Among Communities w/ The Food Education Project:  
Exploring Healthy Eating to Modify Health Behaviors Among Youth, a Primary Intervention

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### Abstract

Obesity and diabetes among adults and children remains a public health concern. Rates of obesity among both demographics are slowly increasing. A plethora of research is available that unveils demographics of those who are at risk of obesity and diabetes. Barriers to healthy eating have also been documented. However, obesity remains a behavioral concern. The Food Education Project (FEP) began in 2012 and emphasizes health education throughout partnered schools in San Francisco. Health educators are employed and lead after school enrichment courses which are chosen by students. The students served are aged 5-17 and are at risk for obesity in public and private schools. Lesson plans are generated according to age group to engage students and enhance knowledge surrounding health, food, environment, and nutrition. Students are taught self-efficacy and self-awareness through cooking healthy meals and participating in outdoor gardening activities throughout the 36-week course. Parents of elementary school children expressed gratitude for FEP upon interaction with health educators. Students have expressed their desire for healthy eating through their enthusiasm and excitement during courses. Future work should analyze surveys distributed to Immaculate Conception Academy High School, a partnered school and second cohort with FEP. Pre- and post- surveys should assess knowledge retained and behaviors changed after the culmination of the course to evaluate the effectiveness of the program. Call for more support from governmental organizations to contribute to healthy eating could be beneficial to improve community health.

The Impact of Health Education Among Communities w/ The Food Education Project:  
Exploring Healthy Eating to Modify Health Behaviors Among Youth, a Primary Intervention.

## **Introduction**

### **Epidemiology**

There is evidence of increased rates of obesity among youth aged 5-19 and adults aged 20+ in the U.S. Obesity is an unhealthy weight determined by body mass index (BMI), which calculates the height and weight of an individual as a ratio. Additionally, clinical assessments measure body fat to determine health risks associated with obesity among individuals, specifically (BMI., 2015). The prevalence of obesity continues to gain momentum in communities. It is indeed an epidemic. From 1999-2014, the prevalence of obesity among adults and youth have steadily increased throughout the nation. In 1999-2000, 30.5% of adults were considered obese. In 2013-2014, the percentage increased to 37.7%. For youth, 13.9% were obese in 1999-2000. The value has recently increased to 17.2% in 2013-2014. Groups disproportionately affected were non-Hispanic black women (56.9%) and Hispanic males (22.4%) among youth respectively (Ogden, 2015). In California, increased rates of obesity are similar.

In 2012, the prevalence of obesity in California among adolescents was 15.8%, while the prevalence of obesity among adults was 25.4%. Groups disproportionately affected in California are African American women (41.6%) and African American youth (28.6%). The county of San Francisco is ranked the lowest when considering prevalence of obesity in California. Nevertheless, prevalence of obesity in San Francisco should not be disregarded. Currently, 11.3% of adults in San Francisco are obese. 19.0% of low income children aged 5-19 are obese.

Data shows low income households and communities demonstrate higher rates of obesity. All socioeconomic groups continue to show increased rates of obesity (Keihner, 2014). As a result, increased rates of obesity are related to further health consequences.

### **Risk Factors**

All populations are at risk for obesity. However, some populations are more susceptible than others. Communities, families, and individuals lack support throughout their daily lives and as a result, their options to pursue healthy eating choices are limited. Unsafe neighborhood environments, dietary behavior and lack of knowledge are only a few of the risk factors that have been documented.

Unsafe neighborhood environments contribute to obesity. Due to stressors such as crime, parents limit their children from socializing with their peers and are not afforded the privilege to participate in long periods of physical activity. Instead, families spend their time indoors receiving little to no socialization and physical activity. As families are also limited to outdoor activities during certain periods of time throughout the day, this limits them from frequenting grocery stores and parks in their local community (Cecil-Karb, 2009). As a result, families and children who live in unsafe neighborhoods lack resources for healthy eating and active lifestyles.

Dietary behavior and the choices individuals make affect their health. Consumption of sugary sweetened beverages contribute to unhealthy eating. Studies have shown associations with sugary sweetened beverages, fast food, unhealthy snacks, and obesity. Children who consumed fast food and sugary sweetened beverages four times a week on average demonstrated increased BMI values than those who did not (Collison, 2010). While the availability of unhealthy items is easily accessible and predominantly available, the choice to consume

unhealthy items is a behavior that leads to further consequences. However, children may not possess the knowledge to choose better options.

Many children are unaware of healthy eating and do not know how to eat healthy. Children's knowledge about nutritional value of foods remains low. They can distinguish items healthy food items from unhealthy food items, but not necessarily provide explanations behind such conclusions (Heidelberger, 2014). Options in their environment consist of fast foods which are easily accessible and convenient. It seems children rarely get exposure to healthy food items. Therefore, these items may be mostly desired due to its prevalence and availability in their environment. As a result, healthy eating is a behavior that must be introduced at a young age to combat obesity, type-II diabetes, and prevent heart disease among those at risk.

### **Health Consequences**

Many adverse consequences occur concurrently with obesity, making individuals more susceptible to acquire other comorbid conditions. Obesity affects metabolism, insulin production, and fat burning which are all necessary to function. Most notably, obese individuals are likely to acquire heart disease and type-II diabetes.

Heart disease remains the leading cause of death in the U.S. Data from the Centers for Disease Control and Prevention (CDC) shows that in 2013, approximately 23% of deaths were due to heart disease (Xu, 2016). Heart disease is a serious condition affecting blood vessels which prevents proper blood flow to the heart and, in many cases, is fatal. Heart disease is acquired through poor eating habits and can be adjusted. Among the risk factors for heart disease is obesity, which is acquired through poor eating habits and can be adjusted through acquiring

healthier eating habits and lifestyles. In many instances, heart disease is preventable by behavior modification if healthy eating habits are introduced at an early age.

Type II diabetes remains the seventh leading cause of death in the United States. In 2013, 3% of total deaths were caused by type II diabetes (Xu, 2016). It is an endocrine condition that prevents the pancreas from producing insulin properly, thus impeding adequate maintenances of blood sugar levels. Some of the risk factors for type II diabetes are being overweight and sedentary lifestyles. Type II diabetes accounts for 95% of new cases of diabetes each year (Centers for Disease Control and Prevention, 2016). The staggering evidence of these risk factors and health consequences is evident. Adjustments must be made in communities, families, and children.

### **Background Section**

Introducing healthy eating habits to low income communities in schools is an effective method to combat obesity amongst children and their families. This sets a foundation to teach children and families healthier food options in their environment. Historically, BMI is used nationally across schools as a rough estimation of overweight and obesity among children. Homing in on schools and relationships to student's zip codes reveals variables that contribute to access and affordability of fresh fruits and vegetables. As a result, BMI increased at .55 unit's faster rates when prices of fruits and vegetables were higher using zip codes. Communities with greater access to affordable fruits and vegetables demonstrated a slower BMI increase. Thus, healthy eating may not be feasible or affordable in many parts of the U.S. In contrast, BMI values among children have increased despite socioeconomic status (Sturm, 2005). Therefore, knowledge of healthy foods in communities may be low.

Qualitative data has been collected to assess the knowledge children aged 8-13 have regarding healthy foods in relation to their health. Researchers developed focus groups to understand their eating patterns in relationship to available foods in their environment. These groups were questioned about nutritional value, home cooked meals, foods eaten at home and in social settings. In addition, participants were asked to describe who and what they believe influences how they eat. Children were unable to explain why fruits and vegetables were healthy, yet understood fast food items are unhealthy. Overall, their knowledge of health and health benefits of foods eaten was low. Many factors that contributed to unhealthy eating were influenced by their peers and family members. This unveils the importance of support toward healthy eating to improve communities. Fast food and unhealthy foods gained more appeal to

children when observing their family members eating these items. Family meals have also influenced eating behaviors of children and was an important finding that demonstrates the support children require to eat healthy. The act of cooking remained a skill these groups wished to explore (Heidelberger, 2014). Exposure of healthy foods in children's environments is essential to combatting obesity. Choosing healthy foods becomes a challenge for demographics who are not supported in their daily activities. Children and families are unaware of healthy eating habits. As a result, incorporating healthier eating habits, increasing knowledge about nutrition, and the environment becomes a priority in schools. In the same respect, nutritional and health knowledge of teachers may not be able to fully support such education.

The amount of time students spend in school creates a gateway to improve their knowledge about nutrition and healthy eating. Teachers are aware of the importance of health education. By contrast, teachers in school districts also lack support and knowledge to enhance children's awareness of healthy eating. Among teachers surveyed, 50% did not possess knowledge to implement or focus on nutrition (Kinsler, 2012). Teachers multitask, teach multiple subjects, and work closely with hundreds of students throughout the year. Teachers need additional support in a school setting and other programs should be implemented to support children at risk of obesity and type-II diabetes.

Governmental support remains influential to combat obesity and diabetes. Many children and families rely on Women, Infants, and Children (WIC), a governmental assistance program that offers services to low income families. Currently, WIC supports low income families and their children throughout the nation to purchase food items. WIC services influence decisions low income families make regarding purchased food items. Attaining fresh fruits and vegetables

utilizing WIC services remains an issue regarding the choices participants make. A study conducted on rural and urban families assessed consumption of fruits and vegetables among WIC participants. While fruits and vegetables are available, unhealthier options such as packaged and frozen foods remained the choices most purchased. Urban families consumed more fruits and vegetables than their rural counterparts, fruit and vegetable consumption remained low. Among the sample surveyed, 18.1% of women who live in an urban setting and 10.6% of women who reside in a rural setting expressed they consume fruits more than 4-6 times per week. 23% urban women and 16.1% rural consumed vegetables more than 4-6 times per week. Children who reside in these rural and urban areas demonstrated slightly lower fruit and vegetable consumption than rural and urban women (Ettienne-Gittens, 2013). While WIC services are readily available and governmental assistance funds are accepted in supermarkets to support healthy food options, food choices must be adjusted to support better decision making in homes. For this reason, further support from governmental agencies is required.

The Healthy, Hunger-Free Kids Act was signed into law in 2010. It is an effort to combat childhood obesity and improve healthier decision making among children. Services include extending federal funding to public schools. USDA has also been authorized to become involved with schools by creating regulations for school meals to support underserved communities by eating healthier foods. Important adjustments require schools to serve fruits and vegetables during breakfast and lunch meals (Healthy, Hunger-Free Kids Act of 2010, 2011). This Act supports and increases knowledge of nutrition by providing healthier food items in schools. This exposes children and families to healthier foods on a more frequent basis. The Healthy Hunger-Free Kids Act has been strengthened by Michelle Obama's *Let's Move!* program. This effort also

aims to provide nutritious food to children and their families on a more regular basis. *Let's Move!* addresses the importance of daily exercise and health education (Lets Move!, 2010). Because of these initiatives, progress continues to be made on a smaller, local level.

Many interventions have demonstrated creative ways to combat obesity among demographics at risk. Incorporating and developing strong communities through the utilization of elementary school aged children has become a growing trend in recent years. Project FIT, an intervention program has continued to draw and support ideas from Healthy, Hunger-Free Kids Act of 2010. This program utilized four low income schools in Grand Rapids Michigan to improve eating habits and physical activity using their community through social marketing, nutrition education, provided extensive trainings to teachers, provided access to tools, a curriculum promoting nutrition and physical activity and provided parent education trainings on nutrition. Upon assessment, students could identify healthier food options and increased their knowledge in a school setting. The intervention spanned for two years and found a small increase in consumption of fruits, vegetables, and whole grain bread. This study improved dietary outcomes for students with low socioeconomic status and improved decision making regarding better food options (Alaimo K. C., 2015). Efforts in combatting obesity through healthy eating is a popular trend occurring in many schools. Examining a clinical standpoint to help combat obesity and diabetes will be investigated.

Programs have been created to support individuals in secondary and tertiary stages of clinical disease. Like school aged children, individuals at this level have very little knowledge of healthy eating and physical activity. In a clinical setting, participants were selected and paired with exercise specialists. This cohort was followed for 24 weeks and demonstrated improvement

in physical activity throughout the courses. Shortly after, participant's physical activity declined greatly (Mladenovic, 2014). This reflects self-efficacy and support. While participants were given support during courses, participants did not have the same support in their home and personal environments. To conclude, programs such as this may not be as sustainable or reflect an individual's strengths. Improving health at a community level, rather than an individual level may be the best solution to improve health.

The Food Education Project (FEP) shares similarities to previous interventions noted. Providing support to communities and individuals through demonstration and education are commonalities of many organizations. FEP also incorporates a sustainable approach utilizing all resources in the community. FEP continues to set itself apart from other organizations by providing tangible environmental components such as urban gardening, discussing current health events and initiatives with students. The scope thus goes beyond nutrition and physical activity. It encompasses how health and well-being can be enhanced at a community level through environmental awareness.

### **Scope of Work**

FEP is a local non-profit organization. Since its inception in 2012, its mission is to improve community health through environmental awareness. After 14 years of health education and working with diverse communities, Executive Director Amanda Lesky saw the need to create a program catered to youth to provide tools necessary for healthy eating habits. FEP promotes self-efficacy through cooking and gardening, and aims to alter attitudes and behaviors through healthy eating. FEP believes there are three components that contribute to a child's health outcome: lunch programming in schools, nutrition education programming in schools, and out of school time nutrition education programming. These set the foundation for children's perceptions about food at a young age. Exposing youth to new and intriguing foods found in their environment improves their knowledge in a school setting which is then taken home and introduced to their families while discussing their activities and events at school.

Health education is utilized as the primary outlet to distribute information to youth aged 5-17. This focus is taken into classroom settings throughout the San Francisco Bay Area during after school enrichment activities. During class, four main components are emphasized: health, food, environment, and nutrition throughout the health curriculum in schools. It is a 36-week program geared toward increasing awareness, knowledge, developing positive attitudes and motivation for students in a classroom setting their home setting as well. This program also aims to sustain and improve their overall health. Students are encouraged to adjust their behaviors to reduce childhood obesity and type-II diabetes. This effort also motivates social teaching among demographics, create efficient consumer resources, and creates less waste in communities.

This program is supported by 9 board members, 4 staff members and 3 volunteers. Board members include faculty from the University of San Francisco, clinical professionals, and chefs. FEP staff members include graduate students from USF with a background in public health who have experience working with youth and other non-profit organizations. Volunteers are chosen by their interests and passion for environment, improving community health, their experience with education and culinary interest food. Since its inception, FEP has currently reached out to over 1000 students. The work fulfilled by health educators and volunteers during classroom and community activities are supported by board members. Guidance from the board helps bridge gaps around food consciousness in areas of San Francisco that have historically been underserved.

FEP provides unique learning experiences that are created for each classroom. Currently, FEP is partnered with Daniel Webster Elementary School, McKinley Elementary School, and Immaculate Conception Academy. More recently, FEP established partnerships with Stuart Hall High and Calvary Presbyterian Church and courses will begin in the summer of 2017. These schools exist in areas of San Francisco where students face numerous economic barriers that include access to nutrient dense foods and fresh produce, because of their low-income status. The demographics reached are Latino (30%), Caucasian (20%), Asian (25%), African American (22%), Native Hawaiian or Pacific Islander (1%) and students who identify as mixed race (2%). Students elect FEP as an elective course, giving themselves the opportunity to expand their knowledge to promote sustainable consciousness around food and long-term health and wellness. This program aims to adjust behavior and extend support to students and their families at a community level.

The Social Ecological Model of health promotion presents five levels in which change can occur. Creating change at a community level accurately describes FEPs intention to adjust behaviors by introducing cooking strategies and knowledge in a creative way to the population. Creating dialogs and lesson plans about health with students in classrooms creates discussion in their households and their communities.

All partnered schools have expressed the need to eat healthy. Currently, FEP is serving the Castro District, Portero Hill, and Mission District in San Francisco. In 2016, approximately 11,291 participants received assistance from WIC in San Francisco (San Francisco Food Security Task Force, 2016). Households that are low income in these specific regions of San Francisco are Black/African American, American Indian/Alaskan Native, Native Hawaiian/Pacific Islander, and Latinos. Despite the average annual income quickly increasing in California, these low-income households are put at risk for hunger. Low income families reside in all parts of San Francisco. Families in these districts are low income and many children live in single parent households. With variables such as increased cost of living drastically increasing, families have expressed difficulties in acquiring food and cooking healthy foods given their lack of resources. Because of this, health educators craft activities and in class sessions based on the need of the demographic.

### **Health Educator**

Composing lesson plans requires extensive research exploring current topics, incorporating them with accurate information, and assuring the 4 health components in each lesson plan are met. Each lesson plan is crafted by considering the age group of the demographics in each school and ensuring the information is age appropriate when given to

students. The lesson plans consist of a formula presenting historical facts of said topic/food item/area of focus, incorporating how said foods or behaviors affect the environment and surrounding communities, followed by health benefits and nutritional information of said topic/food item/area of focus. Lesson plans also ensure safety of students and create a safe space for discussion and questions. Following lecture, students are tasked with a hands-on activity to exercise their knowledge of the lesson provided. They are given visuals of what was discussed, thus gain a larger understanding of such items available in their environment. Most activities offer the students an opportunity to cook and practice their responsibilities utilizing cookware and kitchen tools. Students are also assigned outdoor gardening activities while receiving direction and assistance from the health educator.

Daniel Webster Elementary School and McKinley Elementary School are schools that share the same demographic and age group. Two days of the week, FEP holds two one hour sessions with 1<sup>st</sup> graders and kindergarteners. Class sizes range from 15-20 students per session. Lesson plans here are crafted to ensure the health educator and school staff are monitoring student's safety when cookware and kitchen tools are present. Students are also given coloring worksheets to provide and introduce terminologies and visuals of topics given. Lesson plans are developed differently according to age group, demographic and grade level.

Immaculate Conception Academy is an all-girls high school partnered with local businesses in the community that provide students with work experience as well as prepare them for higher education. Students enrolled in FEP are Freshman, Sophomores, and Juniors. Class sessions meet once a week for two hours. While the formula for composing lesson plans remains the same, students at ICA also lead the class through engaging in discussion by expressing their

interests and asking questions regarding current health events. Students are interested in topics such as women's health, healthy eating, nutrition, politics, and chemicals in their food. Thus, they can create dialogue and discussion during each course in small groups and large class discussion. Class sizes vary with their work schedules. On average, FEP class sizes range from 10-25 students. During the activity segment of the course, students work more independently and responsibly within groups and require less monitoring during activities.

### **Grant writing**

Currently, FEP is looking forward to expanding their services to neighboring schools in San Francisco and other parts of the Bay Area. To do so, additional funding is required through the grant writing process.

Grant writing remains a crucial component of sustaining a non-profit organization. This requires extensive research on potential community partners, foundations, organizations, and new tech companies in the local area. Grants and potential funders are chosen when values and beliefs coincide and align with FEPs. The task given requires researching grants and assuring the grant application requirements are met according to the foundations criteria. Research begins by assuring values and beliefs align with each other and assuring all documents and information is readily available. Many applications require statements such as program goals, intention for funding, and plans for measurement and evaluations.

Currently, FEP is working on composing a Letter of Intent to submit to Cathay Bank Foundation as well as Northern California Grass Root Funds. I am researching several wineries who support environmental education to ask for donations. The grant writing team collaborates

and communicates via Zoom conference calls and emails to follow up on tasks, provide supportive feedback, revise documents, and discuss in detail the progress of the applications.

### **Evaluations**

All three schools are unique and have successfully been a part of the FEP experience. Daniel Webster Elementary School and McKinley Elementary school are excellent partnerships that can be evaluated quantitatively through surveys. Pre- and Post- tests throughout each school year. Qualitatively, parents have expressed their gratitude for the program. Creating dialog within families about healthy foods, the way they were created, and reinventing them at home has been the biggest success at all schools.

FEPs second cohort in ICA is in their senior year and will be culminating at the end of the Spring 2017 semester. Four surveys were distributed that measured knowledge of healthy food, biology, nutrition, and salad toppings during the end of their FEP experience. During their senior year, students from the same cohort were given the same surveys to measure change and knowledge retained. I received post test data conducted in 2015 as well as follow up post test data. All students were given surveys during their regular school periods and distributed by one of the faculty members of ICA. These surveys will be compiled to analyze the strengths and weaknesses of the core curriculum. Qualitatively, surveys will reveal knowledge retained and adjusted eating behaviors.

## **My Objectives**

Throughout my fieldwork with FEP, I have gained tools and enhanced my skillset by working with new communities, age groups, and demographics in a school setting. The objectives I set forth for myself have been supported by this organization. As a public health candidate, there are integral skills I believe must be explored. Among them are acquiring skills to become an educator, effectively communicating with potential partners and stakeholders, monitoring and evaluating programs, and effectively communicating public health messages.

Developing and enhancing skills to educate and inform different age groups is a process that requires years of practice to achieve excellence. Teaching and discussing topics pertaining to health, food, nutrition and environment across communities provides valuable skills that can be added when working with an array of communities and demographics. The ability to lead conversations and present knowledge is invaluable. This will be utilized for future endeavors in public health.

Effectively communicating to stakeholders is necessary for promoting public health programs. This valuable skill allows individuals to meet with potential partners and conduct research on organizations who share the same values. Becoming acquainted with local and national businesses extends networking opportunities to build relationships and expand personal skills. This enhances communication skills in preparation for working with diverse groups and communities. Learning to collaborate with others provides opportunities for growth and success.

Monitoring and evaluating programs and its effectiveness in diverse communities served is a powerful skill to attain. This demonstrates thorough knowledge of the programs mission, goals and objectives in addition to being able to monitor the progress and steps FEP is taking to

achieve the mission in place. Monitoring how goals are managed is essential to improving the program. The evaluation process provides experience of distributing, collecting, and analyzing data. This helps to evaluate the progress the organization is making through a collection of surveys and observation. Gaining an understanding of how activities are met and how these goals are attained allows for improvement to smoothly run the program. Evaluating progress of the programs goals and objectives gives the FEP surveys through surveys and calculating data demonstrates the ability to analyze and think critically. This has been achieved by observing the data and being physically present through class sessions taught. Communicating public health messages have been conveyed through lesson plans.

Effectively communicate public health messages to demographics served is an invaluable skill and ability to connect with diverse members of the community who express need for health education. The work I have been compiling consists of researching current topics and defending topics with accurate and evidenced based research. Learning to compose accurate research organizes myself as an educator as well as helps to translate information according to age group to present such lessons for in class discussion.

FEP has guided me in attaining my goals. I have strengthened my skills in public speaking and leading in class discussions. I have also fulfilled other goals by gaining confidence in engaging with communities and have been able to work on evaluating programs through quantitative and qualitative assessments among schools reached. I have also gained invaluable experience learning and teaching health, food, nutrition, and environment with FEP.

### **Public Health Impact**

An array of topics has been taught during class sessions to improve behavior and knowledge surrounding health and food. The indirect services fulfilled to modify behavior and improve healthy eating can be seen through grant writing and evaluations. The duties of being a health educator, grant writer, and evaluator has been rewarding. These experiences also bring forth recommendations to improve the program and future services.

### **Health Education**

Many lesson plans have been created catering to demographics, age groups, and cultural background. Activities are given and adjusted according to student's capabilities. Crafting lesson plans for schools and different age groups requires extensive research, approval from supervisor, teamwork, and creativity.

**Daniel Webster Elementary School and McKinley Elementary School** Elementary school aged children require different resources to lead class sessions. School staff is always present during lecture and activities to assist with large class sizes and behavioral issues. As a result, the importance of developing a lesson plan that keeps children engaged and interested is crucial in crafting lesson plans for this age group.

Creating lesson plans based on student interest and ideas exchanged with my supervisor and other health educators contribute to lesson plans. On occasion, the school will also have themes to incorporate in lesson plans. While conducting research for topics with this age group, it is imperative to consider resources that support the delivery of age appropriate material to discuss topics at a level that is well understood and tangible. Lesson plans are evidenced based,

current, and accurate. The four main teaching components are outlined accordingly. Fun facts of chosen topics are always incorporated to keep children engaged and interested.

During class sessions, lecture is approximately 30 minutes with an activity attached to lecture. Many of these activities include coloring worksheets, cooking, and gardening. Extra attention is given when students are working with knives, stoves, and cookware. During cooking activities, volunteers are chosen based on good behavior. Students express excitement when food is present. Children are eager to learn about food, eat, and volunteer. Parents are also appreciative and express gratitude for the program.

**Immaculate Conception Academy High School** During the 36-week program, lesson plans were thoughtfully crafted with ideas expressed by student interest. During the first session of the Spring semester 2017, students were asked about their interests in relation to food, nutrition, environment, and health. Given the unique demographic, women's health issues were also carefully crafted into class sessions. Lesson plans were also developed to be relatable to the students. By doing so, students are inclined to engage and participate during lecture. Collaborating with colleague and fellow health educator Nandi Robinson, we thoughtfully planned topics according to their interests and cultural backgrounds. Through the information provided by students, lesson plans were created through extensive research and attaching lecture to hands on activities. All lesson plan topics were relevant, current and coincides with the values of FEP.

Lesson plans are combined with evidence based research. Researching topics based on student interest created a skeleton for class sessions. Current health events based on interest were researched and supported by reliable journals and governmental agencies. General outlines were

developed relating to the main teaching components. One hour long lesson plans were crafted for the two-hour class sessions. During the lecture, questions about student's lifestyles and beliefs were incorporated to engage participation. The second half of class consisted of a cooking or outdoor activity provided with tools to fulfill tasks. Indoor activities required cookware, gloves, stoves, food, cutlery, and recipes. Outdoor activities required gardening tools such as shovels, soil, and organic seeds. Students worked in groups and used tools responsibly. They also expressed interest and appreciation for learning new methods of cooking, gardening, and introduction of new topics and ideas. Future health educators must remember to always be three steps ahead of their students to be able to answer questions or resolve conflicts in class.

Altogether, I have composed approximately 25 lesson plans for these schools as a health educator. Many unique lesson plans require collaboration and ideas built upon by students. Demonstrating cultural competency and awareness involved researching backgrounds of demographics served, finding commonalities of foods eaten, choosing a to create a discussion of similarities of foods that are eaten across the world (see Appendix F).

### **Grant Writing**

Grant writing began with extensive research of local, state, and federal funding. A vast amount of information is required to submit a grant or to be accepted to submit a grant application. Since then, the grant writing team has worked on a letter of intent for The Cathay Bank Foundation, hard ask letters and phone calls to local wineries, and Northern California Environmental Grassroots Fund.

A letter of intent requires filling out necessary information upon the foundation or organizations request. This information includes name of organization, population served,

location of organization, amount of grant request, intended use of grant proceeds, and mission statement. This letter has been compiled using resources from The Grantspace Foundation as well as communicating with my supervisor.

Many wineries in the Bay Area donate to small nonprofit organizations. Conducting research on wineries and ensuring their values aligned with FEP created a list of wineries to email and call. Hard Ask letters require information about the organization, the amount in which is being asked, intended use for funding, and accomplishments of organization. Hard Ask letter samples were provided during the beginning of fieldwork. They have since been adjusted according to each winery. Wineries such as Treasury Wine Estates requires a submission of a Community Donations Request providing details of the organization and donation request.

Northern California Environmental Grassroots Fund grant application requires extensive tax information. FEP is seeking \$5000. Due to a change in the organizations fiscal year, the information requested was not available at the time of the deadline. Another opportunity to submit this application will come August 2017.

### **Evaluations**

FEPs second cohort in ICA is in their senior year and will be culminating at the end of the Spring 2017 semester. 4 surveys were distributed that measured knowledge of healthy food, biology, nutrition, and salad toppings during the end of their FEP experience. During their senior year, students from the same cohort were given the same surveys to measure change and knowledge retained. I received post test data conducted in 2015 as well as follow up post test data. All students were given surveys during their regular school periods and distributed by one of the faculty members of ICA. These surveys will be compiled to analyze the strengths and

weaknesses of the core curriculum. Due to time constraints, the data was not evaluated or analyzed.

### **Program Implications**

FEP has proven their strengths in the classroom and has built relationships by partnering with communities in the San Francisco Bay Area. One of the next major steps is to collect all data and surveys distributed. These data must be analyzed to gain a thorough understanding of what children already know, what information was retained, and how FEP has impacted their daily lives through the food choices they make. These results will allow FEP to strengthen their lesson plans and their organization accordingly. Surveys should be considered for elementary school aged children. Surveys should be developed and distributed during the 2017-2018 school year accordingly. Collecting and analyzing data may also strengthen and provide information for grant applications.

### **Policy Implications**

While many gaps are bridged through recent policies, there are many improvements that can be made. There is a need to call for USDA support. Through the Healthy Hunger Kids Act, USDA has gained momentum in schools by providing healthier items to school meals. This has been a big influence on the exposure children have been getting. USDA has made it mandatory to provide one fruit and or vegetable per school meal. In the same regard, healthy fruits and vegetables are often paired with unhealthy processed meats and fruit juices. The definitions given by the USDA should be redefined so that school districts can comply.

The San Francisco Unified School District adheres to USDA regulations. The Wellness Policy drafted in 2015 resembles the standards of these regulations (San Francisco Unified

School District, 2015). Adjustments can be made to these policies to require more fresh fruits and vegetables be available and limit the distribution of packaged snacks, fruit juices, canned items, and meats. In addition, health education should be a requirement for all school districts and should be a requirement for graduation.

### **Conclusion**

This project focused on healthy eating to combat obesity in communities utilizing schools as a gateway to inform children and the family members the importance of nutrition, health, food and the environment. Obesity rates are increasing throughout the nation among all age groups, demographics and socio-economic status. Obesity rates have increased specifically among Hispanic males and non-Hispanic black females in the U.S. (Ogden, 2015). In California, African American youth and women are mostly affected (Keihner, 2014). Those who acquire diabetes and obesity are likely to have further health issues such as heart disease later in life (Xu, 2016). Efforts to combat obesity and diabetes at a primary level of prevention and focusing on the health behaviors are not common. Instead, many efforts are recognized at a state, national and individual level instead.

WIC is a valuable governmental assistance program that helps low income families. It is evident that families' knowledge of healthy foods remains low as unhealthier food items are chosen even though access to healthy food items are available (Ettienne-Gittens, 2013). Community efforts such as Project FIT incorporates social media, schools, and their employees to create health behavior change at a community level (Alaimo K. C., 2015). HEALD, at an individual level offers support to individuals living with diabetes (Mladenovic, 2014). Efforts to combat obesity have taken steps to improve the health and well-being of populations. However, additional efforts can be made to improve these outcomes.

Incorporating food, nutrition, health, and environment through a public health lens is effective in adjusting health behavior and combatting obesity. Health education creates a positive change. This is evident through the efforts made by The Food Education Project. This program

promotes self-awareness, knowledge, and self-efficacy in addition to health. Through composing and distributing surveys, FEP has successfully improved the knowledge of the students of this program.

Data collected from the first cohort at ICA should soon be analyzed to compose quantitative and qualitative data to understand the impact of the program as well as adjustments that can be made within. Through observation and discussion, students are aware of the healthier food options available and wish to incorporate these items in their diet more often. Families approach FEP educators to give thanks for a wonderful program. Children share their experiences with their families, take recipes given at home and as a result, teach their families how to make healthy food items found in their environment. The program is effective through dialogs encountered by health educator to parent. As a result, a call for more support at a local, state, and national level is imperative.

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**Appendix A**  
**USFCA MPH Competencies**

<b>USF MPH Competencies</b>	<b>Notes/Activities</b>
8. Apply awareness of cultural values and practices to the design or implementations of public health policies or programs	I composed lesson plans catered to specific demographics and age groups. I carefully designed lesson plans related to food and cooking by using the students backgrounds. I then composed and created dishes that were influenced by their upbringing and introduced them to new and healthier alternatives.
11. Select methods to evaluate public health programs	I will compose questionnaires and or surveys for adolescent aged children and collect qualitative and quantitative data to discover strengths and weaknesses of FEP.
18. Select communication strategies for different audiences and sectors	I utilized social media (Instagram) through marketing and advertising program to explain the positive impact FEP has made on children and their families. I researched community partners for potential funding and expansion. Other communication strategies used are grant applications, ask letters, and participation of community events to expand participation of local businesses and organizations alike.
7. Assess population needs, assets, and capacities that affect communities' health	I conducted research to apply specific lesson plans for specific age groups. This project addresses behavioral change through food and environment that aims to alleviate clinical diseases among communities and improve health. This addresses the health needs of their families and the children we work directly with. These needs were determined by conducting extensive research in San Francisco communities. I will also apply for grants and seek community partners throughout the area which will that require extensive research on demographics served.
19. Communicate audience- appropriate public health content, both in writing and through oral presentation	As a health educator, I composed lesson plans related to food, health, nutrition, and environment. In doing so, we led classes where the students could develop hands on

	approaches to learning healthy eating as well as engage during lecture. I also participated in community events, distributed information about health, diabetes, and obesity.
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**Appendix B**  
**Supervised Field Training in**  
**Public Health Student Learning**  
**Contract – Attachment 1**

Goal 1:				
Objectives (S)	Activiti	Start/End Date	Who is Responsible	Tracking Measures
Educate youth about health Food, nutrition, and environment through their families.	Give classroom lectures at partnered schools and developing curricula.	January-May 2017	Cheryl Aguilar	160 Lesson plans, give trainings to incoming volunteers.

  

Goal 2:				
Objectives (S)	Activiti	Start/End Date	Who is Responsible	Tracking Measures
Effectively communicate to stakeholders our needs and assessment for promoting public health.	Grant writing	January- May 2017	Cheryl Aguilar	100 In-kind and medium grants.

  

Goal 3:				
Objectives (S)	Activiti	Start/End Date	Who is Responsible	Tracking Measures
Monitoring and evaluating program and its effectiveness in diverse communities served,	Organized surveys pre- and post data.	January-May 2017	Cheryl Aguilar	20 Collected data from Immaculate Conception Academy High School.

Goal 4:				
Objectives (S)	Activiti	Start/End Date	Who is Responsible	Tracking Measures
Effectively communicate public health messages to demographics served.	Research clinical disease, analyze local and national data to enhance program goals, lesson plans, and perform events on behalf of organization.	January- May 2017	Cheryl Aguilar	20 brochures, surveys. Events: Corks n Forks, Ella Hutch, Health and Wellness, Family tryathalon, Mind, Body, and Soul



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**Appendix C**  
**Master of Public Health Program**  
**FIELDWORK TIME LOG**

<b>Student</b>	
Student's Name: Cheryl Aguilar	Campus ID # 20371088
Student's Phone: 323-401-7883	Student's Email: CSAguilar@usfca.edu
<b>Preceptor</b>	
Preceptor's Name: Amanda Lesky	Preceptor's Title: Executive Director
Preceptor's Phone:	Preceptor's Email: Amanda@foodedproject.com
Organization: The Food Education Project	
Student's Start Date:	Student's End Date: Hours/week: 5/28/2017

**Time Log for (Check One):**

**Spring 2017**                       **Fall 2016**  
 **Summer 2016**                       **Fall 2016**

Week	Total # of Hours for Week	Preceptor Initials
8/24-8/26	16	
9/10/2016	4	
9/12/2016	4	
9/19/2016	4	
9/26/2016	4	
10/3/2016	4	
10/17/2016	4	
10/24/2016	4	
10/31/2016	4	
11/7/2016	4	
11/14/2016	4	
11/21/2016	4	

<b>Week</b>	<b>Total # of Hours for Week</b>	<b>Preceptor Initials</b>
11/28/2016	4	
12/5/2016	4	
12/12/2016	4	
1/23-1/28/2017	10	
1/29-2/5/2017	19	
2/6-2/12/2017	16	
2/13-2/19/2017	11	
2/20-2/26/2017	14	
2/27-3/5/2017	10	
3/6-3/12/2017	21	
3/20-3/26/2017	17	
3/27-4/2/2017	15	
4/3-4/9/2017	24	
4/10-4/16/2017	27	
4/17/-4/23/2017	24	
5/1-5/7/2017	18	
5/8-5/12/2017	18	

**Appendix D**  
**Master of Public Health Program**  
**Student Evaluation of Field Experience**

<b>Student Information</b>	
Student's Name: Cheryl Aguilar	Campus ID # 20371088
Student's Phone: 323-401-7883	Student's Email: CSAguilar@usfca.edu
<b>Preceptor Information</b>	
Preceptor's Name: Amanda Lesky	Preceptor's Title: Executive Director
Preceptor's Phone: 415-310-6390	Preceptor's Email: Amanda@foodedproject.com
Organization: The Food Education Project	
Student's Start Date:	Student's End Date: Hours/week: 5/26/2017

**Please use the following key to respond to the statements listed below.**

SA = Strongly Agree A = Agree D = Disagree SD = Strongly Disagree N/A = Not					
<b>My Field Experience...</b>					
Contributed to the development of my specific career interests	SA	A	D	SD	N/A
Provided me with the opportunity to carry out my field learning objective activities	SA	A	D	SD	N/A
Provided the opportunity to use skills obtained in MPH classes	SA	A	D	SD	N/A
Required skills I did not have Please list: health education grant	SA	A	D	SD	N/A
Required skills I have but did not gain in the MPH program Please list: cooking, lesson plan development	SA	A	D	SD	N/A
Added new information and/or skills to my graduate education Please list: Provided experience working with new and diverse	SA	A	D	SD	N/A
Challenged me to work at my highest level	SA	A	D	SD	N/A
Served as a valuable learning experience in public health practice	SA	A	D	SD	N/A
I would recommend this agency to others for future field experiences.	Yes			NO	
<b>My preceptor...</b>					
Was valuable in enabling me to achieve my field learning objectives	SA	A	D	SD	N/A
Was accessible to me	SA	A	D	SD	N/A
Initiated communication relevant to my special assignment that he/she considered of interest to me	SA	A	D	SD	N/A
Initiated communication with me relevant to general functions of the agency	SA	A	D	SD	N/A

2. Would you recommend this preceptor for future field experiences? Please explain.

  X   Yes            No            Unsure

3. Please provide additional comments explaining any of your responses.

Amanda has been so supportive and available throughout the entire fieldwork process. She is encouraging and has created a safe environment for learning and enhancing my skillset. She is extremely knowledgeable and engages well with her staff.

**Appendix E**  
**LP #7 Knife Skills With Pineapple Salsa**

**Total Time: 2 hours**

**Prep: 20 minutes**

**Objectives:** Students will gain knowledge about kitchen knives and learn knife safety. Students will learn different types of cuts of vegetables and terms.

**Materials:**

1 ripe pineapple  
6 large Tomatoes  
2 medium sized Onions  
1 bunch Cilantro  
2 lemons  
2 avocados  
1 jalapeno  
salt  
1 bag of tortilla chips

**Rationale:** While food is a large component of FEP, so are knife skills! We gotta teach them the proper techniques, risks to improper knife holding and managing. What do we do if a knife drops? How do we wash it? What types of knives are there? What kinds of knives do we use and for what? What are the different types of cuts?

General Outline:

- A. Discuss knife safety and anatomy of knife
  - a. Bring volunteers
- B. Types of knives
  - a. Handout
- C. Types of cuts
  - a. Handout.
- D. Proper way to cut
  - a. Bring volunteer
  - b. Risks to cutting improperly: carpel tunnel.

Resources:

<http://kitchengadgetqueen.com/buying-guide-knives-types/>  
<http://www.buurps.com/2015/04/culinary-knife-cuts/>

### Recipe: Pineapple Salsa

What you'll need:

Kitchen tools	Ingredients:
Chefs knife Cutting board	1 ripe pineapple 6 large Tomatoes 2 medium sized Onions 1 bunch Cilantro 2 lemons 2 avocados 1 jalapeno salt 1 bag of tortilla chips

Directions:

1. Cut pineapple longitudinally. Carefully cut and scoop fruit of pineapple with knife and spoon leaving a hollow space in pineapple. Cut pineapple pieces into large and small dices. Leave skin of pineapple intact. Set aside in a large bowl.
2. Dice large tomatoes (3/4 inch thick)
3. Small dice onions (1/4 inch thick)
4. Chop and mince cilantro
5. Chop and mince jalapeno
6. Medium dice avocado (1/2 inch thick)
7. Mix all ingredients together, add salt, and juice of lemons.
8. Transfer salsa back into pineapple skin.
9. Serve with chips.



## **Appendix F**

### Creative Ways of Cooking

Duration: 1 hour

Prep: 30 minutes

Objective: Students will learn about cassava and the versatile ways cultures cook with cassava. They will gain an understanding about the health benefits of cassava and learn a style on how cassava is prepared.

Rationale:

Many cultures share similar ingredients. However, the way foods are cooked are often prepared differently.

Cassava/yucca has been used for generations in many different countries. Many cultures use cassava for dessert, main course meals, snacks, etc..

What is cassava?

Cassava is a root. Starchy, carbohydrate. 2 inches round and 8 inches long. Describe cassava and provide a visual.

Also called: yucca, manioc, manioc, yucca root, casabe, and tapioca.

Versatile root that can be fried, mashed, steamed, boiled, added to stews.

Must be cooked contains prussic acid (hydrocyanic acid) which can cause cyanide poisoning.

Where does it grow?

Tropical areas. In many cultures it is a staple for

What are the health benefits of cassava?

Eases diabetes symptoms- scientific studies have shown that eating cassava helps lower blood glucose levels.

Anti-Arthritic Properties- studies have found components in cassava that have anti-inflammatory components: steroidal saponins, resveratrol and yuccaols. Historically, yucca medicinal practitioners have used cassava to help with arthritis.

Photoprotective properties- helps to prevent skin damage. Its like SPF! Cassava has some of the same components that sunscreen has naturally.

Activity: Students will be making yucca balls with a cheese and vegetable filling. They will learn a creative way to cook with yucca.

Sources: <https://www.thespruce.com/introduction-to-cassava-yuca-2138084>

<http://healthyeating.sfgate.com/yucca-root-health-benefits-4529.html>

## Recipe: Yucca balls:

## What you'll need:

Materials:	Ingredients:	Seasonings and spices:
One large pot One masher One medium sized pan	5 lbs Cassava/yucca 1 large red bell pepper 1 large yellow bell pepper 1 medium sized onion 6 cloves of garlic 1 package string cheese 1 8 oz tomato paste 1 bunch cilantro 1 bunch parsley 1 bay leaf (optional) canola oil	1 tbsp oregano 1 tsp basil ½ tsp cayenne pepper 1 tbsp black pepper 1 teaspoon garlic salt

## Directions:

1. Peel and boil yucca in a pot for 25 minutes or until softened. In a large bowl, transfer yucca and mash until smooth. Remove long fibers.
2. For the filling:
  - i. Finely chop red and yellow pepper, onion, garlic, cilantro and parsley.
  - ii. In a medium sauce pan, heat 1 tbsp canola oil. Sautee red and yellow pepper, onion, and garlic until softened (about 5 minutes). Add bay leaf. Add tomato paste and simmer for 10 minutes. Add all seasonings and spices. Season to taste. Add a little bit of sugar if necessary to neutralize the tomato paste. Turn off heat. After softened, add cilantro and parsley. Mix well. Set aside and let cool. About 30 minutes.
3. Cut the string cheese into ½ inch pieces.
4. Preparing yucca balls:
  - i. With your hands, roll yucca into 1 inch thick balls. With your thumb, create an opening thinning out the center. Add a very small spoonful of the filling. Then add string cheese. Pinch the ends to cover and seal the top.
5. Frying the yucca:
  - i. In a medium sauce pan, heat canola oil using medium heat. Fry each side about 4 minutes or until golden brown. Serve hot.

## **Appendix G** **LP#4 Trash day**

Total time: 2 hours

**Objective:** Students will increase their knowledge of recology, composting, and landfills. Students will be able to identify landfill, recycling, and composting items with everyday foods and packages in their environment.

**Materials:** snack foods from supermarkets. Bring empty containers that are compostable, recyclable, or belong in landfill.

**Rationale:** Waste has become a huge component of the environment. Items such as plastics, glass bottles, cans, are often disposed in the incorrect bins. Many communities still lack resources to support proper disposal of the daily items we consume and utilize. During lecture, topics discussed are:

Items that:

- Are composted
  - food scraps, compostable dishware
- Are recycled
  - Clothes, cars, cans, paper, glass
- go to landfills
  - plastics
- are sent to e-waste
  - laptops, iPods, electronics

Who takes your trash? What is in your community to support proper disposal?

Waste Management. Landfill.

Recology system

Goodwill supports E Waste.

Discuss landfill systems and junk yards.

What can you do to produce less waste?

References:

<https://sfenvironment.org/zero-waste/recycling-and-composting>

<http://naturalsociety.com/recycling-symbols-numbers-plastic-bottles-meaning/>

## **Appendix H**

### **Vitamin C and Lycopene**

Total time: 1 hour

Preparation: 15 minutes.

Materials needed:

Watermelon salad ingredients

Arugula mix	small watermelon	feta cheese	lemon
olive oil	large bowl	large spoon	knife cutting board

Objective: Students will be able to understand the health benefits of watermelon which contain vitamin c and lycopene. Students will be introduced to a creative way of eating watermelon.

Rationale: Vitamin C has powerful components that help heal our bodies as well as give us energy for survival. Lycopene is a powerful antioxidant that helps us to combat free radicals.

General Outline:

- I. What are vitamins?
  - A. Vitamins and minerals are substances that are found in foods that we eat. Your body needs the to work properly, so you grow and develop just like you should. When it comes to vitamins, each one has a special role to play. Vitamin D helps your bones, Vitamin A in carrots helps you see at night, Vitamin C in oranges helps your body heal if you get a cut. Vitamin B in whole grains help your body make energy from food.
  - B. Water soluble vitamins and fat soluble vitamins.
    - a. Fat soluble means the vitamins are stored in the fat tissues in your body and liver. They wait in your body until you need it for energy. Then they take it to where it needs to be used in your body. Vit A, D, E, K
    - b. Water soluble means that the vitamins don't get stored in the body. Instead, they travel through bloodstream. Whatever your body doesn't use, it comes out when you pee. Vitamin C, B
  - C. Watermelon is high in Vitamin C and history of watermelon.
    - a. This is important for keeping body tissues, such as gums, bones, and blood vessels in good shape. C is also key if you get a cut or wound because it helps you heal faster. Vitamin C makes it a little harder for your body to become infected with an illness. Name some foods that are rich in vitamin c. (citrus fruits, cantaloupe, strawberries, tomatoes, broccoli, cabbage, kiwi fruit, sweet red peppers.
    - b. Watermelon came from Africa. There are many different types of watermelon. Here in the US, seeded, seedless, mini, yellow and orange. Many cultures pickle the rind and eat it.
    - c. Helps you stay hydrated. 92% water
    - d. range from 5-15 lbs. heaviest recorded watermelon was in North Carolina and was 279 lbs!

- D. There is another component to watermelon that is very important: Lycopene.
  - a. It has antioxidant properties. Combats free radicals and helps us get rid of the pollutants in our bodies.
  - b. Lycopene give the fruit the red color. Fruits that are high in lycopene are tomatoes, pink grapefruits, pink guava, watermelon, papaya, and rosehips.
  - c. Helps prevent heart disease, prevents diabetes, prevents aging of skin, prevent osteoporosis.

Activity: Students will be able to assemble their own watermelon salad.