

Educational and Nutritional Impacts of School-Based Gardening Programs: Working with FEAST to Help Tell Its Story

Hallie E Banish
University of North Carolina at Asheville
Philosophy

Faculty Advisor: Dr. Ameena Batada
Community Advisor: Kate Justen, FEAST Executive Director

Abstract

Unhealthy dietary habits in early childhood years tend to be maintained in adulthood, leading to potential health risks, such as obesity, high blood pressure, and other chronic life illnesses. These habits are formed at a young age, and thus, schools all across the United States are implementing school based gardening programs to help prevent the onset of chronic illnesses. These gardening programs have the potential to directly influence dietary and nutritional habits and informal and formal learning habits through interactive and hands-on environments. FEAST (Fast Easy Affordable Sustainable Tasty) is an Asheville school and community-based gardening program that promotes healthy eating and family nutrition through cooking classes and gardening experiences geared toward children of all ages. The main goal of this public service project was to show FEAST's positive nutritional impacts on the students involved based on their collected survey data on dietary changes and overall experience. The final products of this public service project are a PowerPoint slide deck and narrative report of the findings based on organization and analysis of previously collected data from the program evaluations, as well as a revised program questionnaire for future use. These resources will be used to showcase the impacts of FEAST programs to potential donors and will be included in grant proposals so that this program can continue to teach children in the Asheville community about the food that they put in their bodies.

Key Words: Community Gardening, School Gardening Program, FEAST

Origins of the Project

As rates of diabetes, heart disease, high cholesterol, and other chronic illnesses increase around the world, it is evident that there is an immediate need for preventative measures, specifically targeting youth. By targeting young people our society can prevent the onset of these illnesses at an early age. According to the International Journal of Behavioral Nutrition and Physical Activity, “a diet rich in fruit and vegetables can decrease the risk of developing cardiovascular disease, stroke, hypertension, type 2 diabetes mellitus, obesity and several forms of cancer” and by aiming efforts at the diets of children, we can instill healthy dietary habits prior to the permanence of learned behaviors (Christian).

In an attempt to educate young people about healthy dietary habits and reformat information to make it more accessible to families, the United States Department of Agriculture introduced the new *MyPlate* initiative in 2011. *MyPlate* recommends that children consume at least 1.5-2 cups of fruit and 1.5-3 cups of vegetables every day, depending on your age, sex, and level of physical activity (USDA *MyPlate*). A trending phenomenon aimed at preventing the onset of bad nutritional habits and increasing the use of the *MyPlate* recommendations is implementing urban agricultural initiatives that help create local school and community gardening and nutritional programs. One promising approach to improve children’s diets is urban agriculture. Urban agriculture initiatives teach children how to grow healthy foods, and consequently, teach them about different types of fresh fruits and vegetables. “Urban agriculture’ refers to a wide range of agricultural ventures within city limit” (Brown 21). Such efforts include *community gardens* where the citizens of a specific neighborhood or community purchase a plot of land and the responsibility of upkeep is shared among the residents. *School gardens* where students are encouraged to learn about and interact with produce that they may not otherwise be exposed to. The school gardening programs allow students to experience hands on learning in both the garden and the kitchen, can lead to better nutritional and dietary habits and increased sense of involvement and participation in school programs. One Canadian gardening program review reported that, “...children can be motivated to develop dietary behaviors... by building their interest with food and cooking” (Bisset 107).

In the United States school gardening programs, “number in the tens of thousands” and new programs are popping up every day (Skinner 16). Many programs have specific achievement goals for their programs, but the vast majority hope to show that the students are impacted through the interactive teaching methods, direct correlation between the gardening program and school curriculum, and that their individual (and potentially familial) dietary habits include more fresh fruits and vegetables; in general “they target four student outcomes:

- a) science learning and school achievement;
- b) ecological and environmental awareness and responsible behaviors; such as recycling and composting;
- c) knowledge about food systems and nutrition, and healthy eating, especially consumption of fresh fruits and vegetables; and
- d) positive youth development” (Skinner 17).

The easiest and most common way that these organizations show that they have met these goals is by having students fill out pre-program and post-program surveys to show the knowledge gained and overall experience. Most surveys are “self-administered” and are “given to youth at the beginning and end of the program” in order to capture an accurate snapshot of the impacts these programs have on individuals (Lautenschlager 13). Qualitative data collected after these programs are completed can show their social and educational influence and can also gauge future interest and excitement (Dirks and Orvis 1).

While these surveys can be extremely beneficial, collecting data in an efficient and effective way can often be a challenge for non-profit gardening programs. Many studies report that, “...very little evidence supports the claim that gardening programs can improve children's daily fruit and vegetable intake” and it is often the job of the non-profits to show their success through data collection (Christian). Another major setback in data collection is that often times these programs can only be with children for one or two days and don't have a permanent platform to host classes. One organization stated: “12 weeks is a short time to assess behavior change,” but the reality is, that many organizations can't even collect data for one singular day (McAleese). Without long-term results it's very difficult for gardening programs to show their impacts on the dietary habits and knowledge of students.

FEAST (Fresh Easy Affordable Sustainable Tasty) is an Asheville community organization that is faced with similar challenges. FEAST promotes healthy eating and family nutrition through cooking classes and gardening experiences geared toward children of all ages. Their programs seek to increase the use of fresh, locally grown food in everyday living, educate children about the effects of food on the brain and body, allow them to develop critical thinking and problem solving skills, and connect these skills to their school's core curriculum. FEAST offers classes that range from 30 minutes to 2 hours in locations all across the Asheville area, including elementary and middle schools, community centers, and local afterschool programs.

“The mission of FEAST Asheville is to promote healthy eating choices and make them accessible to people of all income levels through hands on cooking classes that encourage and empower participants by teaching skills needed to make fresh, wholesome and tasty food.” (feast.slowfoodasheville.org)

In order to better document FEAST's achievement, in the Fall 2014, the executive director of FEAST, Kate Justen, worked with Dr. Ameena Batada and student Abbey Allen to begin assembling and entering data related to FEAST's programming. In the Spring 2015, Dr. Batada was looking for another student to take over the project and, as a student in her HWP 250 (Health Parity) class, I agreed to continue to analyze the data and make the statistics useful to the program in the form of a final product (i.e. ppt. slides and a narrative).

The Executive Director of the program, Kate Justen, communicated the need for these informational materials with Dr. Batada initially and they have built a relationship throughout the past semester. Dr. Batada hoped to see this relationship continue through and beyond this semester and by implementing this project I have facilitated this connection. As previously mentioned, it is often difficult for gardening programs that are faced with so many demands, to show their impact in a quantitative way in order to receive sufficient funding via grants and

private benefactors. My role as a student partner with FEAST validates the idea that it is important to “provide a network of support for leaders in [community gardening initiatives] and related programs to increase children and youth participation in their sites and programs” (Lekies). Without sufficient funding, it would be challenging for children to reap the benefits of participating in FEAST programs.

It is my hope that my role in organizing and analyzing previously collected data and formatting new platforms to collect future data will support the continuation of this organization.

Methods and Work Undertaken

The goal of this public service project was to establish a partnership with the FEAST organization and Director Kate Justen, fully understand their needs, and create a set of analyzed data and tools that they can use currently and in the future to convey the effectiveness of their program to potential benefactors.

The first part of this project involved analyzing data that had been collected by a previous student and formatting it in such a way that it would be easy for community partners and grant reviewers to understand. Since another student already gathered the information, my task was to make sense of the data and organize it in a way that would be useful to the organization. This being said I spent a lot of time with the hard copies of the actual surveys that were entered into survey monkey, a survey organizing website, making sure that the right information was entered in and that it was being represented properly on the graphs and charts that I was meant to create.

After I had made sure that all of the entered data were correct, I converted the data from survey monkey into an excel spreadsheet where I organized them in a way that will automatically update when new information is added. This will be extremely helpful for FEAST because they won't have to go through an analysis process to get data that they need; they will just have to open the spreadsheet and the work will be done for them.

All of this information was then compiled into a PowerPoint presentation that showcases the impacts that FEAST has had on the Asheville community and students in local schools over the past year. I also drafted a narrative version of the PowerPoint showcasing important statistics for use in grant proposals, benefactor thank you letters, and future presentations.

Once I compiled all of the previously collected information I started on my second task, which was to create a new and more efficient way to collect survey data from students who participate in FEAST programs. After talking with Kate Justen, we decided to create different surveys based on the type of program being participated in and the age group of the children completing the survey. This would eliminate the problem that paper surveys presented; often times the younger children were unable to articulate their feelings about the program because they couldn't spell or write certain words and/or they didn't understand the questions being asked.

So, we decided to create four different pre-program surveys that were geared toward grades K, 1-3, 4-5, and 6-8 in order to avoid the issues previously mentioned. I also created two different

post-program surveys that cater to ages K-5 and 6-8. The post-program surveys were less divided because they consist of more multiple-choice questions and follow a simpler format and the middle school students study different material than the elementary school students. Mimicking the other post-program surveys, I created a separate post-program survey that caters to programs that only last a few hours in one day. Finally I created an attendance form for the teacher who regularly teaches at one of the local elementary schools to use, in order to better keep track of the number of students who regularly participate. (See Appendix for examples of these surveys.)

All of these surveys were generated on the Google Docs platform so that they can be continually accessible to both the teachers who facilitate the program in schools and in the community and the director of FEAST. Once the surveys were completed, I compiled the PowerPoint, 2014 FEAST narrative, and the surveys into a Google Docs folder and shared it with Kate Justen.

Ties to Academia

I have always had a heart for public health, and I have tried, throughout my college career, to continue learning about health inequities in taking classes that aren't necessarily a part of my major curriculum. I am currently enrolled in the HWP 250: Health Parity class with Dr. Ameena Batada, which provided the foundation for this project. The goal of the class is to educate us about the inequities in health access in our individual communities and on a global scale. FEAST focuses their energies on schools and areas where children may not have access to education about healthy eating habits and sustainable cooking methods. This project, in conjunction with my knowledge obtained in class, has really open my eyes to some of the ways that resources are being provided to people in the community through gardening programs like this one. I have learned about the positive impacts that a one hour class can have on the dietary changes of an individual child, and also the amazing effects that it can have on a community as a whole

My background in Philosophy (my major) has also provided me with knowledge of ethical theory, allowing me to further understand the moral implications of health disparities and with the tools to conceptualize potential solutions. I have learned so much about the widespread impact that gardening and cooking programs, like FEAST, have on communities and I am definitely more knowledgeable about the behind the scenes work necessary to sustain this impact because of this project.

Upon graduation I am working with an international mission organization for a year to provide humanitarian aid for those who are without access to basic life sustaining resources. After this I hope to obtain a Masters in Public Health. My past, present, and future course work have been directly influenced by my interest in the Public Health field, specifically the ethics behind equitable access of health resources to all. This project has allowed me to expand my own understanding of what constitutes as the reach of equitable access. Before the partnership, community gardens organizations were the last thing I considered to be outreach because I simply wasn't educated about their purpose and efforts. Throughout the course of this project I have learned that they provide more than just a service to the community; these programs educate those who many not be able to access information on nutrient dense diets, fresh fruits and vegetables, and a support network of resources.

I have been so blessed by the opportunity to attend a liberal arts college, where the interconnectedness of interest and curriculum are encouraged. This project has truly been an enlightening endeavor and I am thrilled that my major hasn't limited me to certain areas of study.

Challenges Faced and Responses to those Challenges

While this project went very smoothly, I did encounter some issues with the data. One of the main challenges in this project was trying to make sense of the data that had been compiled and semi-organized by the previous student who was working on this project. Because I wasn't the person who collected the data and I also wasn't able to compile it originally, it became very difficult for me to understand the methods of the previous contributors to this project.

The main issue was that the dates were not properly entered into the Survey Monkey (www.surveymonkey.com) system and it resulted in skewed graphs and inaccurate data. Without knowing the dates when the surveys were taken I wasn't able to accurately create statistics for the organization. I have never worked with survey monkey data analysis before so the learning curve was very steep initially and eventually, after much distress, I decided to enter the data manually in Excel to produce the graphs and figures.

Unfortunately, after making sense of all of the data, I was only able to salvage information from the 2013-2014 school year and the beginning of the 2014-2015 school year. This information provided a much narrower view of the effects that FEAST had on students than Kate would have hoped. The student who worked on the data before me did not leave a lot of material to work off of to create the PowerPoint and the narrative, so Kate and I decided that it would be best to look to the future and focus more on the updated surveys and data platform that would increase the ability to collect data efficient and effective way that can be sustained for a long period of time.

Another difficulty that I faced was a trying to find a system that would allow me to convert Google Docs data from a "Sheets" page into an Excel workbook. In order for this project to be sustainable, which I will touch on later, I had to create a system that would automatically analyze the data with very little intervention by the FEAST staff. This was one of their main motivations for asking me to help out with this project; somehow I needed to find a way to create a system that didn't have to be updated every time they had students take surveys it would eliminate the immediate need for an intern or community engaged scholar to take over after I graduate.

Results

Overall, I think this project has met the expectations and needs that Kate Justen and FEAST presented at the beginning of the semester. I was able to provide the organization with a detailed narrative of their 2013-2014 school year data with an accompanying PowerPoint to use for future presentations. These resources were presented to the organization along with a new survey platform for future data collection.

The data collection system that I created this semester will continue to function as FEAST's primary data collection platform for as long as opt to use it. This project will ensure the sustainability of their organization because they will be able to use the data collected in grant applications, fundraising benefits, business presentations, etc. In my mind this project has been an unprecedented success because FEAST will be able to continue to serve and provide programs for children who, otherwise, wouldn't be able to participate.

My favorite part of this project was meeting with Kate and discussing her plans for this new data collection system. When I first met with Kate it was made very clear that data collection and analysis wasn't her area of expertise and while her passion lied in the implementation of gardening and cooking programs, she had to find someone who could help her out with this very necessary part of having a nonprofit organization. Seeing her excitement when I told her that I could make her hopes and dreams for organized and easy to understand data collection come to life was the highlight of my partnership with FEAST. It was her constant encouragement that allowed me to fulfill my duties as her community partner and really allowed me to invest in her passions and the organization as a whole.

Sustainability

This project was unique in that I was not the first UNC-Asheville student to partner with FEAST to compile and organize their data and I will not be the last. In one of our meetings, Kate and I discussed the future of the data collection platform I put together, and I advised her that it would be beneficial to have a future student partner check in on the system periodically. This student could also be in charge of creating a narrative and accompanying PowerPoint presentation for the current academic year to show trends in the data, and progress that the organization is making.

By using the Google Doc platform, I was able to create a system that can be changed if the needs of the organization change in the future. Kate will have the ability to alter questions and survey formats to fit specific requirements for grants that become available and to cater toward the progress that community sponsors would like to see. Because the system is malleable, and also easy to use, it is my hope that it will continue to serve FEAST and the students that take the surveys.

At the beginning of the project Kate and I had high hopes that the surveys that had been organized by the previous student would provide an array of information to add to grants, but after realizing that the information was inaccurately entered, I was only able to provide a few statistics from the 2013-2014 school year.

Conclusion

In conclusion, this project has provided FEAST with a jumping off point for their future data collection and has allowed them to focus on the quality of their programs rather than spending time creating paper surveys, collecting them from schools, and individually entering them into

data analysis software. I have learned so much from this project and I am excited and hopeful for the future success of FEAST endeavors.

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