

ELEMENTARY SCHOOL GARDENS AND THE COMMUNITY

By:

Christine Moon and Rachel Spinelli

Advised by:

Dr. Maliha Zulfacar

SOC 461, 462

Senior Project

Social Sciences Department

College of Liberal Arts

CALIFORNIA POLYTECHNIC STATE UNIVERSITY

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Research Proposal

Statement of the Study

This project will focus on the relationship of school garden initiative in connection with the socioeconomic status of the community. We will be examining five schools: Pacheco Elementary School (in San Luis Obispo) as our model school, two lower socioeconomic schools, and two upper socioeconomic schools. Since Pacheco has families with both low and high socioeconomic statuses, we will use it as our base. We will compare and contrast the four schools to Pacheco. We hope to explore implications of socioeconomic factors on the success of school garden projects. Our main research questions are: does socioeconomic status have an effect on the success of a garden project and how do these projects contribute to the community.

Purpose of Study

We hope this study will provide insight into factors that contribute to the success of school gardens. We also hope to see the reciprocal relationship between the community and the garden, or in other words how the garden benefits the community as well as how the community benefits the garden. We want to see if there is any correlation between socioeconomic status and the success of the garden program. We would also like to explore the possibility that these school gardens in lower socioeconomic neighborhoods can influence the community itself in a positive way. Through the information acquired in this project, we hope to provide less successful garden projects with informative insights that will allow them to create a more successful program.

We will utilize background information obtained from academic literature online to frame our research observations in five elementary schools around the San Luis Obispo Area. Empirically, we will observe the systems, or cause and effect, of success towards programs. Ultimately, we want to know which gardens are working and why. We want to understand how

the socioeconomic status of a community influences the outcome of a garden program and conversely how a school garden influences the well-being of the community.

Brief Summary of the Study

We plan to use both participant observation and literature reviews as our research methods. We also plan to utilize VAST: Academic Video Online. This is through the Robert E. Kennedy Library on campus which will provide us with interviews that have already been conducted and exclusive primary footage from documentaries. Our literature reviews will address the case studies of the five school garden programs we will be analyzing as well as more general information about the community regarding the socioeconomic status, ethnic backgrounds, and values of residents. Our participant observation will be going to Pacheco and the four other schools to see, first hand, how their garden is run.

Annotated Bibliography

Armstrong, Donna. A Survey of Community Gardens in Upstate New York: Implications for Health Promotion and Community Development 6 (2000): 319-27. Health and Place. Pergamon, 2000. Web.

Armstrong took a look at twenty separate garden programs in upstate New York. She found that in low-income neighborhoods they were four times as likely as non-low-income areas to lead to other issues in the neighborhood being addresses. This article takes a deep look into the comparison between low socioeconomic status areas and higher socioeconomic status areas. The research shows that both low income and high income areas were likely to have successful gardens, have many volunteers to keep the garden alive, and the gardens has a positive affect on each community. I was surprised that there was so much involvement from lower socioeconomic programs; I assumed that that particular population would be working more or not have enough time for extra activities like the garden programs. The study did show that people who participated in garden programs has an improved attitude of the residents toward their neighborhood for 51% of the gardens. Not only are these programs becoming more successful in lower socioeconomic areas, but they are improving the attitude of these area's residents. This overall attitude change can be very beneficial to these communities as a whole. With more amicable relations between neighborhood members we could see a more peaceful environment. This in hope, could cause less crime and violence in these areas, which can only help and be a positive influence to children in their upbringing.

Blaustein-Rejto. "Cultivating Hope': Evaluating the Capacity of Collaborative School Garden Initiative to Achieve its Teachers' Goals". Brown University (2012): Web. 1 May 2013.

Blaustein-Rejto provides a case study of a school garden in a low socioeconomic neighborhood in Rhode Island. He introduces the garden project as the "Cultivating Hope"

project in John Hope Settlement House and details some of the background of the project. His main methodology was participatory observation in which he was involved in the actual management of the garden and interaction with the students. Blaustein-Rejto addressed the assets of that contributed to the project as well as the obstacles that caused problems. Some of these assets were the involvement from Brown University in the form of monetary and volunteer contributions. Some of the barriers mentioned in the case study were limited community involvement rates as well as sustainable and reliable funding.

This article is interesting in regards to our research because it supplies us with a real life example of a school garden in a low income community. We hope that by having an example of a garden project in a low socioeconomic environment that we may compare it with a garden project in neutral, and high income environments. Though Blaustein-Rejto's participant role allowed him for increased access to information and insight, it is possible that his report may carry some bias as a result of his investment in the project.

Hynes, H. Patricia and Howe, Genevieve. "Urban Horticulture in the Contemporary United States: Personal and Community Benefits". *Acta Horticulturae* 643, ISHS 2004:171-181 (2004): Web. n. pag. 25 April 2013.

This article addresses urban gardening in general, rather than in elementary school settings, but there were still some very interesting findings that could apply to our project. One issue Hynes and Genevieve highlighted as a major issue in urban, low-income neighborhoods was the fact that there is less access to grocery stores in low socioeconomic neighborhoods. They then suggested that community gardens have proven as a means of compensating for the lack of accessibility of local grocery stores. Though it has been noted in other articles that school garden projects typically do not yield enough crop to support a neighborhood, it is important to note that in the urban or low-income communities that many students are growing up in, there is a lack of

exposure to fresh foods as a result of a lack of accessibility to grocery stores. Hynes and Genevieve also look at the effects of community gardens on, specifically, children. The claim was also made that community gardens have the ability to contribute to a reduced amount of crime in urban neighborhoods. The authors conclude with the idea that these community gardens transform the greater community into a “place that matters”.

It is interesting to look at community gardening from the neighborhood’s point of view. However, we must consider that fact that the community members themselves are not reporting their opinions. It must also be noted that only a few examples of urban neighborhoods were provided, which does not mean that every person in every urban community shares these sentiments. With this in mind, we can analyze and apply some of the examples provided in the article to display some possible feelings members of other urban communities have towards community gardens, though these feelings are not automatically applicable to everyone.

Ozer, Emily J. “The Effects of School Gardens on Students and Schools: Conceptualization and Considerations for Maximizing Healthy Development”. *Health Education and Behavior*, 34; 846 (2007): n. pag. Web. 25 Apr 2013.

In this article, Ozer suggests that though there is little empirical evidence surrounding school garden projects, and though there does not seem to be one “right” way of creating and maintaining a school garden, there is sufficient “anecdotal evidence” to suggest that there are ways to create a successful garden. Ozer frames her research around Bronfenbrenner’s ecological model in which every level of a child’s environment affects not only the child, but each other as well. Ozer specifies seven areas of a child that may be affected in some way by a school garden. She acknowledges that there is little formal and peer-reviewed literature available on the web, but that there is evidence from “anecdotal claims” that she references. The three areas in which

we are most interested in are the “School Bonding and Attachment”, “Parent Involvement” and “Characteristics of the School Setting” areas.

Many of the conclusions drawn in Ozer’s research is heavily dependent on “anecdotal evidence” as a result of a lack of empirical evidence. This anecdotal aspect leaves much for interpretation which can easily be tainted with bias. We must be aware of how the anecdotal information was interpreted and how we ultimately interpret it from the literature presented by Ozer. However, this research is interesting to us because it provides an interesting framework in which to view garden projects and provides insight into three areas in particular into which we can look further as we go out into the field and observe other garden projects.

Robinson, Carolyn W., and Jayne M. Zajicek. "HortTechnology." *Growing Minds: The Effects of a One-year School Garden Program on Six Constructs of Life Skills of Elementary School Children*. Hort Technology, Summer 2005. Web. 01 May 2013.

Robinson and Zajicek (2005) looked into assessing changes in the life skills development of elementary school students who are participating in school garden programs. The study was conducted in one year. The life skills development was assessed on six constructs of life: teamwork, self-understanding, leadership, decision making, communication, and volunteerism. The students were split into two groups -- group one participated in the garden program (experimental group) and group two did not participate in the garden program (control group).

The study showed that the control group has higher life skills before the experiment was conducted. After the experiment was conducted there was no significant difference in life skills between the experimental group and the control group. This study shows that having students involved in garden programs can provide them with necessary skills for later in life. The study made them more social with one another, provided them with knowledge on the subject of food growth and nutrition, and boosted the student’s confidence. This article shows that school

garden programs can be a huge impact on lower socioeconomic areas -- the program can give the students life skills and hopefully give them the drive to continue education. School garden programs can be great aids for children with behavioral problems and students struggling in overall life skills.

Skelly, Sonjy M., and Jennifer C. Bradley. "The Importance of School Gardens as Perceived by Florida Elementary School Teachers." *Hort Technology* (2000): 229-31. Print.

Skelly and Bradley study the effectiveness of school gardens in relation to the classroom, and experiential learning. Experiential learning allows for students to get a better understanding of concepts as the hands-on approach provides. Hands-on approaches provide students with meaningful and tangible experiences. The study showed that many Florida school do not utilize their school gardens; but they are very useful for environmental education and related activities enhanced student learning. In this study, most teachers surveyed had relatively new gardens and had not yet had the time, or the tools, to utilize the garden.

This article shows us that teachers do believe that gardens are beneficial to the students, and that gardens should be utilized in schools. Although many teachers had not been taking advantage of their gardens, teachers said they would make an aggressive effort to get more time in the garden for their students. The research showed that the students did thrive in the garden, when they were allotted the time.

Somerset, Shawn, PhD, Richard Ball, Melanie Flett, and Rebecca Geissman. *School-based Community Gardens: Re-establishing Healthy Relationships with Food 12.2* (2005): 25-33. *Journal of HEIA*, 2005. Web.

Somerset, Ball, Flett, and Geissman look into school garden programs and how the discipline of nutrition involves many complex relationships between humans and food. This study looks in depth into student's learning of how food is grown. Changing food supply has

affected our understanding of the origins of food; grocery stores and television advertisements are some major influences on public perceptions of food origin. Having garden programs in schools and teaching students how food, such as fruits and vegetables, are grown and their nutritional value. The students participating have a better knowledge of how nutritious food are grown. They were required to keep diagrams and journals of the information they learned about the certain vegetables grown in the garden. The study was very aware of the foods that children enjoy eating and planted things like cherry tomatoes (because they are sweet) and carrots (because they are fun to pull out of the ground). Programs that have incorporated nutrition into their programs have students that are becoming healthier, because they are more health conscious. This, in part, could improve the health of students and provide them with tools to live longer and healthier lives.

“Unduplicated Student Poverty and EL Designation Data”. California Department of Education: Web. 7 May 2013.

The California Department of Education provides information regarding the number of students in the public school system that are living in poverty. This information is relayed through an Excel spreadsheet that details the different school districts, schools, number of students who receive reduced price lunches, and number of students who receive free lunches along with other information.

The California Department of Education website is beneficial to our research because it can hopefully be used to validate our research. By examining the numbers of students that do live in low-income neighborhoods, we can make obvious the need for more research into this particular demographic. The website associates living in poverty with receiving free or reduced

lunches, which plays well into our garden research as one benefit of school gardens that has been shown in other research is the increase in healthy eating of students.

Waliczek, T. M., J. C. Bradley, and J. M. Zajicek. "The Effects of School Gardens on Children's Interpersonal Relationships and Attitudes Towards School." Hort Technology. N.p., Summer 2001. Print.

Waliczek, Bradley, and Zajicek looked into whether student's participation in garden activities benefits with an improvement in interpersonal relationships and general attitude towards school. The study did not show any significant difference between the students that did participate in the garden and the students that did not. But the study was not a complete loss. Female students showed a significantly more positive attitude towards school at the end of the study than the male students. Overall, there was evidence that students' attitude towards school was more positive in schools that offered a very intensive individualized garden program.

This article will give us insight into what strategies were used to get students involved in the garden programs, and what kept them continuing to come back and work on the garden. The findings are interesting -- seeing how females were more positively effected by the program -- this will help us in our research, to hopefully find a way to get the male students more involved in the garden programs. It would be great if every student is able to have more of a positive outlook on school and interpersonal relationships.

Weiss, Heather B. and Ellen Mayer, Holly Kreider, Margaret Vaughan, Eric Dearing,

Rebecca Hencke, Kristina Pinto. "Making it Work: Low-Income Working Mothers' Involvement in their Children's Education". American Educational Research Journal 40 (2003): 879-901. Web.

Weiss et al. looks into the involvement of low-income mothers in their children's education through a mixed-method approach. A longitudinal study conducted took into account the different reasons for women being unable to participate in their children's education.

Questions about home life were addressed as well the different ways in which the mothers were able to become involved in their children's education. The study concluded that mothers who a full-time job or educational commitment had tended to be less involved in their children's education while mothers with part-time jobs or education commitments were more involved. The ways in which these mothers came involved were placed into four categories: "promoting a support network", "using the workplace as a home base", "garnering resources through work", and "conquering time and space challenges". Some mothers worked to network with others to make sure their child had the involvement and support needed, whether it was from their mother or not. Other mothers incorporated their work life with their child's educational life. Still other mothers manipulated their schedules so they could become more involved in the child's schooling. Weiss et al. provide a case study in which a working mother implemented some of the previously discussed strategies to encourage her daughter's learning.

This article is relevant to our research because of the critical nature of parental or volunteer involvement in school garden projects for the success of the garden and the student. It allows us to gain more insight into reasons why parents may have trouble committing to volunteering at their child's school garden as well the strategies parents may use to be as involved as possible. These strategies may be able to serve as suggestions for other parents, both mothers and fathers, that find themselves in a situation in which they are unable to participate in their child's education as much as they would like. Perhaps if parents feel they have more options as how to contribute, an increase in support in school gardens will make them more sustainable.

Outline

I. Introduction

1. Statement of the Problem

This study is conducted in regards to the issue of the applicability of school gardens in relation to socioeconomic status.

2. Purpose of the Study

Our study is significant because it addresses what we believe to be a positive contribution to communities of lower socioeconomic status. Little research is available that addresses elementary school gardens; and no literature has been published for the schools in the San Luis Coastal Unified and Lucia Mar Unified School Districts. Our research provides information regarding what has and has not worked for past garden projects as well as highlights the benefits of such projects. There are two main hopes for this study. First, we hope this research will benefit a more universal demographic as it provides tips to create the most efficient development process and justifies the time and funding put towards creating a school garden. Secondly, we would like to raise awareness of the existing school gardens in the San Luis Coastal and Lucia Mar Unified School District in efforts to promote the use of garden projects in the San Luis Obispo County area.

3. Brief Summary of the Study

This study examines the applicability of school garden projects in elementary schools in relation to socioeconomic status of the community of the school. For the purpose of this study, we have defined the term “community” as the student body of the school and their families. Literature that has been published regarding elementary school gardens and socioeconomic impacts in relation to the education of children has been reviewed and

provided in this study to set up the case studies of school gardens in the San Luis Obispo area. The information provided from the scholarly articles includes case studies from already existing school garden projects from other areas of the country and research on the effects of low socioeconomic status on a child and family's interactions with and success in an educational setting. We will then conduct interviews with garden managers at five different elementary schools in the San Luis Coastal and Lucia Mar Unified School District. These schools have been chosen based upon their demographic information. Two of the schools chosen have over sixty percent of the student body listed on the California Department of Education database as "socioeconomically disadvantaged". One school acts as our base and the final two schools have less than twenty percent of their students listed as "socioeconomically disadvantaged".

II. Main Content

1. Theory Development

a. Literature Review

This section of our paper will be a modified version of our annotated bibliography. We will highlight what we felt were the most impactful articles to our research. The articles we plan to focus on are listed below with a short description of the article and why we feel it is significant. In our final paper we will provide more detail as to what information the article offered and some concerns we have about using the sources.

Armstrong, Donna. A Survey of Community Gardens in Upstate New York: Implications for Health Promotion and Community Development 6 (2000): 319-27. Health and Place. Pergamon, 2000. Web.

Armstrong presents a case study of a school garden in upstate New York. We find this article extremely helpful because it does address the reciprocal relationship between the community and the garden.

Blaustein-Rejto. “‘Cultivating Hope’: Evaluating the Capacity of Collaborative School Garden Initiative to Achieve its Teachers’ Goals”. Brown University (2012): Web. 1 May 2013.

This article provides us with another case study of a garden created in a low income community in Rhode Island. The study was conducted by a Brown University student, who acted as a participant observer in the garden. This article is helpful to our particular research because it provides us with scholarly literature on a garden that has already been implemented within an elementary school.

Ozer, Emily J. “The Effects of School Gardens on Students and Schools: Conceptualization and Considerations for Maximizing Healthy Development”. *Health Education and Behavior*, 34; 846 (2007): n. pag. Web. 25 Apr 2013.

Ozer implements Bronfenbrenner’s ecological model to suggest that there are specific practices that have shown to create successful garden projects. She also addresses the multiple ways in which a child and community may be positively affected by a school garden project. A majority of what Ozer draws from is “anecdotal”, but she claims there is sufficient anecdotal evidence to support her ideas.

Weiss, Heather B. and Ellen Mayer, Holly Kreider, Margaret Vaughan, Eric

Dearing, Rebecca Hencke, Kristina Pinto. “Making it Work: Low-Income Working Mothers’ Involvement in their Children’s Education”. American Educational Research Journal 40 (2003): 879-901. Web.

Weiss et al. focuses on the involvement of low-income mothers in their children’s education. We found this article to be important because it addresses the issue of parent involvement in the upkeep and success of school gardens which has been stated by some of our other sources to be an important aspect of the gardens.

b. Development and modification of theory relevant to your own study

Not much research has been published in regards to school gardens in general. As we dive into our more specialized and specific research project which examines school gardens in relation to socioeconomic status, it is obvious that even less research exists. We have been unable to find any published research that addresses school gardens in the San Luis Obispo area elementary schools. To our surprise, there are actually quite a few schools in the San Luis Obispo area that do have school garden projects for one reason or another. Our hope is to fill in this gap and provide literature that may be more applicable to schools in the San Luis Obispo County.

c. Hypotheses

We believe there exists a reciprocal relationship between school gardens and the

community. Our first hypothesis is that the success of school gardens is impacted by the socioeconomic status of the community of the school. Secondly, we believe that a successful garden acts as a positive contributor to the community.

2. Development of Methodology

a. Operationalization of Concepts/Variables

The varying socioeconomic status of the schools are measured by the percentage of students who are classified as “socioeconomically disadvantaged” by the California Department of Education. We will measure the results of the interview in terms of number of positive responses. Positive responses will be considered any answer that suggests the garden is an asset. We will also analyze the degree to which the respondents feel the garden is an asset.

b. Research methods

We are using interviews, literature reviews, and participant observation as our forms of research methods. We will be interviewing the five schools we are studying in the San Luis Coastal and Lucia Mar Unified School Districts -- to see how effective the garden is, how the garden runs, and who works on the garden. Our literature reviews look into how school gardens have become successful, techniques used, and the effects on the community as a whole. We plan on observing how each of the five gardens are run -- looking into how they are managed, who is participating in the garden’s progress, and see how the students are involved in the garden.

One limitation we are concerned about as we use a mixed-methodology is the

fact that our research does not completely match what we are studying in the field. The definition of the term “community” used in existing literature is different from our own in that it refers to the neighborhood. The majority of research that addresses school gardens in relation to socioeconomic status study schools that are in urban or low socioeconomic neighborhoods. Most of the schools we will be observing are located in the city of San Luis Obispo, which is neither an urban nor low socioeconomic city. What we are examining rather than the surrounding neighborhood is the school community. We hope that with the results of our interviews we will be able to draw connections between the benefits provided to neighborhood communities as defined by already existing literature and the student body community as defined in our study.

c. Data collection/Sampling methods

Our interviews will be conducted with the manager of the garden at five different elementary schools in the San Luis Coastal and Lucia Mar Unified School Districts. The five schools we are in the process of contacting are:

1. Pacheco Elementary School (San Luis Obispo): 42% socioeconomically disadvantaged
2. Oceano Elementary School (Nipomo): 90% socioeconomically disadvantaged
3. Hawthorne Elementary School (San Luis Obispo): 64% socioeconomically disadvantaged
4. Los Ranchos Elementary School (San Luis Obispo): 13% socioeconomically disadvantaged

5. Teach Elementary School (San Luis Obispo): 19% socioeconomically disadvantaged

These schools were chosen after reviewing the demographic information listed on the California Department of Education database. If, upon speaking with any of the schools they do not currently have school gardens we can view, we have created a list of back-up schools. However, we were told by the Superintendent's Office that most of the schools in the county have school gardens so this should not be an issue.

The interview question we have prepared are as follows:

1. When did this garden project begin?
2. Who is the primary manager of this garden space?
3. How often do parents get involved in the garden? (In any way)
4. What is the garden used for? (i.e. instruction, lunches, etc)
5. How often do the students get involved/interact with the garden?
6. How successful/beneficial do you feel this garden has been in achieving its original purpose?
7. What were some expected drawbacks if there were any?
8. Have there been any unexpected benefits or drawbacks?
9. What is some feedback you have received regarding the garden?
10. How have you seen the garden serve the community? (particularly students and their families) If so, in what ways?
11. Do you recommend that other schools around the state and country implement school garden projects?

After the interviews have been conducted, we will compare and contrast the responses and keep in consideration the socioeconomic makeup of the student bodies of each elementary school.

3. Research Findings

a. Analysis – quantitative/qualitative

Quantitative: Although we do not have any first hand statistics, we are getting quantitative information from our literature reviews and the studies that were performed in them. We are also getting concrete evidence from the California Department of Education Research, on studies they have done on school garden programs in the state of California.

Qualitative: We have focused our efforts on this type of analysis. We are using this for social research through direct observation, communication with heads of the programs, and analysis of texts and studies. We will be going to each school we are researching to observe the garden when it is in full swing, we are communicating with the heads of each program, and we are analyzing the data we have gotten from studies we have found. We are analyzing more hands on based entities than statistics.

b. Summary of Findings

In this section, we will first discuss the information we gained from our literature reviews. We have obtained two case studies that have provided us with projects to compare and contrast what we will find here in San Luis Obispo County. We have also found valuable information regarding parental involvement in relation to socioeconomic status. Finally, we have gathered information about the possible

benefits for school gardens. After presenting this information, we will move on to the information provided to us through the interviews, applying our background knowledge from the literature reviews to our analysis. Though we are unable to draw complete conclusions due to the fact that we still must conduct the interview portion of our research, we have been able to gather a good amount of background information that will set up the information specific to schools in the San Luis Obispo area very well.

III. Conclusion

1. Summary of Study and Findings

In this section the focus will be less on the background information and more on the information we gain and analyze from the interviews. We will summarize what our original hopes were and what we discovered through our research. We will discuss what we feel are the most significant findings from both the extended literature review and the interviews.

2. Implication for Future Research

The field of elementary school gardens lends itself extremely well to more research because of the lack of original research. Our research in particular leads into the possibility for future research as it shifts focus from overall and general benefits of school gardens to the socioeconomic status factor. Though we do not yet know if our final findings will support our hypothesis that socioeconomic status does have an effect on the success of school gardens, we believe that our research will prove our hypothesis correct.

If it does, a larger amount of deeper research can be conducted as to why this is the case. Perhaps with an increased knowledge of the benefits of successful garden projects policy makers will see the importance of contributing financially to these programs.

Introduction

The implementation of school gardens in the elementary school setting is becoming a more frequent trend; however, there is very little available research on such a topic. This study examines the reciprocal relationship that we believe to exist between elementary school gardens and the school community. We believe this relationship to be of great importance, especially in low socioeconomic school communities.

Little research has been conducted and published on elementary school gardens; and no literature has been published for the schools in the San Luis Coastal Unified and Lucia Mar Unified School Districts, which are both in San Luis Obispo County. In response to this lack of research, we would like to provide schools that are considering building a garden for their community with information about past and current school garden projects as well as information regarding how the socioeconomic status of their community may affect their project. Most importantly, we would like to apply this background knowledge to school gardens in San Luis Obispo and raise awareness of the existing school gardens in the San Luis Obispo County in efforts to promote the use of garden projects in the San Luis Obispo County area.

Increasing attention, both positive and negative, has been directed towards education in recent years. Research on the topic of school gardens is important in today's society because of the potential benefits these projects present for young students. Creative projects like school gardens may be able to serve as a solution to some of the negative criticisms the education system has received. Various issues in today's society can also be addressed through these garden projects such as obesity, language development, and alternative education to name just a few.

Theory Development

Literature Review

Blaustein-Rejto provides a case study of a school garden in a low socioeconomic neighborhood in Rhode Island. He introduces the garden project as the “Cultivating Hope” project in John Hope Settlement House and details some of the background of the project. His main methodology was participatory observation in which he was involved in the actual management of the garden and interaction with the students. Blaustein-Rejto addressed the assets of that contributed to the project as well as the obstacles that caused problems. Some of these assets were the involvement from Brown University in the form of monetary and volunteer contributions. Some of the barriers mentioned in the case study were limited community involvement rates as well as sustainable and reliable funding. Though Blaustein-Rejto’s participant role allowed him for increased access to information and insight, it is possible that his report may carry some bias as a result of his investment in the project.

Hynes and Howe’s article addresses urban gardening in general, rather than in elementary school settings, but there were still some very interesting findings that could apply to our project. (2004) One issue Hynes and Genevieve highlighted as a major issue in urban, low-income neighborhoods was the fact that there is less access to grocery stores in low socioeconomic neighborhoods. They then suggested that community gardens have proven as a means of compensating for the lack of accessibility of local grocery stores. Though it has been noted in other articles that school garden projects typically do not yield enough crop to support a neighborhood, it is important to note that in the urban or low-income communities that many students are growing up in, there is a lack of exposure to fresh foods as a result of a lack of accessibility to grocery stores. Hynes and Genevieve also look at the effects of community gardens on, specifically, children. The claim was also made that community gardens have the ability to contribute to a reduced amount of crime in urban neighborhoods. The authors conclude

with the idea that these community gardens transform the greater community into a “place that matters”. (Hynes and Howe, 2004)

It is interesting to look at community gardening from the neighborhood’s point of view. However, we must consider that fact that the community members themselves are not reporting their opinions. It must also be noted that only a few examples of urban neighborhoods were provided, which does not mean that every person in every urban community shares these sentiments. With this in mind, we can analyze and apply some of the examples provided in the article to display some possible feelings members of other urban communities have towards community gardens, though these feelings are not automatically applicable to everyone. In these low socioeconomic areas, community gardens can help recreate a sense of place for those who volunteer and get involved. These people volunteer in these areas because the garden becomes a place that matters when they do not have much else.

Son and Wilson conducted a study to explain the effect of education and volunteering. In their results they state “For the most part, education is the most consistent, and often strongest, predictor of volunteering” (Son & Wilson 473). Their findings showed that “Among adults aged 25 or more in the United States, only 9 percent of those with less than a high school diploma volunteered in 2007 compared to 41.8 percent of those with a bachelor's degree or higher” (Son & Wilson 473). Looking at socialization theory, we see a different perspective on volunteering; we assume that people volunteer because they believe it is the right thing to do. Son and Wilson believe that volunteerism is an important lesson that children learn through their immersion in institutions such as family, peers, school, and church. If parents have the skills and free time to volunteer on a given project, they generally will volunteer their time. Son and Wilson wanted to explain why people volunteer and saw that “resource theory emphasizes the role of enabling

resources, such as civic skills, free time, good health, and social connections” (Son and Wilson 492). Through Son and Wilson's study they observed that parents who had a higher education level were more likely to participate in education based volunteer opportunities.

After reviewing and analyzing the existing literature, we have developed two hypotheses regarding school garden projects in relation to socioeconomic status. First, we believe that the success of the garden is impacted by the socioeconomic status of the community of the school, particularly through availability of funding and volunteering. Second, we expect that a successful garden acts as a positive contributor to the community.

Development of Methodology

For the purpose of this study, we have defined the term “community” as the student body of the school and their families. Though limited, there is research material that we have used to explore the effects that previous and current school garden projects around the United States have had on their communities. In addition, we will look into how the socioeconomic status of a community can affect the success of an educational project, such as a school garden project as well as the effect of low socioeconomic status on a child’s educational experience in general. We will then apply this knowledge to the information we obtain from our own interviews with elementary school garden managers in San Luis Obispo County. The information provided from the scholarly articles includes case studies from already existing school garden projects from other areas of the country and research on the effects of low socioeconomic status on a child and family’s interactions with and success in an educational setting. We will then conduct interviews with garden managers at five different elementary schools in the San Luis Coastal and Lucia Mar Unified School Districts. These schools have been chosen based upon their demographic information. Two of the schools chosen, Hawthorne Elementary and Oceano Elementary, have

over sixty percent of the student body listed on the California Department of Education database as “socioeconomically disadvantaged”. Pacheco Elementary acts as our base, forty-two percent “socioeconomically disadvantaged”, and the final two schools, Los Ranchos Elementary and Teach Elementary, have less than twenty percent of their students listed as “socioeconomically disadvantaged”. By including our extended literature review in our research we are able to lay a foundation for our own findings that will be more applicable to communities in the San Luis Obispo County area.

This study utilizes a mixed methods approach. We have looked at qualitative data in the form of an extended literature review as well as interviews with individual elementary schools in the San Luis Obispo County area. We have also taken into account quantitative data which addresses the factor of volunteerism specifically.

Exploring Socioeconomic Status and Educational Experience: Research Findings

Our first hypothesis is that the success of a school garden is affected by and even dependent upon the socioeconomic status of the school community, which again is defined as the students and their families. Before we take a look at the relationship between specific garden projects and socioeconomic status, we will examine the relationship between socioeconomic status and a child’s educational experience. To do this we will take into account socioeconomic status and parental involvement, volunteerism, and cultural capital. We will then look at ways in which schools can reach out to parents to encourage involvement. This information allows us to create a base from which we can later draw and apply to the specific garden projects in San Luis Obispo County that will be analyzed.

Socioeconomic Status and Parental Involvement in Child’s Education

Traditionally, parental involvement in a child's education takes on many different forms and is believed to have a positive impact on a child's educational experience. One definition of involvement that we are especially interested in for the purpose of this study is provided by Pomerantz et. al (2007):

“School-based involvement represents practices on the part of parents that require their making actual contact with schools...include[ing], but not limited to, being present at general school meetings, talking with teachers (e.g. attending parent-teacher conferences, initiating contact with teachers), attending school events (e.g. open houses, science fairs), and volunteering at school.”

This idea of “school-based involvement” applies to our garden study, because we are seeing that parent volunteers are an important factor to a successful garden. Many factors play into the amount of involvement a parent may dedicate to their child's education. These factors are often times interrelated with the level of income, or the socioeconomic status, of the parents. According to the American Psychology Association, African American men are twice as likely to be unemployed as White men and when African American men are employed, they make only “72% of the average earning” while White men make 85%. In addition, “African Americans and Latinos are more likely to attend high-poverty schools than Asian Americans and Caucasians” (“Ethnic and Racial Minorities & Socioeconomic Status”).

A study conducted by James Griffith showed that:

“characteristics associated with lower parent participation in school activities included being Hispanic, African American, or Asian American; being of lower-socioeconomic status; a child enrolled in either special education or the English-as-a-second-language program”. (Griffith, 1998)

Griffith also found that schools with higher amounts of students qualified for the free and reduced meal program received less parental support through involvement. These trends are significant in looking at garden programs, again, because of the frequent dependence on volunteers to maintain the gardens and supervise the students in the garden. For example, the

schools in San Luis Obispo County that we chose to study were chosen on the basis of the percentage of the student body qualified for the free or reduced lunch program, which is an indicator of low family income. If we take into account Griffith's suggestion that there is less parental involvement in schools with higher amounts of students qualified for free or reduced lunches, then we should see the lower socioeconomic status schools in San Luis County struggle more with recruiting volunteers. We will look at this issue later on in the study.

According to Weiss et al. (2003), "Substantial research has definitively established the positive influence that mother's involvement on their children's education has on the children's achievement". It is interesting to look at the influence of mother's income specifically because of the prominence of single mother families in our society in addition to the fact that often times familial responsibilities as well as work related responsibilities fall on the mother. (Weiss, 2003) A study addressing the amount of maternal involvement in three different populations was cited by Weiss et. al. A description of the study is detailed below:

Data for this study were drawn from the School Transition Study (STS), a longitudinal follow-up investigation to the experimental impact evaluation of the Comprehensive Child Development Program (CCDP). The CCDP was a federally funded early intervention program for low-income children and their families from birth to kindergarten. Children in the STS ($n=390$) came from 3 of the 21 original CCDP sites across the United States, a Western city with a primarily Latino-American population (Site 1, $n=125$), a Northeastern city with a primarily African –American population (Site 2, $n=175$), and a rural New England town with an almost entirely European-American population (Site 3, $n=90$). These three sites were selected for the STS because they constituted a culturally and geographically diverse set of children and families.

The mothers of the selected children were interviewed three times, to track development of their child, and were asked open-ended questions. The interviewers attempted to gain insight into the family structure, rules and procedures around the house, different types of parental involvement, etc. Figure 1, shown below, displays the "nonlinear pattern" shown by the quantitative data along

with the qualitative data obtained from interviews. Figure 1 shows that part-time working or student mothers had a higher involvement in their child's education. Mothers working or attending school full-time had the least amount of involvement, and mothers who neither worked nor attended school fell somewhere in the middle in terms of involvement. (Weiss, 2003)

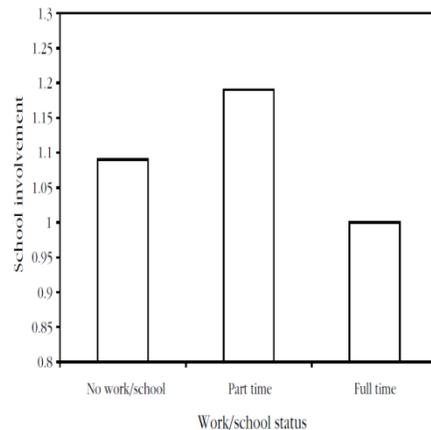


Figure 1. Adjusted school involvement means by work/school group.

Socioeconomic Status and Volunteerism

Though the effect of socioeconomic status on volunteerism has been supported in various studies, we felt it would be interesting to look deeper into the relationship between the two. Additionally, there is research that has suggested that education of parents has a larger influence on volunteerism. For this reason, we have controlled for education levels of parents in order to examine the relationship between all three variables. To do this, we utilized the secondary data analysis method. Data were taken from the General Social Survey and then run in SPSS to conduct multivariate analyses, which gave us a better idea of the relationship between the variables.

The General Social Survey is a national survey that ultimately provides researchers with a wide range of information about Americans. The General Social Survey spans from 1972 to 2012. The first question chosen was in relation to the independent variable (respondent's total

family income): “In which of these groups did your total family income, from all sources, fall last year before taxes?” There were sixteen response categories: “Under \$1,000, \$1,000 to 2,999, \$3,000 to 3,999, \$4,000 to 4,999, \$5,000 to 5,999, \$6,000 to 6,999, \$7,000 to 7,999, \$8,000 to 8,999, \$9,000 to 9,999, \$10,000 to 14,999, \$15,000 to 19,999, \$20,000 to 24,999, \$25,000 or over, Refused, Don’t Know, No Answer, and Not Applicable”. (See Appendix E) For the purpose of this study, these response categories were recoded to provide a cleaner, and easier to read table. After recoding, the final response categories were “Less Than \$9,999; \$10,000 To \$24,999; \$25,000 Or More, Refused, Don’t Know, and Not Applicable”. The second question chosen from the GSS Codebook, in relation to the dependent variable (Done Volunteer Work In Education): “Listed on this card are examples of the many different areas in which people do volunteer activity. By volunteer activity I mean not just belonging to a service organization, but actually working in some way to help others for no monetary pay. In which, if any, of the areas listed on this card have you done some volunteer work in the past twelve months?” For this question, there were five response categories: “Yes, No, Don’t Know, No Answer, Not Applicable”. (See Appendix F)

Rational Choice Theory helps us understand our research question more. For the purpose of this study, we will focus on the “skeletal model” of the Rational Choice Theory, as presented by Debra Friedman and Michael Hechter. (Ritzer, 403) The focus of this model is on the actors, or in our case, the volunteers. Friedman and Hechter suggest that actors act with both “intentionality” and “preferences”. (Ritzer, 403) This means that actors choose their actions with an end goal in mind that is influenced by their values. In addition, these goals are formed based on the “actor’s preference hierarchy”. (Ritzer, 403) However, these actions can be inhibited by “scarcity of resources and social institutions”. (Ritzer, 406) Friedman and Hechter suggested that

“these institutional constraints provide both positive and negative sanctions that serve to encourage certain actions and discourage others” (Ritzer, 406). In the context of a low income situation, we predicted that both scarcity of resources and social institutions in the form of the economic system would act as discouragement towards volunteering in education. Not all people, parents in particular, are able to volunteer their time often due to a lack of resources. Resources that are scarce in volunteering are free time, civic skills, and in some cases social connections. They also address the “importance of information in making rational choices” (Ritzer, 406). Also in the context of a low socioeconomic situation, this information can act as a lacking resource.

Initially, we felt the Rational Choice Theory as described by Friedman and Hechter explained why the relationship between the respondent’s total family income and if the respondent done volunteer work in education was significant. Table 1 and the subsequent analysis detail our results.

DONE VOLUNTEER WORK IN EDUCATION * Respondent's Total Family Income (3 Categories) Crosstabulation

			Respondent's Total Family Income (3 Categories)			Total
			Less Than \$9,999	\$10,000 To \$24,999	\$25,000 Or More	
DONE VOLUNTEER WORK IN EDUCATION	YES	Count	13	45	173	231
		% within Respondent's Total Family Income (3 Categories)	9.2%	15.4%	22.6%	19.3%
	NO	Count	128	247	592	967
		% within Respondent's Total Family Income (3 Categories)	90.8%	84.6%	77.4%	80.7%
Total		Count	141	292	765	1198
		% within Respondent's Total Family Income (3 Categories)	100.0%	100.0%	100.0%	100.0%

Table 1 Probability of Chi Square less than or equal to .000

The hypothesis that “people with higher education are more likely to volunteer in an education setting than those with lower income” is supported. The probability of Chi Square is less than or equal to $0 \leq 0.01$; therefore, the relationship between “Respondent’s Total Family Income” and “Done volunteer work in education” is significant. (See Appendix A) The table shows that 22.6% of respondents with a total family income of \$25,000 or more had done

volunteer work in education within the past twelve months while 9.2% of respondents with a total family income of less than \$9,999 had done volunteer work in education in the past twelve months. The strength of association (Cramer's V .121) shows that a weak relationship exists between "Respondent's Total Family Income" and "Done Volunteer Work In Education". (See Appendix B)

Though Table 1 presents a significant relationship between the respondent's total family income and whether or not the respondent had done volunteer work in education, we found that after controlling for the respondent's education, the Rational Choice Theory did still help us understand our research question, but in a different way. Table 2 and the following analysis detail our results, which we will then discuss in relation to the Rational Choice Theory.

DONE VOLUNTEER WORK IN EDUCATION * Respondent's Total Family Income (3 Categories) * Respondent's Highest Degree Of Education (3 Categories) Crosstabulation

				Respondent's Total Family Income (3 Categories)			Total
				Less Than \$9,999	\$10,000 To \$24,999	\$25,000 Or More	
Respondent's Highest Degree Of Education (3 Categories)							
Less Than High School	DONE VOLUNTEER WORK IN EDUCATION	YES	Count	2	2	7	11
			% within Respondent's Total Family Income (3 Categories)	3.2%	3.5%	13.2%	6.4%
		NO	Count	61	55	46	162
			% within Respondent's Total Family Income (3 Categories)	96.8%	96.5%	86.8%	93.6%
	Total		Count	63	57	53	173
			% within Respondent's Total Family Income (3 Categories)	100.0%	100.0%	100.0%	100.0%
High School	DONE VOLUNTEER WORK IN EDUCATION	YES	Count	9	29	68	106
			% within Respondent's Total Family Income (3 Categories)	13.6%	15.8%	17.7%	16.7%
		NO	Count	57	155	316	528
			% within Respondent's Total Family Income (3 Categories)	86.4%	84.2%	82.3%	83.3%
	Total		Count	66	184	384	634
			% within Respondent's Total Family Income (3 Categories)	100.0%	100.0%	100.0%	100.0%
More Than High School	DONE VOLUNTEER WORK IN EDUCATION	YES	Count	2	14	98	114
			% within Respondent's Total Family Income (3 Categories)	18.2%	27.5%	30.2%	29.5%
		NO	Count	9	37	227	273
			% within Respondent's Total Family Income (3 Categories)	81.8%	72.5%	69.8%	70.5%
	Total		Count	11	51	325	387
			% within Respondent's Total Family Income (3 Categories)	100.0%	100.0%	100.0%	100.0%
Total	DONE VOLUNTEER WORK IN EDUCATION	YES	Count	13	45	173	231
			% within Respondent's Total Family Income (3 Categories)	9.3%	15.4%	22.7%	19.3%
		NO	Count	127	247	589	963
			% within Respondent's Total Family Income (3 Categories)	90.7%	84.6%	77.3%	80.7%
	Total		Count	140	292	762	1194
			% within Respondent's Total Family Income (3 Categories)	100.0%	100.0%	100.0%	100.0%

Table 2 Less Than High School: Probability of Chi Square less than or equal to .049 (N.S.)
 High School: Probability of Chi Square less than or equal to .656 (N.S.)
 More Than High School: Probability of Chi Square less than or equal to .655 (N.S.)

In the “Less than high school” response group, the hypothesis that “people with higher income are more likely to volunteer in an educational setting than those with lower income” is supported. The probability of Chi Square is .049 which is greater than 0.01, making the relationship between “Respondent’s Total Family Income” and “Done Volunteer Work In Education” not significant at $p \leq 0.01$. (See Appendix C) It is important to note that for the response category “Less than high school” three cells (50%) resulted in an expected count of less than five. The elaboration model shows that 13.2% of respondents with a total family income of \$25,000 or more had participated in volunteer work in an educational setting within the past twelve months, while 3.2% of respondents with a total family income of less than \$9,999 had participated in volunteer work in an educational setting within the past twelve months. The strength of association (Crammer’s V .187) shows that a weak association exists between “Respondent’s Total Family Income”, or the independent variable, and “Done Volunteer Work In Education”, or the dependent variable. (See Appendix D)

In the “High school” response group, the hypothesis that “people with higher income are more likely to volunteer in an educational setting than those with lower income” is supported. The probability of Chi Square is .656, which is greater than 0.01, making the relationship between “Respondent’s Total Family Income” and “Done Volunteer Work In Education” not significant at $p \leq 0.01$. (See Appendix C) The elaboration model shows that 17.7% of respondents with a total family income of \$25,000 or more had participated in volunteer work in an educational setting within the past twelve months, while 13.6% of respondents with a total family income of less than \$9,999 had participated in volunteer work in an educational setting within the past twelve months. The strength of association (Crammer’s V .036) shows that a

weak association exists between “Respondent’s Total Family Income”, or the independent variable, and “Done Volunteer Work In Education”, or the dependent variable. (See Appendix D)

In the “More than high school”, the hypothesis that “people with higher income are more likely to volunteer in an educational setting than those with lower income” is supported. The probability of Chi Square is .655, which is greater than 0.01, making the relationship between “Respondent’s Total Family Income” and “Done Volunteer Work In Education” not significant at $p \leq 0.01$. (See Appendix C) It is important to note that for the response category “More than high school” one cell (16.7%) resulted in an expected count less than five. The elaboration model shows that 30.2% of respondents with a total family income of \$25,000 or more had participated in volunteer work in an educational setting within the past twelve months, while 18.2% of respondents with a total family income of less than \$9,999 had participated in volunteer work in an educational setting within the past twelve months. The strength of association (Cramer’s V .047) shows that a weak association exists between “Respondent’s Total Family Income”, or the independent variable, and “Done Volunteer Work In Education”, or the dependent variable. (See Appendix D)

The elaboration model that best fits this data is Explanation. This model suggests a discrepancy between the Zero Order Table and the Elaboration Table, which is made obvious through the shift from significant to not significant in our Chi Square numbers from Table 1 to Table 2 (See Appendices A and C). The significant relationship that is shown in the Table 1 with the probability of Chi Square less than or equal to .000, disappears in Table 2. This suggests that in the Zero Order Table, there is a spurious relationship between the independent, dependent, and control variables, resulting in our conclusion that education has more influence on volunteerism than income. Rather than income affecting education and ultimately volunteerism, our results

suggest that education affects income and subsequently, volunteerism in education. To modify our hypothesis, we would need to switch our focus from socioeconomic status to education levels.

Though somewhat predictable, it is interesting that our results suggest that education has more of an influence than income on volunteerism as we look at the Rational Choice Theory. We initially thought that, in our study of volunteerism and socioeconomic status, the social institution Friedman and Hechter cite as a deterrent of action taken by actors would be the economic system. However, after seeing our results we can say that it is in fact a social institution that inhibits the actor's ability to volunteer in education, but that the social institution to blame is the education system. As mentioned earlier, Friedman and Hechter emphasize "the importance of information in making rational choices" (Ritzer, 406).

Socioeconomic Status and Cultural Capital

Armstrong (2000) presented results that suggested with more social networks came more volunteer participation. Lee and Bowen (2006) present another barrier to parent involvement, cultural capital, through the use of Bronfenbrenner's Ecological Model. They look specifically at the mesosystem, which as can be seen in the diagram above, includes social factors that a child would interact with on a daily basis such as immediate family members, the classroom environment, and school friends. Cultural capital is unevenly distributed in our society, usually leaving those having low-income also poor in cultural capital. In contrast, it is likely that people with high incomes or levels of wealth to also have a high amount of cultural capital. Lee and Bowen have focused on the "parent involvement mesosystem" and the "advantages" that can be gained from this level. Social class, often associated with income levels, plays a major role in the access families have to this cultural capital. Some positive factors that play a role in the

advantages gained by upper and middle class families are “family and work situations that permit involvement at the school at the times and in the ways most valued by the school” (Lee and Bowen, 2006). However, for low-income and single-parent families, these factors act as barriers because they are often times absent. What is important is that families be able to contribute “in the ways most valued by the school”. This is interesting because it is often the case the upper and middle-class white families have more similar values to those of the school system than do lower-income minority families (Lee and Bowen, 2006).

Creating a Connection Between the School and Parent Volunteers

Though much research has suggested that parental involvement in education is a positive factor in a child’s educational experience, Pomerantz et. al (2007) believe that this may not always be the case. Pomerantz et. Al (2007) suggest that perhaps it is the “how, whom, and why” that determines the importance of involvement.

As shown in the table taken from Griffith’s study, one influencing factor on school-based parental involvement is the “perceived empowerment” and “positive climate of the school”.

Epstein and Dauber (1991) support the idea that perhaps the classroom culture can make a significant difference in the level of school-based parental involvement. They say that:

“Teachers who believe that they share similar beliefs with parents about involvement make more contacts with parents...conduct more types of activities to involve families, and are less affected by disadvantaged characteristics of the student population and by different classroom organizations”.

Epstein and Dauber (1991) also cite a “common understanding about shared goals and common support among teachers, parents, and principals” as a connecting factor. Schools with low-income communities tend to see the families of their “students in terms of their deficiencies”. It is suggested that if perhaps the school programs were analyzed more closely and the shortcomings were acknowledged and addressed, that family and school relationships would

improve (Epstein and Dauber, 1991). Perhaps one key to creating a positive relationship between schools that can then potentially lead to positive results in the students themselves is to see and focus on the potential of every aspect of the school community, especially the parents, no matter their background. If parents begin to feel welcome, accepted, and safe in the school environment, maybe parental involvement at the school-based level will increase.

School Garden's Effect on the Community: Research Findings

Our second hypothesis is that successful garden programs contribute positively back to the community. Community is a very important variable in looking at school garden programs. Studies have shown that garden programs helped the community as a whole. Looking at volunteer participation, the more people who are involved in the garden, from the community, the more successful and sustainable the garden is. Communities have reported being happier as a whole after garden programs had been in place for some time. Garden programs are beneficial for people of all ages; children learn how fruits and vegetables are grown, and adults learn about nutrition and the real value of fruits and vegetables. Studies have also shown an overall drop in obesity, correlated with community involvement with garden programs.

Community Involvement

A study was done in Upstate New York by Donna Armstrong (2000) looking into health promotion and community development. She took a look at twenty separate garden programs and found that in low-income neighborhoods these garden programs were four times as likely as non-low-income areas to lead to other issues in the neighborhood being addressed. The study took a deep look into the comparison between low socioeconomic status areas and higher socioeconomic status areas. The research shows that both low income and high income areas were likely to have successful gardens, have many volunteers to keep the garden alive, and the

gardens has a positive effect on each community. The study did show that people who participated in garden programs has an improved attitude of the residents toward their neighborhood for 51% of the gardens. Not only are these programs becoming more successful in lower socioeconomic areas, but they are improving the attitude of these area's residents. This overall attitude change can be very beneficial to these communities as a whole. With more amicable relations between neighborhood members we could see a more peaceful environment. This in hope, could cause less crime and violence in these areas, which can only help and be a positive influence to children in their upbringing.

Access to Resources

A study done by Hynes and Genevieve (2004) addresses urban area gardening. One issue they highlighted as a major issue in urban, low-income neighborhoods was the fact that there is less access to grocery stores in the low socioeconomic neighborhoods. They then suggested that community gardens have proven as a means of compensating for the lack of accessibility of local grocery stores. Though it has been noted in other articles that school garden projects typically do not yield enough crop to support a neighborhood, it is important to note that in the urban or low-income communities that many students are growing up in, there is a lack of exposure to fresh foods as a result of a lack of accessibility to grocery stores. Hynes and Genevieve (2004) also look at the effects of community gardens on, specifically, children. The claim was also made that community gardens have the ability to contribute to a reduced amount of crime in urban neighborhoods. The authors conclude with the idea that these community gardens transform the greater community into a "place that matters" (Hynes & Genevieve, 2004).

It is interesting to look at community gardening from the neighborhood's point of view. However, we must consider that fact that the community members themselves are not reporting

their opinions. It must also be noted that only a few examples of urban neighborhoods were provided, which does not mean that every person in every urban community shares these sentiments. With this in mind, we can analyze and apply some of the examples provided in the article to display some possible feelings members of other urban communities have towards community gardens, though these feelings are not automatically applicable to everyone.

Student and Garden Relations

We believe that the gardens have a large impact and are beneficial to the students, teaching them nutritional values and experience with growing. Through our research we were able to find studies on the relationship between students and their school's garden program.

Robinson and Zajicek (2005) looked into assessing changes in the life skills development of elementary school students who are participating in school garden programs. The study was conducted in one year. The life skills development was assessed on six constructs of life: teamwork, self-understanding, leadership, decision making, communication, and volunteerism. The students were split into two groups -- group one participated in the garden program (experimental group) and group two did not participate in the garden program (control group). The study showed that the control group had higher life skills before the experiment was conducted. After the experiment was conducted there was no significant difference in life skills between the experimental group and the control group. This study shows that having students involved in garden programs can provide them with necessary skills for later in life. The study made them more social with one another, provided them with knowledge on the subject of food growth and nutrition, and boosted the student's confidence. This article shows that school garden programs can be a huge impact on lower socioeconomic areas -- the program can give the students life skills and hopefully give them the drive to continue education. School garden

programs can be great aids for children with behavioral problems and students struggling in overall life skills.

In Florida, Skelly and Bradley (2000) studied the effectiveness of school gardens in relation to the classroom, and experiential learning. Experiential learning allows students to get a better understanding of concepts as the hands-on approach provides. Hands-on approaches provide students with meaningful and tangible experiences. The study showed that many Florida schools do not utilize their school gardens; but they are very useful for environmental education and related activities enhanced student learning. In this study, most teachers surveyed had relatively new gardens and had not yet had the time, or the tools, to utilize the garden. This study shows us that teachers do believe that gardens are beneficial to the students, and that gardens should be utilized in schools. Although many teachers had not been taking advantage of their gardens, teachers said they would make an aggressive effort to get more time in the garden for their students. “Many teachers indicated that school gardens were used for environmental education (97.1%) and experiential learning (72.9%), and 84.3% of teachers said that related activities enhanced student learning” (Skelly and Bradley, 2000). The research showed that the students did thrive in the garden, when they were allotted the time. The table on the next page provides a break down of hours spent in the garden, who participated, resources, and funding.

Waliczek, Bradley, and Zajicek (2001) looked into whether student’s participation in garden activities benefits with an improvement in interpersonal relationships and general attitude towards school. The study did not show any significant difference between the students that did participate in the garden and the students that did not. But the study was not a complete loss. Female students showed a significantly more positive attitude towards school at the end of the study than the male students. Overall, there was evidence that students’ attitude towards school

was more positive in schools that offered a very intensive individualized garden program. This study gave insight into what strategies were used to get students involved in the garden programs, and what kept them continuing to come back and work on the garden. The findings are interesting -- seeing how females were more positively affected by the program. In our interviews we hope to find a way to get the male students more involved in the garden programs. It would be great if every student is able to have more of a positive outlook on school and interpersonal relationships.

School Gardens in San Luis Obispo County

Originally we planned to go to each school, observe their garden space, and conduct a face-to-face interview with the manager of the garden. Unfortunately, this was only the case for one school. A majority of the school garden managers were unable to meet with us. In an effort to get as much information as we could with the restrictions placed on our project, we had the garden managers fill out our interview questions in a survey format. Unfortunately, even with this option one school was unable to provide information. Additionally, having to change our data collection method from interviews to surveys took away our ability to clarify or delve deeper into certain questions. For example, when we ask who manages the gardens, many schools gave us a name, but no indication of if that person is a parent, teacher, etc. Despite the challenges we faced in obtaining the answers we were seeking out, we were ultimately very happy with the results. The garden managers were very open about their projects and seemed excited that more research was being conducted. (See Appendix A for Survey Questions)

The four schools we will be looking at are Teach Elementary School, Pacheco Elementary School, Hawthorne Elementary School, and Los Ranchos.

Teach Elementary School

Teach elementary school represents the highest socioeconomic status of the five schools we chose to interview. Their garden project was established in 2008. The garden manager said the goal of the garden was to “give as many of [the] students an outdoor learning experience as possible” while incorporating “garden-based learning, nutrition, and environmental education”; and they feel this goal has been achieved. Though they do not have a set measurement system in place to gauge their success, they say that they have noticed the children enjoying their in the gardens and that teachers continue to sign their students up for garden time, which they take as a good sign. Also, parents have provided positive feedback, citing their child’s increased openness to new vegetables and healthier eating at home. Overall, the garden manager seemed happy with their project and encouraged other schools to create their own garden; but, they did say that the gardens are a lot of work and that it is best to start out small and “slowly work [your] way up” (M. Wong, email interview, November, 2013). (See Appendix B for full interview)

Pacheco Elementary School

Pacheco elementary school was chosen to serve as our base, having about fifty percent of their student body considered socioeconomically disadvantaged. Pacheco is a dual-immersion school, teaching their students in both English and Spanish. This garden was established about five years ago, with the current garden manager having held that position for the past year. She did mention that the garden had gone “defunct” for a few years, though did not cite a reason as to why. She said that a small number of parents get involved a couple of days per week, on a weekly basis. They assist with landscaping, translation of flyers and various materials to be sent home to Spanish, and fundraisers. The garden is used mainly for instructional purposes in the areas of science, math, writing, language development, and nutrition education. Much of the time the students get in the garden is dependent on the amount of volunteers they have. For example,

the garden manager said that last the students were in the garden upwards of five days per week. However, some parents' schedules changed this year and they are no longer to volunteer. This year, the students are in the garden about twice every week. A unique characteristic of some the schools in San Luis Obispo County is its proximity to Cal Poly. For example, the garden manager asked us to put out a request in the Child Development department for Cal Poly students to volunteer in the gardens so that Pacheco students may spend time there during recess. The garden manager said she felt that Pacheco's project had been "moderately" successful. They have suffered a few setbacks such as rodent and pest issues, but she feels they have established good relationships with volunteers and groundskeepers which has helped them overcome these obstacles (S. Ritter, personal communication, October, 2013). (See Appendix C for full interview)

Hawthorne Elementary School

Hawthorne elementary represented one of our lower socioeconomic schools, with about sixty four percent of their student body considered socioeconomically disadvantaged. This garden project was established about three years ago. We spoke with one person who has been involved with the garden for three years and another who has recently gotten involved throughout the past year. The primary manager of the garden is also the head of the PTA. She said that one parent volunteer comes in once a week to help out with the garden. She also has two parents that assist with clean-up of the garden at the beginning of the year and one to two times throughout the year. Though there is only one parent volunteer once a week, the students get to interact with the garden between two and three times per week under her supervision. The second Hawthorne representative cited this lack of volunteers as a reason for the garden's moderate success, while the garden manager feels it has been very successful. Their garden has

been used for “relaxation after lunch” in addition to learning about the process of gardening. Again, this measurement is based off the children’s enjoyment of the garden. The “long line at the fence” indicates the students truly enjoy and appreciate the opportunity to spend time in the garden. Parents have also said that their children are eating healthier. The garden manager said the garden has “helped the students feel important, included, [and] empowered”. Aside from the technical challenge of ensuring the garden has been watered enough, the garden manager said a big problem with keeping the garden open for students to enjoy comes in the form of consistency from parent or adult volunteers.

The Hawthorne garden representatives have seen the garden give back to the community as they have noticed people enjoying the garden in the warmer months just to relax. They also mentioned that the students enjoy bringing their parents into the garden to see what their hard work has produced. Again, school garden programs were highly recommended, “if there is parent/student/staff/administration support” (S. White, email interview, November, 2013 & Ellen, email interview, November, 2013). (See Appendix D for full interview)

Los Ranchos Elementary School

Los Ranchos elementary school’s garden is actually run by an outside entity, the local YMCA. This program was established this year with the ultimate goal of providing students with nutrition education and some context as to where their food comes from. The garden manager said that “parents are involved by reading about the garden’s progress through [the] monthly newsletter”. The success of this garden program has been measured by the students’ involvement and the well-being of the plants themselves. One drawback the Los Ranchos garden project has faced is funding, but they would definitely suggest that other schools implement school garden

programs as well (Woods, Ashley. 2013, November. Email Interview). (See Appendix E for full interview)

Conclusion

From these interviews, it was clear that despite the obstacles faced, the garden managers felt they were a positive aspect of the elementary school community and would suggest that other schools invest in similar projects. The reasons most of the garden managers cited as the main purpose of the garden is similar to Armstrong's "reasons for participation". All of the gardens seemed interested in introduction children to "fresher food", allowing them to "enjoy nature", providing "nutritious health benefits" and even "mental health benefits", especially in the case of Hawthorne Elementary school (Armstrong, 2006). From all of the programs, it seemed that the students gained valuable nutritional knowledge, which increased their openness to trying new vegetables at home. The feedback garden managers have received from parents has also been very positive. One benefit of the school garden that we had not thought of seeing was the "mental health" element that we saw with Hawthorne's project (Armstrong, 2006). The garden manager said that the garden has helped new students to the school and students who have experienced "alienation" to feel like they belong and fit in at the school, even helping them make new friends (S. White, email interview, November, 2013 & Ellen, email interview, November, 2013). These social, emotional, and mental benefits can be easily overlooked as we get caught up in the various physical health benefits these programs suggest, but the potential mental benefits are just as encouraging and exciting as the physical.

Interestingly, it seemed that all four of the garden programs in San Luis Obispo County faced similar obstacles though they varied in socioeconomic makeup. According to Griffith (1998), we should have seen less parental involvement in the lower socioeconomic schools as

indicated by the percentage of students qualified for free or reduced meals. Across the programs however, there was a general lack of what Pomerantz (2007) would call “school based involvement” volunteers across the four garden programs. As has been found in this study, volunteerism is actually more affected by education level of the volunteer rather than socioeconomic status. In this sense, our first hypothesis is disproved. Perhaps socioeconomic status of the community does not affect the success of a garden as much as education levels of parents or availability and ease of access to resources. We also found it interesting that funding did not seem to be as big of an issue as we expected.

One explanation for the similarities between the four garden programs despite their varying socioeconomic makeups is the location. As mentioned earlier, all of these schools are located within a fifteen minute radius of Cal Poly. This allows for schools such as Pacheco to reach out to the college community as an additional resource for volunteers. Also, the Central Coast has a moderate climate that lends itself well to outdoor activities, such as gardening.

When we examined garden projects outside of San Luis Obispo County, we did find that socioeconomic status had at least somewhat of an impact on the success of the garden. What has been suggested is that perhaps school garden programs have more of a dramatic impact on lower socioeconomic communities. However, when we focused on a major aspect of all of these garden projects, volunteerism, we found that socioeconomic status was not the strongest indicator. Perhaps, future research could expand on our project and address in further depth the relationship between socioeconomic status and education levels in the context of volunteerism.

The information from this study is encouraging when we think about the possibilities for the future. The results were much more optimistic than we expected to see. Hopefully, if we can continue to research elementary school gardens, we can learn more about what makes these

gardens work and how to bring these projects to more students. By highlighting the benefits elementary schools in San Luis County have experienced, we hope that the time, energy, and resources needed for these projects will be justified. Perhaps, with an increase in available information, we will see more funding allotted for creative projects like these garden projects.

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Appendix A

1. When was this garden project established?
2. Who is the primary manager of this garden space?
3. How often do parents get involved in the garden? And in what ways do they get involved?
4. How often do the students get involved/interact with the garden?
5. What is the main purpose of the garden? (i.e. instruction, lunches, etc)
6. How successful/beneficial do you feel this garden has been in achieving its original purpose?
 - In what ways has the garden been successful?
 - How have you measured the degree of success of the garden?
7. What were some expected drawbacks if there were any?
8. Have there been any unexpected benefits or drawbacks?
9. What is some feedback you have received regarding the garden?
10. How have you seen the garden serve the community? (particularly students and their families) If so, in what ways?
11. Do you recommend that other schools around the state and country implement school garden projects?

Appendix B

TEACH ELEMENTARY

1. When was this garden project established?
2008
2. Who is the primary manager of this garden space?
Mavis Wong
3. How often do parents get involved in the garden? And in what ways do they get involved?
Parents are involved in the garden: Some volunteer to take their child's class out to the garden, while others help with maintenance
4. How often do the students get involved/interact with the garden?
Classes that do Garden Hour are there once every two weeks.
5. What is the main purpose of the garden? (i.e. instruction, lunches, etc)
Garden based learning, nutrition and environmental education
6. How successful/beneficial do you feel this garden has been in achieving its original purpose?
Our goal is to give as many of our students an outdoor learning experience as possible
- In what ways has the garden been successful?
Our students enjoy the time they are in the garden
- How have you measured the degree of success of the garden?
No, we haven't measured it. But if our teachers continue to support the program, that in itself is a positive feedback
7. What were some expected drawbacks if there were any?
Gardens are a lot of work
8. Have there been any unexpected benefits or drawbacks?
Drawbacks: we don't have enough beds for all our classes
9. What is some feedback you have received regarding the garden?
All positive
Example: "My children now enjoy salad/broccoli, etc..."
10. How have you seen the garden serve the community? (particularly students and their families) If so, in what ways?
We hope their experiences out in the school garden fuel conversations at home regarding science, nutrition, food cycles, social justice, etc.
11. Do you recommend that other schools around the state and country implement school garden projects?

Yes! If possible! It takes a committed and concerted efforts by all to create and to sustain school gardens. Many of the benefits may not be obvious immediately, but, the lessons learned and the take-aways are long reaching and permanent.

Cautionary note: there's nothing more dismal, to me, than to see an empty, unused, overgrown, and neglected school garden. I always suggest schools start out "small" and slowly work their way up.

Appendix C

PACHECO ELEMENTARY

1. When was this garden project established?
5 years ago
2. Who is the primary manager of this garden space?
Sarah Ritter
3. How often do parents get involved in the garden? And in what ways do they get involved?
Weekly basis
1-2 days a week
General landscaping assistance, transport material, fundraising
4. How often do the students get involved/interact with the garden?
Depends on when volunteers are in the garden. This year only 2 days a week. Last year students were able to be in the garden 5 days a week, but only supervised sessions. Teachers willingness to incorporate into the curriculum.
5. What is the main purpose of the garden? (i.e. instruction, lunches, etc)
To introduce science, math, writing, and nutrition into the children's lives.
6. How successful/beneficial do you feel this garden has been in achieving its original purpose?
Moderate success because of volunteer availability
- In what ways has the garden been successful?
Success in getting kids outside and involved in hands-on activities
- How have you measured the degree of success of the garden?
Feedback from parents, kids, and teachers. Kids are eating more veggies at home that they try at school. They are more willing to try different vegetables in a learning setting. Visual success.
7. What were some expected drawbacks if there were any?
There were rodent issues, pests, irrigation issues, cooperation of other people (grounds person)
8. Have there been any unexpected benefits or drawbacks?
Reluctant parents get involved and they end up really happy with results
9. What is some feedback you have received regarding the garden?
Teachers excited they're hands on parents telling how much fun their kids are having
10. How have you seen the garden serve the community? (particularly students and their families) If so, in what ways?
Would like to develop the garden more. More parent oriented day. Kids sharing with parents. Have had collaboration with Cal Poly and SLO grownkids non-profit and small grant. Trying to collaborate with food bank.

11. Do you recommend that other schools around the state and country implement school garden projects?

Of course. Hands on learning. Especially for kids having trouble in class. Knowledge and connect with kids where food is coming from

Appendix D

HAWTHORNE ELEMENTARY

1. When was this garden project established?
September 2012
2. Who is the primary manager of this garden space?
Stacy White
Manager duties: planting and prep for the kids to use the garden, either with a teacher or with volunteers
3. How often do parents get involved in the garden? And in what ways do they get involved?
I've been going to the garden weekly at the kids lunch period. We do garden based crafts when it's the off season, we plant and harvest when it's time.
4. How often do the students get involved/interact with the garden?
Once a week with volunteers
A couple times a week with Ms. Ellen (teacher)
5. What is the main purpose of the garden? (i.e. instruction, lunches, etc)
Lunch activity to help kids connect with the vegetables they eat
6. How successful/beneficial do you feel this garden has been in achieving its original purpose?
It has been very successful, however it needs more involvement by the school admin/other parents to meet its full potential
- In what ways has the garden been successful?
The kids love to be part of the process
- How have you measured the degree of success of the garden?
By the number of kids who actively ask to be involved and the number of participants
7. What were some expected drawbacks if there were any?
Limited time in the daily school schedule. The kids only have 15 minutes to get acquainted participate and head back to class
8. Have there been any unexpected benefits or drawbacks?
There are a couple of new kids who come to the garden to find a quiet place to work on the garden and have become acquainted with each other
9. What is some feedback you have received regarding the garden?
Everyone likes the idea
10. How have you seen the garden serve the community? (particularly students and their families) If so, in what ways?
Not yet

11. Do you recommend that other schools around the state and country implement school garden projects?

Absolutely. I think it would be great to have it be part of the curriculum somehow.

HAWTHORNE ELEMENTARY

1. When was this garden project established?

I don't know the original time it was established but I got involved a year ago (Sept.2012)

2. Who is the primary manager of this garden space?

Stacy White – Head of the PTA

3. How often do parents get involved in the garden? And in what ways do they get involved?

One volunteer once a week

2 other parents clean up at beginning of year and a team 1-2 times a year

4. How often do the students get involved/interact with the garden?

When I can be there to supervise, 2-3 times a week for the upper grades

5. What is the main purpose of the garden? (i.e. instruction, lunches, etc)

We have utilized our garden for relaxation after lunch time while learning about how to care for plants and about plants (tasting, weeding, watering, picking, pruning)

6. How successful/beneficial do you feel this garden has been in achieving its original purpose?

Very successful – the students love it (great opinion for a quieter, more peaceful recess)

- In what ways has the garden been successful?

Helped children feel important, included, empowered

- How have you measured the degree of success of the garden?

The success can be seen by the long line at the fence of children who want to participate (word travels fast about how nice it is)

7. What were some expected drawbacks if there were any?

Consistency of adult supervision to ensure the garden is open to our students as much as possible. Watering enough can be a problem in hotter time of year

8. Have there been any unexpected benefits or drawbacks?

A child who was experiencing alienation by former friends, found a new supportive, group of great peers. This same child hosted a lunch/treat session at end of year last year in garden at picnic table for new friends

9. What is some feedback you have received regarding the garden?

Parents: supportive with baskets for produce extra help with big projects

Children: they love picking vegetables, flower, etc to bring to teachers and family

10. How have you seen the garden serve the community? (particularly students and their families) If so, in what ways?

Many people appear to use the garden in the warm months for relaxing after the school hours. We have noticed children's toys and food containers at times. Our students love to show their parents what they are growing.

11. Do you recommend that other schools around the state and country implement school garden projects?

If there is parent/student/staff/administration support – Yes!

Appendix E

LOS RANCHOS ELEMENTARY

1. When was this garden project established?
Fall 2013
2. Who is the primary manager of this garden space?
Ashley Woods
3. How often do parents get involved in the garden? And in what ways do they get involved?
Parents are involved by reading about the garden's progress through monthly newsletter
4. How often do the students get involved/interact with the garden?
Multiple times a week
5. What is the main purpose of the garden? (i.e. instruction, lunches, etc)
Teach children about nutrition and where the food they eat comes from
6. How successful/beneficial do you feel this garden has been in achieving its original purpose?
Yes
- In what ways has the garden been successful?
The children are very involved in the gardening process and the plants are very healthy
- How have you measured the degree of success of the garden?
By involvement and excitement from the children
7. What were some expected drawbacks if there were any?
Funding
8. Have there been any unexpected benefits or drawbacks?
Children are very interested and love going to the garden
9. What is some feedback you have received regarding the garden?
Parents are happy children are engaged in garden
10. How have you seen the garden serve the community? (particularly students and their families) If so, in what ways?
Children bring home lemons
11. Do you recommend that other schools around the state and country implement school garden projects?
Yes!