

2010

School Gardens: effects on low socioeconomic first grade students

Margo Lynn Castro

Louisiana State University and Agricultural and Mechanical College

Follow this and additional works at: https://digitalcommons.lsu.edu/gradschool_theses



Part of the [Human Resources Management Commons](#)

Recommended Citation

Castro, Margo Lynn, "School Gardens: effects on low socioeconomic first grade students" (2010). *LSU Master's Theses*. 4281.

https://digitalcommons.lsu.edu/gradschool_theses/4281

This Thesis is brought to you for free and open access by the Graduate School at LSU Digital Commons. It has been accepted for inclusion in LSU Master's Theses by an authorized graduate school editor of LSU Digital Commons. For more information, please contact gradetd@lsu.edu.

**SCHOOL GARDENS:
EFFECTS ON LOW SOCIOECONOMIC FIRST GRADE STUDENTS**

A Thesis

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Master of Science

in

The School of Human Resource Education and Workforce Development

by
Margo Lynn Castro
B.S., Nicholls State University, 1992
August 2010

ACKNOWLEDGEMENTS

I would like to begin by acknowledging the members of the graduate faculty committee, Dr. Janet Fox, PhD; Dr. Earl Johnson, PhD; and Dr. Krisanna Machtmes, PhD. I owe a special thank you to my major professor, Dr. Machtmes, who was always there for me. I am extremely thankful for her encouragement, guidance, and support. Without Dr. Machtmes' leadership and encouragement this thesis would not be possible.

I would like to thank my friend and fellow colleague, Robin Landry, for her friendship and overall support throughout this entire process. From car pooling to studying together, she has been a true inspiration.

Next, I would like to thank the LSU AgCenter for giving me the opportunity and resources needed not only to start the garden project, but also to fulfill my school requirements.

I would also like to thank the Assumption Parish School Board and Belle Rose Primary School Staff and Faculty for allowing this project to be brought into their school. They have provided continued support and encouragement throughout this entire undertaking.

A big thank you goes out to the First Grade teachers and students at Belle Rose Primary School. This project would not have been the success that it is without their hard work and dedication. Being involved in this project and with these children has made a huge difference in my life.

And last, but not least, I would like to thank my parents for their unending love and support.

TABLE OF CONTENTS

| | |
|--------------------------------------------------------------|----|
| ACKNOWLEDGEMENTS | ii |
| ABSTRACT | v |
| CHAPTER | |
| 1 INTRODUCTION..... | 1 |
| Rationale..... | 3 |
| Purpose | 3 |
| Limitations..... | 3 |
| Significance of the Study..... | 4 |
| Definition of Terms | 4 |
| Objectives | 5 |
| 2 REVIEW OF LITERATURE..... | 6 |
| Positive Impact | 6 |
| Academic | 7 |
| Non Academic | 8 |
| Health Benefits | 9 |
| 3 METHODOLOGY | 11 |
| Purpose | 11 |
| Qualitative Research..... | 11 |
| Methodology..... | 11 |
| Data Reliability and Validity..... | 12 |
| Researcher's Role..... | 12 |
| Background..... | 13 |
| Life of a Garden..... | 14 |
| Data Collection..... | 15 |
| Demographics..... | 15 |
| Program Participants | 16 |
| Guiding Questions | 17 |
| Guiding Questions for Students..... | 17 |
| Guiding Questions for Teachers..... | 17 |
| 4 OUTCOMES | 18 |
| Sue Carter | 18 |
| Millie Henry | 20 |
| Gloria Smith | 22 |
| Researcher's Observations of School Garden and Students..... | 24 |
| 5 FINDINGS | 29 |
| Compilation of the Guiding Questions..... | 29 |
| Conclusions and Implications..... | 31 |

| | |
|---------------------------|----|
| REFERENCES | 34 |
| APPENDIX | |
| A HARVESTING | 36 |
| B TASTING | 38 |
| C AG MECHANICS | 40 |
| D PERMISSION LETTER | 42 |
| E PLANTING | 44 |
| E GARDENING SONG | 46 |
| VITA | 48 |

ABSTRACT

The purpose of this study is to determine if there are any effects of school gardens on low socio-economic first grade classroom located in the Southern Region of the United States. It is crucial for students to understand food sources and where it originates.

Data was gathered through interviews using qualitative research methods. Analysis consisted of examining data from themes and discriminate cases. Personal interviews were done with teachers and students involved in the garden project. Permission was received to interview the students at school. All participants will remain anonymous.

The results of the study found that the garden project did provide the participants with a positive new experience and hands on learning. Academic effects were not measured due to the age and developmental stage of the first graders.

School gardens provide students with an opportunity to learn not only what they should eat, but also obtain a greater appreciation for how food is grown. Garden projects at school are a great way to make classroom subjects more interesting and significant to students.

CHAPTER 1

INTRODUCTION

Gardens provide many benefits, from adding beauty to our world to provide fresh fruits and vegetables to cleaning the air, to providing a therapeutic setting. School gardens provide students with many new opportunities. One of the most important things about vegetable gardening is understanding where food comes from. Edible gardens provide students with the opportunity to become familiar with and eat produce that they have grown themselves, an experience that anecdotally increases the appeal of eating vegetables (Balschweid, Cole, & Thompson, 1997).

Young children are fascinated seeing food when it is pulled from the ground, and they notice the similarities and differences from their garden vegetables and produce than from those they buy at the grocery store. Not only does it help them develop a better understanding of nutrition, but also improves their academic achievement through active hands-on activities.

School gardens are also a powerful environmental educational tool. For many children a garden is their only chance to get close to nature. Louv's (2005) book, *Last Child in the Woods: Saving our Children from Nature Deficit Disorder*, is a call to action. A close connection with nature can be therapeutic in addressing attention deficit disorders and other problems faced by so many children today (Tampa Bay School Gardening Network, 2002).

Through gardening, children can learn not only what they should eat, but also obtain a greater appreciation for how food is grown. Children are drawn to nature, and this provides social and emotional development. It also supports children's physical development as they engage in weeding, digging, and other manual labor associated with garden maintenance (Bradley & Skelly, 2000). Gardening requires fine and gross muscle movement.

Although there is little research on the academic impact of school garden programs, there are numerous observations and testimonials that these programs make a difference for students and schools (Thorp, 2003). One of the most promising aspects of school gardens as a model of school-based intervention is its potential to strengthen the school environment as a whole, beyond the health behavior of individual students (Klemmer, Waliczek, & Zajicek, 2005). School gardens can be incorporated into classrooms in many different ways. Usually they are used to develop science lessons, but teachers have been finding the garden beneficial in all subject areas (Thorp, 2003).

School gardens are a fantastic and stimulating way to make classroom subjects more appealing and meaningful to students (Thorp & Townsend, 2001). In science, students learn about plant parts, insects, soil, investigating living things and much more. In math, students can measure the garden before and after construction using non-standard and standard units. They can also identify two and three dimensional shapes in a garden. The students can also recognize patterns in the garden, while collecting data on daily temperature and recording it on a chart. In social studies classes, the students can relate legends, myths, stories, and fables to the garden. They can grow plants from various cultures and apply what is learned about rules of conduct and work behavior in the garden. During geography, the students can compare a map of the garden to the actual garden using a map legend to identify the features. They can also observe the weather and learn how the different seasons affect the garden. In reading, English, and Language Arts, the students can read literature on plants, gardens and nature. The students can write and talk about the garden, asking questions about what is happening in the school garden. Journals allow students to share their experiences about the garden by writing and drawing

pictures. The students can also compare the food grown to food that is eaten at home, during Health and Nutrition classes (Blair, 2009).

Although science is very important, teachers are not to limiting the garden lessons to this subject. Studies are finding that the more students are actively involved in their learning, the better they learn (Thorp, 2001). A garden is a perfect place for hands-on activities. The more the students are involved with the garden the more they will learn from it (Barry & Foerster, 2007).

The garden helps teachers meet some of the state-required grade level expectations, also known as GLE's. According to the Louisiana Department of Education, grade level expectation is a statement that defines what all students should know and be able to do at the end of a given grade level. GLE's add further definition to the content standards and benchmarks. Being exposed to a variety of food may play a small part in reducing childhood obesity.

Rationale

It is important for children to have a general knowledge of plants. They begin to understand where food comes from and it also gets the students ready for agricultural literacy. Students from a low socio-economic status may never have this garden experience. School gardens are a fantastic and stimulating way to make classroom subjects more appealing and meaningful to students.

Purpose

The purpose of this study is to determine if there are any effects of school gardens on low socio-economic first grade classroom located in the Southern Region of the United States.

Limitations

1. The researcher only interviewed students in first grade at one school.

2. The researcher only interviewed first grade teachers at one school.

The Significance of the Study

The significance of this garden project is to show how crucial it is for students to understand food sources and where it originates. For most of these students, it is their first time being exposed to these food choices. Many of the choices may not be available at home. The author found limited empirical research on the effects school gardens have on first graders. The researcher was not able to measure the academic effects due to the age and developmental stage of the participants. However, the researcher was able to determine that the garden project did provide the participants with new experiences and hands on learning.

Definition of Terms

School Garden - a special kind of learning center that provides an environment in which students can learn to work with teachers, parents and neighborhood resident volunteers while growing plants and learning the relationships between people, plants and wildlife in all subject disciplines (researcher developed).

Low Socio-Economic School - 50% of the students are on free or reduced lunch (Louisiana Department of Education).

4-H – a rural and urban youth program sponsored by the U.S. Department of Agriculture, offering training in agriculture, home economics, conservation, citizenship, etc. through local organizations (4-H clubs) and other activities (<http://www.yourdictionary.com/4-h>).

GLE's - grade level expectations-what all students should know and be able to do at the end of a given grade level (Louisiana Department of Education).

Agricultural Literacy - understanding and possessing knowledge of our food and fiber system. An individual possessing such knowledge would be able to synthesize, analyze, and

communicate basic information about agriculture. Basic agriculture knowledge includes: production of plant and animal products, the economic impact of agriculture, its societal significance, agriculture's important relationship with natural resources and the environment, the marketing and processing of agricultural products, public agricultural policies, the global significance of agriculture, and the distribution of agricultural products (Balschweid,et al.,1997).

Fit 4 the Future - grant through the LSU AgCenter that is sponsored by the Wal-Mart Foundation to encourage youth and their families to develop and maintain healthy living practices (researcher developed).

Objectives

1. To describe the three first grade classrooms that used the school garden to supplement their academic class work on the following demographics: age, race, gender, and if they have a garden at home.
2. To describe the three first grade teachers that used the school garden to supplement student's academic work on the following demographics: age, gender, race, length of time teaching in first grade, certification level, length of time teaching overall, and if they have a garden at home.
3. To determine if first grade students are gaining any academic benefit from the school garden after a full year of working in the school garden as perceived by the teachers.
4. To determine if first grade students have developed any teamwork skills or if they have increased their ability to socialize after a full year working in the school garden as perceived by the teachers.
5. To determine what if any benefits has the school garden had on the first grade students as perceived by the first grade teachers.

CHAPTER 2

REVIEW OF LITERATURE

There is a growing United States movement for “greening” of school yards through gardens at school sites and much enthusiasm for the potential of garden-based learning in promoting healthy youth development (Bradley, 2000). Although there is limited empirical research on the impact of school garden programs, there are numerous observations and testimonials that the programs make a difference for students and schools (Frick, Kahler & Miller, 1991).

Positive Impact

School gardens have had a positive impact on schools and students across the United States. Each garden is unique and gives back to the school and students in different ways. Students can take ownership in their garden, in turn take that pride and help strengthen self-esteem and allow students to take pride in the beautification of their school (University of Florida).

Giving students the responsibility to water and care for the plants they grow may instill in them a sense of accountability (University of Florida). The positive connection found between children and horticulture has promoted the development of garden-based curricula for use in schools (Haynes, Hilgers, & Olson, 2008).

School gardens can reinforce classroom instruction by offering opportunities for experiential learning. The benefits of experiential learning allow for a better understanding of concepts as the hands on approach provides meaningful and tangible experiences (Bradley, 2000).

Academic

Studies have shown gardening to have the potential to influence students in several positive ways. The hands-on and informal learning that occurs in these outdoor areas can be incorporated into all areas of the curriculum, fostering environmental awareness and increased interest in science (Haynes, et al., 2008).

School gardens appear to be predominantly used by most schools to enhance academic instruction through teaching subjects such as science, environmental studies, nutrition, language arts and math. This indicates that the garden is being used to teach some of the core academic subjects, possibly with the incorporation of core curriculum standards (California Department of Education). This is consistent with research in which gardens are being used to incorporate core curriculum in a hands-on setting. With recent concern over relatively weak science and math skills among American children, the need for innovation in science and math teaching is apparent (University of Southern Florida). Engaging, hands-on learning activities incorporated into subject matter are key components of experiential education in which environmental based education programs have been employed, emphasizing the development of lifelong learning skills, such as problem solving and critical thinking (Blair, 2009).

Recognizing the educational and health benefits of school gardens, the California Department of Education launched the Garden in Every School Initiative in 1995. Subsequently, the Governor and Legislature, acknowledging the value of school garden projects, enacted several bills that promote instructional school gardens.

In 1999, the California Department of Education commissioned a second study of the educational efficacy of environment-based education. The study examined eight pairs of environment-based education treatment and control schools/programs in California. Data from

this California study combined with data from the prior study found that over 77% of students in environment-based education programs scored higher than their peers across all standardized tests and had higher grade point averages (California Department of Education).

In a three-year study of classroom gardening involving 300 students, Hendren (1998) was unable to report any significant difference in academic achievement as a result of the gardening program utilized. Overall, there is a scarcity of empirical evidence in the literature describing any significant correlations between gardening programs and academic performance (Thorp, 2001).

There is limited empirical research on first graders and the effects that school gardens have on them. Measuring the impact on first graders may not show in academics, but may give them more fundamental links to form. We may not see the change in first graders immediately, the effect may take years to make a measurable appearance but it may give these children a solid connection to nature that can help sustain them in future science and environmental courses. These fundamental links are essential to their growth. The students have an understanding of where food comes from. The garden provided the students with a new experience and hands-on learning.

Non Academic

Tina Kafka teaches fourth through sixth graders in La Jolla California and says that “gardening has been a bonding experience” (Louv, 2005, p 217). There are multiple rationales for the value of school gardens, chiefly as outdoor “learning laboratories,” as aesthetically pleasing spaces for children to play and most recently as places to promote the consumption of fresh produce (Klemmer, et al., 2005).

Garden projects also draw on skills and interests not necessarily associated with high achievement in regular classroom: for example physical strength, visual-spatial skills, or experience in building. School gardening offers children opportunities for outdoor exercise while

teaching them a useful skill (University of Southern Florida). Garden teachers anecdotally comment that some students who struggle with classroom learning “shine” in the garden (Bradley, 2000). A school garden is a canvas of art created by Mother Nature herself, which gives students ideas to create their own works of art (University of Florida). Studies are finding that students who are allowed to learn in an outdoor environment such as a garden have improved environmental attitudes (Florida School Garden Commission). Findings from the National Longitudinal Study of Adolescent Health indicated that adolescents who report feeling more connected to school show lower levels of emotional distress, risk behavior, and aggression (California Department of Education).

Health Benefits

The experience resulted in the children’s increased willingness to taste (Morris & Neustadter, 2001). Increasing the consumption of fruits and vegetables was a goal of the USDA’s major “5-A-Day” campaign and is recommended by the American Academy of Pediatrics (2003) for the prevention of obesity among children (Blair, 2009). Palmer, Salisbury-Glennon, Shannon, and Struempfer (2009) designed an experiment to examine the knowledge and consumption of vegetables and fruit by second graders. The quasi-experimental design consisted of two treatments – one group received nutrition education and gardening experiences, the second group only nutrition education and the last group was a control group. It is important to note that after completion of the experiment the group that received both nutrition information and gardening experience demonstrated significantly greater knowledge gain in nutrition and had higher taste ratings. This group also continued to consume more fruits and vegetables after the treatment was over than either of the two other groups.

It seems likely that school garden programs that have the goal of improving student nutrition will be more effective if parents become invested in the program (California Department of Education). There is mounting evidence that active learning in less structured, participatory spaces like gardens is more likely to transform children's food attitudes and habits, and that school gardening, especially when combined with a healthy lunch program or nutritional education, encourages more healthful food choices (University of Southern Florida). Students spend only part of their day at school, so the resources and supports for healthful eating in the neighborhood and at home are also critical (Haynes, et al., 2008).

According to the National Science Teachers Association recent studies showed that schools with vegetable and fruit gardens are successfully combining nutrition lessons with science, and students are reaping the benefits (Shapiro, 2007). Results of a study published in the January 2002 issue of the *Journal of the American Dietetic Association* demonstrated how combining learning activities in a school's vegetable garden with nutritional lessons gave teachers a chance to incorporate science in the curriculum, with an added bonus: Students became more willing to try different vegetables (Shapiro, 2007).

Gorski, chief pediatrician at the Children's Board of Hillsborough County, in Florida has recently affirmed the need to reverse the dangerous disconnection between children and nature – dangerous for children's health, for their growth and development and for their opportunities, over time, to preserve a healthy society.” (Tampa Bay School Gardening Network). As cited in Blair, Chawla's (1998) review of the qualitative and survey literature found that adults who had significant and positive exposure to nature as children - experiences often with significant adults, that socialize them to view nature in positive and meaningful ways - were more likely to be environmentally sensitive, concerned, and active (Blair, 2009).

CHAPTER 3

METHODOLOGY

Purpose

The purpose of this study is to determine the academic effects of school gardens on a low socio-economic first grade classroom located in the Southern Region of the United States.

Qualitative Research

This is an exploratory study using qualitative research methods. Qualitative research is used to gain insight into people's attitudes, behaviors, value systems, concerns, motivations, aspirations, cultures and lifestyles (Rubin & Rubin, 2005). Exploratory research does not have concrete problem statements or objectives; this type of data allows for emergence of data and issues (Marchall & Rossman, 1989). Qualitative interviews are conversations in which a researcher gently guides a conversational partner in an extended discussion. The researcher elicits depth and detail about the research topic by following up on answers given by the interviewee during the discussion (Rubin & Rubin 2005).

Methodology

The appropriate methodology for this research is structured interviews with probing questions. Data was gathered using structured interviews with each first grade teacher. All interviews were recorded and transcribed verbatim. Data was also gathered from students in each class; students were interviewed as a group and their responses were recorded. Observations by the researcher were also utilized to enrich the data and to triangulate findings from the teacher's interviews.

The data was analyzed by reading and reviewing each transcript, and then the data was coded according to categories that emerged from the data. The data was then placed into themes.

Qualitative study using interviews to gather data were used. Analysis consisted of examining data for themes and discriminant cases.

Data Reliability and Validity

Reliability and validity of qualitative data is measured in a different format than quantitative data. Reliability is measured by transparency of the methodology. The research has detailing every step of the data collection and analysis. Inter-rater reliability for the coding and themes were completed between the researcher, her chair of the master's committee, and her co-worker also working on a thesis on the same subject area.

Validity is measured in several different ways with qualitative data. The researcher needs to make sure that they include information regarding how they access the site and how they chose their participants. Patton (1999) discusses three elements which are "rigorous techniques for gathering data, credibility of the researcher, and the belief in the qualitative research process" (p. 1190). The researcher in this study has revealed her background and lens towards her study. The methods section has been the researcher has detailed her data collection. Data collection has been triangulated by the observations of the researcher.

Researcher's Role

At the time of this project, I had only been a 4-H agent in the Southern Region of the United States for three years. Prior to my becoming a 4-H agent, I taught kindergarten for 15 years in the same community. During my teaching tenure, I was very motivated by my students and enjoyed watching them grow, learn, and explore. My teaching background has helped me tremendously in my current 4-H Agent position. With the help of creative teaching techniques I am better able to help the students understand the lessons being taught.

Through my teaching experiences I had already seen firsthand the many benefits of planting. In my classroom, the students were able to learn and do so much just from planting a seed in a Styrofoam cup. I knew school gardens could and would be very beneficial to the school and students.

Background

As a 4-H Agent for the LSU AgCenter, I realized the importance of school gardens. The 4-H department was having a big push for school gardens. An e-mail was sent to all 4-H agents letting us know about the Fit 4 the Future Grant that was available for 4-H Agents applying to get money to help fund school gardens in our parish. As a former teacher I realized the importance of students knowing where their food originates.

I decided to put the school garden idea into motion. I collaborated with the Family and Consumer Sciences Agent in my parish. We identified a school that we felt would be receptive to this idea. This school is a low socio-economic school in a rural part of the Southern Region of the United States. The Family and Consumer Sciences Agent and I then met with the school superintendent for that area. We spoke to him and stressed all the benefits of a school garden. The superintendent gave us permission to speak to the principal. Next, we met with the principal and presented him with some research on school gardens and the benefits that came along with it. The principal was very excited and gave us his full support. The final group of people that we had to sell the idea to was the three first grade teachers. We set up a meeting and met with them. We did not have to do much convincing. They were very excited and were extremely ready to begin. We had their full cooperation and support.

Life of a Garden

In early July, 2009, Robin Landry, Assumption FCS Agent and I began working very closely with the principal and the three first grade teachers to get the garden started. Local community volunteers and businesses worked together to make the garden a reality. The students were very excited to show off the vegetables that they harvested (Appendix A) from the garden. The garden produced typical fall crops of broccoli, spinach, carrots, cabbage, and the spring garden crops of tomatoes, cucumbers, bell peppers, snap beans, and watermelon. With each crop the students were given the opportunity to taste the vegetables from the garden. The teachers prepared the vegetables in different ways for the students to try. Teachers prepared fresh broccoli and low fat ranch dip, lettuce and spinach salad with low fat cheese and low fat dressing, smothered cabbage, vegetable soup, carrot cake and coleslaw. Students also tasted and ate tomatoes, snap beans, and cucumbers from the spring garden. Tasting (Appendix B) was always the students' favorite time. Teachers have seen an increase in the consumption of fruits and vegetables by the students. Many of them have made the connection between eating healthy and being healthy.

The students were involved with the garden from the very beginning. The care of the garden has been the duty of the children, from planting to weeding and watering. The students have embraced the garden project with open arms. They are so excited each and every time they are able to work in the garden. The students are very proud of their garden. They always want to show it off or tell a story of something that happened or that they observed in the garden. A person could see the students grow with their garden. The garden gave the students a sense of ownership and belonging. For the students, the garden is an extended classroom. For the

teachers, it has become a multi-purpose area used to teach lessons in all subject matter as well as helping students learn responsibility, citizenship, caring and respect.

In March 2010 there was a huge addition to the garden. An outdoor learning area was added under an existing oak tree. The learning center was constructed and put into place by the Assumption High School, Ag Mechanics class (Appendix C). With the addition of the outdoor learning area came other improvements such as a solar thermometer, rain gauge, hummingbird and wild bird feeders, and bird baths. This area is used by all students, faculty and staff.

Teachers have commented on the positive effect the garden has had on the students. For many of the first grade students the garden has been an opportunity of a lifetime.

Data Collection

The three classes of first grade students agreed to talk about their experiences with me concerning the school garden. The interviews were done at the end of the project. I received permission from the school principal (Appendix D) to interview the students during school hours on the garden project. The identity of the students will remain confidential. All participants were informed of their rights as human research subjects.

Collecting data was used through different qualitative methods such as: observations, interviews, and discussions. Observations will help me, the researcher, see the garden and its benefits just as the subject saw it. Student interviews will be conducted with the help of teachers. Purposive sampling will be used because it targets a particular group of people. These people are selected because of their similar characteristics.

Demographics

The South Louisiana parish that this school resides in is estimated to have had a population of 22,951 according to the 2006-2008 American Survey three year estimates. The

ratio is fifty-fifty: males to females. This parish is primarily agricultural with its principal crop being sugar cane. It is very rural, with only one high school. There are five primary schools, four middle schools, and one private school, pre K-8th grade. In this parish, 21.1% of the population 25 years and older has less than a 9th grade education, 56.7% of the population are grandparents raising grandchildren, 55.2% of the families in the parish have two parents working, and 55.4% of the households are headed by females with no husbands.

The targeted school houses Head Start through fourth grade. There are 327 students with 312 and 12 being African American, 14 Caucasians, and one Hispanic. The school is a low socio-economic school, with 75% of the students on free lunch and 4% percent on reduced lunch. This gives the school a total of 79% of the students receiving free or reduced lunch.

Program Participants

There are three first grade classes with a total of 48 students. Forty-six of these are African American and two are Caucasian. The two Caucasians are female twins. There are 26 female students and 22 male students. The three teachers are all Caucasian females.

The garden is located directly outside of the first grade classrooms. This enables the students and teachers to have easy access to the gardens. There are two raised bed gardens, one being three feet wide, 24 feet long and six inches deep. The other bed is the same width and length, but is 12 inches deep. Planting (Appendix E) in the garden was easier.

The garden was made possible through donations and a grant. Students have the responsibility of taking care of the garden, making sure that the plants have the appropriate water, and that the weeds are kept under control. The students are involved in all aspects of the garden so they can experience the full effect. This helps them to achieve ownership of this wonderful experience.

Guiding Questions

The interview questions used were developed to gain increased information from the students and teachers involved in the garden project. The purpose of the interviews was to learn valuable insight into the teachers and students reactions to the garden project.

Guiding Questions for Students

1. Did you like the garden?
2. Have you ever planted food at home before?
3. What were some of the vegetables grown in the garden?
4. Did you like the way the vegetables tasted?
5. Does anyone eat something now that they didn't eat before?
6. Why do you think people should plant a garden?
7. Since you learned how to plant a garden, has anyone planted vegetables at home?
8. What was your favorite part of the garden?

Guiding Questions for Teachers

1. Do you think the garden was a positive or negative experience for the first grade students?
2. Did the first grade students gain any academic benefit from the school garden?
3. Did the first grade students develop any teamwork or socializing skills from working in the school garden?

CHAPTER 4

OUTCOMES

I began my research on the effects of school gardens on a low socio-economic first grade classroom in August, 2009 until April, 2010. I used three first grade classes in a low socio-economic southern part of the United States. Data for this research were collected through interviews and observations. The first graders ranged in ages from five to six years; therefore their answers and backgrounds are limited. The school has 75% of the students on free lunch and 4% percent of the students on reduced lunch. There are 46 African American students and two Caucasians in the first grade classes. Each class is taught by a Caucasian female. The three classes are the same size and shape. The classes are filled with colorful bulletin boards. In each class there are displays of the students' work.

Sue Carter

The first class I interviewed was taught by Sue Carter. There were 16 students, seven males and nine females. Fourteen of the students are African American and two Caucasians. The two Caucasians are twin females. Ms. Sue's class is the most cluttered of the three classes. There is always movement and noise, but it is organized chaos. Despite all the chaos the students are well disciplined.

There is a poster that hangs on the wall with the butterfly life cycle. On the board, "No Garden" is written in chalk. If the students name goes on the board then they lose their time in the garden. For the interview the students and I sat on the floor. They raised their hand and waited to be called on to answer the questions.

Sue Carter's class responses to the guiding questions are as follows:

1. Did you like the garden?

- All 16 students said yes, they liked the garden.

2. Have you ever planted food at home before?

- All students indicated no except one student who said her and her brother put plum seeds in some dirt in a cup, but nothing grew.

3. What were some of the vegetables grown in the garden?

- The students answered carrots, cabbage, cucumbers, broccoli, peppers, and tomatoes.

4. Did you like the way the vegetables tasted?

- All students said they liked the vegetables. One student said he didn't like the tomatoes at home and he doesn't like the tomatoes from the garden. Four students said their favorite was the soup they grew. Their teacher had taken vegetables from the garden and made soup for the students to taste.

5. Does anyone eat something now that they didn't eat before?

- The students all answered no. No one indicated that they eat anything new.

6. Why do you think people should plant a garden?

- One student said in gardens you can only grow healthy foods, so it makes you healthy. Another student said garden food helps keep you healthy and that helps you live longer.

7. Since you learned how to plant a garden, has anyone planted vegetables at home?

- One student said she planted cabbage at home with her dad.

8. What was your favorite part of the garden?

- Fourteen of the 18 students said tasting was their favorite part of the garden. Three students said planting was their favorite. One student said smelling the garden was her favorite part of the garden.

Sue Carter's responses to the guiding questions are as follows:

1. Do you think the garden was a positive or a negative experience for the first grade students?

- This project was positive for the students in so many ways. Many of my students had no idea what a garden was. Before this experience they couldn't even make the connection of where food comes from. One day I asked the students where do carrots come from, many of the students answered, Big B, a local supermarket. It is so important for students to know where food comes from. We were able not only to garden, but bring other subjects into the garden.

2. Did the first grade students gain any academic benefit from the school garden?

- I am not sure how much of an academic benefit the school garden provided, but it definitely helped make learning come alive. As much as I could, I would try to incorporate different subjects into the garden. An example would be in Language Arts, we were on long e. I incorporated that into weeding the garden. The garden helped make traditional learning non-traditional.

3. Did the first grade students develop any teamwork or socializing skills from working in the school garden?

- This garden project has definitely helped with teamwork. Many times my students have a problem with sharing. I am not sure if that is because so many come from such a poor home life that they are very protective of what they have. The garden has taught them to work together.

Millie Henry

The second class I interviewed was taught by Millie Henry. Ms. Millie is the youngest teacher of the three teachers. The class is made up of 17 students, eight males and nine females, all African Americans. The classroom is very neat and well kept. The students are very well behaved. You can tell the students as well as the teacher are very used to following a daily routine. For the interview the students sat at tables and I sat in a chair near them. They raised their hand and waited to be called on when answering questions.

Millie Henry's class responses to the guiding questions are as follows:

1. Did you like the garden?

- All 13 students indicated they liked the garden.

2. Have you ever planted food at home before?

- Only one student said yes. Her grandmother plants green lettuce at home.

3. What were some of the vegetables grown in the garden?

- The students answered carrots, cucumbers, tomatoes, cabbage, peppers, and broccoli.

4. Did you like the way the vegetables tasted?

- The students said they liked the vegetables. One student said he really liked the broccoli with dip. Another student said her favorite was the cabbage and carrot salad also known as coleslaw.

5. Does anyone eat something now that they didn't eat before?

- One student said now she eats cooked carrots.

6. Why do you think people should plant a garden?

- Gardens give you healthy free food. The food in gardens don't let you get fat. The garden lets you get exercise by bending up and down.

7. Since you learned how to plant a garden, has anyone planted vegetables at home?

- One student said he and his grandfather planted carrots in a bucket.

8. What was your favorite part of the garden?

- Of the 13 students, six liked tasting, four liked watering, two liked planting and one liked weeding.

Millie Henry's responses to the guiding questions are as follows:

1. Do you think the garden was a positive or negative experience for the first grade students?

- The garden project was a positive experience. The students really enjoyed all aspects of it. The garden was an exciting hands-on project. Many students have never had this opportunity. They embraced the garden and had fun.

2. Did the first grade students gain any academic benefit from the school garden?

- I am not sure how much academic benefit the school garden provided but the garden was an extension of the classroom. I used the garden as a motivational tool. The students knew if they didn't behave, then they wouldn't be able to work in the garden.

3. Did the first grade students develop any teamwork or socializing skills from working in the school garden?

- I can see where my students have definitely gotten better at teamwork. They have learned to share tools and take turns watering. I think they can see everyone is needed to contribute to a successful garden.

Gloria Smith

The third class I interviewed was taught by Gloria Smith. There are 15 students, six male and nine female. The class is very organized, but definitely student friendly. There is a poster on the wall of a plant. The parts of the plant are labeled. There is a display shelf in the front of the class. There was a total of 10 books on the display, four of the books pertained to plants or gardening. The students and I sat on the floor for the interview.

Gloria Smith's class responses to the guiding questions are as follows:

1. Did you like the garden?

- All 15 students said they liked the garden and had fun.

2. Have you ever planted food at home before?

- All students said no, but one boy indicated that he thought his grandfather grew tomatoes at home.

3. What were some of the vegetables grown in the garden?

- The students answered cabbage, spinach, carrots, broccoli, peppers, cucumbers, and tomatoes.

4. Did you like the way the vegetables tasted?

- As a whole, the students liked the taste of all vegetables grown. One student did not like tomatoes. One student stated he liked the carrots, but didn't like when his teacher used them to make a cake, carrot cake. Another student said she didn't like the broccoli, but when she tasted it with white dip she liked it. (low fat ranch dressing). Twelve of the 15 students said their most favorite was when their teacher cooked the cabbage.

5. Does anyone eat something now that they didn't eat before?

- One student said she couldn't remember the name but she eats the little not sour pickle things. Then she remembered, "oh yea cucumbers". Another student said that he loves broccoli since he grew his own.

6. Why do you think people should plant a garden?

- Twelve of the 15 students said to help you eat healthy. One student said gardens are good so you don't have to find a ride to the store. Another said because it is like going get free food. One very small boy said as he pointed to the jersey under his uniform, "I have to eat what is in the garden so I can be like Michael Jordan".

7. Since you learned how to plant a garden, has anyone planted vegetables at home?

- Three students said they planted vegetables at home. One planted tomatoes, one cabbage, and one cucumber.

8. What was your favorite part of the garden?

- Of the 17 students, four liked planting, four liked watering, six liked tasting, and two liked weeding. One student said his favorite thing was to clean around the garden. He said he cleaned the garden every day.

Gloria Smith's responses to the guiding questions are as follows:

1. Do you think the garden was a positive or a negative experience for the first grade students?

- This garden project has been a positive experience for my students. In the cafeteria my students have tried more vegetables. Several parents have told me their children ask for vegetables at home. It has helped my first grade students become more conscious about their food choices. For me and my students the garden project has been much more than planting seeds and taking care of them. We have bonded in our garden. The garden always puts a smile on my students'

faces. The garden has given so many of my students an opportunity that they would never have had.

2. Did the first grade students gain any academic benefit from the school garden?

- If I had to give a yes/no answer, I would have to say no I really don't think so. But for instance when the students are journaling about the garden they are excited and you can see it in their writing. The garden is used as a motivation tool. Sometimes I tell the students if everyone gets all their vocabulary words correct, we will spend an extra 30 minutes in the garden.

3. Did the first grade students develop any teamwork or socialization skills from working in the school garden?

- My students are very proud of their garden project. They took ownership of the garden from the beginning. Seven to 10 students line up and water the garden every morning at recess. They know they have to take turns. I put the water in the can and when they empty it they have to hand it to the next person in line. There has never been an ugly word or gesture. They just wait quietly for their turn.

Researcher's Observations of the School Garden and Students

One of my favorite parts of the garden project was the visits and observations that I was able to make. From the beginning my focus was the students. Not only did I want the students to learn and have a new opportunity, but I also wanted them to have fun. The students that took part in this project embraced the garden and made it their own. This was evident by their facial expressions and the stories they shared with me.

As I began this project with the students, you could tell that there was uncertainty on their faces. It was soon obvious that these first grades had never been given the opportunity to plant or grow anything before. I also learned very quickly that these students could be very easily motivated and appreciated every, or anything that was done for them. This was a low socio-economic school; therefore many of these students had very little at home and were not given many new opportunities. The students were very eager and excited to begin. Their excitement was put on hold for a while because of rain delays. To help ease their sense of disappointment, I

brought the students material and things needed to start seedlings in the classroom. This seemed to have satisfied the students, but you could tell they were very eager to get their hands dirty in the garden. Once the project got started the students took ownership and made it their own. They were very protective of the garden and took very good care of it. Faculty, staff, and any visitors could see the pride these students had when showing off their garden.

The students embraced the garden more than I could have ever imagined. Each time I visited the students or the garden I was always met with smiling faces and each student wanted to share their garden story. These stories started from the very beginning.

The first time the students actually went into the garden, the look on their faces was priceless. The teachers began their garden lessons and allowed the students to begin pulling weeds. The students would pull the weeds and throw them behind the garden bed. The students were so excited and had fun doing it. One of the students observed the weeds piling up and took it upon himself to get a garbage bag and begin picking up the pulled weeds. Since then that student has become the “garden cleaner”. During the interviews with the students, I asked what their favorite part of the garden was; this student indicated that cleaning was his favorite part.

The care of the garden was the responsibility of the students. They planted (Appendix D), weeded, watered, and harvested all the vegetables. They took these responsibilities very seriously. Never did any of the students have to be reminded of their job or reminded to do it. Anyone visiting the garden could see the pride and ownership that students had for the garden.

After the garden project was in motion for a few weeks, I had a chance to speak to one of the teachers. She was very excited and could not stop praising the garden project. She was so amazed how the garden served as an equalizer for the students. The teacher said when the students went into the garden it was like they stepped into a different world. Every student was

at the same level. It didn't matter what shoes they wore, how they smelled, or what they looked like. Everyone was equal.

On one of my visits to the garden happened to be recess. It was amazing to me that instead of students playing, they were lining up to water the garden. Some were just walking around the garden, looking for weeds and pulling them as they were found. Many students indicated that watering the garden was their favorite part. They each lined up, the teacher filled the can and they took turns. It was amazing how each student stood in line and waited their turn. All of the teachers involved commented that the garden project definitely helped teach their students teamwork and sharing. I never observed anyone having to be disciplined in the garden. The teachers also commented that they don't remember ever having to discipline the kids while in the garden.

I visited the student in their classrooms and just had an open discussion about the garden. The students were very eager to get a chance to tell their story. Most of the students spoke about the taste of the vegetables. The teachers had done an excellent job of not only letting the students taste the vegetables raw, but also brought vegetables home and prepared them in different ways. The teachers prepared vegetable soup, smothered cabbage, and carrot cake just to name a few.

The garden was well on its way and was very plentiful of the different vegetables that had been planted. As I was admiring the garden, the principal walked over and commented on how much the project had given not only to the students, but the entire school. He couldn't stop commenting on what joy it was to see the students working and learning in the garden. He even confessed that at a time or two, he had picked a few vegetable out of the garden to eat as a snack.

He kind of chuckled to himself when he said, you know I think this garden has its own little angel, no matter what these kids plant it grows beautifully and plentiful.

In March there was a huge addition to the garden. An outdoor learning center was added under an existing oak tree. The students with the help of their teacher made up a gardening song (Appendix F), sung to the tune of Row, Row, Row Your Boat. With the addition of the outdoor learning area came other improvements such as a solar thermometer, rain gauge, hummingbird and wild bird feeders, and bird baths. The students looked as though they had just woken up and it was Christmas. They so enjoyed all the new editions and were very eager to put them to use.

During my interviews several comments the students and teachers made really made me think and put so many things in perspective. When I asked the students why they thought people should plant a garden, some of the answers were really very heart warming. One of the students answered so your mom doesn't have to find a ride to the store. Another answered because it gives you free food. One very small framed boy stood up and raised his uniform shirt and pointed to the Michael Jordan basketball shirt he wore and said because the garden is healthy food and you have to eat healthy if you want to be like him. As the students gave their unrehearsed answers I wasn't sure if I should laugh or cry. The students continued to amaze me and show that they were really getting it. The garden project had reach its initial goal and beyond.

As I interviewed the teachers I continued to be amazed. All teachers could not stop commenting on the positive effect the project had on their students. They also commented that many of the students were given an opportunity that they may never have had. It helped the students become more conscious about eating vegetables. One teacher said with a full heart, this garden has been so much more for me and my students than just planting seeds and taking care

of them, we have bonded in our garden. The garden could always put a smile on my student's faces.

As this year's garden project has come to a close, I can see all the positive differences it made for the students. It was a great and positive project. The students welcomed the project with open arms and embraced it more than I could have ever dreamed. The teachers and principal could not thank us enough for all we had done for the first graders and the school, but in turn I really don't know if they realized how much they had done for me.

CHAPTER 5

FINDINGS

The researcher read through all data collected and pulled out all themes and categories. Though the garden was incorporated into a multitude of the classrooms curriculum there was no certainty of any effect on the first graders. The effect may be best demonstrated in the students responses when trying new things and tasting. The students made a connection to their body and healthy eating. The students developed a sense of ownership and belonging.

Compilation of the Guiding Questions

The following is a compilation of the classes' guiding questions:

1. Did you like the garden?

- All 48 of the first grade students said they liked the garden project. This was supported by the visits the researcher made to the school. The students would greet the researcher with stories of the garden. Their excitement was shown in the faces and voices.

2. Have you ever planted food at home before?

- Most of the students answered no. Although there was a few that mentioned they had done some planting at home. One student said she and her brother put plum seeds in a cup, but nothing grew. Another student said her and her grandfather planted green lettuce at home. I am really not sure if the students actually planted at home or just wanted to share a thought. I do feel the student truly planted the plum seeds because she was able to give details. She described how she and her brother each ate a plum and saved the seeds. They then put dirt in a cup and planted the plum seeds. She did indicate that nothing grew.

3. What were some of the vegetables grown in the garden?

- The students answered carrots, cabbage, cucumbers, broccoli, and tomatoes. Only one class answered that they had grown spinach. I think this is because when the students tasted the spinach the teachers mixed it with lettuce; not sure if the students made the connection. The students never mentioned green beans and watermelon. Both of these vegetables were planted in the spring. The students hadn't gotten to harvest or taste these vegetables. One of the teachers

did inform me that the students were able to taste the green beans before school dismissed for the summer.

4. Did you like the way the vegetables tasted?

- As a whole, all three of the classes liked all the vegetables tasted. Some students indicated they may or may not have liked the vegetable after it was cooked a certain way or if a dip was added. The teachers offered the students the vegetables prepared many different ways. An example one student gave was that he really liked the cabbage and carrot salad, cole slaw. Another student said he did not like the carrots when they were put in carrot cake.

5. Does anyone eat something now that they didn't eat before?

- Only three students stated that they eat something new. One student said she really like the little not sour pickle things. Then she said, "oh yea cucumbers". The students were very excited to taste the vegetables from the garden. You could see the anticipation on their face.

6. Why do you think people should plant a garden?

- Several of the students said that the garden provided healthy food. Other students said that gardens are good because the food is free. Another student brought out the fact that if you grew your own food you wouldn't have to find a ride to the store. I definitely think the students got the connection between the garden, vegetables, and healthy food. This school and the students are of low socio-economic status. I think the students hear about money problems at home. Also, there is no major grocery store in this community. There is only a convenience store and a locally owned grocery store. Being a small grocery store sometimes the items are limited and higher priced.

7. Since you learned how to plant a garden, has any one planted vegetables at home?

- A few students said they had planted vegetables at home. I am really not sure if the students actually did plant vegetables at home. This finding is supported by two of the students that answered yes, were the same that answered yes to having planted food at home before.

8. What was your favorite part of the garden?

- Most of the students all agreed that tasting the vegetables was their favorite part of the garden project. It is interesting to note that one child said the part she liked most about the garden was smelling the garden. This is supported by most

of the students involved in the project may never have had the opportunity to smell fresh vegetables.

The following is a compilation of the teachers' responses to the guiding questions:

1. Do you think the garden was a positive or a negative experience for the first grade students?

- All of the teachers agreed that the garden project was a positive experience. It is a constant throughout that the garden gave their students an opportunity that they may never have gotten to experience. It is interesting to note that one of the teachers said the garden would always put a smile on her students' faces. When the students are in the garden they are all at the same level. The garden served as an equalizer. Also several parents told the teachers their children are asking to eat vegetables at home.

2. Did the first grade student gain any academic benefit from the school garden?

- All of the teachers agreed that they really didn't see any academic benefit from the garden project. It is hard to determine academic benefit with first graders. The teachers did comment that the garden project helped make learning come alive. The garden helped make traditional learning non-traditional. The teachers did incorporate different subject matter into the garden. An example was in Language Arts. The students were learning the long e sound. The teacher took the students into the garden and they began weeding.

3. Did the first grade students develop any teamwork or socialization skills from working in the school garden?

- All three teachers agreed that the garden project improved the students' teamwork skills and noted that many of the students have problems with sharing. One teacher said she wasn't sure if it was due to the student's home life, but the students were very protective of the garden. They made sure everyone did what they were supposed to do and no one destroyed or tampered with the garden. They took ownership of the garden. The students rarely had to be disciplined while in the garden.

Conclusions and Implications

This was the initial year of the garden at this school. The teachers joyfully embraced having the garden to supplement their lessons. The garden was a success if measured on the likelihood of having students tasting vegetables that were new to them. Many of the students

prior to the implementation of the garden had no idea that vegetables were grown in the soil, then harvested and transported to the grocery store.

Students were willing to taste anything that grew in the garden and this finding supports the study by Morris and Neustadter in 2001; where they found that students were more willing to taste vegetables that they saw grow in a garden. One of the first grade teachers, Gloria Smith, indicated that her students had tried more vegetables in the cafeteria than students had in previous years. Ms. Smith also said several parents mentioned that the students wanted to eat more vegetables at home. Students also made the mental connection between vegetables and the garden. They stated that vegetables were healthy, made you live longer and were free. Palmer et al. (2009) research also indicated that when gardens and nutritional information were combined together as a curriculum students gained more knowledge than those students who just had lessons in nutrition. The experiential experience of gardening seems to have positive effect on the students being able to meld the nutrition information with the gardening.

Louv (2005) discusses a teacher who states that she felt one of the effects of gardening with students was a bonding experience shared by the class and the teachers. This study also showed that the students bonded over the garden, they protected it, watered it, and weeded it all together and without fighting. Ownership and belonging seem to be good outcomes of gardening with first graders. It may help them develop empathy and caring for others later in their lives.

The garden in this study was used as a motivation tool by all of the teachers. They used the pleasure of being in the garden to motivate the students to work harder in their schoolwork and to behave in the classroom. This proved to be a successful technique as none of the students wanted to miss the gardening experience. Each of the teachers tried to incorporate as much of

the garden into their curriculum as possible but they were limited by requirements set by the state regarding the amount of time they could spend on various curricula.

This is the first school in this parish to have a garden, and many of the other schools who have seen the success of this garden are now asking to have a garden at their school. Money needs to be raised to continue to develop gardens in all schools, and volunteers need to be recruited to help build the gardens. Teachers should be educated on the many ways to incorporate a garden into their curriculum. Teacher and parents need to realize that success cannot always be measured academically. Sometimes the exposure to a new exciting arena is more important than academic success.

There is a need for longitudinal research involving students and school gardens. Does having a garden that a teacher incorporates into their curriculum results in a student having higher science scores or a stronger appreciation for the environment or healthier eating habits? These questions cannot be answered without longitudinal studies. Every school should have a garden so that each student may have a chance to be exposed to a living curriculum and to find solace in working in a peaceful place.

REFERENCES

- Balschweid, M. A., Cole, R. L., & Thompson, G.W., (1997). The Effects of an Agricultural Literacy Treatment on Participating K-12 Teachers and Their Curricula. Las Vegas, NV.
- Barry, S. G., & Foerster, J. W., (2007). Seeking Environmental Stewardship One Garden at a Time. *Journal of Extension*, 45(1), Retrieved November 17, 2009, from <http://www.joe.org/joe/2007february/iw5.php>
- Benefits of School Gardening, University of South Florida. Retrieved June 15, 2010, from www.education.com/reference/article
- Benefits of School Gardens, University of Florida, Environmental Horticulture Department. Retrieved June 15, 2010 from www.gardeningsolutions.ifas.ufl.edu
- Blair, D., (Winter 2009). The Child in the Garden: An Evaluative “Review of the Benefits of School Gardening. *Journal of Environmental Education*, 40(2), Retrieved November 17, 2009 <http://heldref-publications.metapress.com/app/home/contributions.asp>
- Bradley, J. C., & Skelly, S. M., (January 2000). The Importance of School Gardens as Perceived by Florida Elementary School Teachers. *Hort Technology*, (10). Retrieved November 17, 2009 from <http://horttech.ashpublications.org/cgi/content/abstract/10/1/229>
- California Department of Education. (2002). School Garden Program Overview. Retrieved from <http://www.cde.ca.gov/LS/nu/he/gardenoverview.asp>
- Frick, M. J., Kahler, A. A., & Miller, W. W., (1991). A definition and the Concepts of Agricultural Literacy. *Journal of Agricultural Education*,. Retrieved November 17, 2009 from <http://pubs.aged.tamu.edu/jae/>
- Haynes, C., Hilgers, K. R., & Olson, J., (January 2008). Assessing a Garden-based Curriculum for Elementary Youth in Iowa: Parental Perceptions of Change. *Hort Technology*, (18). Retrieved November 17, 2009, from <http://horttech.ashpublications.org/cgi/content/abstract/18/1/18>
- Klemmer, C. D., Waliczek, T. M., & Zajicek, J. M., (2005) Development of a Science Achievement Evaluation Instrument for a School Garden Program. *Hort Technology*, (15). Retrieved November 17, 2009, from <http://horttech.ashpublication.org/cgi/content/abstract/15/3/433>
- Louv, Richard. (2005). *Last Child in the Woods: Saving Our Children From Nature Deficit Disorder*. Algonquin Book of Chapel Hill.
- Louisiana Department Of Education. Standards, Assessment, and Accountability. Retrieved November 21, 2009, from <http://www.doe.state.la.us/lde/saa/1915.html>

- Morris, J. L., & Neustadter, A., (January-February, 2001). First-grade gardens more likely to taste vegetables. *California Agriculture*, 55(1), 43-46.
- Patton, M. Q. (1990). *Qualitative Evaluation and Research Methods* (2nd. ed.). Newbury Park, CA: Sage Publications, Inc.
- Rubin, H.J. & Rubin, I.S. (2005). *Qualitative Interviewing: The Art of Hearing Data*. Sage Publications, Inc.
- Shapiro, D. (2007). School Gardens Plus Nutrition Lessons Equal Science Literacy. NSTA-National Science Teachers Association. Retrieved June 15, 2010 from www.nsta.org/publications
- Tampa Bay School Gardening Network.(2002). Benefits of School Gardening. Retrieved November 20, 2009, from <http://web3.cas.usf.edu/tbgs/benefitsofschoolgardening.aspx>
- Thorp, L., (2003). Voices From the Garden: A Performance Ethnography. *Qualitative Inquiry*. (9). Retrieved November 17, 2009, from <http://qix.sagepub.com>
- Thorp, L., & Townsend, C., (2001). Agricultural Education in n Elementary School: An Ethnographic Study of a School Garden. 28th Annual National Agricultural Education Research Conference. December 12, 2001.
- Your Dictionary.com. Retrieved June 28, 2010 from <http://www.yourdictionary.com/4-h>

APPENDIX A HARVESTING



APPENDIX B

TASTING



APPENDIX C
AG MECHANICS



Students in Mr. David Carlino's Ag Power Mechanics Class at Assumption High School constructed the outdoor learning area that will be presented to Belle Rose Primary School as part of the HOPE 2 and Fit 4 the Future grant programs that the school is participating in during this school year. The students, seated left to right, Troy Landry, Avery Leonard, Billy Richard, John Meyer and Whitney Sampey, not only constructed the raised area learning center, but also installed it. Mr. Carlino and the Ag Mechanics students did a skillful job of adding benches which will provide a sitting area for students when taking part in classes that will incorporate the nearby garden into all subject areas. Assumption Parish AgCenter Agents Robin B. Landry (Nutrition) and Margo Castro (4-H) have been working with the teachers and students promoting the importance of eating fruits and vegetables and moving more as part of the health issue facing Louisiana with its high childhood obesity rate. For more information you can contact the agents at rlandry@agcenter.lsu.edu or mcastro@agcenter.lsu.edu.

APPENDIX D
PERMISSION LETTER



Cooperative Extension Service

Assumption Parish

119 Robin Street
Napoleonville, Louisiana 70390

(985)369-6386

Fax: (985)369-6845

E-mail: assumption@agcenter.lsu.edu

April 29, 2010

Mr. Damian Buggage, Principal
Belle Rose Primary
7100 Highway 308 South
Donaldsonville, LA 70346

Mr. Buggage,

I am writing this letter to ask for permission to interview the first grade students at Belle Rose Primary School. These interviews will be conducted in the classroom as a whole group and in the presence of the teachers. The interview questions will be based solely on the garden project. These interviews are for educational purposes only and the students, teachers, and school will not be identified in any way.

Sincerely,

Margo L. Castro
Assistant Extension Agent
Assumption Parish

I approve of the above interviews with the first grade students at Belle Rose Primary School.

Approved: Damian Buggage, Principal Belle Rose Primary School

For the latest
research-based information
on just about anything,
visit our Web site:
www.lsuagcenter.com

APPENDIX E

PLANTING



APPENDIX F
GARDENING SONG



Gardening Song

(Sung to the tune of Row, Row, Row Your Boat)

Written By: Sally Cancienne, 1st grade teacher

Row, row, row our dirt,
Keep your seeds all straight.
Let the sun and rain come down.
Our planting can't be late.
Pick, pick, pick our crop,
Harvesting is near.
It's been fun to see it grow,
And picking time is here.
Eat, eat, eat our crops,
Salads steamed or soup.
Learning's been fun, one by one,
Or in our first grade group!

VITA

Margo Lynn Castro was born in Donaldsonville, Louisiana, and is the daughter of Kenneth and Linda Castro. She graduated from Donaldsonville High School in 1987. Margo received a Bachelor of Science degree from Nicholls State University in Thibodaux, Louisiana, in 1992. In August, 2010, she will graduate from Louisiana State University with a Master of Science degree from the School of Human Resource Education and Workforce Development.

After graduating in 1992, Margo began her teaching career as a kindergarten teacher. She continued in this field for 15 years. In 2006, Margo was hired as an Extension Agent in Assumption Parish by the Louisiana State University Agricultural Center in Youth Development.

Margo is a member of the Assumption Parish Police Jury Youth Council and a member of the St. Francis of Assisi Church parish where she serves as lector, commentator and an extraordinary minister.

Currently, Margo is a member of the Louisiana Association of Extension 4-H Agents and Epsilon Sigma Phi, a national honor society and educational fraternity. She is also the State 4-H Cloverbud contact person, a member of the 4-H curriculum team, as well as a member of the State 4-H Characters Counts Taskforce team. Margo has recently co-presented a Share Fair Session at the 2010 Priester National Extension Health Conference in Mobile, Alabama. In August of 2010, Margo will co-present a poster session at the Louisiana Association of Extension 4-H Agents.