COMPARING THE EFFECTIVENESS AND ACCEPTABILITY OF THE JUMP INTO FOODS AND FITNESS (JIFF) AND QUEST FOR HEALTH NUTRITION INTERVENTIONS WITHIN AN AFRICAN-AMERICAN POPULATION

Jermaine Shaw
Clemson University, jermais@clemson.edu

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COMPARING THE EFFECTIVENESS AND ACCEPTABILITY OF THE JUMP INTO FOODS AND FITNESS (JIFF) AND QUEST FOR HEALTH NUTRITION INTERVENTIONS WITHIN AN AFRICAN-AMERICAN POPULATION

A Thesis
Presented to
the Graduate School of
Clemson University

In Partial Fulfillment
of the Requirements for the Degree
Master of Science
Food, Nutrition, and Culinary Sciences

by
Jermaine Jacob Shaw
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Accepted by:
Dr. Katherine Cason, Committee Chair
Dr. Veronica Parker
Dr. Mary Kunkel
ABSTRACT

The severity of the obesity epidemic has increased the necessity for nutrition education programs. These programs must be culturally and age appropriate in order to be more effective in bringing about positive behavior changes in the target populations.

This study examined the effectiveness and acceptability of the Jump into Foods and Fitness (JIFF) and Quest for Health nutrition education programs within a pre-adolescent African-American population. Two classes from the Boys and Girls Club of Sumter, S.C. were randomly assigned to one of the nutrition education programs. Class one was assigned to the JIFF curriculum, and included 23 participants. Class two was assigned to Quest for Health, and included 16 participants. Each class received three lessons from its assigned curriculum. The three lessons discussed 1) My Pyramid, 2) Importance of Physical Activity, and 3) Nutrition Facts Labels. Before and after the three lessons, the participants completed the evaluation survey tools for their curriculum. At the conclusion of the post-surveys, each class participated in its own focus group session. SPSS statistical software was used to compare pre- and post-survey results for both curricula, and the focus group responses were transcribed and grouped by themes.

The results indicate that both programs led to positive changes in the physical activity behavior, nutritional knowledge, and nutrition behavior of the participants. Neither program held a statistically significant advantage over the other program. Focus group responses indicated that participants from both groups believed their curriculum was age and culturally appropriate for their population. The games and physical activities were found to be great enhancements in both programs. Nutrition education
programs such as JIFF and Quest for Health can be an integral component in efforts to reduce the prevalence of obesity.
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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>TITLE PAGE.........................................................</td>
</tr>
<tr>
<td>ABSTRACT.........................................................</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS.................................</td>
</tr>
<tr>
<td>LIST OF TABLES.................................</td>
</tr>
<tr>
<td>CHAPTER...............................................</td>
</tr>
<tr>
<td>1. INTRODUCTION .................................................</td>
</tr>
<tr>
<td>Health Disparities ........................................</td>
</tr>
<tr>
<td>What Must Nutrition Education Programs Offer to</td>
</tr>
<tr>
<td>Low-Income or African-American Populations? .......</td>
</tr>
<tr>
<td>How Do Nutrition Education Programs Reach the Children</td>
</tr>
<tr>
<td>of these Populations? ...................................</td>
</tr>
<tr>
<td>Nutrition Education Programs .....................</td>
</tr>
<tr>
<td>Boys and Girls Club .....................................</td>
</tr>
<tr>
<td>Statement of Problem ...................................</td>
</tr>
<tr>
<td>Objectives .................................................</td>
</tr>
<tr>
<td>2. METHODOLOGY .................................................</td>
</tr>
<tr>
<td>Study Population .........................................</td>
</tr>
<tr>
<td>JIFF Curriculum .........................................</td>
</tr>
<tr>
<td>Quest for Health Curriculum ......................</td>
</tr>
<tr>
<td>Materials ...............................................</td>
</tr>
<tr>
<td>Survey Instruments ....................................</td>
</tr>
<tr>
<td>Focus Group Questions .............................</td>
</tr>
<tr>
<td>3. RESULTS ..................................................</td>
</tr>
<tr>
<td>Surveys ....................................................</td>
</tr>
<tr>
<td>Focus Group Responses ............................</td>
</tr>
</tbody>
</table>
Table of Contents (Continued)

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. DISCUSSION</td>
<td>57</td>
</tr>
<tr>
<td>Curricula Comparisons</td>
<td>63</td>
</tr>
<tr>
<td>Limitations</td>
<td>65</td>
</tr>
<tr>
<td>5. CONCLUSION</td>
<td>68</td>
</tr>
<tr>
<td>Directions for Future Research</td>
<td>69</td>
</tr>
<tr>
<td>APPENDICES</td>
<td>70</td>
</tr>
<tr>
<td>1: JIFF Sound off Survey</td>
<td>71</td>
</tr>
<tr>
<td>2: Quest for Health Knowledge Test &amp; Demographics Survey</td>
<td>74</td>
</tr>
<tr>
<td>3: Quest for Health Behavior Questionnaire</td>
<td>79</td>
</tr>
<tr>
<td>4: Focus Group Questions and Responses</td>
<td>83</td>
</tr>
<tr>
<td>5: Clemson University IRB Approved Consent Forms</td>
<td>105</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>113</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>39</td>
</tr>
<tr>
<td>3.2</td>
<td>40</td>
</tr>
<tr>
<td>3.3</td>
<td>43</td>
</tr>
<tr>
<td>3.4</td>
<td>45</td>
</tr>
<tr>
<td>3.5</td>
<td>46</td>
</tr>
</tbody>
</table>

- 3.1 JIFF Demographic Data
- 3.2 Quest for Health Demographic Data
- 3.3 JIFF Survey Results
- 3.4 Quest for Health Survey Results
- 3.5 Curricula Differences
CHAPTER 1: LITERATURE REVIEW

Introduction

Obesity rates in America are higher than ever before. For adults, obesity is a body mass index (BMI) at or above 30. Obesity in people between the ages of 2 and 19 years is a BMI that is at or above the 95th percentile for children of the same age and sex (Centers for Disease Control and Prevention [CDC], 2010). “Obesity rates tend to be highest in areas where poverty rates are highest and incomes are lowest” (F as in Fat: How Obesity Threatens America’s Future 2010 Report, p. 4).

Many factors contribute to the prevalence of obesity. The “convenience” lifestyle resulting from technological advances is one of these contributing factors. Many employees who use computers or machines on the job receive minimal amounts of physical activity at work. Many Americans are opting for fast food that is high in fat, rather than taking the time to cook more healthful meals at home. Another factor, the popularity of video games and television, has contributed to the childhood obesity rate, which has tripled over the past 30 years (Overweight Children in America-Childhood Obesity Statistics). Alongside this increase in obesity has been an increase in obesity-related illnesses such as type II diabetes and cardiovascular diseases (F as in Fat: How Obesity Threatens America’s Future 2010 Report). Some populations have been affected more than others. It is no coincidence that these populations also have higher rates of obesity-related illnesses. “Higher rates of obesity translate into higher rates of obesity-related diseases, such as diabetes and heart disease. Previous studies have shown Blacks
and Latinos have higher rates of diabetes, hypertension, and heart disease than other groups” (F as in Fat: How Obesity Threatens America’s Future 2010 Report, p. 4). The previously cited report also found that at least 43 states had adult obesity rates of at least 30% for Blacks with nine of these states surpassing 40%.

Communities across America are encouraging their people to be more physically active. Schools are changing their menus in order to provide more healthful choices for students (Snyder, Story, & Trenker, 1992). Even First Lady Michelle Obama has joined the fight by launching her childhood obesity initiative “Let’s Move”, which is aimed at reducing the rates of obesity in children (Poslosky, 2010). The method that has the potential to reach the broadest audience and have the best results is nutrition education.

Nutrition education can lead to behavior change (Amaro et al., 2006). This is essential in removing health disparities. Members of minority groups are more likely to be diagnosed with obesity and its related illnesses than are their White counterparts (Franks, Muennig, Lubetkin, & Haomiao, 2006). Nutrition education programs must therefore be culturally relevant and appealing to these minority populations. Leslie A. Lytle, Ph.D., R.D. discussed the importance of interventions that cater to specific populations in her 1994 paper, “Nutrition Education for School-Aged Children: A Review of Research.” She examined articles on nutrition education, and commented on gains, changes in methodology, and findings from several nutrition education programs. Lytle cited the need for changes in nutrition education that targeted different cultural groups.
...there is little evidence to suggest that interventions are being targeted to multi-ethnic or multi-cultural groups or that outcome differences by ethnicity or cultural background are being examined. This type of work is needed to maximize the benefit of nutrition education for multi-ethnic and multi-cultural groups. Physiological risk factors differ by race, ethnicity, and [socioeconomic status] SES; our nutrition intervention programs cannot assume a “one size fits all” approach

(Lytle 1994, Executive Summary, para9).

Designing relevant nutrition education programs for African Americans and people of low socio-economic status is one solution to reducing health disparities.

Health Disparities

The National Institute of Health defines health disparities as “diseases, disorders, and other conditions that are unique to, more serious, or more prevalent in subpopulations in socioeconomically disadvantaged (i.e. low education level, live in poverty) and medically underserved, rural and urban communities” (National Institute of Health [NIH]). One cannot discuss the health status of Americans without giving special attention to trends, which indicate that minority groups and people of lower socioeconomic status have higher rates of type II diabetes and cardiovascular disease. These two diseases are most often brought on by poor nutrition and lack of exercise. “Diet and nutrition have been extensively investigated as risk factors for major cardiovascular diseases like coronary heart disease (CHD) and stroke and are also linked to other
cardiovascular risk factors like diabetes, high blood pressure and obesity” (Reddy & Katan, 2004, p. 167). The large gap in health status is most noticeable between African Americans and Whites. Franks et al. (2006) found that diabetes and hypertension were higher in African Americans than in Whites. African Americans’ diagnosis of diabetes by a physician is two times that of non-Hispanic whites. African Americans with diabetes were twice as likely to be hospitalized as their White counterparts. African Americans are often twice as likely to suffer from diabetes-related complications and death as their White counterparts (U.S. Dept. of Health and Human Services [DHHS] Office of Minority Health, 2010).

Cardiovascular disease and diabetes are two of the leading non-violent killers of African Americans. They often are related because heart disease death rates are two to four times higher for adults with than without diabetes (CDC National Diabetes Fact Sheet, 2007). African Americans also suffer from higher risks of morbidity and early mortality than Whites do (Arias et al., 2003). Socio-economic status is associated with this increase in morbidity and early mortality (Kawachi, Daniels, & Robinson, 2005).

Lack of education and social conditions such as poverty, have caused many African-Americans to be overrepresented in terms of the risk factors and the resulting diseases. In the United States, most of the poorest people belong to minority groups. As cited in Collins, Hughes, Doty, et al., 2002, “Racial and ethnic minorities are more likely than non-Hispanic Whites to be poor or near poor. In addition, Hispanics, Blacks, and some Asian subgroups are less likely than non-Hispanic whites to have a high school
education” (Agency for Healthcare Research and Quality). The average African American has less education and a lower income than the average White American (Signorello et al., 2007). Such statistics explain health disparities in America.

There is a very strong correlation between adult obesity rates and socioeconomic status. Among individuals earning less than $15,000 per year, 35.3 percent were obese compared to 24.5 percent of adults earning $50,000 or more per year. Among adults who did not graduate from high school, 33.6 percent were obese compared to only 22 percent of adults with a college degree (F as in Fat: How Obesity Threatens America’s Future 2010 Report, p. 6).

In capitalist societies, those who have the most resources, and are not included in the statistics pertaining to low SES are able to provide their children with better healthcare. Their children receive the best education and the best healthcare. This lifestyle usually results in healthier young populations in higher SES levels. “Education, in combination with income and lifestyle, often explains ethnic differences in diabetes” (Maskarinec, et al., 2009, p. 1738). Children who do not receive the best education or healthcare suffer. The suffering is manifested in unusually high rates of disease and mortality.

Obesity is plaguing many adolescents in America. The percentages for both boys and girls (ages 6-11) that were overweight between 2003 and 2006 were higher for non-Hispanic Blacks than for non-Hispanic Whites. Non-Hispanic Black females were almost twice as likely to be overweight than their White counterparts. Non-Hispanic
Black males were 1.2 times more likely to be overweight than their non-Hispanic White counterparts (The Office of Minority Health [OMH]). These trends continue into adulthood with the gap increasing for females (OMH). Currently, “eight states, plus D.C., have childhood obesity rates greater than 20 percent” (F as in Fat: How Obesity Threatens America’s Future 2010, p. 6). As with adults, there is a disproportionate occurrence of obesity in low-income child populations. “The Pediatric Nutrition Surveillance Survey (PedNSS), a survey of children ages 2-5 from low-income families, found that 14.8 percent of these children are obese compared with 12.4 percent for all U.S. children of a similar age” (F as in Fat: How Obesity Threatens America’s Future 2010, p. 16). These rates of obesity in low-income children have increased, with children from minority groups showing the highest obesity rates (F as in Fat: How Obesity Threatens America’s Future 2010). The southern region includes nine of the ten states with the highest childhood obesity rates, and South Carolina ranks 22nd in the nation (F as in Fat: How Obesity Threatens America’s Future 2010). Many other southern states have rates of obesity that are higher than the national average (F as in Fat: How Obesity Threatens America’s Future). These southern states also have the highest rates of poverty with eight out of the 10 states with the highest poverty rate being a state from the South (F as in Fat: How Obesity Threatens America’s Future). Conversely, the states with the lowest poverty rates have the lowest rates of obesity (F as in Fat: How Obesity Threatens America’s Future).
An increase in education attainment usually leads to a healthier lifestyle and lower incidence of type II diabetes (Robbins, Vaccarino, Zhang & Kasl, 2005). Maskarinec et al. (2009) found that

Education was inversely related to incidence; subjects with a college degree had an incidence rate of 8.0, and those with some college education and equal to or less than a high school diploma had rates of 10.3 and 12.9 per 1,000 person-years, respectively (Maskarinec et al., 2009, p. 1736).

Robbins et al. (2005) used poverty-income ratio, education, and occupational status to examine the connection between SES and diabetes. Their results showed that people of lower socioeconomic status have an increased risk of developing diabetes (Robbins et al. 2005). Signorello et al. also noted that the prevalence of diabetes increased when amount of education decreased, and decreased when income increased. In their study, the participants who earned less than $15,000/year had a diabetes prevalence that was 1.4 times higher than that of the participants with household incomes greater than $50,000/year. In addition, rates of diabetes were 1.6 times higher in the participant group with fewer than nine years of education when compared to college graduates (Signorello et al. 2007). This research stressed the socio-economic level of populations as a factor in health disparities by proving that Black and Whites of similar socioeconomic level had similar rates of diabetes. “In this large study of adults with similar socioeconomic circumstances and risk factor profiles, we found little evidence of a higher prevalence of diabetes among African Americans than among Whites”
SES has a strong relationship to the health disparity between White and African Americans. Even Whites, who are not commonly mentioned in discussions of lower SES, are just as susceptible to disease as African Americans at similarly low socio-economic levels.

Another factor in health disparities is place, which is often in direct correlation with socioeconomic status. The term “place” describes “variation in neighborhood-context-socio-demographic composition, social aspects, and built environment” (Phuong Do et al., 2008, p. 1258) as other possible contributors to inequalities in health status. Whereas SES is viewed on an individual level, place looks at the SES of the entire community. Neighborhoods with higher SES often have gyms, health food stores, and parks, all of which contribute to a healthier lifestyle. When parks are present in low-SES neighborhoods, they are used little or sparingly because of high crime rates (Phuong Do et al., 2008). These areas affect the amount of physical activity that children residing in these communities can obtain. Dangerous environments mean that children will have to stay inside and be more likely to increase their time spent doing sedentary activities (Phuong Do et al., 2008).

The statistics on health disparities have led many to hypothesize that there are many more possible factors involved (Kaplan, 1996). Phuong Do et al. (2008) examined place as an explanation for the health disparities. The basis for this research was the limited discussion on the impact of environment on the lives of the individuals that live in a particular environment. “Human conditions and health outcomes”
(Phuong Do et al., 2008, p. 1259) are affected by the environment in which a person resides. The researchers hypothesized that place as a contributor to inequalities in health is a valid argument because residential areas of different SES often have strong racial boundaries. Data from the 1989-1994 U.S. National Health Interview Survey (NHIS) and the researchers’ method of gathering descriptive statistics on residents in those areas were used to quantify the relationship between place and health inequalities (Phuong Do et al., 2008). Results showed “a consistent health disadvantage for blacks across all models” (Phuong Do et al., 2008, p. 1263), and that place does contribute to African Americans’ disadvantage in health.

A “food desert” is a neighborhood with little to no access to healthy food options. Such neighborhoods are often found in the poorest residential areas of large cities. These poorer areas are targeted less by large profit-driven supermarket chains. The inability of these communities to provide a high profit for these businesses lowers the access to fresh fruits and vegetables enjoyed by larger grocery store chains. This diminished access to healthy foods increases the chance of being diagnosed with an obesity-related illness. “Disparities exist across different neighborhoods in terms of access to healthy or higher quality foods; these disparities put certain communities at higher risk for illnesses” (Lewis et al., 2005, p. 668). Parents in these communities will be forced to feed their children foods that are readily available instead of healthier food items that are found outside of food deserts.
Not only is the lack of access of healthy food options a problem within African American communities where poverty is prevalent, but so is increased access to fast food. “Studies have shown that neighborhoods with a higher proportion of African American residents have fewer supermarkets and fewer high-quality food options, as well as a disproportionate number of fast food restaurants” (Lewis et al., 2005, p. 668).

Researchers in Southern California went further than just counting the number of fast food restaurants to prove inequality in access to healthy foods. Lewis et al. (2005) compared the menus of restaurants in less and more affluent areas, and discovered that the restaurant menus in the more affluent community had more healthy options. Restaurants in the more affluent community also made more of an effort to promote healthy eating by “labeling healthy food items and providing nutritional information” (Lewis et al., 2005, p. 671). The restaurants in the less affluent area also offered foods that were more likely to be fried than baked. It comes as no coincidence that a “Los Angeles County Health Survey later indicated higher rates of obesity, diabetes, hypertension, and cardiovascular disease in the target area than in the comparison area” (Lewis et al., 2005, p. 672).

Some researchers have introduced racism and discrimination as factors due to the strict color lines seen in neighborhoods of lower and higher socioeconomic status. The sociological factors “racism (LaVeist, 2000), and discrimination (Williams, Neighbors & Jackson, 2003) may be important contributors to racial health disparities (Fitzpatrick & Lagory, 2003)” (Phuong Do et al., 2008, p. 1259).
Nutrition education can lead to increases in individual self-efficacy, which increases the chance that people will be able to make healthier nutrition decisions (Amaro et al., 2006). Improving the SES of African Americans would help to reduce the health disparities seen today (Signorello et al., 2007). Additional research into the SES of African Americans can give researchers a better idea on how to create interventions that will help to decrease health disparities (Franks et al., 2006).

What Must Nutrition Education Programs Offer to Low-Income or African American Populations?

Effective nutrition education programs should be tailored to low-income and African American populations in order to elicit behavior change that could lead to a decline in nutrition-related diseases that are disproportionately affecting these groups. A diet intended for Italians will not be very effective if most of the recommended foods are Mexican.

Peer educators can enhance any nutrition education program. A familiar face creates a more comfortable environment, especially when dealing with children. Using community members who can relate to the target population in nutrition interventions allows for the creation of a natural bond. Anliker et al. (1999) used peer educators to “recruit participants, design and deliver interventions, and provide social support both to participants and to each other” (Anliker et al., 1999, p. 347). These peer educators were able to recruit women who were a part of the Special Supplemental Nutrition Program for Women, Infants and Children (WIC). The peer educators had to be familiar with the
WIC program. (Preference was given to peer educators who were enrolled in the program.) Their duties included

(1) recruiting women at the WIC sites, determining eligibility for the program, and enrolling eligible clients that were willing to participate; (2) collecting pre- and post-program survey data; (3) conducting the nutrition sessions; (4) providing social support; (5) maintaining contact with the participants; (6) and tracking the participants (Anliker et al., 1999, p. 348).

The researchers found that the peer educators’ experiences in the WIC program were useful when designing the intervention. The peer educators were able to identify parts of the intervention that might be problematic to the participants. The use of peer educators allowed these researchers to incorporate the target population’s ideas and opinions into the intervention. Peer educators give us a perspective that is often overlooked. “Their experiences as WIC participants gave project investigators insights into the intricacies of the WIC program. Also, because the peer educators represented the women targeted by the program, the project investigators usually incorporated their ideas into the intervention plans” (Anliker et al., 1999, p. 350). The researchers also found that the peer educators were excellent role models for the participants. Adding peer educators to the intervention would increase social support, and strengthen the self-efficacy of the participants because they would be able to seek advice from the peer educators (Anliker et al., 1999). Incorporating peer educators into nutrition intervention programs
that target African American or low-income populations can be done by ensuring that some members from these communities assist in the implementation.

One program that has used peer educators effectively is the Expanded Food Nutrition and Education Program (EFNEP). The EFNEP stems from a pilot study conducted by the Alabama Extension Service and the Federal Extension Service. The purpose of the study was to “develop and test materials for use in an educational program for young homemakers living in low-income, rural areas in five Alabama counties” (Oliver, 1967, p. 483). One of the main objectives of the program was to use “sub-professionals that would work under the supervision of a professional home economist” (Oliver, 1967, p. 483).

The sub-professionals allowed for more one-on-one time with homemakers who had less education. These homemakers lived “in remote rural areas, in fringe areas of small towns, and in low-rent public housing” (Oliver, 1967, p. 483). The sub-professionals were able to modify the education materials so that the homemakers could understand them. For example, picture recipes were used for homemakers who had difficulty reading (Oliver, 1967). The wording of educational materials often reflects education of the designers of the program, not the recipients. The use of peer educators ensures that the intervention is educationally and culturally appropriate for the intended population. The sub-professionals improved the results of the pilot study, and are now called Nutrition Educator Assistants in the South Carolina EFNEP.
It is also important for nutrition program educators to have an understanding of the issues affecting the target population. Some diseases are prevalent in one population and non-existent in another. Researchers may use their key informants to obtain an idea of the issues affecting the study population. The article, “Perceptions of Community Nutrition and Health Needs in the Lower Mississippi Delta: A Key Informant Approach” shows how people living in the same area can differ in their views on the problems affecting that area. It is therefore important to have “knowledgeable members of the community when identifying nutrition and health problems” within that community (Yadrick et al., 2001). It is also important to have accurate information about small rural communities. St. Lawrence and Ndiaye (as cited in Yadrick et al., 2001) stated that researchers often assume that a small community is homogenous, which lead to less preparation when designing nutrition and health interventions for these communities. Communities such as these are often disproportionately affected by nutrition-related diseases. General nutrition interventions will not work in these communities; interventions must be specific if health disparities are to be reduced (Lytle 1994). The researchers used the lower Mississippi delta region of Arkansas, Louisiana, and Mississippi, predominantly agricultural areas with “high rates of nutritional deficits and chronic disease mortality and morbidity” (Yadrick et al., 2001, p. 267). These states also had high rates of poverty and national educational attainment rates that were below the national average.

The researchers assumed that “key informants from different states would have similar perceptions of problems” (Yadrick et al., 2001, p. 267). The results showed,
however, that the perception of these key informants differed by race and occupation. For example, African American key informants in the study cited access to food as a more important “food and nutrition problem” (Yadrick et al., 2001, p. 270) than White key informants did. This could be due to the relatively few grocery stores in African American communities, or because lower income residents found it harder to buy food in these communities. Fast food and high-fat foods were cited more frequently as nutrition problems by physicians, nurses or nutritionists than any other informants. African American key informants also cited education as “more important in contributing to food and nutrition problems than Caucasian key informants” (Yadrick et al., 2001, p. 270).

All key informants, regardless of race, mentioned hypertension as the most important health problem followed by high blood pressure, teen pregnancy, drug addiction, heart disease and obesity. This finding is interesting because it might mean that obesity is accepted in the rural South; therefore people do not see it as a serious health problem. Nutrition interventions in these areas would have to stress the gravity of the obesity epidemic rather than merely teach citizens how to eat better. “An intervention focusing on obesity would have to address lack of awareness of the importance of the problem” (Yadrick et al., 2001, p. 274). When designing interventions, it is important to have data that identifies the issues and special circumstances within the target population in order to bring about lasting behavior change.

**How Do Nutrition Education Programs Reach the Children of these Populations?**

An effective method to use for children to learn nutrition information is to include games and other hands-on activities that reinforce their prior knowledge.
The research of Amaro et al. (2006) used a game for a nutrition intervention method in children. According to the authors of the article, “Early prevention (Obesity) requires an intervention during childhood and adolescence. At these stages, the game could be an appropriate means to teach nutrition knowledge and to influence dietary behavior” (Amaro et al., 2006, p. 630). Any curriculum must be age-appropriate for proper understanding of the material. Amaro and colleagues created a board game (Ka`ledo) for up to four players, who explore the Mediterranean diet. At the beginning of the game, players set the energy expenditure of their kaleidoscope on their Basal Metabolic Rate (BMR). The players move their pieces and receive nutrition cards that display staples of the Mediterranean diet, or daily activities. The nutrition cards display numbers for Energy Intake, and the activity cards display numbers for Energy Expenditure. The goal of the game is to balance the two (Amaro et al., 2006).

This study randomly assigned 291 students from three middle schools in Italy into a treatment and a control group. The treatment group played the game for 15 to 30 minutes once a week. A 3-part questionnaire was used to measure nutrition knowledge, dietary intake, and physical activity as a result of playing the game. Results showed that the mean number of correct answers to 31 questions based on nutrition knowledge was 11.24 for the treatment group and 9.24 for the control group. For vegetable intake, the mean number of servings per week was 3.7 for the treatment group and 2.8 for the control group. There was no difference in physical activity time per day for the groups. The results show that the game created a behavior change in youth. The inclusion of the “fun factor” means that the students will be more likely to play this game again. Whenever
the students play the board game, their nutritional knowledge will increase, and promote
greater and more specific behavior changes. Students will be more likely to participate
more than once in an intervention that includes games and alternate learning styles, and
will be less likely to sit through traditional lectures on nutrition a second time.

“`It’s All About Kids: Preventing Overweight in Elementary School children in
Tulsa, Ok”‘, incorporated many non-traditional teaching methods. The intervention lasted
six weeks. Week 1 used the food chain to teach “Nutrition Necessities.” In order to
understand how the food chain works, the students needed to learn the five major food
groups and which foods come from plants and animals. Week 2 used a version of Bingo
to teach “Fruits and Vegetables.” This game “taught students to identify and recognize
different kinds of fruits and vegetables and to understand that they need fruits and
vegetables every day” (DeVault et al., 2009). The lessons from Week 3 encouraged
students to choose low-fat milk products by using butter displays which showed the fat
content of different types of milk. Week 5 used “Breakfast Tic Tac Toe” to stress the
“importance of eating breakfast daily” (DeVault et al., 2009, p. 682). Week 6 was
entitled “Snack Attack” which illustrated portion sizes and caloric make-up of foods.
This intervention used titles that appealed to young audiences and activities that would
keep them engaged while participating in the activity.

Can this type of intervention be effective? The children in the intervention
group “displayed increased knowledge of which foods have more fat, and positively
changed attitudes about food choice intentions related to more healthful and lower-fat
options” (DeVault et al., 2009, p. 683). The study also noted reduced saturated fat and sodium intake in the diets of the intervention group. Among the participants in the intervention, potato chips were eliminated from the “foods most commonly eaten” category and reduced fat milk was added. These experiences created a more engaging learning environment and allowed the children to envision abstract nutritional concepts. The “Think Your Drink” butter display during Week 3 allowed the students to compare the amounts of fat in different types of milk. This activity went beyond a dietitian telling them “you need to drink reduced fat milk instead of whole” by showing them why reduced fat milk is better than whole milk.

The use of games allows children to see but not experience the consequences of poor food choices (Reeve, Rossiter, & Risdon, 2008). A review article on “The Last Straw,” a board game illustrating the effects of the social determinants of health, pointed out that game players thought “…that the game offered practical examples of the ways in which the social determinants of health (SDOH) may impact patients” (Reeve, Rossiter, & Risdon, 2008, p. 1126). The use of games in intervention avoided ethical problems. It is unethical to expose people to negative stimuli, but this does not happen in a game. The participants noted “the game made abstract concepts more concrete and memorable than conventional teaching methods” (Reeve et al., 2008, p. 1126). This response indicates that games are useful in conveying abstract ideas. Nutrition education is filled with abstract concepts such as amounts of fat and cholesterol. Games and alternate teaching methods, such as “Think Your Drink” allow children to understand these concepts better. Mary Story and colleagues found that this type of intervention was effective among
African American adolescents. The intervention targeted African American females only because they had higher rates of obesity than African American males did.

Given the increasing prevalence of obesity in children, particularly among African American, Hispanic, and American Indian youth…. We found that a community-based, after school program built around being physically active through fun and engaging activities, and emphasizing behavioral skills for healthy eating and activity, had high acceptability and participation among girls and parents (Story et al., 2003, p. 63).

Nutrition education programs that include learning games and high amounts of physical activity will possibly have the most impact on African American and low-income adolescent populations.

**Nutrition Education Programs**

Two nutrition education programs that are being used in South Carolina are Quest for Health and Jump Into Foods and Fitness (JIFF). The JIFF Curriculum was designed by a multidisciplinary team of researchers at Michigan State University. The curriculum was pilot-tested by Michigan State University Extension Agents in the 4-H and Nutrition sectors. The program is funded by the USDA’s Food Stamp Program, and is being taught in the Expanded Food and Nutrition Education Program (EFNEP) for children. The curriculum was designed for children between the ages of eight and eleven or in third through fifth grades. The JIFF curriculum uses peer educators because it is designed to be taught by professionals or by adult or teenage volunteers. The program teaches
nutrition, physical activity, and food safety information through hands-on activities, recipes, and games which can be modified for older or younger age groups. My Pyramid for Kids and My Activity Pyramid are the sources for teaching the material. The research-based curriculum is organized into eight 60- to 90-minute sessions called “Kangaroo Jumps.” The curriculum mascot, “Jiff the Joey,” is a kangaroo that follows the children throughout the eight sessions. A kangaroo was chosen because of the active lifestyles of young kangaroos, or joeys. The creators wanted to infuse the idea of being active into the curriculum by using a kangaroo as its mascot.

The introduction to each session begins with an introductory page which states the objectives, and identifies the skills that the children will learn from the lesson. Detailed background information based on research is provided so that the instructors can answer the questions that students may have. The Learning Activities component, which lasts 15 to 20 minutes, is the main part of the lesson: children learn and then apply their skills. Objectives, skills, and materials, and possible questions for the instructor to ask are provided to ensure that the children derive the most from the session. A brief introductory activity precedes the learning activity. A food safety section in each lesson teaches proper ways of safely preparing and storing foods to prevent food-borne illnesses.

A snack suggestion is included. Participants are given recipes to prepare snacks in the food or food groups discussed in the lesson. These recipes are often prepared during the lesson so that children have hands-on practice in food safety. Parents can receive a newsletter with each lesson so that they know what topics are being discussed.
These newsletters help the parents to assist their children with practicing what they have learned from the lessons. The JIFF curriculum also provides participants and parents with links to websites that give detailed information on My Pyramid, Food Allergies, Food Safety, and Fitness (Michigan State University Extension).

The Quest for Health program was derived from the Zest Quest curriculum. It was modified by Sandee Blankenship and Pam Arden. Katherine Cason, PhD, LD, RD reviewed and tested recipes, and Lana Tietjen ran nutrient analyses on them. Zest Quest is a non-profit organization that operates under the Youth Learning Institute of Clemson University. The curriculum informs students about the current USDA and US Department of Health and Human Services recommendations in the form of “My Pyramid” and the Dietary Guidelines for Americans 2005. The curriculum also incorporates movement into every lesson to encourage children to be physically active. Zest Quest lessons are taught from kindergarten to fifth grade in some upstate elementary schools in South Carolina. The lessons are geared to the cognitive level of the students in each grade. Zest Quest strives for the following results: knowledge of healthy foods and physical activity, healthy behavior changes such as proper nutrition and adequate physical activity, consumption of more fruits, vegetables, and other foods recommended by My Pyramid, more breakfast consumption, more time spent on physical activity (60 minutes/day), balanced calorie intake and expenditure, and increased knowledge of proper hygiene.
Zest Quest was based on “tiers.” Tier 1 consisted of professionals from various universities and colleges across South Carolina. Tier 2 consisted of 25 teachers and coaches from four school districts in South Carolina. Fifteen Zest Quest instructors taught the curriculum and requested feedback from the classroom participants. This was the third tier.

Social Cognitive Theory is the basis for the lessons; Zest Quest models healthy behavior in hopes that the students of the curriculum will incorporate those behaviors into their routine. Lessons discuss national and state standards in English language arts, math, social studies or science. The Quest for Health program is the result of adjusting Zest Quest so that the curriculum could be taught with a 4-H design of meeting once a month for an hour instead of four half-hour lessons. Quest for Health was designed to be taught in an after-school club. It uses the same lessons, but spends less time on content due. The alternative curriculum uses the same survey.

Boys and Girls Club

The Boys and Girls Club of America has over 4,000 locations in all 50 states and serves over 4.2 million children. Nearly two-thirds (65%) of the membership is composed of children from minority groups. The largest group of members is between the ages of 6 and 10, followed by those between 13 and 15. The mission statement is to mentor and develop young people into productive citizens (Boys and Girls Club of America)

The Boys and Girls Club of Sumter, South Carolina is fulfilling this mission. Elementary school-aged children need a place to go during after school hours when their
parents are still at work. Children who participate in the afterschool program are picked up from their schools and transported to the club where they complete their homework, and participate in activities like cheerleading, karate, and dance until their parents pick them up. Students from elementary and high schools participate in the afterschool program. The students are divided into classes based on their age: 6-8, 9-12, and 13-18. The club prides itself on using its limited financial resources to provide the guidance and attention that all children need.
**Statement of Problem**

Many diseases persist among African-American, minority, and low-income populations. Most of these diseases can be prevented with a proper diet and regular physical activity. These populations must be educated on ways to fight diseases that disproportionately affect its members. “Teaching children skills to maintain healthy dietary habits and active lifestyles helps prevent obesity not only in youth but also in adult life” (Cason & Logan, 2006, p. 234).

It is not necessary to be White and affluent in order to live a long and healthy life. Nutrition education programs deliver information that can be used to make positive behavior changes that lead to a healthier life (DeVault et al., 2009). There has been little research on what members of at-risk populations expect from these programs. If these programs are to effect behavior change, they must meet the needs of their recipients by taking cultural differences, education, and their staple foods into consideration. Many nutrition education programs are designed by people outside of the communities for which the programs are intended. Teaching a nutrition education curriculum to representatives of a low-income minority group, and then eliciting their feedback is a good way to test the effectiveness and acceptability of that particular curriculum within this population.
Objectives

The purpose of this study was to obtain opinions on two nutrition education programs from a sample from a low-income minority population in order to test the acceptability and effectiveness of these programs within this population. The study was designed

1. to teach three lessons from two popular nutrition curricula to pre-adolescent African-Americans.
2. to obtain and record the opinions of participants in the JIFF or Quest for Health Curriculum.
3. to examine behavior and knowledge change in this population based on the three lessons.
4. to determine what the participants desire to see in future nutrition education programs.
CHAPTER 2: METHODOLOGY

The Quest for Health and JIFF curricula were taught to two different groups at the Boys and Girls Club of Sumter, South Carolina. Both curricula are designed to ensure that participants are active and participating in hands-on activities during the lessons. The JIFF Curriculum stresses physical activity and USDA recommended nutrition guidelines, and includes sample recipes. The Quest for Health Curriculum stresses physical activity and “My Pyramid” in addition to healthy behavior practices such as obtaining the right amount of sleep. Two classes at the Boys and Girls Club were randomly assigned to one of the curricula. Each class completed three lessons from its curriculum.

The class participating in the JIFF lessons completed a pre-test and post-test to compare the student’s knowledge before and after the three lessons. The class participating in the Quest for Health lessons completed a Knowledge Test and Demographics Pretest and a Behavior Questionnaire before and after the three lessons. Several students from each class were invited to a post-intervention focus group discussion.

Study Population

The members of the study sample met the following criteria:

(1) were between the ages of 7-11 years of age,
(2) were members of the Boys and Girls Club afterschool program,
completed and returned both the parent permission and consent forms with parents’ signatures

Sixty participants completed the study. Of this number:

- 59 completed the pre-intervention materials for their curriculum
- 39 completed both the pre-and post-intervention materials for their curriculum
- 17 participated in the post-intervention focus group

The two curricula were taught at the Boys and Girls Club of Sumter, South Carolina during the afterschool program, from 2:45pm until 5:30pm. Both classes participated on each day. The intervention lasted one week. On the first day, the research was explained and students were given the forms to read and give to parents. The students were given an extra day to return permission and consent forms because most participants did not return them the next day. The students who had not returned their forms were asked to leave the classroom. Each class participated in one lesson from its curriculum on three days. IRB approval was obtained from Clemson University.

**JIFF Curriculum**

The JIFF Curriculum was randomly assigned and taught to Class 1. Students were given a detailed explanation of the research. IRB approved forms were also distributed to the students and parents. The students who returned the forms participated in the three lessons: Kangaroo Jump One, Kangaroo Jump Five, and Kangaroo Jump Seven. Participants completed the pre-survey for the JIFF curriculum. On Day 1,
Kangaroo Jump One was taught. This lesson emphasized eating a variety of foods, and getting adequate exercise. Participants were given the take-home packet for each lesson at the beginning of class. Participants learned about the My Activity Pyramid, and discussed activities that they participate in which fall into at least one of the four categories. (The four categories were “Every Day”, “3-5 Times a Week”, “2-3 Times a Week”, and “Cut Down On”.) Health- and Skill-Related Fitness were discussed. Examples of physical activities that fall into these categories were again discussed. The participants played the “Frozen Fruitcicles” game to learn how to enjoy different types of physical activity. My Pyramid was then discussed. A poster of My Pyramid was explained, and participants named foods from each food group. Participants then played a game in which they had to mention foods from each food group that began with a random letter the instructor called out. A Quaker Granola Bar (90 calories) was given to each student. A reminder of the importance of hand washing concluded the lesson.

Kangaroo Jump Five was the second lesson in the JIFF curriculum, and emphasized the importance of eating breakfast. The participants recalled important points that had been raised during the previous lesson. Participants performed stretching and other light exercises to demonstrate how to get their bodies working efficiently so that the day will start well. The “Fitness Speedway” game was played by two sets of students. The lesson reinforced the point that breakfast gives people a head start on their day, and that they do not have to eat traditional breakfast foods in order to have a good breakfast. The relationship between a good breakfast and high achievement in school was discussed. The “Stand Up for Breakfast” activity and “Fast Breaks to
B.R.E.A.K.F.A.S.T.” activity was completed. Each participant received Welch’s Fruit Snacks. The class ended with a discussion of the “Breakfast Blooper” Case Studies.

Kangaroo Jump Seven was the third and final lesson in the JIFF curriculum. The lesson stressed the importance of eating a variety of foods from each food group. The importance of physical activity was reinforced by encouraging students to remain physically active. Participants also learned how to interpret the information on a Nutrition Facts label. Participants recalled key points from the previous lesson, and discussed the benefits of exercise and physical activity. Students performed push-ups, jumping jacks, toe touches, and stretching. Serving size, total fat, dietary fiber, sugars, calories, and sodium were identified on a sample label so that the students could learn how to understand this information. The participants completed the “Looking at Labels” worksheet. The worksheet was supplemented by questions that forced the participants to identify quantities not found on the worksheet. The participants identified some ingredients of food, and talked about the importance of washing their hands after sneezing or coughing. Each participant received a “Gogurt” yogurt snack.

On the next day, participants completed the post-survey, after which 13 volunteered to participate in the focus group.

**Quest for Health Curriculum**

The second class was randomly selected to participate in the Quest for Health Curriculum. Lessons were conducted at the conclusion of the JIFF lessons in the first class. This curriculum also consisted of three lessons on three separate days. Day 1
consisted of introductions and distribution of all IRB-required forms. Only students who had returned the required forms were allowed to participate. The participants filled out the pre-survey materials. The lesson began with exercises and stretches. Participants then learned how to read a nutrition facts label to determine if a food item is a healthy choice. Dietary fiber, serving size, calories, sodium and sugars were identified.

The participants were then assigned to groups of three or four and given a nutrition facts label. The participants were then quizzed. A participant from Group A was asked to identify the serving size; another participant was asked how much sugar was in a serving. Each food item was then discussed. The next topic was the importance of exercising. Participants were asked how reading food labels could benefit them, and Lesson 1 was concluded.

The theme of Lesson 2 was physical activity. The lesson began with a game in which one participant told the group what type of exercise to do. The group discussed the benefits and types of physical activity. Participants described the kinds of physical activity that they did throughout their day. Participants were advised to get 60 minutes of physical activity daily. They then talked about the three beneficial categories of physical activity: social, cognitive, and physical benefits. The class participated in an activity where they were allowed to discuss and then decide what type of physical activity benefit was received during certain activities. The participants had to categorize this benefit by going to one of the three designated corners in the classroom. The participants who went to the wrong corner were asked why they believed that the given benefit belonged to that
category. The participants were reminded to think about the type of benefits they are receiving while being physically active.

Lesson 3 was about fruits and vegetables. My Pyramid was explained to the class, with special attention to the fruit and vegetable groups. Participants named different types of foods found in each group, and the main nutrients. Serving sizes and daily recommended intake were discussed with the participants. Participants reviewed the material by playing a trivia game.

On the next day participants completed the post-survey materials, and four students volunteered to participate in the focus group session. All participants in the Quest for Health Curriculum received a Quaker Granola Bar and a “Gogurt” yogurt snack.

**Materials**

Materials included food labels from Peanut Butter Captain Crunch (20.7oz.), Great Value Apple Cinnamon Instant Oatmeal (12.3oz.), Triscuit Fire-Roasted Tomato and Olive Oil Wheat Crackers (9.5oz.), Mrs. Freshley’s Peanut Butter Wafers (12 ct.), and Cinnamon Toast Crunch Cereal (17oz.).

A large “My Pyramid” poster distributed by the USDA was used as a visual aid in the discussion of food groups.
Survey Instruments

Participants were assigned numbers for the matching of pre- and post-intervention survey tools. Each participant put his or her number at the top of the front page. These numbers were used to match pre- and post-tests. Each curriculum used its survey tools designed by the creators of the two curricula. The same survey tools were used for the pre- and post-intervention responses. The JIFF curriculum uses a 21-question survey that is divided into four sections. The first section (Questions 1-18) asks questions about daily behavior. These 18 questions try to determine the frequency at which children are practicing certain behaviors, such as washing hands, eating breakfast, food consumption, and physical activity. The responses are “hardly ever,” “sometimes,” and “almost always.” The children put a check in the box under their response. The next section (Question 19) asked one multiple-choice question about the children’s knowledge of the information in My Pyramid for Kids. The last two sections (Questions 20 & 21) are matching. The first asks the children to match muscle names (e.g. abdominals) to their body position (e.g. stomach). The last asks the students to match food groups (e.g. milk group) to the main nutrient supplied from that food group (e.g. calcium). The survey is decorated with images of Joey the Kangaroo. For this study, the JIFF survey tool was divided into three sub-scales (variables) for data analysis: nutrition behavior, physical activity behavior, and nutritional knowledge. Questions 1-9 were designated as nutrition behavior questions. Questions 10-18 were designated as physical activity behavior questions. Questions 19 & 21 made up the nutritional knowledge questions. Question 20 was excluded in data analysis because the content was not taught during the three lessons.
The Quest for Health survey tool contains two forms. The first is a Knowledge Test & Demographics Pretest. It includes 25 multiple-choice questions. This survey ascertains how much students know about nutrition. Questions address servings per day, physical activity, and results of making changes to their behavior. The last portion of the survey includes three questions that gauge the students’ ability to read nutrition fact labels. These questions ask the participants to identify the correct serving size, amount of fat, and amount of calories on a food label. The Knowledge Test was divided into four variables for data analysis during this study: nutritional knowledge, knowledge of physical activity, healthy behaviors, and food labels. Questions 1-7, 15-16, and 18-21 made up the nutritional knowledge variable. Questions 8-11 and 17 made up the knowledge of physical activity variable. Questions 12-14 made up the healthy behaviors variable and questions 23-25 were included in the food labels variable.

The second form is a behavior frequency questionnaire. This section measures the frequency at which students perform certain behaviors such as eating and exercise. The first 22 questions measure behavior. The responses to these questions range from “never” to “always.” Physical activity, fruit, vegetable, and high-fat food consumption are measured. The survey ends with three questions about the respondent’s age, race, and gender. The behavior frequency questionnaire included two variables for data analysis: nutritional behavior and physical activity behavior. Questions 1-11 and 20-22 were included in the nutritional behavior variable. Questions 12-19 were included in the physical activity behavior variable. Questions 20-22 were not included in data analysis due to their question format that allowed participants to select more than one answer.
Data Analysis

During this study, descriptive statistics were run for demographics and the study variables nutrition behavior, physical activity behavior, and nutritional knowledge for both JIFF and Quest for Health groups. Data for these three variables were checked for normality. Difference scores were computed for nutrition behavior, physical activity behavior, and nutritional knowledge variables. For data that were normally distributed, paired t-tests were used for within subject comparisons. Independent t-tests were used to measure difference scores between Quest for Health and JIFF.

For data that were not normally distributed, non-parametric analyses were used. Wilcoxon Signed Ranks tests were conducted for participants within each population and Mann Whitney Tests were used for JIFF and Quest For Health comparisons. Non-parametric analyses were used for data that was not normally distributed. For this study, a significance level of 0.05 was used for all tests. SPSS 17th ed. was used for all data analysis.

Question Coding

The responses on the survey tools for both curricula were coded to facilitate data analysis. For this study, the “JIFF Sound Off Survey” was broken down into three variables: nutrition behavior, physical activity behavior, and nutritional knowledge. The “hardly ever” response received a zero. For questions 1-18, the “sometimes” response received a one, while the “almost always” response received a code of two. The last
section was nutritional knowledge: questions 19 and 21. They were coded as follows: a correct response received a one and an incorrect response received a zero.

The knowledge test and demographics pretest for Quest for Health was broken down into four variables during this study. They are as follows: nutritional knowledge, knowledge of physical activity, healthy behaviors, and food labels. These questions were coded with a zero if they were incorrect and a one if they were correct. Only nutritional knowledge, knowledge of physical activity, and food labels were included in data comparisons with the JIFF group. The food labels variable was included in the nutritional knowledge variable during data comparison with the JIFF group. The behavior questionnaire was broken up into two variables: nutritional behavior and physical activity behavior. The responses to these questions ranged from never to always on a Likert Scale. The coding was as follows: “never”-one, “hardly ever”-two, “sometimes”-three, “most of the time”-four, and “always”-five.

**Focus Group Questions**

The focus group questions gauged the acceptability of two nutrition intervention programs among young African-Americans. Seventeen students participated in the post-intervention group. Thirteen volunteered from the JIFF participants, and four from the Quest for Health participants. Questions asked in the focus group sought to determine what the students liked and disliked about the two curricula, recommended changes to the curricula, and enhancements to nutrition education programs. Participants were allowed
to critique the curriculum that they participated in and to state which components were more engaging. All responses were recorded and transcribed.

**Focus Group Data Analysis**

The focus group data was categorized by curriculum. All participants were in the same age category. The focus group data was transcribed and grouped according to the following themes: Curriculum Acceptability, General Curriculum Opinions, Acquired Knowledge, and Preferred Curriculum Modifications. The themes reflected the type of questions that were asked during the session. Curriculum acceptability covered most fun/least fun lessons, age and cultural appropriateness, topic difficulty, and pre- and post-test difficulty. General curriculum opinions covered participants’ opinions about how traditional the curricula were, or if they thought that they had enough opportunity to move during the lessons. Acquired knowledge covered concepts that stood out, most memorable concepts, and amount of lesson time devoted to physical activity as opposed to nutrition. Preferred curriculum modifications covered the modifications that the participants would make to the lessons. The focus group data was reviewed a second time to ensure accuracy. The responses were transcribed using the respondents’ wording and phrasing. Only corrections that clarified the respondents’ statements were made. All questions were intended to elicit honest statements from the respondents that described their experience and views of the curriculum.
CHAPTER 3: RESULTS

Surveys

Demographics

Fifty-nine participants completed the pre-tests for the two curricula. Forty-one participants completed the post-test survey. Twenty-three participants for JIFF and 16 Quest for Health participants are included in the demographics descriptive data. Only the responses of the 22 participants that completed both pre-and post-tests for JIFF and the 16 participants who completed both pre-and post-tests for Quest for Health correctly will be used for survey data analysis. All of the participants in the study were members of the Sumter Boys and Girls Club. Demographic data will be presented in three groups: all participants, JIFF participants, and Quest for Health participants.

Thirty-nine participants completed the study. Of these, 23 (58.9%) were male and 16 (41.0%) were female. There were twelve 10-year olds (30.8%), ten 9-year olds (25.6%), eight 8-year olds (20.5%), five 7-year olds (12.8%), and four 11-year olds (10.3%). The largest grade represented was second grade, with 11 participants (28.2%) followed by third and fourth grades with 10 participants each (25.6%), fifth grade with six participants (15.4%), and first grade with two participants (5.1%). Thirty-eight (97.4%) were African-American and one (2.6%) identified as Hispanic and Black. Of the 17 participants in the focus group session, six (35.3%) were male, and 11 (64.7%) were female. The largest percentage of participants in the focus group were age 10 (47.0%), followed by age 8 (29.4%), and ages 9 and 11 (11.8% each). The largest percentage
(41.2%) was in fourth grade, followed by second grade (23.5%), and third and fifth grades, (17.6%).

For the participants in the JIFF curriculum, 13 (56.5%) were male and 10 (43.5%) were female. Of the JIFF participants, 22 (95.7%) were African-American and 1 (4.3%) considered himself Hispanic and Black. Four of the participants in the JIFF focus group (30.7%) were male and 9 (69.2%) were female. For the participants that participated in the Quest for Health curriculum, 10 (62.5%) were male and 6 (37.5%) were female. All of the participants in the Quest for Health Curriculum were African American. The Quest for Health focus group involved four participants: two male and two female. Half of the focus group participants were 8 years old and the other half were 9 and 11 years old. Two were second graders, one was a third grader, and one was a fifth grader.

Further demographic data is given in Table 3.1 and 3.2.
### Table 3.1 JIFF Demographic Data

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<td>4</td>
<td>100</td>
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**Attendance**

Each curriculum taught three lessons, ranging from 27 to 33 minutes on three separate days. Each participant attended an average of 2.4 lessons. There were 16 students present, on average, for each lesson.

For the JIFF curriculum, the three lessons were an average of 35 minutes long. Lesson 3, was 0:37:41 and Lesson 2 was 0:33:07. Each participant in the JIFF curriculum attended an average of 2.7 lessons. Each lesson had an average of 21 participants.

For the Quest for Health curriculum, the three lessons averaged 0:26:03. Lesson 1 was 0:31:22, and Lesson 2 was 0:22:47. Each participant in the Quest for Health curriculum attended an average of 2.1 lessons. Each lesson had an average of 11 participants.

**Survey Results**

JIFF participants showed increases in the frequency of healthy behaviors such as washing hands, eating fruit, and participating in physical activities. The frequency of participants who “almost always” ate breakfast declined between the pre-test and the post-test by 9.1%. The number of participants that understood “MyPyramid for Kids” information declined from 90.9% of the participants correctly answering the question at pre-test to 72.7% correctly answering at post-test. The percentage of correct answers increased for all nutrition-matching questions.
Quest for Health participants’ scores rose on the Knowledge Test and Demographics Pre-Test, especially in their understanding of proper nutrition and physical activity. Percentages of correct responses increased for questions about nutrients, dehydration, and how much daily physical activity is recommended. At pre-test, only 31.3% of the participants knew the recommended amount of physical activity. At post-test, that percentage rose to 75%. The participants’ understood that eating fruits and vegetables prepared in a healthy manner is essential to a good diet. The number of correct responses increased for all three nutrition facts label questions. The Behavior Questionnaire indicated that most participants improved their food choices and increased their physical activity. The frequency of negative behaviors decreased.

Maximum and minimum possibilities for the JIFF survey tool variables are 0.00-18.00 for the nutrition behavior variable, 0.00-18.00 for the physical activity behavior variable, and 0.00-6.00 for nutritional knowledge. Actual JIFF pre-test scores ranged from 5.00-16.00 for the nutrition behavior variable, 5.00-17.00 for the physical activity behavior variable, and 1.00-6.00 for the nutritional knowledge variable. Mean pre-test scores for JIFF were 10.95 (60.8%) for nutrition behavior, 12.45 (69.2%) for physical activity behavior, and 2.64 (44.0%) for nutritional knowledge. Post-test ranges for JIFF were 6.00-17.00 for nutrition behavior, 7.00-18.00 for physical activity behavior, and 1.00-6.00 for nutritional knowledge. The mean values increased post-intervention to 12.41 (68.9%) for nutrition behavior, 13.45 (74.7%) for physical activity behavior, and 3.55 (59.2%) for nutritional knowledge. This change indicates that JIFF participants did
make positive behavior changes and increased their nutritional knowledge. Results for JIFF group can be seen in Table 3.3.

### Table 3.3 JIFF Survey Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre-Test Mean</th>
<th>Pre-Test STDEV</th>
<th>Post-Test Mean</th>
<th>Post-Test STDEV</th>
<th>Test Diff.</th>
<th>T&lt;sup&gt;a&lt;/sup&gt; or Z&lt;sup&gt;b&lt;/sup&gt; Value</th>
<th>p-Value</th>
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<tbody>
<tr>
<td>Nutrition Behavior</td>
<td>10.95 (60.8%)</td>
<td>2.90</td>
<td>12.41 (68.9%)</td>
<td>3.25</td>
<td>-1.45</td>
<td>-2.082&lt;sup&gt;a&lt;/sup&gt;</td>
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<tr>
<td>Physical Activity Behavior</td>
<td>12.45 (69.2%)</td>
<td>3.11</td>
<td>13.45 (74.7%)</td>
<td>2.87</td>
<td>-1.00</td>
<td>-1.623&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.11</td>
</tr>
<tr>
<td>Nutritional Knowledge</td>
<td>2.64 (44.0%)</td>
<td>1.56</td>
<td>3.55 (59.2%)</td>
<td>1.68</td>
<td>-0.91</td>
<td>-1.515&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.13</td>
</tr>
</tbody>
</table>

<sup>*</sup>-denotes statistical significance

<sup>T</sup><sup>a</sup>-Paired t-tests

<sup>Z</sup><sup>b</sup>-Wilcoxon Signed Ranks Test

The maximum and minimum possible scores for the Quest for Health survey variables were 11.00-55.00 for nutrition behavior, 8.00-40.00 for physical activity behavior, and 0.00-16.00 for nutritional knowledge. Actual Quest for Health pre-test scores ranged from 27.00-55.00 for nutrition behavior, 21.00-40.00 for physical activity.
behavior, and 8.00-14.00 for nutritional knowledge. Mean pre-test scores were 40.69 (74.0%) in the nutrition behavior variable, 32.25 (80.6%) in the physical activity behavior variable, and 11.13 (69.6%) in the nutritional knowledge variable. Ranges at post-test were 27.00-50.00 for nutrition behavior, 19.00-40.00 for physical activity behavior, and 10.00-15.00 for nutritional knowledge. Mean values increased post-intervention to 44.38 (80.7%) in nutrition behavior, 34.31 (85.8%) in physical activity behavior, and 12.69 (79.3%) in nutritional knowledge. This reflects a positive effect in the Quest for Health group across all three variables. Quest for Health results can be seen in Table 3.4.
### Table 3.4 Quest for Health Survey Results

#### Quest for Health

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre-Test Mean</th>
<th>Pre-Test STDEV</th>
<th>Post-Test Mean</th>
<th>Post-Test STDEV</th>
<th>Test Diff.</th>
<th>(T^a) or (Z^b) Value</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nutrition Behavior</strong></td>
<td>40.69 (74.0%)</td>
<td>7.53</td>
<td>44.38 (80.7%)</td>
<td>5.83</td>
<td>-3.69</td>
<td>-1.969^b</td>
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<tr>
<td><strong>Physical Activity Behavior</strong></td>
<td>32.25 (80.6%)</td>
<td>6.51</td>
<td>34.31 (85.8%)</td>
<td>6.67</td>
<td>-2.06</td>
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<tr>
<td><strong>Nutritional Knowledge</strong></td>
<td>11.13 (69.6%)</td>
<td>1.71</td>
<td>12.69 (79.3%)</td>
<td>1.54</td>
<td>-1.56</td>
<td>-2.778^a</td>
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</tbody>
</table>

*-denotes statistical significance

\(T^a\)-Paired T-Test

\(Z^b\)-Wilcoxon Signed Ranks Test

Survey results showed an overall improvement in nutritional knowledge and behavior (physical activity and nutrition-related) for both JIFF and Quest for Health groups. For the JIFF group, a statistically significant increase occurred in the nutritional behavior variable between pre- and post-test (\(t=-2.082, p=.05\)). Increases in the physical activity behavior and nutritional knowledge variables were not statistically significantly significant (\(p>.05\)). Quest for Health results showed statistically significant improvements in the nutritional behavior and nutritional knowledge variables (\(z=-1.969, p=.05; t=-2.778, p=.01\), respectively). Difference (change) scores were used to compare the three variable scores between JIFF and Quest for Health. The results revealed no
statistically significant differences in change scores between groups \((p>.05)\). Differences between curricula survey results can be seen in Table 3.5.

**Table 3.5 Curricula Differences**

<table>
<thead>
<tr>
<th></th>
<th>Group</th>
<th>Mean</th>
<th>STDEV</th>
<th>(T^a) or (Z^b) Value</th>
<th>P-Value</th>
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<tbody>
<tr>
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<td>(-1.498^b)</td>
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<td></td>
<td>Quest</td>
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<td>6.55</td>
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</tr>
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</tr>
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<td><strong>Nutritional Knowledge</strong></td>
<td>JIFF</td>
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<td>(0.681^a)</td>
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<td>Quest</td>
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<td>6.61</td>
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</table>

\(T^a\)-Independent T-Test

\(Z^b\)-Mann Whitney Test

**Focus Group Responses**

**JIFF Group**

Most of the JIFF participants thought that the combination of snacks and games greatly enhanced the lessons. They also thought that the lessons were enjoyable, because of the games.

“I think the best thing about [the lessons] was doing the games and exercises like running around and doing crunches.”
“It was fun because we got to have snacks and play games.”

Another participant stated he liked the lessons. All the participants thought that the games were a great enhancement to the curriculum. They also all agreed that they did have enough opportunity to get up and move during the lessons.

One participant said: “The reason I like it is because I like to learn how to be…stay healthy and then I’ll be able to know what I can eat.” One student thought the healthy snacks reinforced the material learned from the “My Pyramid” lessons. “Yes, I think the snacks made the lesson better because you brought in healthy snacks…and we were kind of like learning about the food pyramid.” One participant thought that the snacks during the lessons were a bribe that prompted participation. “I think it’s…I think it’s unfair because you bribing us because if you didn’t have snacks we would have got them [questions] wrong and you did have snacks so we got them right. Because…because people sometimes…they sometimes learn better without snacks and sometimes they learn better with snacks.”

Participants were split between physical activity and nutrition when discussing which topic included more information or was more beneficial. Responses to the question asking the participants what they learned the most from the Jiff Curriculum included: “I learned what foods are healthy and what foods are not healthy,” “I learned that you need to eat more vegetables and…more vegetables every day,” and “Food labels because it was easy and fun and it tells you how much fat and calories and stuff.”
Most of the participants stated that the lessons discussed nutrition more than physical activity. Nutrition information stood out to the participants the most, and the nutrition facts label lesson seemed to have a big impact.

I think like the part whenever you got to read food labels I think that’s important because you never know it might…like say the calories are like 300 and something you should look at the food labels because you never know your calories might be high enough so you might want to look at the food labels before you try something.

Another student stated that the food labels help them to know how many calories they’re consuming.

I think food because you need…cause you need food…you need more food to…stay healthy and also physical activity because you need that to stay in shape and then you won’t…you won’t have to worry about being…you won’t have to worry about being fat or skinny.

Participants also thought that both topics were memorable because of the key concepts. One student stated that “knowing how much you should exercise and how far you should exercise” was why physical activity was more memorable. Another participant said that “you might remember to look at the calories and how much you should eat and how much sugar you should use in a serving point (size) or something.” Some participants thought that both topics were memorable. “I think both because physical activity is important and eating healthy is important….”
The participants thought that both topics were practical. One participant thought that nutrition information helped her to know what she should and should not eat. Another participant thought that the topic taught him more conventional ways to get exercise. “I think physical activity because you can jog around the house and it can (help) your stomach get stronger.” Staying in shape, performing different exercises, and building muscle were among the reasons given for viewing physical activity information as more practical than nutrition information.

Most of the participants indicated that they would rather participate in an interactive physical activity lesson. “Physical activity because we got to do stuff like play games, run around the classroom and the other person does the exercises,” said one participant. Another participant liked telling the instructor what kind of sports He played to get his physical activity. Participants were more likely to describe nutrition information as more boring than physical activity. “I’d rather have physical activity…because…it was less boring, and if we had did more activities on it we’ll probably have more fun.” However, one participant enjoyed both. “I think they both are…fun and active because food you can eat and when you exercise you can lose some of the fatness off of you.”

One participant stated, “I liked it a little bit, but it been kind of childish.” This participant could not come up with an instance where he felt the curriculum was childish when asked to do so. Other participants thought that the lessons were “just right.” One
participant thought that most other people in their age group would like the lessons because they would be able to understand the material.

“It wasn’t really hard it was easy if you were paying attention and listening.”

“I think it was great because…because that you (instructor) didn’t treat us that bad.”

All participants thought that the lessons were appropriate for all races, and that they would encourage their peers to participate in the JIFF curriculum. Some of the participants stated that some of their friends would find the lessons boring. One participant indicated that she would tell her peers to ask for more physical activity information. Another participant said, “I would ask all my friends because…all my friends that I know they…they love to eat and they love to exercise whether they play basketball or they eat…food.” All participants thought that their friends would be more interested in the physical activity component of the curriculum. All of the reasons pertained to friends enjoying being active.

Not all of the participants thought the curriculum was traditional. They compared the lesson environment to the environment in their schools. One participant thought that the curriculum was the same as school because school had recess. Another participant saw the curriculum as similar to schools: stating that in both places “you learn something every single day.”
Those who thought the curriculum was non-traditional and unlike school mentioned the games. Another participant said that they don’t play games when they learn “stuff” in school. Participants also saw the snacks as a difference between school and more traditional forms of learning and the JIFF curriculum. One participant cited the fact that the instructor did not just talk, but let the participants take part in games, activities, and snacks. The participants preferred a JIFF class to classes at school. Most of the participants saw the lack of nutrition information in school as the reason for their preference.

“I’d rather be in JIFF curriculum because…because it can…it can help me learn how I should eat and how often I should eat and math…If I’m in math class…I can…I can maybe get my education and get an “A” in math, but the JIFF curriculum was more important than math.

“I’ll say JIFF curriculum cause at school you have the same routines every day. We learn about different stuff (JIFF curriculum).”

Participants tended to think that the JIFF curriculum should be taught during the school day, because they want their classmates to be exposed to the lessons. One participant thought that if she repeated information learned in JIFF to one of her classmates they might not believe her. Some participants thought that the curriculum would be better taught in school because not everyone goes to afterschool programs. Another participant wanted to receive the JIFF curriculum in school because he wanted his physical education teacher to teach the material to him. One participant wanted the
JIFF curriculum to be an afterschool program because then she would have to exercise less. “I would think someone afterschool because if we do it at school and they give us snacks like you do. And then…they’ll…then I’ll have to exercise and when I get here and I go…I go get something else to eat and I’ll have to exercise again.”

Opinions concerning the pre- and post-survey tool were mixed. One participant thought that the tool asked for too much personal information. When prompted, the participant cited the question about frequency of washing hands. The matching sections were identified as the hardest. One participant cited the section on “body parts,” and another the matching section. “The pretest…the hardest part about the pre-test and the post-test to me was when it…when it got to the grains. Sometimes I get mixed up with them.” Both participants who thought the survey tool was “easy” also mentioned that the matching sections were difficult. One of the participants thought that the survey tool was easy because the pre- and post-test were identical.

The participants had interesting ideas about what they would do differently if they were designing and teaching a similar curriculum. One participant would allow participants to play their favorite sports. Another would help students “realize that they know more than what they think they know” by using models of food.

I would like help them realize that they know more than what they think they know. And help them know that they know what healthy foods are and what unhealthy foods are. Like…like I would have a group of miniature fruits and then
I would…have like bad…I would have fruits and I’ll have like junk food and then
give…a pair to each person and let them sort it out.

Another participant would let participants eat while they learn. Some participants
thought that there were too many handouts. One participant did not want eating during
the lesson; another thought that eating before a lesson would be better. “When we learn,
we don’t need…well when we learn we don’t need to eat right after. We need to
eat…before we learn it.” One student thought that adding a lesson on “how much sleep
you should get every day” would be an improvement. Increased consumption of
fruits/vegetables, increased physical activity, learning how to cook, learning how to shop
for healthy food, and more visual aids were the other suggestions.

**Quest for Health Group**

Participants in the Quest for Health focus group liked the curriculum because of
the games. One of the participants thought that the lessons were similar to school classes.

It was basically…to me it was close to the same thing because I have nice
teachers and we play games…They’ll [teachers] prepare us for a test and then
we’ll get the question right and they’ll give us a treat. And then we’ll do girls
versus boys and stuff like that.

I think it was fun because…we…we…we got to play the games and we had to
answer questions and if you hadn’t taught us how to read the…stuff…food labels
we would not have known nothing about that.
Participants thought that the curriculum had been designed with African-American children in mind. All the participants thought that the curriculum would have the same effect in an audience of any race. Most of the participants thought that their peers would like the curriculum. One stated, “Some people might be too young to understand it.” One of the reasons why the lesson was not too childish was that the questions got harder. “No because you gave some easy questions, and then…then at the end they would get harder and harder.” All of the participants thought that the topics were not too difficult to understand, and the curriculum was age-appropriate.

The participants were split between preferring physical activity and nutrition. Participants also cited the benefits of proper nutrition and physical activity as reasons for why they liked the topic. One student said, “I like the nutrition because...the nutrition because...I like...I like both of them really. But I like...I like nutrition the most because...if we wanted to know about how many calories we had, some people...like a lot of people would have been obese.” Another chose physical activity because “it helped them to get fit.” The participants remembered the lessons on the benefits to physical activity and My Pyramid the most, because of the health benefits of proper nutrition and physical activity.

According to one participant, the lesson on nutrition fact labels was the one that would be remembered, because “we might be on a diet, and we don’t wanna mess it up cause some people like to go to the pool and they don’t want to look fat in their swimsuits.”
Responses were mixed when participants were told that their peers in JIFF were given snacks. One participant stressed that it was more important to learn; another thought that it was not fair. A third participant saw the snacks as a reward for participation in the lesson.

When people are not getting treats for doing something good then they just gonna give up because they not being rewarded for what they did when that was something good and they paid attention to the lesson. And, then they would feel mistreated when they didn’t get a treat or something because all the hard work that they did.

Even though some participants thought that it was more important to make sure to learn the material than to get snacks, all agreed that Quest for Health should have snacks. Lack of knowledge of nutrition was the main reason why the participants preferred that the curriculum to be taught during school hours. One participant thought that “most people at school don’t know about” nutrition information since many of her peers at the afterschool program were enrolled. Another participant thought that teaching the curriculum in school would help his peers understand why they are overweight.

I think you should do it in classrooms because there are a lot of overweight people, and they don’t know why. But, if they…if they look at…if they look at…the…the nutritious [nutrition] table or the nutritious [nutrition] label…if they look at it and see how many calories it is. If they get like a food graph…one of the food pyramids. Then maybe that can help them.
All participants thought that the curriculum should stay the same. One participant thought that shopping for clothes and shoes would make the curriculum better, but could not elaborate. Another participant said that she would give healthy snacks like low-fat cereal if she were to teach the curriculum. “I would give them cereal that doesn’t have a lot of fat in it, a lot of sugar and a lot of calories.”
CHAPTER 4: DISCUSSION

JIFF Group

JIFF participants felt that the snacks and game greatly enhanced the lessons. They also felt that nutrition information was discussed more, and also was more boring than the physical activity information. However, participants stated that both topics were very practical, and offered information that could be used in their everyday lives. Most of the participants agreed that the curriculum was both culturally and age appropriate for their population. The participants were split concerning whether or not the curriculum would be better if it was taught in school or not. They also found some similarities between JIFF and school. The JIFF survey received both positive and negative reviews. All participants agreed that the matching section was the hardest. Suggested changes to the curriculum included using food models to teach, reducing handouts, more visual aids, and cooking lessons.

JIFF participants showed increases over the three variables measured. Only the nutrition behavior variable increase was statistically significant. The percentage of correct answers increased for all nutrition-matching questions, which corresponds to the participants’ opinions that most of the lessons were focused on nutrition. Participants saw the matching sections as the hardest part of the pre-and post-tests. This may be due to the lack of discussion about muscle groups during the three lessons, but I still asked the participants to complete the section during the pre- and post-tests. Muscles were covered in Kangaroo Jump 4, which was not one of the lessons to be taught.
Most of the JIFF participants wanted to be included in the focus group. Overall, the participants in this group were more willing to ask and answer questions and to volunteer. Most of the JIFF participants enjoyed the curriculum, largely because of the snacks and games. Participants often asked about snacks during the first minutes of each lesson. The participants believed that they had received enough physical activity during the lessons. The lesson plans ensured that the participants were not seated for the entire lesson. The students would discuss a topic, and then do a physical activity that reinforced or demonstrated concepts from the lesson. Some of the participants did think that the curriculum was similar to school where they had recess. This belief may be the result of the school-type setting of the Boys and Girls Club. Each class had a teacher who would remain in the classroom during the lesson to control behavior problems. The strictness of the teacher may have made the students feel like they were in school.

The participants may have thought that nutrition was discussed more because the physical activity concepts were easier to understand. More time had to be spent on nutrition fact labels to ensure that everyone understood the topic. The lesson that taught participants how to use nutrition facts labels introduced new concepts such as “calories” and “serving sizes.” The amount of time spent on this lesson may also be why reading “food labels” was a popular response when asked what topic had been the most informative.

At the conclusion of the three lessons, participants saw how a proper diet plays an important part in maintaining a healthy weight. Another important concept that
participants gained was that physical activity includes more than routine exercises. Participants enjoyed discussing other possible ways, like walking their dog and doing chores, to obtain their daily physical activity requirement of 60 minutes.

Although nutrition information was stressed, the participants still thought that the physical activity part was more enjoyable, and would be more of a reason that their friends would be interested in the curriculum. There was not enough time to prepare sample recipes. The opinions might change if participants had the time to make a recipe. Some of the time constraints also affected the participants’ suggestions for the curriculum.

The consumption of fruits and vegetables was encouraged in the JIFF curriculum. One student thought that fruits and vegetables should have replaced the “Gogurt” Yogurt Tubes, Welch’s Fruit Snacks, and Quaker (90 Calorie) Granola Bars. The addition of apples, oranges, and other fruit would no doubt be a great, but costly addition to the curriculum. EFNEP-taught JIFF curriculum lessons provide these options.

Other modifications suggested are addressed in other lessons. Sleep, as one participant recommended, is one topic that should be included in the curriculum. There are plenty of opportunities throughout the eight lessons to insert this topic. Participants thought that there were too many handouts that came along with the JIFF curriculum. These handouts were supposed to be an asset to the curriculum because they reinforced the topics. The extra work forced the participants to come up with different games and
ideas. Snacks were distributed to the students after each lesson, and one participant commented that snacks should be distributed before the lessons.

Participants prepared simple food items such as yogurt fruit crunch in regular JIFF lessons. One of the students proposed a trip to the grocery store. Some JIFF instructors may already do this. Food models are also sometimes brought in to JIFF lessons to assist with serving size concepts. One participant thought the curriculum would be better taught in school because of his familiarity with his physical education teacher. Another suggested continuing the curriculum in an after school setting so that participants will not have to exercise two separate times. The first time to burn off the calories from the snack they would get from JIFF while in school, and the second time for the snack they receive at the Boys and Girls Club. The JIFF curriculum is better suited for an afterschool setting because of its games and activities. JIFF could be a distraction to school if children are too energized after the lessons. In addition, the lessons would take too much time out of the school day. The exciting nature of JIFF would be compromised if the curriculum was taught in a classroom. The consensus among the participants was that JIFF was appropriate for children of all races. Instructors are able to tailor the lessons to their audience. Participants also thought that the lessons were appropriate for their age group. One participant did claim that the lessons were a little childish, but could not elaborate. Most of the participants thought that the lessons would be well received among their peers and the lessons would be easy to understand if they paid attention.
**Quest for Health Group**

Quest for Health participants also enjoyed the games and physical activities. They felt that there were a lot of similarities between the Quest for Health curriculum and school. Participants agreed that the curriculum was both culturally and age appropriate. Like the JIFF participants, these participants thought that the physical activity and nutrition information was practical, but as a group could not decide which they preferred. Participants thought that the Benefits to Physical Activity and Nutrition Fact Label Lessons were the most memorable. Participants felt that the curriculum should be taught during school hours, and should also include snacks. Overall, the participants felt that the curriculum should stay the same, and only made one recommendation. That recommendation was to include low-fat healthy snacks like certain cereals.

Participants’ scores increased on the Knowledge Test and Demographics Pre-Test across the nutrition behavior, physical activity behavior, and nutritional knowledge variables. Only the physical activity behavior increase was not statistically significant. The participants’ understood that eating fruits and vegetables prepared using the healthiest cooking method is essential to a good diet. The number of correct responses increased for all three nutrition facts label questions. These results are the effect of an entire lesson on nutrition fact labels. This concept was one of the “most memorable topics” from the three lessons.

The Behavior Questionnaire indicated that most participants improved their food choices by selecting healthier foods and increased their amount of physical activity.
These responses indicate that the participants know what decisions that they need to make in order to be healthy. These responses should not be viewed as permanent changes in behavior since there were only four days between pre-test and post-test. A delayed post-test method would have been the best method to indicate whether these responses actually reflect behavior change. The participants were most likely marking the responses that they knew would be the best answers after participating in the three lessons rather than marking answers that represented their frequency of performing those behaviors.

Participation in the Quest for Health focus group session was minimal; lesson time cut into the participants’ recreation classes. Most of the participants chose not to participate so that they could enjoy their recreation time. Four participants volunteered to participate. The four participants were most involved during the lessons. One child tended to dominate the discussions. The participants seemed to enjoy the curriculum. Participants felt they had enough time for warm-up exercises; they also liked the open space of the room. The theme of the second lesson was physical activity. This lesson, which discussed the different types of benefits to physical activity, provided the students with multiple opportunities to practice exercises that they like, and discuss different ways that they engage in physical activity. The participants expressed interest in seeing the program at their schools.

Since Quest for Health program derived from Zest Quest, which is taught in schools in upstate South Carolina and Western North Carolina, the participants might
have recognized some qualities of Zest Quest in the three lessons. They did not suggest the removal of anything from the curriculum, possibly because Quest for Health did not have any worksheets. All the participants agreed that Quest for Health should have snacks, because JIFF did.

The lesson discussing the benefits of physical activity was one of the “most memorable” ones. All participants could talk about their favorite physical activities. The participants were also very engaged when discussing the social, mental, or physical benefits of these activities. One of the participants replied with, “I never thought of it like that” when realizing that he received both a social and a physical benefit from playing basketball.

Participants thought nutrition and physical activity received equal amounts of attention. This might be because there were two survey tools. Like the JIFF responses, participants did believe that Quest for Health was designed to be used with people of all races. The participants also thought that their peers would enjoy the curriculum and found the content to be age-appropriate. One participant did think that some of her peers might be too young to understand the information, but she might have misunderstood the question.

Curricula Comparisons

Both JIFF and Quest for Health produced increases in the participants’ knowledge. This finding is supported by Amaro et al. (2006) and DeVault et al. (2009) affirming that the use of age appropriate methods such as games in nutrition education
programs intended for children can be effective in increasing nutritional knowledge. The fact that neither program had a statistically significant greater increase over the other can be attributed to the different effective components of each program. The JIFF curriculum had many more activities. In general, the participants in the JIFF curriculum were more enthusiastic than those in the Quest for Health curriculum; perhaps because JIFF uses games as a means of physical activity, and Quest for Health focuses on exercise.

Although JIFF and Quest for Health were randomly assigned to the two groups, the students in JIFF might have been more extroverted. Another possible explanation is that the Quest for Health lessons interrupted the participants’ recreational time. This could be corrected in the future by not teaching the two groups in the same day, but instead in two separate weeks. More members of the Quest for Health group complained about the formal appearance and length of the surveys. The Quest for Health survey tool contained two forms, which tallied up to 55 questions. The survey tool used in the JIFF curriculum contained fewer questions (21), and had the images of the curriculum’s mascot. The JIFF survey tool was more appropriate for children because it was shorter and had less of a formal appearance. The matching sections used in the JIFF survey are a common question format for pre-adolescent and younger children. The Quest for Health survey tool was a lot more formal and resembled a standardized test. Participants in this age group would be more willing to pace themselves and put responses that are more accurate on shorter and less formal surveys. These findings were supported by McClelland et al. (2001), which indicated that survey tools that were better adjusted to the target population would produce more accurate responses. The Quest for Health survey tool also included
foods that were more common in younger age groups such as Pizza and French Fries. McClelland et al. (2001) addressed this need to include relevant foods within populations on the survey tool as the Quest for Health Behavior Questionnaire does.

Participants stated that both curricula were culturally neutral and age appropriate. The teaching styles of both curricula were enhanced by the use of games and other activities that allowed the participants to get up and move during the lessons. The distribution of snacks made both curricula appealing. JIFF lessons go beyond the simple distribution of snacks by allowing participants to make simple recipes like yogurt fruit crunch. Each JIFF lesson had a take-home packet that informed parents about the topics that had been discussed during the lessons. These packets also included a sample recipe that parents could make with their children. Quest for Health did not have these materials.

The results of this study were supported by Anliker et al. (1999), which found that peer educators were an effective tool in any nutrition education program. Participants from both groups received instruction from an individual that was from their community and was also African-American. This created a more relaxed atmosphere where participants felt comfortable throughout the study. This also helped to ensure that the lessons were culturally appropriate.

**Limitations**

The first limitation is the small sample size. The study had been designed for more participants, but a lack of interest and failure to return required permission forms
excluded many potential participants. The sample was also from one location, which limited the range of views expressed in the focus group. The validity of the changes between the pre-tests and post-tests would be increased if the samples had been larger. The sample sizes could have also been balanced so that no curriculum had more data than the other.

The experience of the instructor was also another limitation. The instructor had not been trained in either curriculum; so many key points in the lessons might have been overlooked. A trained instructor might have had different results with the same students.

The third limitation is the amount of time that passed between the pre- and post-tests. Four days was not enough time to measure behavior change. Both curricula also had to be taught in the same day in order to ensure timely completion of the project. This affected the results because the sessions were conducted at different times. Quest for Health lessons were taught later in the day, which resulted in participants not wanting to participate, either because they were missing their recreational period or because they left before the lesson was over.

Also the entire curriculum was not taught to the participants. Three lessons did not make up half of either curriculum. The survey tools for both curricula were also different. A common validated survey tool would offer better comparisons between the two populations. The lessons were also shorter than the intended time limits for each lesson. Lessons moved at a fast pace to ensure that all participants were present for the entire lesson before their parents began to pick them up.
The Quest for Health participants were told that snacks were a part of the JIFF curriculum. This information may have influenced their responses during the focus group session. It is possible that without this information, the Quest for Health participants would have not preferred to have snacks in their curriculum. This information should have been withheld to prevent the JIFF curriculum from influencing the opinions about the Quest for Health curriculum.

The young participants were easily distracted during some of the lessons. The director had to sit in on some of the lessons to ensure that participants did not misbehave. During these times, participants were quieter and less engaged. It is also possible that they did not understand some of the questions that they answered on the pre-test and post-test. Peer pressure might have discouraged participants from asking for clarification.

The results of this study show us what young African-American children view as important and appealing in nutrition education programs: games, physical activities, snacks, and open participation. Such programs will continue to be vital in efforts to reduce health disparities.
CHAPTER 5: CONCLUSION

This study involved the delivery of three lessons from the JIFF and Quest for Health Curricula to two groups of young African-Americans. Its main objective was to obtain participant opinions in a post-intervention focus group session in order to examine the acceptability and effectiveness of the two curricula within the population in hopes of designing more effective programs. Such efforts must continue to be made to prevent the widening of health disparities. Nutrition education programs are not the only way to promote healthier lifestyles in minority audiences, but they can be highly effective. JIFF and Quest for Health participants both showed increases across all variables, but neither curriculum held a statistically significant advantage over the other. The focus group responses do indicate that pre-adolescents in minority groups do have preferences about the elements that work best in nutrition education programs designed for them. Culturally appropriate and age-appropriate non-traditional programs that provide physical activity were found to be most effective in keeping younger participants interested in the curriculum. Extras such as healthy snacks and games were good complements to nutrition education programs.

Any study of pre- and post-intervention examination must allow some time to pass before the post-test. Only four days elapsed between pre-test and post-test in this study; this was insufficient. It is also important for similar studies to include the entire curriculum in order to arrive at more accurate conclusions. Fewer than half of the curriculum’s lesson cannot be representative of the entire curriculum.
Effective nutrition education programs are more important than ever. Obesity rates are higher than ever before in all populations, and they are continuing to rise. Nutrition education programs by themselves cannot reduce health disparities, but must be combined with other methods that promote healthier lifestyles. However, nutrition education programs are one of the most effective methods in ensuring that all people, not only minorities, possess the knowledge to live a healthier life.

**Directions for Future Research**

Researchers must continue to seek innovative ways to relay nutrition information to different audiences. Future projects should be conducted in a similar manner, but in addition should compare the results from different cultural backgrounds to look for contrasts in preferences and needs within these populations. Larger populations should also be used. Future projects should also compare the differences in results between male and female populations.

Parents should be included in future projects as well. Parents may be more accurate in answering survey questions that pertain to the dietary intakes and patterns of their children. Parents also could provide helpful insight into what methods would work best with their children.
Appendix 1: JIFF Sound Off Survey
# JIFF Sound Off Survey

**Your Age:**

**Your Grade:**

**Check one:** □ Boy  □ Girl

---

**Office Use Only**

**Date:**

**Site:**

**Leader:**

**County:**

**Check one:** □ Pre-survey version □ Post-survey version

---

Read each question below and mark an “X” in the box of the column that best describes you and your actions.

<table>
<thead>
<tr>
<th>Hardly Ever</th>
<th>Sometimes</th>
<th>Almost Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
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</tbody>
</table>

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138 — Kangaroo Jump 8: Celebrating JIFF — 9

Michigan State University Extension
19. Please circle the choice that you believe is the best answer.
MyPyramid for Kids tells us . . .
A. The cost of different foods.
B. How much to eat of different kinds of foods.
C. How to prepare foods we eat.

20. Draw a line to match the muscle group to the correct position of the body.

<table>
<thead>
<tr>
<th>Muscles</th>
<th>Body Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominals (the dominator muscles)</td>
<td>Back part of upper arm</td>
</tr>
<tr>
<td>Trapezius (the trap muscles)</td>
<td>Shoulders and back</td>
</tr>
<tr>
<td>Deltoids (the airplane muscles)</td>
<td>Stomach</td>
</tr>
<tr>
<td>Biceps (the bicycle muscles)</td>
<td>Chest</td>
</tr>
<tr>
<td>Triceps (the tricycle muscles)</td>
<td>Inner part of upper arm</td>
</tr>
<tr>
<td>Pectorals (the King Kong muscles)</td>
<td>Arms and shoulders</td>
</tr>
</tbody>
</table>

21. Draw a line to match each food group to the correct main nutrient it provides.

<table>
<thead>
<tr>
<th>Food Groups</th>
<th>Main Nutrient(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grain Group</td>
<td>Protein</td>
</tr>
<tr>
<td>Vegetable Group</td>
<td>Calcium</td>
</tr>
<tr>
<td>Fruit Group</td>
<td>Vitamins A and C</td>
</tr>
<tr>
<td>Milk Group</td>
<td>Carbohydrates</td>
</tr>
<tr>
<td>Meat and Beans Group</td>
<td>Vitamins A and C</td>
</tr>
</tbody>
</table>
Appendix 2: Quest for Health Knowledge Test and Demographics Survey
Knowledge Test & Demographics
Pretest

Mark what you think is the best answer for each question. If you do not know the answer, mark "I don't know." This survey will NOT count as a grade. It will only help Zest Quest® plan for the future.

1. Which of the following is considered a sugary drink?
   - [ ] water
   - [ ] sports drink
   - [ ] milk
   - [ ] I don't know

2. Which of the following would be best for you to drink if you are dehydrated?
   - [ ] soda
   - [ ] sweet tea
   - [ ] water
   - [ ] I don't know

3. What is one result of drinking too many sugary drinks?
   - [ ] tooth decay
   - [ ] improved health
   - [ ] strong bones
   - [ ] I don't know

4. What part of the fruit often contains the most fiber?
   - [ ] seeds
   - [ ] skin
   - [ ] stem
   - [ ] I don't know

5. How many servings of fruit do you need to eat each day?
   - [ ] 1 serving
   - [ ] 2 servings
   - [ ] 8 servings
   - [ ] I don't know
6. Which one of the following is considered a serving of fruit?
☐ 6 pieces of strawberry candy
☐ 1 banana
☐ 6 ounces of orange-flavored drink
☐ I don't know

7. Which of the following is a healthy breakfast choice?
☐ no breakfast at all
☐ toaster pastry and soda
☐ whole grain cereal and orange juice
☐ I don't know

8. How many minutes of TV and/or video games should you watch or play each day?
☐ no more than 60 minutes
☐ 120 minutes
☐ 180 minutes
☐ I don't know

9. How many minutes of physical activity should you get each day?
☐ 10 minutes
☐ 45 minutes
☐ 60 minutes or more
☐ I don't know

10. Which of the following is a result of exercise?
☐ you have more energy and sleep better
☐ you have more difficulty concentrating in class
☐ your muscles become weaker
☐ I don't know

11. What happens to your heart when you exercise?
☐ it beats faster
☐ it beats the same speed
☐ it beats slower
☐ I don't know

12. How many hours of sleep do you need each night?
☐ 5 hours
☐ 7 hours
☐ 9 hours or more
☐ I don't know
13. Which of the following is the best sleep environment?
- the TV is on
- the lights are on
- the room is dark and cool
- I don't know

14. Getting the required amount of sleep each night helps your body fight sickness.
- true
- false
- I don't know

15. You can get protein from both plant and animal sources.
- true
- false
- I don't know

16. Food commercials are designed to jump-start your appetite and make you crave their products.
- true
- false
- I don't know

17. In order to be physically fit, you must play sports.
- true
- false
- I don't know

18. Healthy breakfast cereals are high in fiber.
- true
- false
- I don't know

19. Today Bobby ate 1 serving of carrots for lunch, and 2 servings of green beans at dinner. Bobby ate the minimum number of suggested servings of vegetables today.
- true
- false
- I don't know

20. It is important to eat a variety of fruits and vegetables from all of the color groups.
- true
- false
- I don't know
21. Fried vegetables are just as healthy as baked, steamed or raw vegetables.
- true
- false
- I don't know

Use the food label located at the bottom of this page to answer the following questions:

23. What is the serving size for this food?
- 1/2 cup
- 1 cup
- 9 ozs.
- I don't know

24. How many grams of fat are in one serving of this food?
- 0 grams
- 2 grams
- 15 grams
- I don't know

25. How many calories are in one serving of this food?
- 9 calories
- 45 calories
- 110 calories
- I don't know

**Nutrition Facts**

**Serving Size 1 cup**

**Servings Per Container 9**

**Amount Per Serving**

<table>
<thead>
<tr>
<th></th>
<th>Calories</th>
<th>Calories from Fat 15%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>110</td>
<td>% Daily Value*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Amount Per Serving</th>
<th>% Daily Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fat</td>
<td>2g</td>
<td>3%</td>
</tr>
<tr>
<td>Saturated Fat</td>
<td>1g</td>
<td>0%</td>
</tr>
<tr>
<td>Polyunsaturated Fat</td>
<td>0 g</td>
<td>0%</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>0 mg</td>
<td>0%</td>
</tr>
<tr>
<td>Potassium</td>
<td>95 mg</td>
<td>3%</td>
</tr>
<tr>
<td>Sodium</td>
<td>280 mg</td>
<td>12%</td>
</tr>
<tr>
<td>Total Carbohydrate</td>
<td>12g</td>
<td>7%</td>
</tr>
<tr>
<td>Dietary Fiber</td>
<td>3g</td>
<td>11%</td>
</tr>
<tr>
<td>Sodine Fiber</td>
<td>1g</td>
<td>1%</td>
</tr>
<tr>
<td>Insulable Fiber</td>
<td>2g</td>
<td>3%</td>
</tr>
<tr>
<td>Sugars</td>
<td>1g</td>
<td>0%</td>
</tr>
<tr>
<td>Protein</td>
<td>2g</td>
<td>4%</td>
</tr>
</tbody>
</table>

* Percent Daily Values are based on a 2,000 calorie diet. Your values may be higher or lower depending on your calorie needs.

**Calories:**
- 2,000
- 2,500

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Less than</th>
<th>Carbhohydrate</th>
<th>Protein</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fat</td>
<td>65g</td>
<td>80g</td>
<td></td>
</tr>
<tr>
<td>Saturated Fat</td>
<td>20g</td>
<td>25g</td>
<td></td>
</tr>
<tr>
<td>Polyunsaturated Fat</td>
<td>200 mg</td>
<td>300mg</td>
<td></td>
</tr>
<tr>
<td>Cholesterol</td>
<td>300mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium</td>
<td>2,400mg</td>
<td>2,450mg</td>
<td></td>
</tr>
<tr>
<td>Total Carbohydrate</td>
<td>300g</td>
<td>305g</td>
<td></td>
</tr>
<tr>
<td>Dietary Fiber</td>
<td>25g</td>
<td>30g</td>
<td></td>
</tr>
</tbody>
</table>

Calories per gram
- Fat 9
- Carbohydrate 4
- Protein 4
Appendix 3: Quest for Health Behavior Questionnaire
Directions:
Read each statement below and fill in the box beside each statement that best describes you. There are no right or wrong answers to these statements. We want to know what you think.

1. I read and understand nutrition information on food labels.
   □ Never  □ Hardly Ever  □ Sometimes  □ Most of the time  □ Always

2. I eat breakfast every day.
   □ Never  □ Hardly Ever  □ Sometimes  □ Most of the time  □ Always

3. I choose healthy snacks when I have the choice.
   □ Never  □ Hardly Ever  □ Sometimes  □ Most of the time  □ Always

4. I eat vegetables every day.
   □ Never  □ Hardly Ever  □ Sometimes  □ Most of the time  □ Always

5. I eat fruits every day (or drink 100% fruit juice).
   □ Never  □ Hardly Ever  □ Sometimes  □ Most of the time  □ Always

6. I like to try new foods.
   □ Never  □ Hardly Ever  □ Sometimes  □ Most of the time  □ Always

7. When I choose what I eat, I think about which foods are good for me.
   □ Never  □ Hardly Ever  □ Sometimes  □ Most of the time  □ Always

8. I eat food from all the food groups every day.
   □ Never  □ Hardly Ever  □ Sometimes  □ Most of the time  □ Always

9. I eat sweets (cookies, candy, cake, etc.) every day.
   □ Never  □ Hardly Ever  □ Sometimes  □ Most of the time  □ Always

10. I eat salty snacks (potato chips, corn chips, cheese curls or cheese puffs) every day.
    □ Never  □ Hardly Ever  □ Sometimes  □ Most of the time  □ Always

11. I drink regular soda or sweet tea every day.
    □ Never  □ Hardly Ever  □ Sometimes  □ Most of the time  □ Always

12. I do moderate physical activities like walking to school, helping around the house, raking leaves, using the stairs or walking the dog.
    □ Never  □ Hardly Ever  □ Sometimes  □ Most of the time  □ Always

13. I do stretching exercises.
    □ Never  □ Hardly Ever  □ Sometimes  □ Most of the time  □ Always
14. I work on getting fit by doing exercises like rope climbing, tumbling, gymnastics, karate, push-ups, curl-ups, or playing on the monkey bars.
☐ Never ☐ Hardly Ever ☐ Sometimes ☐ Most of the time ☐ Always

15. I am physically active until I sweat.
☐ Never ☐ Hardly Ever ☐ Sometimes ☐ Most of the time ☐ Always

16. I do physical activities with my family or friends.
☐ Never ☐ Hardly Ever ☐ Sometimes ☐ Most of the time ☐ Always

17. I am on a sports team or take activity classes like dance, yoga, judo or karate.
☐ Never ☐ Hardly Ever ☐ Sometimes ☐ Most of the time ☐ Always

18. When I watch TV, I exercise or dance during the commercials.
☐ Never ☐ Hardly Ever ☐ Sometimes ☐ Most of the time ☐ Always

19. I enjoy being physically active.
☐ Never ☐ Hardly Ever ☐ Sometimes ☐ Most of the time ☐ Always

For the following three questions you may choose more than one answer.

20. When you are choosing toppings for your pizza, which toppings do you usually choose?
☐ bacon ☐ hamburger or sausage ☐ pepperoni ☐ chicken ☐ vegetables ☐ canadian bacon ☐ cheese

21. What do you usually drink with your dinner?
☐ regular soda with caffeine (such as: Coke, Pepsi, Mountain Dew or Dr. Pepper)
☐ regular clear or light-colored soda (such as: Sprite, 7-Up or Sierra Mist)
☐ diet soft drink (any kind)
☐ milk, water or juice
☐ Sweet Tea

22. When you are eating out, which of the following side items do you most often get?
☐ French fries
☐ baked potato
☐ vegetable other than baked potato (such as: salad, green beans or coleslaw)
☐ fruit
Read each question. Fill in the circle of the answer that describes YOU.

1. What is your birthdate?
<table>
<thead>
<tr>
<th>Month</th>
<th>Day</th>
<th>Year</th>
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<tbody>
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2. How old are you?
   | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   |
   |      |      |      |      |      |      |      |      |

3. Choose your grade level.
   | 1    | 2    | 3    | 4    | 5    |
   |      |      |      |      |      |

4. What is your gender?
   - female
   - male

5. Which of the following best describes you? (select only ONE)
   - Black or African American
   - White
   - Hispanic or Latino
   - Other

6. Do you think of yourself as:
   - active
   - somewhat active
   - not at all active

7. Are you enrolled in a sports program?
   - yes
   - no

8. Did you attend a Zest Quest School last year?
   - yes
   - no
Appendix 4: Focus Group Questions and Responses
Focus Group Questions and Responses

JIFF GROUP

General Curriculum Opinions

How do you feel about the curriculum that you took part in?

• It was really good because I usually like the lessons that we do and stuff.

• The reason I like it is because I like to learn how to be… stay healthy and then ill be able to know what I can eat

• Really cool because you get to get treats and it’s fun.

• It was very cool because I like the treats.

• (Group Laughing at how loud participant stated his opinion)

• I liked it a little bit, but it been kind of childish.

• I think it was fun because we got to do games.

• I thought it was fun because we got to have snacks and play games.

• I thought it was exciting because we got to play games and we got to do all these (inaudible word).
Did you all feel like you had enough opportunity during the lesson to move around?

All respond with “Yes”

Do you think that the jiff curriculum was….a traditional curriculum? Traditional meaning that you just sit down and listen to me talk all the time. Was it like being in School?

- Yeah, cause we have recess.

- I think yes it’s like school because every time we go to school we learn something every single day.

- It was more fun because we played games, and you taught us more than what the teachers at school (inaudible words).

- And we play games, and at school we don’t play games

- Because we don’t play games in school cause then when we learn about what we learn about stuff we don’t play games.

- No, because you let us do worksheets after you got done talking to make sure that we understood and we were paying attention. And if we did good and tried our best you would give us a treat.

- You just stood up there

- You gave us worksheets.
• No, it wasn’t like school because you didn’t just talk you…You let us play games and do activities and gave us snacks.

Acquired Knowledge

What did you learn the most about from the Jiff Curriculum?

• I learned what foods are healthy and what foods are not healthy.

• I learned that you should eat more fruits, wash your hands more and do more exercises so you can be healthy and just have fun with it.

• I learned that you need to eat more vegetables and…more vegetables every day.
• Food Labels because it helps you not get fat because all the calories you eat you will gain weight.

• Food labels because it was easy and fun and it tells you how much fat and calories and stuff.
• Food labels.

• Food Labels

Did you get more information about physical activity or did you get more information about food?

• I learned more…I think you talk more about food than activities (physical activity).

• I think we learned more about food than physical activity.
• I think we learned more about food and not just like playing and exercising.

• I think we learned more about food because we didn’t do that many….we did more food activities than physical activities.

• I think we learned more about food because you need to know how many from each section you need to eat a day.

• I think we learned more about food than physical activity because we only did like one lesson on physical activity and we did more on the food pyramid.

• I think we learn more about food than physical activity.

Which topic do you think you can use the most, nutrition or physical activity?

• Food because I think we learned way more about food than physical activity.

• Food because we got to learn more about the protein and sugars that’s in it (food).

• I think the most useful one is physical activity because we get to do more exercises and stuff.

• I think the most useful one is food because the food….it can help you know what you supposed to eat and what you not supposed to eat.

• I think physical activity because you can jog around the house and it can your stomach get stronger.

• I think physical activity is more useful for me because if you… if I start eating more but I ain’t fat then physical activity will keep me in shape.
• I think physical activity because I need it so I can gain muscles and also so I can be helpful to other people that need help.

• I think we talk more about physical activity because that was the least you talked about. (Inaudible words from participant)

Which part of the Jiff curriculum was most memorable, food/nutrition or physical activity?

• The information about food. The reason I think that is because you need more food than what you need to exercise.

• I think both because physical activity is important and eating healthy is important because if you like...it teaches you the...physical exercise and thing it...it...it teaches you how long you should do it and how much...yeah how often.

• Oh, I think both because both food...you might remember most of the food but not all of the food. Not all of everything of the food. You might remember to look at the calories and how much you should eat and how much sugar you should use in a serving point or something. But then physical activity you remember that because you know how much you should exercise and how far you should exercise.

• I think both because... you was a great teacher teaching us...and because the exercise you can...exercise often and not very often and remember to exercise and for food you remember to... try new food and look on the back of the food label.

• I think physical activity because you don’t have to like read to find out about physical activity you can just like go outside and do it.

• I think... food because... when you want to read the...the labels...I mean when you want to look at the labels you have to read it and then it can help you with your reading to.
Which part of JIFF do you think your friends would interest your friends the most? Why?

- Physical activity because… most of my friends are active.

- Physical activity because most of my friends they love playing sports and… playing and stuff they just (inaudible word).

- I think my friends are most interested in physical activity… physical activity because… we… I know some of my friends from playing sports.

- Physical activity because… because most of my friends are athletes.

- Physical activity because… like my cousins we… and her we used… play soccer together and I think we would… we would… my cousins and all we all play soccer together and then I think they would like it to because they learn physical activity and how long you should do it.

Acceptability

18.) Cultural Appropriateness (Do you think the JIFF curriculum was designed to be used with all races of people?)

- I think it’s good for all races.

Age Appropriateness (Will other students your age like the program? Do you feel as though the curriculum was too childish?)

- They (people ages 7-11) would like it because they probably would understand it and most other people wouldn’t understand it because some people don’t like listening and some people just don’t care.

- Sometimes you were treating us childish.
• I think it was just right because I don’t think it was like childish because…I...I thought it would be okay for me to do it.
• It wasn’t really hard it was easy if you were paying attention and listening.
• I think it was great because…because that you didn’t treat us that bad.

Was it more fun learning about food or physical activity?

• I think it was more fun learning about food because we got to eat treats and all that.

• I think it was more fun learning about food.

• I think…It was more fun learning about food because I do a lot of physical activity and I need to start eating healthy.

• Food

• I like physical activity more because we get to tell you…we got to tell you what kind of sports we did and how much energy we got.

• Food was more fun.

• Physical activity because we learned about it, and it was fun learning about it. And, I liked the lesson.

• Physical Activity because we get to do stuff like play games, run around the classroom and the other person does the exercises.

Which topic do you think was the most fun or the least boring? Would you prefer physical activity or nutrition information?
I’d rather have physical activity … because… it was less boring and if we had did more activities on it we’ll probably have more fun.

I would choose physical activity because I think like food was the most boring because we had more food information than physical activity.

I agree, but I think physical activity because…because I can exercise and I already get enough to eat.

I think the same thing because…because food is boring…boring… and you can do a lot…you can read a lot more.

I think they both are… fun and active because food you can…food you can eat and when you exercise you can lose some of the fatness off of you.

What concepts stood out to you the most?

The fact I learned was…. eating more could…. help you cause if you get like old and don’t have a…like some weight on you…you could get sick and exercising…it can help you out too…. because if you exercise it helps your body stay in shape like when you get old like you won’t be cramping (inaudible word) your back

I think… foods because eating…like eating healthy you know…now I know that eating healthy can be good, but if you eat healthy old foods is…healthy old foods can also be unhealthy….like milk if it’s left on the table and it gets old. And to look for…to look for like fiber and how much calories it has.

I think like the part whenever you got to read food labels I think that’s important because you never know it might….like say the calories are like 300 and something you should look at the food labels because you never know your calories might be high enough so you might want to look at the food labels before you try something.
• I think food because you need….cause you need food….you need more food to…. stay healthy and also physical activity because you need that to stay in shape and then you won’t…you won’t have to worry about being….you won’t have to worry about being fat or skinny.

• Food Labels because it helps you know what you’re eating and how much calories you’re eating.

• I like food labels because then if you don’t know how many calories the food has you can just look on the back of it.

• I like food labels because you can look on the back and see how many calories you’re eating.

• I like My Pyramid because I get to learn more

Was there anything hard about the pretest and posttest? Was there anything that you did not like?

• They ask us too much personal information like do we wash our hand before we eat.

• I think…. the… pretest and the post test….like it was kinda hard because the body parts and all that.

• The pretest….the hardest part about the pretest and the post test to me was when it….when it got to the grains. Sometimes I get mixed up with them.

• I think….I think it was kinda easy but whenever you get to the back and bottom part it was kinda getting like….they ask you like too many questions like maybe somebody don’t know them and if the teacher don’t want to help you how would you like learn this. Like the one with matching the grains vegetables and milk group and stuff.
• I think they were both easy because… if I knew what was on one of them … I knew what was on the other one and one part was hard which was the back which was the muscles.

Would you recommend the JIFF curriculum to your friends if they wanted to know more about nutrition and physical activity information?

• I would recommend it to some of them. Because like some of them probably eat a lot and don’t want to to hear about physical activity and some of them might…get enough exercise and don’t like to eat that much.

• I would recommend all the people that I can as possible but I would say once you get in … you should ask them…tell them can they get more info about physical activity than food.

• I think I would tell like… I would tell people that I actually know that come here but some people they might not want to learn this because they might think it’s boring and stuff but it’s really kind of fun.

• I would….I would ask all of them because sometimes it’s fun and sometimes it’s not.

• I would go to all my friends and tell them because…because some of my friends might actually just stay there and listen and some of them might not because…some might not because they might think it’s boring but I…but I think it’s great.

• I would ask all my friends because…all my friends that I know they…they love to eat and they love to exercise whether they play basketball or they eat… food.

Would you rather participate in a JIFF lesson, or be in a Math class?
(Overwhelming Jiff Curriculum Response)

- I would rather….be learning about foods more than school though.

- I’d rather be in jiff curriculum because…because it can…it can help me learn how I should eat and how often I should eat and math…if I’m in math class… I can…I can maybe get my education and get an “A” in math, but the jiff curriculum was more important than math.

- Math doesn’t teach you what you should eat or how often you should eat something but jiff curricular does so I think jiff.

- Jiff because school does help you with…the food pyramid and how of ten you should eat something, but it doesn’t work. It doesn’t do it over and over and over.

- I’ll say jiff curriculum cause at school you have the same routines everyday. We learn about different stuff.

Preferred Curriculum Modifications

What do you think is missing from the three lessons that we talked about? What do you think would make the lessons better?

- Eating fruits or vegetables.
- I think it would be better if you just…like if you bring healthy stuff like apples applesauce and grapes and stuff.

- I think I would add… how much sleep you should get every day
• I think you should…like let us do more exercises and that game we played.

What do you guys think should be taken away from the curriculum? What is something that you guys experienced during the lesson that you think is making it (JIFF Lesson) not fun or beneficial to children your age?

• ….Less work.

• The part when we eat. We need like…the part when we eat stuff…like I think that should be taken away because we need to learn more about what we should eat instead of eat it.

• Handouts… yeah that’s mostly it.

• I think nothing should be changed because everything in the jiff curriculum is…is important because we don’t want to be unhealthy when we eat different kinds of foods.

• When we learn, we don’t need…well when we learn we don’t need to eat right after. We need to eat…. before we learn it.

What should be taken out?

• Food labels
• No, I think you should just leave it the way it is

What should be added, or done differently?

• Add….learning…learning how to cook food.
• Learning how to…learning how to…stay healthy
• Taking us shopping to learn how to buy the right foods.
• Well….first I would break it down so they could understand because some people don’t understand big words like that…big words like…they just don’t know big words that people use.
• I would give them pictures to tell them what I’m talking about. Of your like… the pyramid, food and calories and stuff
• Ways to have fun when you exercise. I would do jumping jacks, jump rope and hula hooping.

If you were the teacher or making up the curriculum for children your age, what would you do differently?

• I would… like take kids out for exercises and sports and like… doing sports they like so they can do what they want and get them exercise like get them in a circle.

• I would like to make it more fun like… name stuff that they like to… help get… play a game… like something for exercise.

• I would like help them realize that they know more than what they think they know. And help them know that they know what healthy foods are and what unhealthy foods are. Like… like I would have a group of miniature fruits and then I would… have like bad… I would have fruits and I’ll have like junk food and then give… a pair to each person and let them sort it out.

• I would like… I would take them out and see if they know… see like if they know how to… if they know like the aerobic fitness and like other stuff like that. If they know it I would like just give them a day off and just… just actually let them… just exercise something like that.

• I would… I would have a group of kids and… I would take them… somewhere where we… where they can exercise or play any sports that are movement sports or are… And if they do what I want them to do then they’ll have a healthy snack for the day.
I would have kids…I would have some kids in a room and then when we learn whatever we learn that day I’ll let them eat while we learn but they still have to participate.

If you could participate in a curriculum where you did not get snacks, but you did physical activities at the beginning and end of the lesson. Would you prefer that or JIFF?

Yeah…I would probably prefer that one more than Jiff because…like… even if you are skinny running isn’t going to make you lose weight it will just make your legs more powerful and like you can run harder and faster. Yeah, it won’t hurt you or nothing.

I think…I think I would rather prefer the jiff curriculum because you like…getting those snacks and sitting there learning what…like they maybe not understanding what you saying because like say somebody read the food label before. We need to learn how to do that because some people don’t do that all the time.

I would choose the jiff curriculum because…the jiff curriculum you can have fruits and snacks that are healthy and we also exercise but we don’t exercise that much. But…You teach us. You teach us how to exercise at home so instead of doing it here we can also do it at home.

I think that…I think the jiff curriculum because we should have snacks and then we…when we have our snack and then we should do a physical activity of the day.

I think the physical activity because like exercising is like playing for us and some exercises are fun.
Do you think it is more helpful for you all to have someone in your school teaching physical activity and nutrition information, or should it be an afterschool/summer camp thing?

• I think…I would rather get my P.E. teacher (gives name) to come do it cause we know like what she’ll talk about, but we don’t know the exercise she’ll make us do. And in P.E. you don’t really need fruit because you’ll be so used to running.

• If you come to our classroom because we would have to stop math, and then we would have to learn about that (JIFF) stuff

• I would rather have somebody that’s in school doing it like daily…so like we can have…usually with the different thing we…get…we get to learn about food and exercise and what/how we should do it.

• I would rather have someone come because I would not feel like sitting there all day thinking about school in your head.

• I don’t want nobody to come teaching me because I think it’s better to come to the boys and girls club do your homework and then they teach you it (Jiff Material).

• I think that somebody should come and teach you it because if you want to do something that’s physical activity the day that…the day that the person doesn’t come you can do physical activity. And then the day that they do come you can eat snacks, and then after that you can do physical activity. I want somebody that comes and teaches us at the afterschool program.

• I would think someone afterschool because if we do it at school and they give us snacks like you do. And then…they’ll…then I’ll have to exercise and when I get here and I go…I go get something else to eat and I’ll have to exercise again.

• I think you should come to our school because…some people when you tell them…they might not believe you. When you tell me…about this stuff and I try to tell somebody else….they might not believe me.
• I want you to come to my school because I want my classmates to learn what we learn here.

• School because most people go to school instead of afterschool care.

• Because More people are at school and there’s kind of a lil’ (little bit of) people here so kind of the same thing he was saying.

Did the snacks enhance the lessons?

• Yes, I think the snacks made the lesson better because you brought in healthy snacks…and we were kind of like learning about the food pyramid.

• I think the best thing about it was doing the games and exercises like running around and doing crunches.

• I think its…I think it’s unfair because you bribing us because if you didn’t have snacks we would have got them wrong and you did have snacks so we got them right. Because…because people sometimes…they sometimes learn better without snacks and sometimes they learn better with snacks.
QUEST FOR HEALTH GROUP

General Curriculum Opinions

How do you feel about the Quest for Health Curriculum that you participated in? Was it more fun compared to school? Was it the same style?

• It was basically...too me it was close to the same thing because I have nice teachers and we play games and what we do is when we...when we get a question right. They’ll study us for a test and then we’ll get the question right and they’ll give us a treat. And then we’ll do girls versus boys and stuff like that.

• ...I think it was fun because...we...we... we got to play the games and we had to answer questions and if you hadn’t taught us how to read the...stuff...food labels we would not have known nothing about that.

Did you enjoy talking about physical activity or nutrition the most?

• I like the nutrition because...the nutritious because...I like...I like both of them really. But I like...I like nutritious one the most because... if we wanted to know about how many calories we had, some people...like a lot of people would have been obese.

• I like physical activity because it helped me get fit.
Did you all have enough opportunity to move around?

- All respond “Yes”

**Preferred Curriculum Modifications**

How would you like to see the Quest for Health Curriculum in your school? Do you think they would work best in an afterschool setting or if I came to your class?

- I think you should do it in classrooms because there is a lot of overweighted people and they don’t know why. But if they…if they look at…if they look at…the… the nutritious table or the nutrition label…if they look at it and see how many calories it is. IF they get like a food graph…one of the food pyramids. Then maybe that can help them.

- Because Most people at school don’t know about it. (JIFF) But like most people here probably do.

What should be taken out of this curriculum in order to make it better?

- No, I think you should just leave it the way it is.

What do you all think I should add to the curriculum that might make it better?

- You can take us shopping for clothes and shoes and stuff like that.

If you were the teacher, what would you do differently in order to make the curriculum fun or more fun for participants?
• I would give them some cereal that doesn’t have a lot of fat in it, a lot of sugar and a lot of calories.

The Jiff Group got a snack everyday. Typically in Quest for Health lessons you do not receive snacks. How do you feel about that?

• Well it’s not really about treats it’s about you learning.

• I don’t think it’s fair because they get some for the Jiff.

• He’s probably saying that because when people are not getting treats for doing something good then they just gonna give up because they not being rewarded for what they did when that was something good and they paid attention to the lesson and then they would feel mistreated when they didn’t get a treat or something because all the hard work that they did.

**Acquired Knowledge**

What concept stood out to you the most? What specific/lesson or topic stood out to you the most?

• Because…I thought…I like benefits…I like benefits to physical activity because it can keep you fit and active.

• I like My Pyramid because you can learn what you should eat and what you shouldn’t (eat).

What topic do you all think was most memorable?
• Benefits to activity because it will help you stay fit and active.

• Food Labels because we might be on a diet and we don’t wanna mess it up cause some people like to go to the pool and they don’t want to look fat in their swimsuits.

Did you get more information about physical activity or nutrition?

• I think it was equal.
• Nutrition

Acceptability

Do you think the curriculum you participated in was traditional?

• No

Do you all feel that Quest for Health was designed to be used with all races of people?

• Yeah

• Well…to me it was none of the choices, but I really think it was both races.

Do you guys think other people your age will like the Quest for Health lessons?

• Yes (All)

• Some people might be too young to understand it.

Do you guys feel like I treated you to childish during the lessons? Did you feel like the lessons simplified the material too much?
• No because you gave some easy questions and then...then at the end they would get harder and harder.

Was there any topic that was too difficult?

• No, not really because all of them...all of them...they were really in our grade levels.

• They were not really easy and they were not really hard.
Appendix 5: Clemson University IRB Approved Consent Forms
Information Concerning Participation in a Research Study

Clemson University

Comparing the effectiveness and acceptability of two nutrition interventions: Jump Into Foods and Fitness (JIFF) and Quest for Health

Description of the Research and Your Participation

Your child has been invited to participate in a research study conducted by Dr. Katherine Cason along with Jermaine Shaw (M.S. Candidate). The purpose of this research is to obtain your child’s opinion on two different nutrition/physical activity intervention programs. Obesity is a very prevalent disease in our children, and we are interested in seeing what children would like to see in programs directed towards teaching them how to eat right and get enough physical activity.

Your child’s participation will involve completing three lessons from one of two (Jump Into Foods and Fitness (JIFF) or Quest for Health) nutrition curriculums. These lessons will be fun and very engaging. Your child will participate in the study by taking a pre-test and post-test that will tell us how much information they have learned after the three lessons. Your child will have the opportunity to make simple recipes and participate in fun physical activity events such as jump rope and hula hooping. On the last day, your child will participate in a brief audio-recorded focus group session. During this time, your child will be able to voice their opinions on the curriculum that they took part in. Your child will be able to tell us what He or She likes and dislikes about the lessons.

The amount of time required for your child’s participation will be 10 hours maximum. We will come in about an hour per day for one week.
Typical Week: First Day will include introductions and explanation of research. We will explain all consent/assent forms and ask for questions. Your child will be given permission forms to take home to their parents.

Second Day: After all signatures are obtained, pre-test and demographic surveys will be given out. We will begin lesson one after completing these brief surveys. Lessons Two and Three will follow on the next two days.

Last Day: Audio-Recorded Focus Group and Conclusion

Risks and Discomforts

The only risk associated with this study is injury during physical activity games. Physical Activity is an important part of being healthy, and we will encourage the students to be physically active. We assure you that the children will be monitored at all times, and strict order will be kept to minimize the chance of injury. The staff of the Boys and Girls Club will also be in attendance to make sure that students are behaving properly at all times.

Potential Benefits

Your child may benefit from this study by learning simple recipes for healthy snacks, and learning how to get adequate physical activity. Your child will also learn how to choose foods that contribute to a healthy diet. This research may help us to understand what children want to see in nutrition interventions.

Incentives

For your child’s participation, they will receive snacks throughout the week. They will be able to eat the simple recipes that will be made or small bags of pretzels.
Protection of Confidentiality

We will do everything we can to protect your child’s privacy. Children will be assigned numbers so that they will not have to write down their names on the pre-test and post-test. This will allow us to match up both tests so that we can see how much the children have learned since the beginning of the two interventions. These tests will be kept locked in a secure file cabinet in a locked office. Also, the recording device will be kept in the same locked file cabinet and office. There will be a master list of names and corresponding numbers kept in a separate locked drawer to increase protection. The responses will only be used to highlight specific opinions the students may have about the two curriculums. All data collected will be destroyed immediately after successful completion of research. We are only interested in the effectiveness of the curriculums and opinions of the children. Your child’s name will not be revealed in any publication that might result from this study.

In rare cases, a research study will be evaluated by an oversight agency, such as the Clemson University Institutional Review Board or the federal Office for Human Research Protections, that would require that we share the information we collect from you child. If this happens, the information would only be used to determine if we conducted this study properly and adequately protected your child’s rights as a participant.

Voluntary Participation

Your child’s participation in this research study is voluntary. You may choose for your child to not participate, and you may withdraw your consent at any time. Your child will not be penalized in any way should they decide not to participate or to withdraw from this study.
Contact Information

If you have any questions or concerns about this study or if any problems arise, please contact Dr. Katherine Cason at Clemson University at 864-723-4520. If you have any questions or concerns about your child’s rights as a research participant, please contact the Clemson University Office of Research Compliance (ORC) at 864-656-6460 or irb@clemson.edu. If you are outside of the Upstate South Carolina area, please use the ORC’s toll-free number, 866-297-3071.

Consent

I have read this consent form and have been given the opportunity to ask questions. I give my consent for my child to participate in this study.

Parent’s signature: ____________________________ Date: __________

A copy of this consent form will be given to you
Parental Permission Form for Participation of a Child in a Research Study

Clemson University

Comparing two non-traditional nutrition and physical activity interventions: Jiff and Zest Quest

Description of the Research and Your Child’s Participation

Your child has been invited to participate in a research study conducted by Dr. Katherine Cason along with Jermaine Shaw (M.S. Candidate). The purpose of this research is to obtain your child’s opinion on two different nutrition/physical activity intervention programs. Obesity is a very prevalent disease in our children, and we are interested in seeing what children would like to see in programs directed towards teaching them how to eat right and get enough physical activity.

Your child will participate in three lessons from the Jiff Curriculum and three lessons from the Zest Quest Curriculum. Both of these curriculums involve non-traditional teaching methods so that children will have more fun and be more likely to participate. There will be some simple recipes made, and fun physical activity events such as jumping rope, hula hooping, and basketball. After completing the three lessons from each intervention, the students will sit down and discuss their likes and dislikes about each curriculum. They will be asked questions that will prompt them to tell us what they want to see in future similar lessons. This information will be audio recorded. There will be no names mentioned during the audio recording of this session. We are only interested in their anonymous opinions.

The amount of time required for your child’s participation will be 10 hours at the most. We will come in on four days per week for two weeks.

Week One: The first day will be to give introductions and the pre-test. One lesson from the first curriculum will be given on three separate days.
Week Two: The first three days will consist of one lesson per day from the Zest Quest Curriculum. On the fourth day, we will give out post-tests and the children will discuss their likes and dislikes of the programs.

Risks and Discomforts

The only risk associated with this study is injury during physical activity games. Physical Activity is an important part of being health, and we will encourage the students to be physically active. We assure you that children will be monitored at all times, and strict order will be kept to minimize the chance of injury. The staff of the Boys and Girls Club will also be in attendance to make sure that students are behaving properly at all times.

Potential Benefits

Your child will benefit from this study by learning simple recipes for healthy snacks, and learning how to get adequate physical activity. Your child will also learn how to choose foods that contribute to a healthy diet. This research may help us to understand what children want to see in nutrition interventions.

Protection of Confidentiality

We will do everything we can to protect your child’s privacy. Children will be assigned numbers so that they will not have to write down their names on the pre-test and post-test. This will allow us to match up both tests so that we can see how much the children have learned since the beginning of the two interventions. These tests will be kept locked in a secure file cabinet in a locked office. Also, the recording device will be kept in the same locked file cabinet and office. There will be a master list of names and corresponding numbers kept in a separate locked drawer to increase protection. The responses will only be used to highlight specific opinions the students may have about the two curriculums. All data collected will be destroyed immediately after successful defense of thesis. We are only interested in the effectiveness of the curriculums
and opinions of the children. Your child’s identity will not be revealed in any publication that might result from this study.

In rare cases, a research study will be evaluated by an oversight agency, such as the Clemson University Institutional Review Board or the federal Office for Human Research Protections, that would require that we share the information we collect from your child. If this happens, the information would only be used to determine if we conducted this study properly and adequately protected your child’s rights as a participant.

Voluntary Participation

Participation in this research study is voluntary. You may refuse to allow your child to participate or withdraw your child from the study at any time. Your child will not be penalized in any way should you decide to withdraw your child from this study or not to allow your child to participate.

Contact Information

If you have any questions or concerns about this study or if any problems arise, please contact Dr. Katherine Cason at Clemson University at 864-723-4520. If you have any questions or concerns about your child’s rights as a research participant, please contact the Clemson University Office of Research Compliance (ORC) at 864-656-6460 or irb@clemson.edu. If you are outside of the Upstate South Carolina area, please use the ORC’s toll-free number, 866-297-3071.

Consent

I have read this parental permission form and have been given the opportunity to ask questions. I give my permission for my child to participate in this study.

Parent’s signature: _______________________________    Date: ______________

Child’s Name: _______________________________

A copy of this parental permission form will be given to you.
References


