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EFFECTS OF THE SANTA FE FARMERS' MARKET CHILDREN'S NUTRITION PROGRAM ON STUDENTS' WILLINGNESS TO TRY FRUITS AND VEGETABLES

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**EFFECTS OF THE SANTA FE FARMERS' MARKET CHILDREN'S
NUTRITION PROGRAM ON STUDENTS' WILLINGNESS TO TRY
FRUITS AND VEGETABLES**

by

LAURA MCCANN, RD, LD

**BA SPANISH EDUCATION
BS NUTRITION**

THESIS

Submitted in Partial Fulfillment of the
Requirements for the Degree of

**Master of Science
Nutrition**

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ABSTRACT

The purpose of this research was to investigate change in elementary students' willingness to try fruits and vegetables after participating in the Santa Fe Farmers' Market Children's Nutrition Program (intervention) on a class field trip.

The WillTry survey was administered to 139 kindergarten, 2nd, 3rd and 4th grade students five days before and two days after they participated in the intervention. Data were also collected in Student Notebooks that participants completed during the intervention. The change in their willingness to try eight fruits and vegetables (fresh apple, dried apple, cantaloupe, canary melon, sunflower sprouts and radish sprouts) between the WillTry pre- and post-test was evaluated using the Wilcoxon Sign Rank test. Responses regarding willingness to try these eight foods were also compared between the Student Notebook and the WillTry post-test to evaluate any change between responses recorded

immediately upon tasting each food and those recorded two days later. In assessing changes between the WillTry pre-and post-test, we observed an overall decrease in willingness to try the eight foods offered. There was a small but statistically insignificant increase in WTT fruits (with the exception of dried apple, which increased significantly), and a significant decrease in WTT vegetables. In comparing the post-test and notebook data we found that in the two days between the intervention and post-test, many students changed their responses. This indicates flexibility in WTT over time, an encouraging finding that offers promise if a child is unwilling to try a food initially. Findings from this study would benefit by further research investigating the effects of a greater number of exposures to each food and varying presentation of the foods in such an intervention.

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Introduction

According to the National Health and Nutrition Examination Survey (NHANES), 31.9% of children and adolescents are at or above the 85th percentile for body mass index (BMI) for age, and 16.3% are at or above the 95th percentile, indicating they are overweight or obese, respectively (2). The prevalence of childhood obesity has nearly tripled (from 7% to almost 20%) since 1980 (1). In New Mexico, close to 33% of children ages 10-17 years old, and 25.9% of children 2-5 years old are overweight or obese (3, 4). The 2011 New Mexico Childhood Obesity Report states that 15% of kindergarten and 21.9% of third graders are obese (5). This report emphasizes that there is a significant increase in the prevalence of obesity between kindergarten and third grade, indicating that this is a health problem that needs to be addressed early in the elementary years. Furthermore, in New Mexico, obesity is significantly more prevalent among American Indian children (one in three) than among Hispanic and non-Hispanic White children in third grade (one in five and one in eight, respectively (5). Not only are overweight or obese children and adolescents more likely to become overweight or obese adults (6, 7), but the resulting increased risk for chronic diseases related to overweight and obesity threatens to lower their quality of life (8).

One of the recommendations put forth by the US Department of Agriculture (USDA) for preventing and treating childhood overweight and obesity is to increase consumption of fruits and vegetables (F&V) (9). School-age children in the US are currently eating less than the recommended amounts of F&V (10). USDA Dietary Guidelines for Americans state a recommendation of 5-8 servings of fruits and vegetables daily; however, US children are only eating an average of 3.5 servings per day (11, 12).

Exposure to foods during childhood influences the development of dietary preferences and patterns that can endure into adulthood (13, 14). Childhood (and especially early childhood) is a critical time when a nutrition intervention aimed at increasing children's willingness to try F&V may have the most influence. It is important to include family or caregivers in such an intervention, as they have a strong influence on F&V consumption (15). In addition, teachers acting as positive role models and creating a supportive environment at school can influence children's food preferences (16). Adding a community element may strengthen the effort further. A farmers' market, for example, is an active community-gathering place where fresh local produce is available. It provides an exciting, interactive environment in which children can learn about and taste F&V. The combined support of family, teachers and the local farmers' market can create a strong social network that encourages and supports children's experience with F&V at home, in school, and in their community. These three elements can contribute to a greater number of exposures to F&V, including tasting them and receiving encouragement, which may increase a child's willingness to try them (17, 18).

The effect of changing a child's willingness to try F&V is subtle, but may have broader implications. An increased willingness suggests that existing barriers to eating fruits and vegetables (such as food neophobia, pickiness, preconceived notions about flavor, access, etc.) have deteriorated. Creating a positive association between tasting a new food and an exciting experience opens the possibility that a child will recall this association in the future when a new fruit or vegetable is offered to them. The potential is that the more F&V a child tries in a positive setting, the more F&V he or she will

accept, compared to never having tried new F&V. Over time, consumption of F&V may increase, if these foods are available and the child has access to them. An increased consumption of F&V addresses the aforementioned problem of a widespread shortfall in F&V consumption among children. This change could have a positive effect on childhood overweight and obesity, as increasing F&V consumption is recommended as a strategy to impact this epidemic.

The combined support and positive association concepts were behind the creation of the Children's Nutrition Program. The CNP takes place at the Santa Fe Farmers' Market. It works with schools and parents to expose school-aged children to fresh local fruits and vegetables, offer tastings of these foods, and invite reflection on the tasting experience. This study focuses on measuring children's willingness to try fruits and vegetables before and after participating in the CNP on a class field trip; changes in willingness to try F&V were evaluated. We hypothesized that elementary students would be more willing to try fruits and vegetables after participating in the Santa Fe Farmers' Market Children's Nutrition Program (CNP).

Problem Statement

How will participation in the Santa Fe Farmers Market Children's Nutrition Program affect the willingness of local elementary students to try fresh fruits and vegetables?

Variables

Independent Variables: The intervention—Santa Fe Farmers Market Children's Nutrition Program

Dependent Variables: Willingness to try F&V

Null Hypothesis

There will be no difference in local elementary students' willingness to try fresh fruits and vegetables after participating the Santa Fe Farmers Market Children's Nutrition Program.

Operational Definitions:

- Elementary students: Students enrolled in grades K-12 within the Santa Fe Public School district.
- Encouragement—Verbally prompting one to try F&V, as often arose spontaneously by teachers during the CNP tastings; modeling tasting and enjoyment of F&V
- Exposure—Informational input related to fresh produce; tasting fresh F&V; being physically present at the Farmers' Market during open hours.
- Food neophobia—A tendency to avoid novel foods
- Involvement—A participant who attends the CNP and completes the Student Notebook
- Participant—A consented and assented individual who completes the WillTry surveys, attends the CNP and completes the Student Notebook.
- Parent Homework—A list of questions parents/caregivers can use to evoke conversation about the student's experience at the farmers' market and tasting fruits and vegetables.
- Parent Survey—A survey designed in conjunction with the CNP to elicit information related to the home environment.
- Participation—Attendance and involvement in activities of the Santa Fe Farmers Market Children's Nutrition Program, as measured by attendance records.

- Santa Fe Farmers Market Children’s Nutrition Program (CNP)—A program offered at the SF Farmers Market that engages elementary aged children through fresh local fruit and vegetable tasting experiences, and that urges interaction, experience and reflection.
- Student Notebook—A printed notebook given to CNP attendees to complete as they taste and discuss the F&V offered.
- Willingness—Inclined to taste fresh fruits and vegetables as measured by the WillTry tool.
- WillTry—A validated survey instrument developed to measure students’ willingness to try fruits and vegetables.

Literature Review

Introduction

Food choices originate from a myriad of influences on preferences, habits, traditions and availability. Among environmental influences, family, the school environment, peers, media and the greater community play a role in influencing children's food choices (15, 16, 17, 18). Research has evaluated the role of some of these environmental influences in children's willingness to try fruits and vegetables (F&V). This review focuses on studies that evaluate school-based interventions and the family's role in children's willingness to try these foods. There is currently no published research related to the influence of a farmers' market-based intervention on children's willingness to try F&V.

Family Influence on Fruit and Vegetable Consumption

Researchers at the University of Maryland assessed how social and familial environments influence fruit and vegetable consumption among 4th and 5th graders in a culturally diverse urban setting (19). Ninety-three 4th and 5th grade students from nine public schools participated in this study by completing a food frequency questionnaire and by reporting on fruit and vegetable consumption at lunch. In addition they indicated their perceived parental support for eating fruits and vegetables, participation in menu planning and food selection at home, and perceived peer support for eating fruits and vegetables. Parents completed a survey that collected information regarding their support for fruit and vegetable consumption, their consumption of these foods, fruits and vegetables served in the home and fruit and vegetable availability in the home. This study found that 93% of students were not eating the recommended five servings of fruits

and vegetables each day (mean intake: 1.7 ± 0.7 servings/day). Students with higher perceived parental support for eating fruits and vegetables, a higher preference for these foods, and the perception that their peers ate fruit daily, had a higher daily average intake of these foods. Family and home environment factors accounted for over 50% variance in students' fruit and vegetable consumption. The authors, therefore, concluded that interventions designed to influence school-aged children's fruit and vegetable consumption should use strategies that reach families and the home environment.

In a study published in 2008, researchers collected data from 62 preschool children and their parents/guardians who were enrolled in a Michigan WIC Program (20). Their objective was to create a validation tool for WIC nutritionists to use to recognize preschool-aged WIC participants who were and were not being regularly exposed to fruits and vegetables. Data was collected by interviewing each child, interviewing a parent/guardian of each child, giving a taste test to the children, and collecting the parent/guardian's food purchase receipts for one month. Results indicated that parents who purchased the most fruits and vegetables increased their child's exposure to them. These children were more willing to taste fruits and vegetables in a taste test. This study demonstrates that parents play an important role in children's exposure to fruits and vegetables, which influences their willingness to try these foods.

School Influence on Fruit and Vegetable Consumption

The USDA Fresh Fruit and Vegetable Program was developed to improve nutrition and help reduce the prevalence of childhood overweight and obesity (21). A 2008 study evaluated whether implementation of this program in Wisconsin resulted in positive changes in children's attitudes and behavior related to eating fruits and

vegetables. Surveys were administered to 2,863 fourth, seventh and ninth graders among 25 intervention schools and 10 control schools before and after the intervention.

Participants at intervention schools received daily fresh fruits and vegetables as snacks as well as nutrition education promoting the consumption of fruits and vegetables. The intervention students reported an increased willingness to try new fruits (24.8% versus 12.8%) and vegetables (25.1% versus 18.4%) compared to the control; therefore, this program was associated with positive changes in attitudes among participating students.

Smart Bodies is a school-based wellness program that aims to increase children's nutrition knowledge, improve psychosocial factors associated with eating fruits and vegetables and develop preferences for these foods (22). Investigators in a study that observed the effects of the intervention evaluated whether it accomplished these aims. Participants included 560 low-income urban 4th and 5th grade students. The program implemented various components, including a field trip to the BodyWalk traveling exhibit, where students learned about digestion and absorption of food; OrganWise Guys provided lessons integrated into classroom activities and interactive assemblies that helped children understand physiology of digestion and the importance of eating healthy foods. Teachers acted as positive role models by encouraging students to exercise and to eat fruits and vegetables. Data were comprised of self-reported information regarding fruit and vegetable preferences and psychosocial variables related to fruit and vegetable intake. The data were collected at baseline and 12 weeks after program initiation. Participants in the SmartBodies program had greater nutritional knowledge and increased self-efficacy in eating fruit instead of dessert and eating the recommended number of fruit and vegetable servings each day compared to a control group.

WillTry Survey

Researchers developed a psychometric tool, the WillTry instrument, in order to measure children's self-reported willingness to try fruits and vegetables and described the development and validation of this instrument in rural, Southern US children aged 5-14 years (23). Data from three studies were collected—4th-6th grade children were given fruits and vegetables as snacks in their Mississippi school (intervention group), K-6th grade children enrolled in a community summer day camp in Mississippi received a physical activity intervention only (pseudo-control group), and K-6th grade children enrolled in a community-sponsored summer day camp in Kansas received no intervention (true control). Of the 192 children enrolled in the intervention group, 187 completed the WillTry survey and 186 completed the tasting trial. The WillTry survey was administered in a one-on-one interview setting between a research assistant and children. Children were given fruit and vegetable snacks to eat over a six-week period. The snacks were the same foods named on the WillTry survey. Researchers observed that children who responded “yes” to being willing to try a food consumed about 74.8% of the snacks offered (by weight), children who responded “maybe” consumed an average of about 66.6%, and children who responded “no” consumed about 58.8%; thus, the survey was validated, as a greater willingness to try foods corresponded to a greater actual consumption of the foods. The increased consumption of those who reported a greater willingness to try fruits and vegetables (by responding “yes” or “maybe”) provides good evidence supporting the use of the WillTry tool in predicting children's willingness to try fruits and vegetables.

Community Influence on Fruit and Vegetable Consumption

Several studies have focused on the influence of interventions that aim to affect children's willingness to try fruits and vegetables through their school or home environment. The greater community may also have a role in influencing young children's fruit and vegetable intake. Farmers' markets are active community gathering places where fresh foods are available. They provide an exciting, interactive environment in which children can learn about and taste fruits and vegetables. In a review of the role of the local extension service in promoting farmers' markets, the numerous benefits of such markets were elucidated (24). For example, consumers benefit from farmers' markets by having the freshest produce available to buy, by getting to know the person growing their food and learning how it is produced, and by having access to educational programming if it is provided by markets. Communities benefit from farmers' markets by keeping money within the local economy, by drawing people to central areas (increasing sales for surrounding businesses), and by preserving open space as productive farmland. Farmers markets also have the potential to provide an opportunity to teach children about food production, biology, agriculture, gardening, nutrition and food preparation/cooking.

Parents play a large role in influencing children's fruit and vegetable consumption by creating a supportive and encouraging environment and by providing exposure and accessibility to fruits and vegetables. School-based programs also play a role in children's willingness to try fruits and vegetables through nutrition education, providing exposure to fruits and vegetables and by positive role modeling by teachers. Farmers' markets provide a lively community setting where fruits and vegetables are available; this environment provides an opportunity to educate and expose children to fruits and

vegetables, possibly affecting their consumption of these foods. Currently there are no documented interventions that assess the influence that a farmers' market may have on children's willingness to try fruits and vegetables. Considering existing research, an intervention that incorporates family, school and community in educating and encouraging children to try fruits and vegetables may have a positive influence.

Methods

Study Aim

The purpose of this research was to investigate change in children's willingness to try fruits and vegetables (F&V) after participating in the Santa Fe Farmers' Market Children's Nutrition Program (CNP).

Institutional Review Board (IRB) Approval

An application for expedited review was sent to the University of New Mexico Human Research Protections Office (HRPO) for review. The application described the study's purpose, rationale, methods, data storage and analysis, inclusion/exclusion criteria, recruitment, consent and assent forms and procedures, risks and benefits. This application presented minimum risk; the methods used did not diverge from routine classroom activities as described by participating teachers. Identifiable information was coded and the coding key was secured to protect participant confidentiality. The initial application was approved on July 18, 2011 (Appendix A). On October 5, 2012 a Progress Report was approved by the IRB for continuation of the study (Appendix B). As required by the IRB, the principle investigator (PI) and all others involved in this study completed the online Human Research Protection training modules.

Population Sample

Attempts to recruit schools to participate in this study were made via e-mails sent to principals of two elementary schools in the Santa Fe Public School district that are within walking distance (one mile or less) to the SFFM (Appendix C). The e-mails were sent seven months prior to the time the study commenced. One principal responded and invited the PI to a teachers' meeting to present the opportunity for teachers to participate

in survey research and a field trip to the Santa Fe Farmers' Market (SFFM) (Appendices D and E). At that meeting, fourteen teachers provided a contact e-mail address on a sign-up sheet. After a follow-up e-mail, eight teachers (two each from kindergarten, 2nd, 3rd and 4th grades) agreed to meet to further discuss the survey and field trip; therefore, selection was based on the teachers' interest in having students participate in the survey and the CNP.

At the time of the study, 180 students were enrolled in the eight classes—kindergarten (n=41), 2nd grade (n=45), 3rd grade (n=48), 4th grade (n=47). All enrolled students were eligible to participate in the study. In September 2011 participating teachers sent a consent and assent form home with every student (Appendices F and G). The forms included a description of the study, its benefits and risks. Only students 7 years of age and older (n=105, 75.5%) were requested to sign an assent form. The PI collected the consent and assent forms that were returned to the teachers and deidentified the data. Of the 180 eligible students, n=139 students (77.2%) returned signed parent consent and student assent forms—kindergarten (n=32, 23% of total sample), 2nd (n=43, 30.9%), 3rd (n=22, 15.8%), and 4th (n=42, 30.2%). These participants made up a convenience sample. Students who did not provide consent or assent did not participate in the study; they did, however, attend the CNP, although no data were gathered from these students.

Demographic data and National School Lunch Program participation data were received from the SFPS Student Data office following an e-mail request to the Board of Education Executive Secretary (Appendix H). Students' race/ethnicity distribution in each participating grade reflected that of the school, with the exception of slightly smaller

percentages of Hispanic students and larger percentages of American Indian (AI) students (Table 1). The school’s racial/ethnic distribution nearly matched that of the school district, with the exception of AI students; the percentage of AI students in this school was nearly double that of the district. Fifty-nine percent of students in this school participated in the National School Lunch Program (NSLP)—they were eligible for free or reduced priced lunch—while district participation was 70% (Table 2).

Table 1 Race/ethnicity data

Grade	Hispanic	White, Non-Hispanic	American Indian	Black	Other/Unclassified
K	12 (57.1)	5 (23.8)	1 (4.8)	2 (9.5)	1 (4.8)
2 nd	36 (67.9)	14 (26.4)	3 (5.7)	0	0
3 rd	43 (69.4)	12 (19.4)	7 (11.3)	0	0
4 th	35 (64.8)	15 (27.8)	3 (5.6)	0	1 (1.9)
School	355 (71.3)	109 (21.9)	24 (4.8)	7 (1.4)	3 (0.6)
District	9867 (70.4)	3183 (22.7)	387 (2.8)	164 (1.2)	412 (2.9)

n(%)

Table 2 National School Lunch Program Participation

	Free (n)	Reduced (n)	Participating Students (%)
School	263	40	59
District	8310	903	70

Measures

Data used to evaluate change in children’s willingness to try fruits and vegetables was collected using the WillTry survey instrument, a previously validated “psychometric tool designed to measure children’s willingness to try fruits and vegetables (22).” In addition to general questions related to willingness to try foods, the survey included questions to measure willingness to try specific foods. The survey was developed to reflect the specific food items tested, meaning researchers are free to adjust which specific foods are included to meet their study needs. Eight specific foods (fruits and

vegetables) were selected because they would be in season at the time the students attended the CNP. The eight foods included the following: fresh apple, dried apple, cantaloupe, canary melon, sunflower sprouts, radish sprouts, spinach and arugula.

In this study the WillTry instrument used in the pre-test and post-test varied slightly. The pre-test included 21 items (Appendix I)—eight questions related to specific foods, five general food questions, seven questions regarding where the child would be willing to try new foods, two items related to “picky” eating (one for self and one for parent), two about being a healthy eater (one for self and one for parent), one item on previous attendance at a farmers’ market and three questions to gather demographic data (age, gender, and race/ethnicity). While students completed the survey, the PI noted that many voiced confusion regarding how to answer the race/ethnicity question. For this reason, this question was excluded on the survey administered to kindergarteners. Data collected from this question from students in other grades were excluded from analysis.

The pre-test included questions on whether the eight specific food items had been tasted before; responses to these questions were a factor in classifying specific foods as novel or familiar. If greater than 50% of students responded that they had tasted a food before, it was classified as “familiar;” if less than 50% of students responded that they had tasted a food before, it was classified as “novel.”

The post-test had 24 items (Appendix J)—it excluded the three demographic items and included six items related to the farmers’ market experience. The remaining items were the same as the pre-test and the eight specific food items were again accompanied by fresh food examples as they appeared at the CNP.

The food, location and farmers' market items had three response categories—yes, maybe and no. The healthy eater items had three response categories—yes, sometimes and no. The picky eater items had three response categories—“eat only favorite foods,” “eat most foods,” “will eat any food offered.” For the purposes of this study, only responses related to the eight specific food items and demographic data on age and gender were used.

The pre-test and post-test surveys used for kindergarteners were slightly modified, using a hedonic scale to indicate “yes,” “maybe” and “no” responses (Appendices K and L). Kindergarteners were asked to circle a male or female icon to indicate gender and to circle an Arabic numeral indicating their age. The race/ethnicity question was excluded.

Data were collected at the Farmers' Market during the intervention using a Student Notebook (notebook) developed by the PI (Appendix M). The notebook included four pages, one for each food pair—apples, melons, greens and sprouts. Each page had space for students to draw the foods in the pair, below which were four questions. The first item was related to whether each food was tasted. If it was tasted, students answered the next two items, whether they liked it and whether they would try it again. Students responded by drawing an “O” or an “X” in the box corresponding to each item for each food, indicating yes or no responses, respectively. The fourth item allowed space for students to record adjectives describing the food.

A parent survey was developed by the PI to collect data from the students' parents related to the home environment (Appendix N). The survey included fourteen items—five related to their child's experience at the SFFM, one related to picky eating, two related to willingness to try fruits and vegetables, one related to the frequency fruits or

vegetables are offered in the home, one related to parent intake of fruits or vegetables, one related to grocery store preference, and six related to demographic and socioeconomic information (food assistance program participation, household income, household size, level of education, race/ethnicity and gender). The surveys were coded to correspond to each participant.

Procedure

In the week prior to each class' scheduled field trip to the SFFM the PI orally administered the WillTry pre-test to participants in their primary classrooms during a regularly scheduled class period (Table 3). The students who completed the pre-test also completed the post-test, which was administered by the PI in the same manner two days following participation in the CNP. The surveys were administered in the school in a group classroom setting with subjects seated at desks or tables. In both the pre- and post-test the questions related to specific foods were accompanied by physical examples of those foods as they would appear at the CNP. While asking a question about a specific food, the PI walked among the students, showing them the same fresh food she was asking about. For example, when asking whether students were willing to try arugula, the PI showed students two leaves of fresh arugula in a dish. Each student manually entered their responses on a hard copy of the survey. Students were not permitted to speak or to interact with other students during the survey.

Table 3 Study Timeline

Timeline	Action	n
Day 1	4 th grade pre-test	43
Day 6	4 th grade CNP ^a	41
Day 8	4 th grade post-test	40
Day 15	3 rd grade pre-test	21
Day 20	3 rd grade CNP ^a	22
Day 22	3 rd grade post-test	22
	2 nd grade pre-test	42
Day 27	2 nd grade CNP ^a	41
Day 29	2 nd grade post-test	41
	K pre-test ^b	32
Day 34	K CNP ^{ab}	30
Day 36	K post-test ^b	31

^a CNP = Children's Nutrition Program

^b K = Kindergarten

Intervention

The CNP was initiated at the Santa Fe Farmers' Market in September 2011. The CNP schedule corresponded to the weekday SFFM schedule, and took place during open days and hours (Tuesdays 8:00am-12:00pm). Each grade attended the CNP on a different week. The two classes from the same grade were scheduled to participate in the CNP on the same day. Each class attended separately (one class attended at 8:30am and the other class attended at 10:00am) with the exception of kindergarten. Both kindergarten classes attended together at 8:30am. All classes except kindergarten walked from school to the SFFM and back to school (1.0 mile each way); kindergarteners rode in a school bus between school and the SFFM.

The CNP took place in the SFFM Market Hall, where a corner of the hall was sectioned off using pipe and drape. Tables and chairs were set up in this area, where students were seated. The PI delivered the program instruction (Appendix O) and two Farmers' Market volunteers acted as assistants. They prepared and passed out the foods

to be tasted. Upon arrival to the SFFM, students were seated and given a Student Notebook. They were instructed to record their personal observations in their notebook at a designated time. They were instructed not to discuss their observations with their peers. At the beginning of each session, students were introduced to a farmer who described his or her farm, its location and the foods grown there. Next, as each food was introduced students were instructed to draw a picture of the food in the space in their notebook. Assistants passed each food to the students, one pair at a time for them to taste. A pair was considered to be the familiar and novel version of each food—apple and dried apple, cantaloupe and canary melon, sunflower sprouts and radish sprouts, spinach and arugula, respectively. The PI instructed students when to taste each individual food. The PI also tasted each food to model the behavior of eating fruits and vegetables. After tasting each food (or choosing not to), they were asked to record in their notebooks whether they chose to taste it, if they liked it or not and if they would taste the food again. This was repeated for each of the eight foods offered. The foods were given in the same order for all classes attending the CNP.

After finishing the tasting session, participating students' notebooks were collected by the PI. Next, each student was given a shopping list (Appendix P) and two dollars' worth of SFFM tokens to spend on a fruit or vegetable in the market. They were instructed to take the item home to share with their family. Students were told to choose one item from the shopping list, which included seasonal fruits and vegetables valued at two dollars or less that would not perish before students brought them home, such as carrots and cucumber. Participating students were also given a "homework" sheet (Appendix N) that their parents were to complete, which was meant to stimulate

conversation about the student's experience at the Farmers' Market. The parent survey was printed on the reverse side of the homework sheet. Parent surveys and envelopes were given to participating students the day they participated in the CNP. They were instructed to return the survey to his or her teacher, sealed in the envelope. A coupon for a free coffee or tea at the SFFM was offered to parents who returned a completed survey.

Food Safety

Food safety practices were emphasized and applied in this intervention. All tasting items, with the exception of sprouts, were purchased at the Saturday market three days before they were used in the CNP, which took place during a Tuesday market. Sprouts were harvested and purchased at the farmers' market immediately before each CNP session (the grower harvests the sprouts from growing trays for each customer at the time they are purchased). The sprouts used were grown in soil, in contrast to the rotary drum-growing method commonly used for sprouting. The sprouts from this grower are also served in the Santa Fe Public Schools through the Farm to School Program. All produce was washed before preparing it. Apples were cut immediately before serving at each CNP session. Melons were cut and refrigerated at the market the night before each CNP session. Greens were served as whole leaves. Refrigeration was available on site at the farmers' market, so all items were refrigerated until served, with the exception of the dried apples. The PI dehydrated the apples in advance using a commercial grade TSM food dehydrator, and stored them in airtight containers. Anyone handling, preparing or serving foods used proper hand washing procedure and wore food service gloves. The importance of hand washing was included in the CNP lesson plan and was emphasized to

students. All students used hand sanitizer before the tasting sessions began due to limited time.

Statistical Methods

To investigate changes between the WillTry pre- and post-test responses, STATA 12.1 (StataCorp LP, College Station, TX) was used to calculate the Wilcoxon Sign-Rank Test (25). This test was used to evaluate significant changes in willingness to try all foods offered (WillTry items 6-13), each food offered, all fruits offered, all vegetables offered, all familiar foods offered, all novel foods offered, familiar fruits, novel fruits, familiar vegetables and novel vegetables. Significance was measured using a p-value of 0.05.

Pre- and post-test responses were assigned values as follows: no=0, maybe=1, yes=2. The sign rank test was performed using means calculated from these values. New variables were created to compare composite scores for all pre-test responses to items 6-13, all post-test responses to items 6-13, all fruits combined, all vegetables, familiar foods, novel foods, familiar fruits, familiar vegetables, novel fruits and novel vegetables. These variables were created by summing all the values of scores included in the given category. For example, the “novel fruits” variable was a sum of all response values for dried apple and cantaloupe.

Descriptive data (n, %) from Student Notebooks were summarized using STATA 12.1. Notebooks were completed by students as they tasted foods while participating in the CNP at the farmers’ market. Notebook data were categorized into five groups corresponding to all possible response combinations to items 1-3 (Table 4). For example, students who responded that they tried a food, they liked it and would try it again were

placed in category 2; those who would try a food, liked it and would not try it again were placed in category 3. Category notebook numbers for each food were then cross-tabulated with WillTry post-test responses (given two days after participation in the CNP) for items 6-13 and analyzed. To specify, a matrix was created indicating the number of students who fell into each notebook category and each post-test response category. For example, when looking at data for responses related to apples, 87 students fell into notebook category 2 and responded “yes” on the post-test.

Sums and percentages were calculated for varying responses between the notebook and the post-test, indicating a student changed his/her mind. Changing one’s mind in a “positive” direction means a student responded “no” in their notebook (category 1, 3 or 5) and “maybe” or “yes” on the WillTry post-test. Changing one’s mind in a “negative” direction means a student responded “yes” in their notebook (category 2 or 4) and “maybe” or “no” on the WillTry post-test. Therefore, for each variable, all those changing their response in a positive direction were summed and a percentage was calculated based on the total number of responses for that variable. The same procedure was performed for all those changing their response in a negative direction.

Table 4 Notebook response categories

Category	Response combination
1	Did not try
2	Tried, liked, will try again
3	Tried, liked, will not try again
4	Tried, did not like, will try again
5	Tried, did not like, will not try again

Results

Of the 139 of students with parental consent who assented to the study, 128 (92.1%) completed the WillTry survey pre- and post-tests and 133 (95.7%) attended the Children's Nutrition Program (CNP) and completed student notebooks. Approximately equal numbers of girls (n=70, 50.4%) and boys (n=69, 49.6%) were represented in the total sample. Students' ages ranged from four to ten years old, with the majority of students between seven and nine years old (n=97, 69.8%).

The WillTry pre-test responses indicate that for students of all ages, their willingness to try (WTT) the eight foods offered at the CNP was already high (Table 5). More than half of students responded "yes" to all foods except dried apple, for which a large proportion of students still responded "yes" (n=59, 42.45%). With the exception of dried apple, students had a higher pre-test WTT for fruits than vegetables.

Table 5 Pre-test: WillTry responses to the question, "Would you be willing to try?"

	Food	Yes	Maybe	No
Fruits	Apple	124 (89.2)	9 (6.5)	4 (2.9)
	Cantaloupe	102 (73.4)	17 (12.2)	18 (13.0)
	Canary melon	100 (71.9)	27 (19.4)	10 (7.2)
	Dried apple	59 (42.5)	35 (25.2)	43 (30.9)
Vegetables	Sunflower sprouts	89 (64.0)	31 (22.3)	17 (12.2)
	Spinach	87 (62.6)	30 (21.6)	19 (13.7)
	Radish sprouts	75 (54.0)	29 (20.9)	33 (23.7)
	Arugula	70 (50.4)	47 (33.8)	19 (13.7)

n(%)

WillTry post-test responses indicate that for most of the foods offered, students WTT remained high, with the exceptions of radish sprouts and arugula, for which a high proportion of responses (>40%) were "no." (Table 6) Greater than 50% of the post-test WTT responses were "yes" for all of the fruits and for sunflower sprouts.

Table 6 Post-test: WillTry responses to the question, “Would you be willing to try?”

	Food	Yes	Maybe	No
Fruits	Apple	125 (89.9)	5 (3.6)	2 (1.4)
	Cantaloupe	101 (72.7)	20 (14.4)	11 (7.9)
	Dried apple	86 (61.9)	13 (9.4)	33 (23.7)
	Canary melon	79 (56.8)	28 (20.1)	25 (18.0)
Vegetables	Sunflower sprouts	81 (58.3)	16 (11.5)	34 (24.5)
	Spinach	62 (44.6)	30 (21.6)	40 (28.8)
	Radish sprouts	38 (27.3)	32 (23.0)	63 (44.6)
	Arugula	28 (20.1)	27 (19.4)	76 (54.7)

n (%)

Each of the eight foods that were offered at the CNP were categorized as familiar or novel based on responses to the WillTry pre-test question “Have you tasted this food before?” (Table 7). The majority of students (>50%) had previously encountered apples, cantaloupe, spinach, and sunflower sprouts, and these foods were classified as “familiar.” A smaller proportion of students (<50%) had previously tasted radish sprouts, canary melon, dried apple, and arugula, and these foods were classified as “novel.” During participation in the CNP most students tasted all of the eight foods offered, but more students tried the familiar foods than the novel foods (Table 8). Ninety-nine percent of students tried the four familiar foods and 92.1% of students tried the four novel foods.

Table 7 Pre-test: Responses to the WillTry question “Have you tasted this food before?”

	Food	Yes	Don't Know	No
Familiar	Apple	126 (90.7)	8 (5.8)	3 (2.2)
	Cantaloupe	120 (86.3)	3 (2.2)	12 (8.6)
	Spinach	100 (71.9)	6 (4.3)	29 (20.9)
	Sunflower sprouts	84 (60.4)	9 (6.5)	44 (31.7)
Novel	Radish sprouts	67 (48.2)	9 (6.5)	60 (43.2)
	Canary	65 (46.8)	6 (4.3)	65 (46.8)
	Dried apple	61 (43.2)	10 (7.2)	65 (46.8)
	Arugula	49 (35.3)	8 (5.8)	78 (56.1)

n(%)

Table 8 Number of students who tasted each food during participation in the CNP, as indicated by notebook responses

Food		Tasted
Familiar	Apple	96 (99)
	Cantaloupe	97 (99)
	Spinach	98 (100)
	Sunflower sprouts	96 (98)
Novel	Dried apple	86 (87.8)
	Canary	94 (95.9)
	Arugula	91 (93.8)
	Radish sprouts	89 (90.8)
All familiar foods		387 (99)
All novel foods		360 (92.1)

n(%)

The Wilcoxon Sign Rank Test was used to analyze the change in WTT between the pre- and post-test overall, for each food, for fruit versus vegetable composite scores and familiar versus novel food composite scores ($p < 0.05$) (Tables 9.1 and 9.2).

Kindergarteners' responses ($n=29$, 23% of study population) were excluded from this analysis because they did not complete some of the items in the Student Notebook, which was analyzed separately. Excluding the kindergarteners' responses did not significantly affect the results.

The sign rank results indicate a significant decrease in overall WTT ($p < 0.0001$), despite increases in WTT total fruit ($p=0.11$), familiar fruits ($p=0.06$) and novel fruits ($p=0.53$). When change in WTT was evaluated among the individual fruits, WTT dried apple increased significantly ($p=0.001$), while WTT canary melon decreased significantly ($p=0.003$). The slight increase in fruit-related WTT was likely overwhelmed by the relatively large decreases in vegetable-related WTT. Significant decreases in WTT were observed for all vegetables, each individual vegetable, familiar and novel vegetables ($p <$

0.01 for all scores). In general, there was a greater decrease in WTT novel foods compared to the familiar foods.

Table 9.1 Comparison of WillTry Pre-test/Post-test responses

Variable	Result	Excluding K (n=99)
Overall ^a	Decreased*	p<0.0001
Total fruit ^b	Increased	p=0.11
Total veg ^c	Decreased*	p<0.0001
Apple	Increased	p=0.13
Dried apple	Increased*	p=0.0005
Cantaloupe	Increased	p=0.09
Canary melon	Decreased*	p=0.003
Sunflower sprouts	Decreased*	p=0.02
Radish sprouts	Decreased*	p<0.0001
Spinach	Decreased*	p=0.002
Arugula	Decreased*	p<0.0001

* = significant results (p<0.05)

^a Overall = The change in WTT all of the eight foods offered at the CNP

^b Total fruit = All four of the fruits offered (apple, dried apple, cantaloupe, canary melon)

^c Total veg = All four of the vegetables offered (sunflower sprouts, radish sprouts, spinach, arugula)

Table 9.2 Comparison of WillTry Pre-test/Post-test responses

Variable	Result	Excluding K (n=99)
Total familiar ^a	Decreased*	p=0.04
Total novel ^b	Decreased*	p<0.0001
Familiar fruit	Increased	p=0.06
Novel fruit	Increased	p=0.53
Familiar veg	Decreased*	p<0.0001
Novel veg	Decreased*	p<0.0001

* = significant results (p<0.05)

^a Total familiar = The four familiar foods offered (apple, cantaloupe, sunflower sprouts, spinach)

^b Total novel = The four novel foods offered (dried apple, canary melon, radish sprouts, arugula)

Individual notebook responses (Table 10) cross-tabulated with WillTry post-test responses indicated that students sometimes changed their response regarding their WTT the foods offered within a relatively short time period (two days). For all foods, at least some students changed their minds in a positive or negative direction. The biggest

changes in a negative direction were observed for canary melon and sunflower sprouts, with 30.6% (n=30) and 31.6% (n=31) of children changing their minds in a negative direction (willing to try on the day of the market, not willing to try on the post-test two days later), respectively. The biggest changes in a positive direction were observed for radish sprouts and arugula, with 24.5% (n=24) and 27.6% (n=27) of children changing their minds in a positive direction, respectively.

Table 10 Response comparison between student notebooks and post-test

Food Item	Negative Change	Positive Change
Apple	5 (5.2)	1 (1.0)
Dried apple	8 (8.2)	13 (13.3)
Cantaloupe	20 (20.4)	5 (5.1)
Canary melon	30 (30.6)	15 (15.3)
Sunflower sprouts	31 (31.6)	5 (5.1)
Radish sprouts	24 (24.5)	24 (24.5)
Spinach	24 (24.5)	15 (15.3)
Arugula	7 (7.1)	27 (27.6)

n(%)

Discussion

Results from this study indicate that participation in the Santa Fe Farmers' Market Children's Nutrition Program (CNP) decreased elementary students' overall willingness to try the fruits and vegetables offered. Using the Wilcoxon Sign Rank test, a decrease in willingness to try (WTT) all vegetables was observed, with the greatest decrease among the novel vegetables. A slight increase in WTT fruits was observed, with the exception of canary melon. The fact that the decrease in WTT vegetables was greater than the increase in WTT the fruits may explain the decrease in overall WTT. In addition, WTT as indicated on the pre-test was high, so there was not much room for WTT to increase in this sample of children.

The findings in this study are consistent with literature that describes children's preference for sweet foods, such as fruit, over bitter foods, such as vegetables (26, 27). In addition, Pliner and Stallberg-White found that novel foods are more likely to be accepted when accompanied by familiar foods (28, 29). They observed greater acceptance of a novel food served with a familiar sauce. During the CNP each food was tasted individually.

Of note among the fruits was the greater increase in WTT the dried apple. Because this was a novel food, we speculate that children may have been initially put off by its shriveled brown appearance when shown during the pre-test, then pleasantly surprised by its sweet taste at the CNP. Also interesting was the significant decrease in WTT canary melon, another novel fruit. We speculate that some children may have assumed (based on appearance) that canary melon is like the more familiar honeydew melon, and then were disappointed by its softer, grainy texture upon tasting it.

Additional qualitative survey questions exploring why students were more or less WTT some foods may improve the WillTry tool.

A high pre-test WTT points toward a low level of initial neophobia, indicating that other factors may have affected the students' WTT. One of these factors may have been a limited number of exposures to the foods tasted. Children may require five to ten exposures to a food before it is accepted (30, 31, 32, 33). The CNP was intended to offer exposure to fruits and vegetables within a lively community setting, augmenting exposures encountered in school and at home; however, multiple exposures to these foods within the program itself over a period of time may have had a stronger influence on WTT in a positive direction.

Another factor that may have affected the students' WTT is the presentation of the foods offered. The foods at the CNP were in their raw, whole state without accompaniments such as dips, and this may have been unappealing. Indeed vegetables, unlike fruits, are not commonly consumed in this way. In their raw form, vegetables are more often prepared with other foods in a dish, such as a salad with dressing, on a sandwich, or with a dip. Repeated exposures to the foods with varying methods of preparation may positively influence WTT and also elucidate presentation preferences.

After tasting each food, students indicated their willingness to try it again immediately in their notebooks, and also two days later on the WillTry post-test. The fluctuation in responses over the brief period between the CNP and the post-test was of particular interest. It seems students' decisions regarding their WTT are not rigid, that perhaps their willingness to try foods is flexible and dynamic. Thus, hope remains that a

child may still develop a preference for a food after it is rejected, and so it should continue to be offered many times.

Students bought produce at the farmers' market to bring home. It is possible that interaction with parents related to foods that were offered at the CNP could have influenced a change in WTT by the time the post-test was administered. Caregivers recorded the food that was brought home on the Parent Survey. Most students did not purchase the same foods that were offered at the CNP to bring home. Some did buy apples, but there was only a small change in response between the CNP and the post-test for this food (Table 10). It is also possible that peer influence was a factor in students' change in response if they talked with one another about the foods after participating in the CNP.

This study was limited in several ways. The selection process was not random, as a convenience sample was used, thus, results are not generalizable to other populations. There was no control group. We cannot claim any change between the pre- and post-test was caused by the intervention due to the limitations of this study design. Other factors unaccounted for may have influenced changes noted in this study. As mentioned previously, the students' willingness to try the fruits and vegetables offered was already high in the pre-test, making it difficult to detect significant increases in WTT. Independence may have been compromised in gathering notebook data, because students were vocal and interactive during their field trip to the CNP. At the request of the kindergarten teachers, the duration of the CNP was abbreviated due to the limited attention span of the students. For this reason kindergarteners did not respond to all notebook items. They only indicated whether or not they tried the food; therefore, this

group was excluded from the comparison between the notebook and WillTry post-test responses.

In retrospect, it is important to acknowledge the warnings of major health institutions including the Food Safety and Inspection Service, the U.S. Food and Drug Administration, the Centers for Disease Control and Prevention, the U.S. Department of Agriculture, the U.S. Department of Health and Human Services and the American Academy of Pediatrics, which recommend that children avoid eating sprouts, especially in their raw form, due to the risk of foodborne illness (34, 35, 36). These positions need to be considered in program development to minimize potential risk to participants. For this study, we determined the risks to be no greater than what is normally encountered in the students' every day environment because the locally grown sprouts served in the CNP are also served to students district-wide in their school lunch on a regular basis. These sprouts are grown in soil, in contrast to the rotary drum-growing method commonly used for sprouting. Indeed there is risk associated with the consumption of any raw food. A recent study published by the CDC states that close to 50% of food borne illness in the U.S. is attributable to produce, indicating that food borne illness is a concern for any program serving raw produce (37). In the future, this intervention would be improved by serving foods known to be safe.

In addition to serving safer foods, those initiating a program such as the CNP must consider safe food handling from source to consumer (38, 39). Careful selection of the food grower or supplier involves evaluation of growing methods and conditions, post harvest handling and transport. Once obtained, safe practices in food handling and preparation need to be employed. Hand hygiene is crucial among those who prepare,

handle and consume the tasting items. Finally, one may consider cooking the foods to be tasted in an intervention to further minimize risk of foodborne illness. Some foods in their cooked form may closer resemble the foods as they are more commonly encountered in the children's every day environment.

Strengths of this study include the implementation and observation of a novel intervention on children's willingness to try F&V. The community setting of the intervention was also unique. Future research may observe the effects of suggested adjustments to this intervention—offering a greater number of repeated fruit and vegetable (F&V) exposures over time, offering the foods as they are more often encountered in daily life, and including a more intensive home component. With these adjustments, this program may positively influence students' willingness to try fruits and vegetables.

Conclusion

Children are not consuming the recommended servings of fruits and vegetables and more interventions aimed at influencing children's willingness to try these foods are needed. The Santa Fe Farmers' Market Children's Nutrition Program aimed to increase elementary students' willingness to try fruits and vegetables, but observed a decrease in WTT vegetables and only a slight increase in WTT fruits. Future research investigating the effects of program adjustments such as repeated exposures to F&V and a more appealing presentation of vegetables will assist in developing an effective intervention that can serve as a model to improve children's diets.

Appendices

Appendix A—IRB Approval Letter

THE UNIVERSITY of
NEW MEXICO
Main Campus Institutional Review Board
Human Research Protections Office
MSC08 4560
1 University of New Mexico~Albuquerque, NM 87131-0001
<http://hsc.unm.edu/som/research/HRRC/>

19-Jul-2011

Responsible Faculty: Deborah Cohen
Investigator: Laura McCann
Dept/College: Individual Family Comm Educ IFCE

SUBJECT: IRB Approval of Research - Initial Review - Initial Review
Protocol #: 11-359
Project Title: The Effects of the Santa Fe Farmers Market Children's Nutrition Program on Students' Willingness to Try Fruits and Vegetables
Type of Review: Expedited Review
Approval Date: 19-Jul-2011
Expiration Date: 18-Jul-2012

The Main Campus Institutional Review Board has reviewed and approved the above referenced protocol. It has been approved based on the review of the following:

1. Expedited Review Application submitted to the HRPO on 06/28/2011;
2. Investigator's Protocol version 05/17/2011;
3. WillTry Interview Pre-Test submitted 05/17/2011;
4. WillTry Interview Post-Test submitted 05/17/2011;
5. Santa Fe Farmers Market Student Note Book submitted 05/17/2011;
6. UNM Child's Assent version 04/26/2011;
7. UNM Parent Consent version 04/26/2011;
8. Santa Fe Farmers Market Children's Nutrition Program Pilot poster submitted 05/27/2011;
9. Santa Fe Farmers Market Children's Nutrition Program poster submitted 05/27/2011.

Consent Decision:
Requires a signed consent form
HIPAA Authorization Addendum not applicable

If a consent is required, we have attached a date stamped consent that must be used for consenting participants during the above noted approval period.

If HIPAA authorization is required, the HIPAA authorization version noted above should be signed in conjunction with the consent form.

As the principal investigator of this study, you assume the following responsibilities:

- CONSENT: To ensure that ethical and legal informed consent has been obtained from all research participants.

Appendix B—IRB Continuation Approval Letter

THE UNIVERSITY of
NEW MEXICO

Main Campus Institutional Review Board

Human Research Protections Office

MSC08 4560

1 University of New Mexico~Albuquerque, NM 87131-0001

<http://hsc.unm.edu/som/research/HRRC/>

05-Sep-2012

Responsible Faculty: Deborah Cohen

Investigator: Laura McCann

Dept/College: Individual Family Comm Educ IFCE

SUBJECT: IRB Approval of Research - Continuation

Protocol #: 11-359

Project Title: The Effects of the Santa Fe Farmers Market Children's Nutrition Program on Students' Willingness to Try Fruits and Vegetables

Type of Review: Expedited Review

Approval Date: 05-Jul-2012

Expiration Date: 18-Jul-2013

The Main Campus Institutional Review Board has reviewed and approved the above referenced protocol. It has been approved based on the review of the following:

1. Progress Report dated 05/15/2012;
2. Protocol received 05/29/2012;
3. COI form E. Yakes.

Consent Decision:

Study is closed to enrollment - no consents approved.

If a consent is required, we have attached a date stamped consent that must be used for consenting participants during the above noted approval period.

If HIPAA authorization is required, the HIPAA authorization version noted above should be signed in conjunction with the consent form.

As the principal investigator of this study, you assume the following responsibilities:

- **CONSENT:** To ensure that ethical and legal informed consent has been obtained from all research participants.
- **RENEWAL:** To submit a progress report to the IRB at least 45 days prior to the end of the approval period in order for this study to be considered for continuation.
- **ADVERSE EVENTS:** To report any adverse events or reactions to the IRB immediately.
- **MODIFICATIONS:** To submit any changes to the protocol, such as procedures, consent/assent forms, addition of subjects, or study design to the IRB as an Amendment for review and approval.
- **COMPLETION:** To close your study when the study is concluded and all data has been de-identified (with no link to

Appendix C—Letter to Principals

Dear Mr. Lee,

I am a graduate student in the Nutrition Program at UNM. Presently, I am creating a children's nutrition program at the Santa Fe Farmers' Market (called STARR—Students Try Aliment that's Real and Regional), and am designing a research study to measure elementary children's willingness to try fruits and vegetables before and after participating in STARR. A brief description of STARR: in one hour students participate in a nutrition education lesson (designed to meet state standards in a variety of subjects), an interactive experience in the farmers' market, a fruit/vegetable tasting, and a reflection on the tasting experience.

Children's willingness to try fruits and vegetables may seem like a subtle matter to measure, but a positive change indicates a deterioration of the barriers that inhibit consumption of these foods. National and state statistics indicate that children's consumption of these foods falls short of recommendations. Consuming adequate amounts of fruits and vegetables is recommended by the USDA as a way to prevent and treat childhood overweight and obesity, a growing problem of deep concern.

I am seeking a population of students to participate in the STARR program pilot and associated research. Ideally, teachers in one or two upper elementary grades will have interest in incorporating this program into their curriculum so that classes can attend in a group. I am aiming to pilot the program in fall 2011.

Data is gathered by an interview with each participant before and after attending STARR. All research design, methods and interview tools will be approved by the UNM Internal Review Board to assure ethical research practices. To participate, parent/caregiver consent and student assent is required.

Friends of mine who are parents of students at Gonzales have enthusiastically described some teachers' incorporation of innovative learning experiences in their classrooms, which is why I thought to approach you. I am requesting your consideration of support for this program and research. I would love the opportunity to have a conversation with you to further discuss the details and answer any questions you may have. Please contact me via phone or e-mail at your earliest convenience. Thank you!

Sincerely,

Laura McCann
(616) 460-1243
laurammccann@hotmail.com

Appendix D—Teacher Recruitment Flyer

SANTA FE FARMERS MARKET CHILDREN'S NUTRITION PROGRAM

Participate in the pilot—Fall 2011!

**Contact Laura McCann
Cell: (616) 460-1243**

Email: lauramccann@hotmail.com

SANTA FE FARMERS MARKET CHILDREN'S NUTRITION PROGRAM

A new Children's Program at the Farmers' Market!

- The program pilot will run during Fall 2011
- Associated data collection via 2 student surveys and 1 parent survey:
 - to measure the program's effectiveness and success
 - to evaluate as part of my Master's Thesis Project

The Program:

- Students come to the Farmers' Market (school bus xport paid)
- Participate in local fruit and vegetable tasting, comparison and reflection
- Receive a reflection booklet with materials for expansion on curriculum
- Receive special wooden tokens valued at \$1-2 and a shopping list
- Purchase a produce item from a farmer to bring home and share with family

Laura McCann

lauramccann@hotmail.com

Appendix E—Teacher Sign-up Sheet

Teacher Sign-up Sheet

Name	Grade	Phone #	email

Appendix F—Consent Form

University of New Mexico Parental Consent to Participate in Student Research

Study Title: The Effects of the Santa Fe Farmers Market Children’s Nutrition Program on Students’ Willingness to Try Fruits and Vegetables

Laura McCann, a graduate student in the Nutrition Program in the UNM College of Education’s Department of Individual, Family and Community Education, is conducting a research study. The purpose of this study is to evaluate how participation in the Santa Fe Farmers’ Market Children’s Nutrition Program may affect elementary children’s willingness to try fruits and vegetables. Your child is being asked to participate in this study because s/he is an elementary student enrolled in Santa Fe Public Schools.

Both you and your child’s permission are needed in order to participate in the study. If you agree and your child volunteers to participate in this study, the following things will happen:

- Your child will take a survey one week before going on a field trip with his/her class to the Santa Fe Farmers’ Market.
- After tasting fruits and vegetables at the Farmers’ Market, your child will record his/her sensory reflection (describing each food’s appearance, aroma, texture, taste) in a Program booklet. Information from the Program booklets may be used in this study.
- Your child will take a survey one week after going on a field trip with his/her class to the Santa Fe Farmers’ Market.
- You may be asked to complete a Parent Survey after your child goes on the field trip to the Farmers’ Market.

The surveys should take about 5 minutes to complete. No names are on the survey. The survey includes questions such as, “Would you be willing to taste a dried apple?” and “Have you tasted this food before?” Your child can refuse to answer any of these questions at any time. There are no known risks in this study, but some individuals may experience discomfort when answering questions. All data will be kept for 1 year in a locked file in the office of Deborah Cohen, DCN, RD (responsible faculty member) and then destroyed.

Participation in the study is voluntary. This study provides a chance for your child to be one of the first to participate in the new Farmers’ Market Children’s Program pilot, to taste fresh local fruits and vegetables, to meet the farmers who grow his or her food, to have the experience of buying food from a farmer, to learn about seasonal fruits and vegetables—its history, health benefits, how it grows, and much more. You have the right to choose not to participate or to withdraw participation at any time. Participation does not affect a student’s grade in class. If you choose not to participate, no survey will be administered. In the event that participation is revoked, any previously collected data will be destroyed and will not be used.

If you are interested in participating, or would simply like to find out more, please sign below, provide a phone number or e-mail address so that a researcher may contact you, and return the bottom portion of this letter in the enclosed envelope to your child's teacher at school. If you prefer, you may also call Laura McCann at (616) 460-1243 during the weekday hours of 8am to 5pm. If you are not interested, please sign and check the appropriate line below so we will know that you have been contacted and are not interested in participating.

If you agree to allow your child to participate in this research study and he or she is seven (7) years old or older, please read the enclosed minor assent form with him or her and have him or her sign it if he or she assents to participate in this research study.

If you have questions regarding your legal rights as a research subject, you may call the UNM Main Campus Internal Review Board (IRB) at (505) 272-1129. The IRB is a group of people from UNM and the community who provide independent oversight of safety and ethical issues related to research involving human subjects. For more information, you may also access the Main Campus IRB website at <http://hsc.unm.edu/som/research/hrrc/>.

Thank you in advance for your help with this project.

Sincerely,

Laura McCann
Graduate Student, UNM Nutrition Program

☐ I am interested in finding out more about participation. Phone number or email for contact: _____

—

☐ I agree to allow my child to participate in this research study.

☐ I am not interested in allowing my child to participate at this time.

Parent name _____ (please print clearly)

Parent Signature _____ Date: _____

Minor child's name _____ (please print clearly)

Minor's Signature _____ Date: _____

Appendix G—Assent Form

University of New Mexico Assent to Participate in Student Research (Ages 7-11)

Study Title: The Effects of the Santa Fe Farmers Market Children's Nutrition Program on Students' Willingness to Try Fruits and Vegetables

You are being asked to join a study to see if participating in a farmers' market children's program has an effect on your willingness to try fruits and vegetables.

For this study you will take a survey a few days before going on a field trip to the Santa Fe Farmers' Market with your class. (You get to go on the field trip whether you decide to participate in the study or not). The survey asks questions about whether you would be willing to taste some fruits and vegetables. During the field trip to the farmers' market you will be given an activity book and will be offered some fruits and vegetables to try. You will write what you think of the foods you taste in the booklet. Then you will receive wooden tokens and a shopping list. You can buy an item from the shopping list from a farmer, using the tokens to pay, and bring the item home to share with your family. You will also be given a survey to bring home to your parents for them to fill out. A few days after the field trip you will take a survey again.

The surveys each take about 5 minutes to complete. The Santa Fe Farmers' Market field trip will take about an hour once you arrive.

We would like you to talk with your parents about this before you decide whether or not to be in this study. We will also ask your parents if they want you to be in this study.

If you have any questions at any time, please contact Laura McCann.

You do not have to be in this study. If you do decide to be in this study, you can change your mind at any time. Nobody will care if you change your mind or if you don't want to join this study.

Signing this form means you have decided to join this study. You and your parents will be given a copy of this form.

Print Your Name: _____

Sign Your Name: _____ Date: _____

Appendix H—E-mail to Request School District Data

-----Original Message-----

From: Laura Mary McCann [mailto:lmccann@[unm.edu](mailto:lmccann@unm.edu)]

Sent: Thursday, July 26, 2012 1:25 PM

To: LILLIAN LETTERS

Subject: demographic data

Hello Lillian,

I am writing to request demographic information for Gonzales Community school (as a whole and by grade, if possible) as well as for the SFPS district as a whole.

I am specifically seeking race/ethnicity data and percent participation in the National School Lunch Program.

I am a local registered dietitian who conducted a survey of students in Gonzales Community School last year, with parent consent and student assent, as well as approval by the SFPS district and the UNM Internal Review Board. This data will add important information the that which I gathered. Please let me know if you need any further information from me. Thank you!

Be Well,

Laura McCann, RD, LD

Appendix I—WillTry Pre-Test

[Page 1]

WillTry Interview (FMCNP Version Pre-Test)

		Yes	Maybe	No
1	Would you be willing to taste a new food if offered?			

The following questions refer to WHERE you might be willing to taste new food.

a.	At home?			
b.	At a relative's home?			
c.	At a friend's home?			
d.	At a restaurant?			
e.	At school?			
f.	At a grocery store?			
g.	At the farmers market?			

There are 3 possible responses for the following questions. Please answer the following questions for yourself.

		Yes	Maybe	No
2	Would you be willing to taste a new vegetable?			
3	Would you be willing to taste a new fruit?			
4	Would you be willing to try a new dish (e.g. casserole?)			

5	Would you be willing to have a fruit or vegetable for a snack?			
6	Would you be willing to taste an apple?			
	Have you tasted this food before?			
7	Would you be willing to taste dried apple?			
	Have you tasted this food before?			
8	Would you be willing to taste cantaloupe?			
	Have you tasted this food before?			
9	Would you be willing to taste canary melon?			
	Have you tasted this food before?			

10	Would you be willing to taste sunflower sprouts?			
	Have you tasted this food before?			
11	Would you be willing to taste radish sprouts?			
	Have you tasted this food before?			
12	Would you be willing to taste spinach?			
	Have you tasted this food before?			
13	Would you be willing to taste arugula?			
	Have you tasted this food before?			

		Yes 3	Sometimes 2	No 1
14	In general, do you consider yourself a healthy eater?			
15	In general, do you consider your parent a healthy eater?			

Three responses are provided for the following 2 questions. Please select the one that best describes you or your parent/guardian.

		Eat only favorite foods	Eat most foods	Will eat any food offered
16	Which of these best describes you?			
17	Which of these best describes your parent?			

Farmers' Market

		Yes	Don't know	No
18	Have you ever been to a farmers' market before?			

Demographics

19	Your age	
20	Your gender	Male
		Female
21	Your race/ethnicity	American Indian or Alaskan Native
		Asian
		Black or African American
		Hispanic or Latino
		Native Hawaiian or Other Pacific Islander
		White (non-Hispanic) or Caucasian

Appendix J—WillTry Post-Test

[Page 1]

WillTry Interview (FMCNP Version Post-Test)

		Yes	Maybe	No
1	Would you be willing to taste a new food if offered?			

The following questions refer to WHERE you might be willing to taste new food.

a.	At home?			
b.	At a relative's home?			
c.	At a friend's home?			
d.	At a restaurant?			
e.	At school?			
f.	At a grocery store?			
g.	At the farmers market?			

There are 3 possible responses for the following questions. Please answer the following questions for yourself.

		Yes	Maybe	No
2	Would you be willing to taste a new vegetable?			
3	Would you be willing to taste a new fruit?			
4	Would you be willing to try a new dish (e.g. casserole?)			

5	Would you be willing to have a fruit or vegetable for a snack?			
6	Would you be willing to taste an apple?			
7	Would you be willing to taste dried apple?			
8	Would you be willing to taste cantaloupe?			
9	Would you be willing to taste canary melon?			
10	Would you be willing to taste sunflower sprouts?			
11	Would you be willing to taste radish sprouts?			
12	Would you be willing to taste spinach?			
13	Would you be willing to taste arugula?			

		Yes 3	Sometimes 2	No 1
14	In general, do you consider yourself a healthy eater?			
15	In general, do you consider your parent a healthy eater?			

Three responses are provided for the following 2 questions. Please select the one that best describes you or your parent/guardian.

		Eat only favorite foods	Eat most foods	Will eat any food offered
16	Which of these best describes you?			
17	Which of these best describes your parent?			

Farmers' Market

		Yes	Don't know	No
18	Have you ever been to a farmers' market before this program?			
		Yes	Maybe	No
19	Would you go to a farmers' market again in the future?			
20	Do you think you eat more fruits and vegetables now that you've been to the farmers' market?			
21	Were there other fruits and vegetables you saw at the farmers' market that you'd never tasted before, but would have liked to taste?			

Program Evaluation

22	What are some things you like about the farmers' market?	
23	What did you like about the Farmers' Market Children's Nutrition Program?	
24	What would you suggest to make the Farmers' Market Children's Nutrition Program better?	

Appendix K—Kindergarten WillTry Pre-Test

[Page 1]

WillTry Interview (FMCNP Version Pre-Test)

		Yes	Maybe	No
1	Would you be willing to taste a new food if offered?			

The following questions refer to WHERE you might be willing to taste new food.

a.	At home?			
b.	At a relative's home?			
c.	At a friend's home?			
d.	At a restaurant?			
e.	At school?			
f.	At a grocery store?			
g.	At the farmers market?			

There are 3 possible responses for the following questions. Please answer the following questions for yourself.

		Yes	Maybe	No
2	Would you be willing to taste a new vegetable?			
3	Would you be willing to taste a new fruit?

4	Would you be willing to try a new dish (e.g. casserole?)			
5	Would you be willing to have a fruit or vegetable for a snack?			
6	Would you be willing to taste an apple?			
	Have you tasted this food before?			
7	Would you be willing to taste dried apple?			
	Have you tasted this food before?			
8	Would you be willing to taste cantaloupe?			
	Have you tasted this food before?			
9	Would you be willing to taste canary melon?			
	Have you tasted this food before?

10	Would you be willing to taste sunflower sprouts?			
	Have you tasted this food before?			
11	Would you be willing to taste radish sprouts?			
	Have you tasted this food before?			
12	Would you be willing to taste spinach?			
	Have you tasted this food before?			
13	Would you be willing to taste arugula?			
	Have you tasted this food before?			
		Yes 3	Sometimes 2	No 1
14	In general, do you consider yourself a healthy eater?			
15	In general, do you consider your parent a healthy eater?			

Three responses are provided for the following 2 questions. Please select the one that best describes you or your parent/guardian.

		Eat only favorite foods	Eat most foods	Will eat any food offered
16	Which of these best describes you?			
17	Which of these best describes your parent?			

Farmers' Market

		Yes	Don't know	No
18	Have you ever been to a farmers' market before?			

Demographics

19	Your age	4	5	6
20	Your gender

Appendix L—Kindergarten WillTry Post-Test

[Page 1]

WillTry Interview (FMCNP Version Post-Test)

		Yes	Maybe	No
1	Would you be willing to taste a new food if offered?			

The following questions refer to WHERE you might be willing to taste new food.

a.	At home?			
b.	At a relative's home?			
c.	At a friend's home?			
d.	At a restaurant?			
e.	At school?			
f.	At a grocery store?			
g.	At the farmers market?			

There are 3 possible responses for the following questions. Please answer the following questions for yourself.

		Yes	Maybe	No
2	Would you be willing to taste a new vegetable?			
3	Would you be willing to taste a new fruit?

4	Would you be willing to try a new dish (e.g. casserole?)			
---	--	--	--	--

5	Would you be willing to have a fruit or vegetable for a snack?			
6	Would you be willing to taste an apple?			
7	Would you be willing to taste dried apple?			
8	Would you be willing to taste cantaloupe?			
9	Would you be willing to taste canary melon?			
10	Would you be willing to taste sunflower sprouts?

11	Would you be willing to taste radish sprouts?			
12	Would you be willing to taste spinach?			
13	Would you be willing to taste arugula?			
		Yes 3	Sometimes 2	No 1
14	In general, do you consider yourself a healthy eater?			
15	In general, do you consider your parent a healthy eater?			

		Eat only favorite foods	Eat most foods	Will eat any food offered
16	Which of these best describes you?			
17	Which of these best describes your parent?

Farmers' Market

		Yes	Don't know	No
18	Have you ever been to a farmers' market before this program?			
		Yes	Maybe	No
19	Would you go to a farmers' market again in the future?			
20	Do you think you eat more fruits and vegetables now that you've been to the farmers' market?			
21	Were there other fruits and vegetables you saw at the farmers' market that you'd never tasted before, but would have liked to taste?			

Appendix M—Student Notebook

[Cover]

Notes

APPLE

	I tried it	I liked it -OR- I didn't like it	I'll try it again	Describe
Fresh Apple				
Dried Apple				

GREENS

	I tried it	I liked it -OR- I didn't like it	I'll try it again	Describe
Spinach				
Arugula				

MELON

	I tried it	I liked it -OR- I didn't like it	I'll try it again	Describe
Cantaloupe				
Heritage Melon				

SPROUTS

	I tried it	I liked it -OR- I didn't like it	I'll try it again	Describe
Sunflower Sprouts				
Radish Sprouts				

Appendix N—Parent Homework and Survey

PARENT “HOMEWORK”

Here are some questions you can ask your child about the farmers’ market field trip:

1. Tell me about the farmer you met today.
2. How does the food at the farmers’ market get there? Where does it start? What does the farmer do to get it there?
3. What foods were there to taste?
4. Did you try any of them? Which ones?
5. Did you like the foods you tried?
6. Were there any you didn’t like?
7. Were there any foods you didn’t try? Why not?
8. What does it mean when we call a food “local?”
9. What can you tell me about saving seeds?
10. Are sprouts young plants or old plants?

Parents, please write below what you learned from your child today after talking about the farmers’ market field trip.

Please complete the Parent Survey for the Santa Fe Farmers’ Market Children’s Nutrition Program on the reverse side of this sheet.

This survey is confidential! Please return in the envelope provided.

COMPLETE THIS SURVEY AND RETURN IT TO YOUR CHILD’S TEACHER TO RECEIVE A COUPON FOR **FREE COFFEE OR TEA AT THE SANTA FE FARMERS’ MARKET CAFÉ!**

PARENT SURVEY

COMPLETE FOR A COUPON FOR FREE COFFEE/TEA AT THE MARKET CAFÉ!

1. Did your child bring home a fruit or vegetable from their trip to the farmers' market? (circle one)

Yes No

If "Yes," please answer questions 2-4.

2. What food did your child bring home?

3. Did you taste it? (circle one)

Yes No

4. Have you tasted this food before? (circle one)

Yes No

Please answer the following:

5. On a scale of 1-5, how would you describe your child as a "picky eater?" (1=very picky, 5=never picky)

1 2 3 4 5

6. On a scale of 1-5, how willing is your child to try any fruit? (1=completely unwilling, 5=very willing)

1 2 3 4 5

7. On a scale of 1-5, how willing is your child to try any veggie? (1=completely unwilling, 5=very willing)

1 2 3 4 5

8. How often do you offer a fruit or vegetable to your child? (check one)

☐ 3 or more times per day

☐ 1-2 times per day

☐ 5-6 times per week

☐ 2-4 times per week

☐ 1 time per week or less

9. How often do you eat a fruit or vegetable? (check one)

☐ 3 or more times per day

☐ 1-2 times per day

☐ 5-6 times per week

☐ 2-4 times per week

☐ 1 time per week or less

10. Do you feel the Santa Fe Farmers' Market Children's Nutrition Program may be effective in influencing your child to try fruits and vegetables?

Yes No Don't Know

11. Where do you buy most of your groceries? (Rank the top three 1=most groceries, 3=least groceries, leave others blank)

☐ Albertson's

☐ Smith's

☐ Lowe's

☐ Sam's

☐ Kaune's

☐ Sunflower

☐ Whole Foods

☐ Trader Joe's

☐ La Montanita

☐ Santa Fe Farmers' Market

☐ Other

(Write below)

12. Are you currently a participant in the WIC or SNAP Programs? (circle one)

Yes No

13. Please indicate your household income: (check one)

☐ Less than \$20,000 per year

☐ \$21,000-40,000 per year

☐ \$41,000-60,000 per year

☐ \$61,000-80,000 per year

☐ \$81,000-100,000 per year

☐ More than \$100,000 per year

14. What is your household size? _____ (# of people)

15. Please indicate your level of education completed: (check one)

- ☐_Some high school
- ☐_High School graduate/GED
- ☐_Some college or Associate's Degree
- ☐_Bachelor's Degree
- ☐_Master's Degree
- ☐_Doctoral Degree

16. Please indicate your race/ethnicity.

17. Please indicate your gender. (circle one) Male female

Appendix O—Children’s Nutrition Program Lesson Plan

Lesson Plan:

Have samples plated and on trays, ready to pass out.

Materials:

Easel
Post-It pad
Big sample booklet page
Whiteboard markers
Regular markers
Butcher paper?
Paper plates
Trays
Apple cutter
Knife
Cutting board
Pencils
Colored pencils
Signs
Booklets
Parent homework/surveys
Supplementary packets
Varieties of apples for table display
Sunflower
Radish
Whole melons for each table, one of each cut in half w/ seeds

Arrival—Wait outside to greet & lead to education area

Tell where bathroom is.

Background (new pilot program):

You are a very special group—the first to come and participate in the FMCNP!

We need to say thank you to your teacher for your being here today!

Overview of what going to do: taste, record, reflect, other activities

What you write in your booklets is very important. I'm really looking forward to what each of you wrote about the fruits and vegetables you taste today! You do not have to taste something if you don't want to. Because you're some of the first students to be here for the new CNP, you're going to help us find out if other students may like to come so they can participate too.

- Pass out booklets.

Does anyone know how the food sold here at the FM gets here?

Kinder/2nd: Flow chart activity using big paper

Where does the food come from?

What's the farmer's first step when he/she starts out at the farm?

Then what do they do to help the plant grow—what does a plant need?

Once the plant is ready to eat, but it's still in the ground, what do we do?

[harvest]

What does "harvest" mean?

And how does the farmer get it to market?

"Let's meet a real farmer! This is _____ and he/she's going to tell you about his/her farm and what he/she grows."

- Farmer _____

"Thank you _____! Wasn't he/she great?! All the farmers are just as nice as _____, so don't feel shy asking them questions about their farm and what they grow!"

APPLES

"Everybody turn to the page that says "Apples" on it."

- Take out giant sample booklet page
- Write "Apple" at the top.

Let's start by drawing an apple in our booklet. In the blank box on the 'Apple' page in your booklet, draw an apple using the colored pencils. You'll have to share the pencils."

"In a few minutes we're going to write in our notebooks. We're going to record our observations and reactions in our notebooks like scientists. Scientists always make notes and observations about what they're studying. Today we're studying

fruits and vegetables, so it's important that you follow my instructions very carefully. Don't rush ahead! This is important that we go step-by-step."

"Before we taste any F&V we have to wash our hands!"

- Pass hand sanitizer around.

"When we give you your plate of foods, don't taste anything until I tell you it's time!"

- As they sanitize hands, pass out tasting plates. Make sure I (presenter) have a tasting plate.

"In the middle of the tables are apples that Farmer _____ grew. On your plate you can see two kinds of apple—a piece of fresh apple and a piece of dried apple. (hold up each as to indicate which is which)

"Look how different they are! How do you think it got from this (hold up fresh apple slice) to this (hold up dried apple slice)? [After apples picked from the trees, they're cored and sliced. They they're placed in a machine called a dehydrator, which removes the moisture/water from them, so they dry out. Drying foods is a way to preserve them, a way of making them last a long time so they don't rot/mold/spoil/go bad. Dried foods are great because they don't have to stay in the refrigerator, which saves energy. Some people even dry foods using the sun instead of a dehydrator, which is another way to save energy! In fact, this is how they did it in the olden days before most people had electricity.]

Fresh Apple

"Now we're going to taste the apple. Let's start with the fresh apple (hold it up). You can taste the apple if you want to, but if you don't want to you don't have to. If you decide not to, wait for a moment while those that choose to try it."

"Okay, now everybody look at the chart in your booklet. The one that looks just like this one I have here. In this first blank box draw an "O" if you tried the fresh apple, or an "X" if you did not try the fresh apple.

"Now in the next box ONLY IF YOU TRIED THE APPLE draw an "O" if you liked it or an "X" if you didn't like it.

"Don't worry about making anybody happy, what's important is that what you record in your notebook is accurate, that it's the most honest truth.

In the box next to that, you can make an "O" if you think you would try fresh apple again, or an "X" if you do not think you will try it again.

The last box is to describe the fresh apple—how did it look, smell, feel, taste?

Kinder: What we're going to do is all think of description words together and I'll write them on this giant piece of paper!

2nd and 3rd:

4th:

Dried Apple

“Now let’s taste the dried apple (hold it up). Remember, you don’t have to taste it if you don’t want to, just wait a moment while others do.

“Now we’re going to go back to our notebooks. In this first blank box draw an “O” if you tried the dried apple, or an “X” if you did not try the dried apple.

“Now in the next box ONLY IF YOU TRIED THE DRIED APPLE draw an “O” if you liked it or an “X” if you didn’t like it.

“Don’t worry about making anybody happy, what’s important is that what you record in your notebook is accurate, that it’s the most honest truth.

In the box next to that, you can make an “O” if you think you would try dried apple again, or an “X” if you do not think you will try it again.

The last box is to describe the dried apple—how did it look, smell, feel, taste?

Kinder: Let’s all think of some description words for the dried apple.

2nd and 3rd:

4th:

SPROUTS

Okay, now turn to the page in your booklet that says “Sprouts.”

- Erase sample booklet page and write “Sprouts” on top.

Let’s start by drawing sprouts in our booklet. In the blank box on the ‘Sprouts’ page in your booklet, draw sprouts using the colored pencils. You’ll have to share the pencils.”

There are two kinds of sprouts on your plate, sunflower sprouts (hold up and describe “bigger, round leaves”) and radish sprouts (hold up and describe “smaller leaves, skinnier stem”). Susan grows these sprouts and even delivers some of the sunflower sprouts to your school, which they use in some of the lunches there! Sprouts are actually baby plants that we harvest and eat before they grow up! Can anyone guess what the sunflower sprout would grow into if we didn’t harvest it? What about the radish sprout?

- Show sunflower and radish.

There’s a cool activity packet that you’ll get later on and inside there are yummy recipes that you can do yourself or with an adult and there’s an activity where you can grow your own sprouts! How cool is that?

Sunflower Sprouts

“Now we’re going to taste the sprouts. Let’s start with the sunflower sprouts (hold some up). You can taste the sunflower sprouts if you want to, but if you don’t want to you don’t have to. If you decide not to, wait for a moment while those that choose to try them.”

“Okay, now everybody look at the chart in your booklet. The one that looks just like this one I have here. In this first blank box draw an “O” if you tried the sunflower sprouts, or an “X” if you did not try them.

“Now in the next box ONLY IF YOU TRIED THE SUNFLOWER SPROUTS draw an “O” if you liked it or an “X” if you didn’t like it.

“Don’t worry about making anybody happy, what’s important is that what you record in your notebook is accurate, that it’s the most honest truth. In the box next to that, you can make an “O” if you think you would try sunflower sprouts again, or an “X” if you do not think you will try it again.

The last box is to describe the sunflower sprouts —how did it look, smell, feel, taste?

Kinder: What we’re going to do is all think of description words together and I’ll write them on this giant piece of paper!

2nd and 3rd:

4th:

Radish Sprouts:

“Now let’s taste the radish sprouts (hold some up). Remember, you don’t have to taste them if you don’t want to, just wait a moment while others do.

“Now we’re going to go back to our notebooks. In this first blank box draw an “O” if you tried the radish sprouts , or an “X” if you did not try the radish sprouts .

“Now in the next box ONLY IF YOU TRIED THE RADISH SPROUTS draw an “O” if you liked it or an “X” if you didn’t like it.

“Don’t worry about making anybody happy, what’s important is that what you record in your notebook is accurate, that it’s the most honest truth.

In the box next to that, you can make an “O” if you think you would try radish sprouts again, or an “X” if you do not think you will try it again.

The last box is to describe the radish sprouts —how did it look, smell, feel, taste?

Kinder: Let’s all think of some description words for the dried apple.

2nd and 3rd:

4th:

MELON

Let’s try another fruit! Turn to the page in your booklet that says “Melon.”

- Erase sample booklet page and write “Melon” on top.

Let’s start by drawing a melon in our booklet. In the blank box on the ‘Melon’ page in your booklet, draw melon using the colored pencils. You’ll have to share the pencils.”

Does anyone know what kind of melons are in front of you? [Time to answer] Farmer _____ grew these melons. He/she told me [explain how farmer grew them].

Look at the seeds inside. You can actually save the seeds and plant them to grow more melons—this is called **seed saving**. I want to keep you on your toes, what’s “seed saving?”

Cantaloupe is a more common melon, and _____ is a **heritage** variety.

Does anyone know what I mean by “heritage variety?” This means that only a few people grow them, or they were grown a long time ago, and the farmers who grew them saved the seeds to grow them again or to share with other farmers.

This is how this special variety survived and didn't die out. Imagine if nobody had saved the seeds for this kind of melon—it wouldn't be here for us to taste today!

Cantaloupe

"Now we're going to taste the melons. Let's start with the cantaloupe (hold a piece up). You can taste the cantaloupe if you want to, but if you don't want to you don't have to. If you decide not to, wait for a moment while those that choose to try them."

"Okay, now everybody look at the chart in your booklet. The one that looks just like this one I have here. In this first blank box draw an "O" if you tried the cantaloupe, or an "X" if you did not try it. "Now in the next box ONLY IF YOU TRIED THE CANTALOUPE draw an "O" if you liked it or an "X" if you didn't like it.

"Don't worry about making anybody happy, what's important is that what you record in your notebook is accurate, that it's the most honest truth. In the box next to that, you can make an "O" if you think you would try cantaloupe again, or an "X" if you do not think you will try it again.

The last box is to describe the cantaloupe—how did it look, smell, feel, taste?
Kinder: What we're going to do is all think of description words together and I'll write them on this giant piece of paper!

2nd and 3rd:

4th:

Canary Melon

"Now let's taste a piece of _____ (hold a piece up). You can taste the _____ if you want to, but if you don't want to you don't have to. If you decide not to, wait for a moment while those that choose to try them."

"Okay, now everybody look at the chart in your booklet. The one that looks just like this one I have here. In this first blank box draw an "O" if you tried the _____, or an "X" if you did not try it. "Now in the next box ONLY IF YOU TRIED THE _____ draw an "O" if you liked it or an "X" if you didn't like it.

"Don't worry about making anybody happy, what's important is that what you record in your notebook is accurate, that it's the most honest truth.

In the box next to that, you can make an "O" if you think you would try _____ again, or an "X" if you do not think you will try it again.

The last box is to describe the _____—how did it look, smell, feel, taste?
Kinder: What we're going to do is all think of description words together and I'll write them on this giant piece of paper!

2nd and 3rd:

4th:

GREENS

Okay, now turn to the page in your booklet that says “Greens.” When I say “greens” I’m talking about the leafy green vegetables in front of you. You have spinach and arugula.

- Erase sample booklet page and write “Greens” on top.

Let’s start by drawing some greens in our booklet. In the blank box on the ‘Greens’ page in your booklet, draw spinach or arugula or both using the colored pencils. You’ll have to share the pencils.”

Farmer _____ grew this spinach and arugula. His/her farm is [location], which is really close to here. That’s why we call this spinach and arugula local. In fact, all the foods you see here today were grown right her in northern NM, so it’s all local! Did you know a lot of the food you see in the grocery store comes from far away? After it’s harvested, it travels in a truck for days and days to get to the grocery store. What do you think this does to the nutrients—the vitamins and minerals—in the food? Is it as nutritious as the food we eat the same day it is harvested? Do you think it tastes the same? [allow for answers, leave open-ended].

Okay, now let’s taste our fresh, local greens!

Spinach

“Let’s start with the spinach (hold some up). You can taste the spinach if you want to, but if you don’t want to you don’t have to. If you decide not to, wait for a moment while those that choose to try it.”

“Okay, now everybody look at the chart in your booklet. The one that looks just like this one I have here. In this first blank box draw an “O” if you tried the spinach, or an “X” if you did not try the spinach.

“Now in the next box ONLY IF YOU TRIED THE SPINACH draw an “O” if you liked it or an “X” if you didn’t like it.

“Don’t worry about making anybody happy, what’s important is that what you record in your notebook is accurate, that it’s the most honest truth.

In the box next to that, you can make an “O” if you think you would try spinach again, or an “X” if you do not think you will try it again.

The last box is to describe the spinach—how did it look, smell, feel, taste?

Kinder: What we’re going to do is all think of description words together and I’ll write them on this giant piece of paper!

2nd and 3rd:

4th:

Arugula

“Now let’s taste the arugula (hold some up). Remember, you don’t have to taste it if you don’t want to, just wait a moment while others do.

“Now we’re going to go back to our notebooks. In this first blank box draw an “O” if you tried the arugula, or an “X” if you did not try the arugula.

“Now in the next box ONLY IF YOU TRIED THE ARUGULA draw an “O” if you liked it or an “X” if you didn’t like it.

“Don’t worry about making anybody happy, what’s important is that what you record in your notebook is accurate, that it’s the most honest truth.

In the box next to that, you can make an “O” if you think you would try arugula again, or an “X” if you do not think you will try it again.

The last box is to describe the arugula—how did it look, smell, feel, taste?

Kinder: Let’s all think of some description words for the arugula.

2nd and 3rd:

4th:

WRAP-UP

Well, we talked about a lot today—how food is preserved by dehydrating, how sprouts are baby plants, seed-saving, and local foods. What other questions do you have about the farmers market? [Prompts: farmer, farm, foods grown...]

Were any of the foods here foods you’ve never tried? Which ones?

Now I’m going to collect your note books. I will give them back to you next week.

You were all real scientists today! At the end of the day your teacher is going to give you homework for your parents to do. Tell them what you did here today so THEY can learn from YOU!

Okay, we’re going to end with a super-fun activity—you are going to break up into small groups and go buy something from a farmer to take home and share with your family!

- Pass out shopping lists and tokens.

You each get two wooden tokens that are valued at \$2. It’s special money that you can only spend here at the market. You’re also getting a shopping list.

When you get your list, use a pencil to circle ONE food that you are going to go buy. Here are your options, listen first, then make your choice.

- Read through list.

Did everybody circle the one food they’re going to go buy?

Okay, remember to share it at home!

THANK YOU EVERYONE! SEE YOU LATER!

Appendix P—Shopping List

Salad greens
Arugula
Cucumbers
Lemon cucumber
Tomatoes
Garlic
Zucchini
Squash
Radishes
Carrots
Potatoes
Onions
Peppers
Sunchokes
Raspberries
Beets
Chard
Turnips
Apples

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