

## Evaluation of Enjoying Our Healthy Harvest

### Introduction

*Enjoying Our Healthy Harvest* - Nutrition Education Curriculum for 4th graders, from garden to the table.

This curriculum encourages knowledge gain and behavior change to consume more variety of fruits and vegetables. Students also learn basic food safety and preparation techniques in six lessons.

The first lesson teaches proper hand washing technique. Other lessons focus on one fruit or vegetable each week. In each of the lessons participants learn how to select fresh produce, discover the nutrient-rich properties, clean the produce and do a simple preparation or have a sampling of the varieties of that produce. Lessons include hands-on, visual and auditory components.

This curriculum is targeted at students studying their home state agriculture in their social studies curriculum. It also supports some of their writing, math, geography and science standards.

*Enjoying Our Healthy Harvest* can easily be adapted for beginning cooks that are older youth or adults.

### Method

To develop a survey especially for this curriculum an advisory committee was formed. Marc Braverman, FCD Program Leader as the primary advisor contributed to the development and review of the type of survey, survey wording, style of question and formatting. Carolyn Raab and Jill Murray also contributed to the development and review.

A pre- and post- survey was developed to measure behavior change, rather than knowledge alone. Making a behavior change is valuable in contributing to developing habits that will help students with lifelong healthy patterns.

The survey was developed for 4<sup>th</sup> grade students. The survey was piloted in the spring of 2008 with several classrooms. Two to three students in each class were interviewed to check question comprehension. Students affirmed their comprehension. No changes were made in the survey. IRB approval was obtained in the fall of 2008 from Oregon State University IRB.

The survey was administered in 32 classrooms in the fall of 2008. There were 387 respondents.

### Results

This curriculum approaches behavior change in a fun, interactive format. New behaviors are practiced and repeated in the classroom format with positive reinforcement that is auditory, visual and kinesthetic. Some students already had positive behaviors that are measured in this survey at the desired behavior level. This may be because they are actually doing the behavior. However, some of the respondents may have circled the best responses to have a chance to “look good” in a document that is not graded, but that looks like a test. I don’t think that this is very likely because only one survey respondent selected all of the most desired behaviors on both the pre- and post-surveys.

There could have been some confusion by the survey respondents that resulted in an increase or decrease in behavior response. Because Almost Always, Most of the Time, Sometimes and Not very often are not quantified and the surveys are administered at least 6 weeks apart, students may not have remembered how they valued each of the choices. Also as they began the pre-survey, they may have felt that they were practicing the behavior at a higher level than they came to realize was their practical application. Instead of starting at Most of the Time they realized that there was a much higher standard

for the practice. In reality, they then perceived themselves as Not Very Often and had improved to Sometimes.

Other students may have not taken the survey seriously. Some students don't recall their behaviors well. Other students with low reading levels may have randomly circled responses so that they could complete the surveys when the rest of the class started finishing the survey. A "bad day" may have influenced the responses.

The highlights of the evaluation were the results from question 2, 6 and 7. While many nutrition education curriculums for youth focus on the MyPyramid and being able to identify the foods that fit in each food group (knowledge and comprehension), this curriculum focused on developing the student's ability to synthesize and evaluate. Students need to judge and compare produce for quality, then devise a method to properly clean it and plan and implement preparation for the best taste and acceptance by the family and friends. Questions 2, 6 and 7 showed behaviors were adopted that demonstrated advanced learning objectives. Questions 2 and 7 had the least pre-existing behaviors; 8.0% and 8.8%, respectively.

**Question 1: *Before I touch or eat food, I wash my hands...***

In this question I wanted to see if students carried over a behavior learned in previous years in our program. This lesson is always the first in each series. It was also important to check on hand washing behavior that improved with additional students. We were pleased that 41.1% of students already performed at the best practice level, and that 25.8% of students improved hand washing behavior. This means that 66.9% of students valued this practice. There was no (or negligible change) in 16.3% of the students. A decrease was indicated by 16.8% of students. Various reasons could account for this.

**Question 2: *I help pick out fruits or vegetables at the store...***

The empowerment of the students that was measured by this question was very exciting. While some students may not be allowed to help with this task yet, 33.3% of students clearly told us that they were helping their families. Anecdotal evidence showed that students were also showing their parents how to select produce and prepare it at home. Only 8% of students already were helping at the market. The students that did not change but may have participated less frequently were 33.3% and those that felt that their behavior decreased was 25.1%. I believe that this decrease may reflect that they are not yet allowed to help with this task at a new level of experience that they have gained.

**Question 3: *When I prepare fruits and vegetables to eat, I clean them...***

This question is similar to Question 1 in that our program assistants always discuss cleaning produce in lessons taught at each grade level. 42.1% already knew this and 26.6% improved their behavior for a total of 68.7% cleaning produce before preparing them. 11.9% did not change their practice and 19.4% decreased.

**Question 4: *I eat different kinds of fruits...***

The results of this question puzzled me. Perhaps those that decreased were acknowledging that they recognized the wide variety of fruit...and their consumption was more limited than they previously believed. In this question 23.8% increased and 20.9% were already at the best practice for a total of 44.7%. There was no improvement by 26.1% and 28% decreased. Perhaps limited resources played a role in the types and kinds of fruit available at home. There may have been two or three types of fruit at school breakfast or lunch, but this may have been perceived as a narrow selection.

### **Question 5: *I eat different kinds of vegetables...***

While I found question 2, 6 and 7 to be the stars of this survey, this question reflects remarkable results. Vegetables are not the most popular food group. In our adult classes, having them taste a vegetable is more of a challenge than you would expect. Here we have students that are trying vegetables, convincing unwilling and astonished parents to purchase them, and choosing more than one kind! 27.6% of the students improved their consumption of a variety of vegetables while only 13.2% were already enjoying a variety of them. This total, 40.8% is really quite amazing! The students that made no change but may have enjoyed them occasionally was 24% and those that decreased were 19.6%. Again, limited resources could have impacted this change at home.

### **Question 6: *I like to try new foods...***

Learning how to taste is FUNdamental...and we emphasize the fun in learning. The variety of colors and shapes and textures in produce brings something exciting to the table for everyone. In addition to the pre-existing 22% of the adventurous eaters another 34.1% joined them for a total of 54.1%. There were 24% who did not make a significant change and 19.6% of the students decreased. We recognize that change is not for everyone, yet by respectfully offering a variety of foods, over time, students will try foods and learn to enjoy some of them.

### **Question 7: *I prepare fruits or vegetables for myself or others...***

The goal of this curriculum is reflected in this survey questions. Will a student put their culinary reputation on the line by preparing produce to be tasted and judged by others? Can an empowered 4<sup>th</sup> grader step into the kitchen to confidently and safely prepare good tasting food from scratch? Our survey says that 29.5% of the students are now practicing this behavior joining only 8.8% that previously had this skill and confidence for a total of 38.3%. Some students, 33.3%, haven't changed this behavior, but may have some level of participation and confidence. There were 28.2% of the students that reported a decrease. Anecdotal evidence here showed that some were just not ready to let anyone but Mom prepare their food.

## **Interpretation/Discussion**

The exciting aspect of this survey is that all of the survey questions relate to behavior change. To implement behavior change advertisers know that they need to get the message out ten different times, ten different ways. To affect change with this curriculum, we deliver six weekly lessons and invite the teachers to also support the messages that are important to ***Enjoying Our Healthy Harvest*** with additional activities that we provide to the teachers each week. Through this combined effort, 80.1% of all the survey respondents improved at least one behavior. This is remarkable and exciting.

By offering a variety of skills to learn about and practice, students were able to adopt and improve at least one behavior that gave them current value. Repeated exposure to knowledge and comprehension discussion and activities regarding nutrition basics supported the skills demonstrated and practiced at each lesson. Combining the basic concepts of the lesson with academic focused activities also helped support core content learning. Perhaps learning about where a vegetable grows, what a carrot looks like when it comes out of the ground – with the greens intact – or creating a story or creating an advertising jingle for carrot consumption combine to enhance learning and influence behavior change for the selection and safe preparation of a tasty fruit or vegetable.