

Fresh Minds, From Farm to Classroom: A Nutrition and Agriculture Game

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INTRODUCTION

Although American teens know that a healthful diet includes plenty of fruits and vegetables, over half eat less than 1 serving of fruit a day and almost a third eat less than 1 serving of vegetables a day that is not fried.¹⁻³ Although they may know the fundamentals of nutrition, teens are not sure how eating more fruits and vegetables would benefit them specifically.¹

A recent study suggests that many adolescents are curious about where food is produced and would like more locally grown foods to be available.⁴ This is important not only because eating a diet rich in fruits and vegetables may reduce the risk of many chronic diseases⁵ but also because a number of environmental and social problems are associated with large, specialized farming practices in the United States, such as depletion of natural resources and a decline in the economic viability of small farm communities.⁶ We reasoned

that educating teens about the social and economic benefits of eating more locally grown foods, along with the specific health benefits of eating more colorful fruits and vegetables, would stimulate them to think more critically about their food choices.

To raise awareness and improve attitudes about eating colorful, locally grown produce, we developed a game for high school students in collaboration with Natick High School and the Natick Community Farm in Natick, Massachusetts. The game underscores the complex nature of the food supply and how food choices ultimately contribute to personal health, community health, and the sustainability of US agriculture. We created a game because students enjoy participating in competitive exercises and because games have raised awareness and influenced attitudes in other one-time interventions.⁷⁻⁹

PROGRAM DESCRIPTION

Approximately 2 months before conducting our pilot intervention, we contacted the local school and farm we were interested in collaborating with and set up meetings with each to discuss how we could work together. Both a farm liaison and a teacher were eager to work with us. We discussed the role each would play and our projected timeline. During program preparation, we held regular updates with our partners via electronic mail and telephone to include them in creative development and planning for project execution.

The Jeopardy-like game was conducted with 18 high school students during a 1-hour family and consumer science class. The session included a 10-minute introduction, 35 minutes of the game (Figures 1 and 2), and 15 minutes of discussion. Game questions, written at an 8th grade literacy level, emphasized the benefits of eating colorful fruits and vegetables and the importance of choosing locally grown food. The questions highlighted the

benefits of eating fruits and vegetables that may resonate with teens, such as “increased energy,” “being fit,” and “fewer colds.”

A baseline survey was administered 2 weeks before the game. One week prior to the game, students were given a brief reading assignment to introduce the subject matter. The game consisted of 7 color categories, with 1 nutrition and 1 agriculture question in each category worth either 100 or 200 points. Each of 2 teams had 60 seconds to answer. Correct answers were rewarded with 50-point bonus questions. Incorrect answers gave the other team a chance to respond. If no team was able to answer a question correctly, the bonus question went to both teams and whoever signaled first with either a bell or a whistle could respond. Brief discussions followed each question to reinforce content and clear up any confusion. After the game, we led a discussion to give students the opportunity to ask questions and to find out what they learned and if they enjoyed the game. We also served fruit and vegetable snacks provided in part by the farm. One day after the game, students completed a posttest. We planned for students to later visit the farm to reinforce concepts introduced during the game and to redeem their \$3 coupons for free produce.

PROGRAM EVALUATION

Student enthusiasm during the game and their feedback afterward indicated its success. Students commented, “The game was fun,” “I learned a lot,” and “A game is so much better than being lectured to.” Dividing students into teams successfully stimulated discussion and minimized the likelihood that any one student would be left out or feel “on the spot.”

Our evaluation consisted of a pre/post survey. Fifteen students answered the pretest and 13 students answered the posttest. Both pre- and

| RED | PURPLE | ORANGE | YELLOW | DARK GREEN | LIGHT GREEN | WHITE |
|-----|--------|--------|--------|------------|-------------|-------|
| 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 200 | 200 | 200 | 200 | 200 | 200 | 200 |

Figure 1. The game board.

| 100 point question | 50 point bonus | 200 point question | 50 point bonus |
|--|--|---|---|
| What percentage of food eaten by * residents is actually grown in *? a) 7% b) 18% c) 26% d) 53% | Name one disadvantage of eating food grown outside of *. Possible answers include: discourages the local economy by taking money outside of the state; discourages local farm sustainability; the fuel that goes into transporting food long distances pollutes the air and is not renewable. | Foods in the red color category contain lycopene, which is a powerful antioxidant that helps reduce inflammation or swelling, such as occurs following injury. Which fruit or vegetable is lycopene primarily found in? (a) spinach (b) oranges (c) bananas (d) tomatoes | What is the recommended minimum number of servings of fruit and vegetables you should eat every day (by the National Cancer Institute)? 5 |

Figure 2. Sample questions from the RED color category.

posttest pilot results indicated that most respondents knew that it is important to eat fruits and vegetables. A majority (60%) listed specific health benefits from eating fruits and vegetables pretest, but that number rose to 80% posttest. Only 1 in 5 students (20%) could provide a rationale for the importance of knowing where food comes from pretest compared with 100% posttest. At baseline, only 13% agreed that there are environmental effects of food choices compared with 54% afterward, and no students were able to list the environmental impacts of food choices pretest compared with 46% posttest.

Our farm liaison expressed enthusiasm over the intervention and the fact that students appreciated having the coupons. Owing to scheduling issues, the class visit to the farm postintervention did not occur, but the farm kept the game and plans to use it in future programming with the school.

CONCLUSION

This program had several limitations. An hour did not allow for adequate sampling of snacks, discussion, and feedback. Also, questions in the pre/post surveys were too general to measure specific knowledge change, and most students did not do the preintervention reading. Although the game was not sufficient to

affect behavior, it could be useful as part of a more comprehensive initiative. Surveys that measure more specific knowledge changes and incentives to read the materials before the intervention should also be included in the future. Nevertheless, this inexpensive Jeopardy-like game raised general awareness about the benefits of eating colorful fruits and vegetables and supporting local agriculture among high school students. Collaboration with a local farm was an innovative way to reinforce the concepts and sustain the program.

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