

## **Teach the Teacher: A Lecture to Guide Future Educators on How to Teach Nutrition Education in Schools**

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Childhood obesity is a major health concern for children and adolescents in the United States. Furthermore, children who are overweight or obese are likely to grow up to be overweight and obese adults. Given this information, interventions aimed at improving the health of children and adolescents have the potential power to improve the lifelong health of the child. Schools have been an especially effective place to implement nutrition interventions for children. However, many barriers exist in providing effective nutrition education in schools. The aim of this project is to provide teachers-in-training with the knowledge, skills and abilities to confidently use evidence-based resources to teach nutrition in their classrooms. The goals and objectives for this program are as follows:

**Goal 1:** To educate future teachers on the best practices for nutrition education within schools, and to provide them with the tools necessary to incorporate nutrition education into their classroom.

- Objective 1: Conduct an hour and a half educational lesson for 11 teachers-in-training from George Fox University on January 28, 2016, measuring attendance at time of presentation.
- Objective 2: Model research-based nutrition education practices, including the Fun-Integrated-Behavioral method to George Fox University teachers-in-training by incorporating three participatory activities into the presentation.
- Objective 3: Provide two copies of Connie Liakos Evers' MS, RD curriculum, *How to Teach Nutrition to Kids, 4th ed* and *Nutrition Fun with Brocc and Roll, 2nd ed* to George Fox University teacher in training students immediately after the presentation.

**Goal 2:** To inspire teachers-in-training to implement nutrition education within their classrooms.

- Objective 1: Conduct an hour and a half educational lesson for 11 teachers-in-training from George Fox University on January 28, 2016, measuring attendance at time of presentation.
- Objective 2: Identify effectiveness of presentation on teachers' willingness to teach nutrition education using pre- and post-test questionnaires distributed electronically before and after the presentation.

### **Literature Review**

Despite the large and growing body of evidence stating that nutrition education in schools is effective, many of the specifics regarding how to best accomplish this goal are still under study.

Furthermore, there is a large variability among teachers regarding how much time they devote and the methods they use to teach nutrition in their classrooms.

### **Are Teachers Currently Teaching Nutrition?**

A review of the literature reveals that most educators acknowledge that teaching nutrition education is important; (1) A National Center for Education Statistics report from 2000 cited that over 80% of elementary school teachers taught at least some form of nutrition education in their classrooms. (2) A more recent study by Watts et al. found that 87% of teachers in New York State taught nutrition in some form during a school year. (3) The prevalence of nutrition education in the classroom is highly variable, and depends on the teacher, grade level, location of the school, and other factors.

The methods employed by teachers to educate their students about nutrition are also highly variable. Teachers tend to teach nutrition education with concepts like the relationship between diet and health, MyPyramid (which is now MyPlate), and the evaluation of food and eating patterns. (3,4) Teachers almost always use behavior-focused lessons to teach nutrition, and cite using tactics such as active discussion, collaboration, and hands-on activities in their lessons. (3,4) Nutrition is sometimes taught as its own lesson, but may also be lumped in with physical education classes. (3) The literature also revealed that some teachers aim to incorporate nutrition into the bigger picture of a student's learning environment. Roseman et al. found that over half of teachers surveyed involved families in the curriculum or tried to incorporate changes in accordance with healthy changes in the school food environment. (4)

While research shows that most educators are willing to teach nutrition and, often are teaching nutrition, it also points out that the ways in which they teach it and the amount of time spent teaching it need improvement. For example, a joint statement from the Academy of Nutrition and Dietetics, School Nutrition Association, and Society for Nutrition Education states that 50 hours per school year of nutrition education is necessary to facilitate behavior change. (5) However, the average number of hours per school year currently spent teaching nutrition is 13. (2) Additionally, teachers themselves state that there are many barriers that stop them from teaching nutrition, including a lack of time, support, funding, student motivation, or lack of nutrition knowledge. (1,6) Furthermore, the lack of a standardized curriculum may leave teachers at a loss for where to turn for nutrition information or resources. (1)

### **Best Practices for Nutrition Education in Schools**

As the body of research on effective nutrition interventions in schools continues to grow, we are beginning to see a clear picture of what works. Research shows that 50 hours per school year or more of nutrition education is necessary for behavior change. (5) In a standardized school year, this equates to approximately 11 minutes per day and one 30-minute nutrition lesson per week.

(7) In an age where teachers are already working overtime to complete a thorough list of tasks and educational goals, adding 50 hours to teach nutrition can seem like a daunting task. However, research shows that nutrition education is especially effective when it is integrated into other subjects. (5) Integrating nutrition topics into other subjects allows students a regular, routine exposure to the subject matter, and takes much of the time burden off of teachers.

Applying the Social Ecological Model is especially effective when looking at nutrition education. It is important that education target not only the individual student, but his or her social networks, school environment, community environment, and related policies.

Recommendations for nutrition education also highlight this model and are outlined below:

- *Individual*: Use behavior-based nutrition education, including hands-on activities and experiences in the classroom. Make activities relevant and applicable to students in the present time. (1,4)
- *Interpersonal*: Get peers involved. Peer influence is an especially powerful motivator in adolescents, and could be a useful motivator in choosing healthful foods. (8)
- *Organizational*: Create a classroom or school environment that makes nutrition a priority. Encourage principals and staff to support nutrition education initiatives. Collaborate with kitchen and school lunch program to reinforce healthy messages in the lunchroom. Ensure adequate time for meals. (1,4)
- *Community*: Involve parents and outside organizations. Parents can help establish healthy behaviors for children and are integral to change, as they determine what a household eats. Involving parents reinforces the behavior both in school and at home. (1,4)
- *Policy*: Whether national, state, local or organizational, setting nutrition policies help create a culture of wellness and encourage positive changes. (1)

### **Inspiring Teachers and Sustaining Nutrition Education in Classrooms**

As previously mentioned, effective nutrition education seems to work best when it is presented often throughout the school year; integrated within other subjects, programs and environments; and kept fun and behavior-based to maximize child interest. However, for any change to be made, teachers must buy-in to the idea and agree to incorporate evidence-based nutrition education into their curriculum. (6) The question still arises: how do we address teachers' barriers and motivate them to teach nutrition?

A study by Friend et al. set out to see what motivated teachers to continue implementing nutrition interventions after formal research support ended. (6) They found that interventions were more likely to succeed if they fit within the current school structure; this corresponds with the evidence-based recommendation to integrate nutrition into current curriculum. Additionally, programs were more successful if they required little funding, training, or additional time to implement. Programs therefore should be free or inexpensive to implement, require little additional work from educators, and be fairly self-explanatory.

Additionally, the study found that teachers were more motivated to teach new programs if they viewed them as beneficial to their students. (6) This suggests that a large part of gaining teacher buy-in includes helping teachers to make the connection between nutrition education and better student learning outcomes. Since good nutrition is associated with improved learning and cognitive outcomes, as well as better health and self-esteem, teaching nutrition should be of high importance to teachers as a method to improve student outcomes. Nutrition education is also related to improvements in a child's behavior in the classroom. (5) While not exclusively a student outcome, better classroom behavior may also prove to be a huge motivator for teachers to teach nutrition education. Furthermore, teachers were more likely to utilize nutrition education programs if they viewed them as beneficial to the health of the child.<sup>6</sup> Better nutrition, of course, is tied to a variety of improved health outcomes; highlighting the role of nutrition in improving a student's health may also increase buy-in.

In summary, although teachers are providing nutrition education in the classrooms, there are still large gaps in the amount, type, and disparities of education that must be addressed. Teachers have the special advantage of reaching a variety of children, from all backgrounds, for a large portion of their life, making them a crucial source of nutrition education. Effective nutrition education should occur often throughout the school year, dispersed within subjects and environments, and appeal to students. Teacher concerns about relevance, time, money, and resources, should be addressed to increase teacher buy-in and use of nutrition education resources. Further education is needed regarding nutrition education materials for teachers, including how to market them and how to choose the most beneficial materials. (1,3,5) Additional research is also needed to determine how to best integrate nutrition across subjects, provide training to teachers, and assess longer-term outcomes of these interventions. (1,5,8)

### **Significance**

The education of nutrition fundamentals to school-aged children is increasingly relevant for the US population as evidenced by rising childhood obesity rates, overall lack of physical activity, growing portion sizes, and the prevalence of both sugar-sweetened beverages and junk food marketing. Previous research indicates that teaching nutrition education in schools contributes to improved behavioral and nutrition outcomes for children as students are able to more easily focus and learn new concepts when adequately nourished. (5) However, there are a number of existing barriers that discourage teachers from teaching nutrition to kids as a part of the regular academic curriculum, with few teachers meeting the evidence-based guideline of 50 hours of nutrition education per school year.

This project aims to identify and break down these barriers by providing aspiring teachers with the necessary guidance and tools to implement nutrition education curriculum and activities within their own classrooms. Schools serve as a special environment to reach kids of various

ethnic, cultural, and socioeconomic backgrounds, as well as students residing in both rural and urban communities. The project will educate teachers on how to capitalize on this unique learning environment in order to incorporate nutrition fundamentals into standardized academic disciplines such as mathematics, science, and language arts, allowing for cross-curricular learning opportunities.

### **Methods and Design**

#### **Target Audience**

This project will be designed for 11 teachers in training for a certificate in K – 8 educations at George Fox University campus located in Tigard, Oregon, completing the final term of their education degree.

#### **Project Implementation**

<b>Project Step</b>	<b>Date of Completion</b>
The final project proposal will be submitted for review.	November 24, 2015
All group members will present the project lesson plan to Dr. Debby Espinor of George Fox University.	January 8, 2016
The group will distribute online pre-questionnaires to presentation participants via the Survey Monkey tool, inquiring about their prior knowledge and experience of nutrition education as well as their motivation to teach nutrition in their classroom.	January 21, 2016
All group members will present a 1.5 hour lesson to 11 teachers-in-training participants at the Portland Center.	January 28, 2016
The group will distribute online post-questionnaires immediately following the lesson.	January 28, 2016
All group members will review and summarize the questionnaire results.	February 6, 2016

#### **Lesson Plan**

### ***Introduction and Icebreaker (5-10 minutes)***

To begin the presentation, all group members and teachers-in-training will provide brief introductions and descriptions of their respective backgrounds. An informal brainstorming and discussion period will follow in which participants will discuss the following questions:

- What experiences do you have with nutrition, and what prior knowledge do you have coming into this training?
- What are your experiences with nutrition education? Is this a topic you have thought about teaching?
- Why might it be beneficial for students to receive nutrition education?

### ***Lecture and Discussion: The Importance of Teaching Nutrition in Schools, Addressing the “Why?” (10 minutes)***

The lesson will commence with presenters prompting the teachers-in-training to state their knowledge of the overall health status of their student population. The presenters will then provide a select number of potentially shocking evidence and statistics relating to childhood health in order to illustrate why the subject matter is relevant to the participants as future teachers:

- Over the last thirty years, the childhood obesity rate in the United States has tripled. This correlates to one out of every five children now being obese in America. Thus, for a classroom of 25 students, five of those children are highly likely to be obese. (9)
- According to the CDC, nearly 70% of these obese children have at least one identified risk factor for cardiovascular disease, with 39% having up to two or more risk factors. (10)
- Within the school setting, childhood obesity has shown to contribute to psychological and emotional distress, leading to behavioral issues in school related to depression and low self-esteem. (10)
- As reported in The National Health and Nutrition Examination Surveys (NHANES), the majority of children in the US between the ages of 5-11 are not consuming an ideal diet, with the lowest diet components being whole grains and fruit and vegetables, respectively. (11)

Following the discussion of this evidence, the presenters will tie in and build upon the point that there is no standardized form of nutrition education for children, despite the serious consequences of poor child nutrition.

### ***Activity 1: Clementines (20 minutes)***

For the first activity, the participants will carry out a series of tasks with the clementine fruit in order to illustrate how food can be incorporated into multiple academic disciplines, specifically mathematics, visual arts, and language arts.

- Count and record the initial number of clementines on the table provided.
- Identify the number of clementines that a child would need to consume in order to achieve the recommended daily number of fruit servings.
- Peel and eat the clementines using plastic butter knives.
- Write a sentence using the clementine fruit.

#### ***Lecture and Discussion: Methods of Teaching Nutrition, Addressing the “How?” (10 minutes)***

The second lecture period will explain how the participants can integrate nutrition education into multiple disciplines, in addition to what topics are most important to teach within the 50 hour recommended time frame. In approaching this specific amount of instruction time, the lesson will touch upon the breakdown of this 50 hour time span into manageable segments of time such as how much instruction time would then be required on a monthly, weekly, and daily basis. The presenters will discuss the three main components of the F.I.B. approach as the basis for the learning activities demonstrated throughout the presentation, as well as a guideline for the participants’ use when providing nutrition education in the future:

- Make Learning Activities FUN
- INTEGRATE Nutrition Whenever Possible
- Promote BEHAVIOR Change

Following the description of the F.I.B. model, the presenters will express the importance of teaching nutrition in small, manageable segments over a consistent time frame throughout the school year. A open discussion will then take place among the presenters and participants regarding ways in which nutrition education can be incorporated into material that teachers are already using for instruction.

#### ***Activity 2: Pairing Nutrition with School Subjects (20 minutes)***

In the second interactive activity, the participants will select one academic subject and one food item from a series of paper cut-out options. For example, potential subject-food combinations could match up in the following ways:

- Mathematics + Snap Pea Pods
- Science + Granny Smith Apples
- Language Arts + Grapes

Once the participants have their selected items, the teachers-in-training will be asked to create an idea for a lesson that would incorporate the respective school subject, food item, and a relevant nutrition message.

***Lecture and Discussion: Key Nutrition Topics to Teach, Addressing the “What?” (10 minutes)***

The presenters will solicit participant input regarding which nutrition topics they believe to be of highest importance. Following the receipt and brief discussion of this feedback, the presenters will provide and describe their recommendations of the following key nutrition topics to cover over the 50 hours of nutrition education instruction time:

- The components of a well-balanced diet, focusing on the role of fruit and vegetables
- The importance of increased and regular physical activity
- The promotion of positive body image
- Navigating media marketing of unhealthy products aimed at children

***Activity 3: Nutrition Education Resource Scavenger Hunt with Recipe Distribution and Tasting (20 minutes)***

For the final activity of the presentation, the participants will be led on a scavenger hunt of quality nutrition resources for their use and reference when providing nutrition education. One group member will conduct the hunt, guiding the participants through the following websites and publications:

- *How to Teach Nutrition to Kids, 4th Edition* by Connie Evers, MS, RD
- *Nutrition Fun with Brocc and Roll, 2<sup>nd</sup> Edition* by Connie Evers, MS, RD
- Food Hero (OSU Extension)
- USDA/MyPlate
- CHOP CHOP Magazine
- EatFresh
- EatRight.org
- USDA Food and Nutrition Services curriculum and lesson plans
- Nutrition to Grow On curriculum

As one of the presenters familiarizes the participants with the identified resources, two select recipes from the mentioned websites will be distributed for tasting and accompanied by printed copies.

***Conclusion and Summary of Learning Objectives (5 minutes)***

To complete the presentation, all group members will provide a summary of the learning objectives covered in the lectures, discussions, and activities.

- Review the *Why*, *How*, and *What* of Nutrition Education
- Emphasize the importance of keeping nutrition education simple and a regular part of the classroom, as well as removing the pressure off teachers to feel as though they need to be “experts” in the area
- Summarize the list of key resources that are always available for reference and consultation

## Evaluation

In order to assess changes in self-perceived knowledge and efficacy after completing this lesson, both pre- and post-questionnaires will be distributed to the participants via the online Survey Monkey tool. These surveys will utilize a ranking system for the evaluation based on a Likert scale, with additional space provided for feedback, further thoughts, questions, or comments. The pre-questionnaire will be sent out one week before the presentation through Dr. Debby Espinor and include two, brief questions regarding the participants’ previous knowledge and experience with nutrition education. A more comprehensive post-questionnaire will then be distributed following the presentation and cover the following topics:

- Self-perceived changes in knowledge of nutrition education principles and how to communicate them to their student population
- Self-perceived changes in confidence to teach nutrition education to kids
- Willingness to incorporate nutrition education into the standard curriculum
- Feedback on the lesson as a whole, including the strengths and limitations of the presenters and activities provided
- Additional topics they would like to receive more information on that were not covered

## Facilities and Personnel Required

The project will be held at the Portland Center in Portland, Oregon, located at 12753 SW 68th Ave. Within the designated presentation space, tables and a projector will be provided to carry out the lectures and learning activities.

Primary personnel will include five dietetic interns from Oregon Health & Science University who are completing the required academic and supervised practice requirements to become Registered Dietitians. All dietetic interns will supply their own laptop devices to display the content slides for the presentation, in addition to adaptors for those members who own a Mac computer. The dietetic interns will have the following roles throughout the presentation:

- Sara Hudson - Activity Facilitator
- Lara Kerner - Lecturer
- Nicole Moore - Activity Facilitator
- Georgia Rounder - Activity Facilitator
- Jordan Sylvester - Lecturer

Following the presentation, two copies of the “How to Teach Nutrition to Kids” toolkit will be distributed and left for George Fox University’s personal use. In reference to the three learning activities in which the participants will be engaging, select materials will facilitate these lessons:

- Large notepad (Brainstorming session)
- 15 clementines (Activity 1)
- Paper and pencil (Activity 1)
- Paper models of school subjects and food items, approximately fifteen of each (Activity 2)
- Handout detailing list of nutrition education resources (Activity 3)
- Ingredients and serving equipment for two recipes from resource list (Activity 3)
- Recipe cards with appropriate sources (Activity 3)

## Budget

<b>Supplies</b>	<b>Approximate Cost</b>
Large notepad (Brainstorming session)	\$10
Food, 15 clementines (Activity 1)	\$10
Paper and pencils (Activity 1)	\$10
Paper image models (Activity 2)	\$5
Resource handout (Activity 3)	\$5
Recipe ingredients (Activity 3)	\$45
Serving equipment and utensils (Activity 3)	\$20
Recipes cards (Activity 3)	\$10
<b>Estimated Total Cost =</b>	<b>\$115</b>

The project will be funded by The Moore Institute, the appointed partnering organization.

## References

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I have received a draft version of this proposal and was given time to provide feedback. I have reviewed and approved this final version of the project proposal.

Name: Connie L Evers

Signature: 

Date: 11-21-2015