

**A Complementary Teaching Activity for Food Security and  
Healthy Eating Behavior Change in a Community College**

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**Abstract**

Food insecurity and poor eating habits among college students and their implications have become important subjects of both academic research and practical interest for administrators and policy makers. Community college teachers in the field of nutrition, public health and healthy lifestyles are often confronted with a divergence between the theoretical and practical contents of their courses and the actual wellness and lifestyle practices of their students. Since many of these students are future health care providers and public health promoters as part of a trend to diversify the health care workforce, this issue now takes on a particular relevance. This article describes how a food and garden club, in association with a human nutrition course in a very diverse community college population, has addressed these problems and has been instrumental in effecting change in the dietary habits of these students from a high-risk urban community.

*Keywords:* healthy eating, habit change, college students, experiential learning, high-risk community, food insecurity

## **Introduction**

Studies have shown that college students often develop poor eating habits as they transition from a home environment where food choices are made for them to one of independent choices with many options (Deshpande, Basil & Basil 2009). Many factors or determinants of eating behavior such as tastes, price, convenience, social networks, availability and accessibility can play a role in the development of life-long habits. (Deliens, Clarys, De Bourdeaudhuij & Deforche, 2014). A number of recent studies have also shown that significant numbers of college students suffer from food insecurity, herein defined as limited access to adequate food, and its consequences for both physical and mental health and academic performance (Payne Sturges, Tjaden, Caldeira, Vincent & Arria, 2018, Morris, Smith, Davis & Null, 2016).

All of these issues have major implications for policy-makers, such as college administrators and concerned authorities, when planning interventions, information campaigns and campus food services. Typical solutions or proposals include food banks, healthy alternative food services and even student gardens (Chaparro, M.P., M. P., Zaghoul, S., Holck, P., & Dobbs, J. 2009).

But college student populations are not a homogenous group. Problems of food insecurity and eating practices must be seen against the backdrop of diversity of college student populations in terms of ethnicity, country of origin, age, financial means, family responsibilities, work situations and the community environment in which they live.

Of particular interest is the subgroup of college students in the health care professional programs with classes in nutrition and public health. Several studies have indicated a gap often exists between health-related course content and the students' own wellness and lifestyle practices, even among future health care providers and public health promoters (Blake, Malik, Mo & Pisano, 2011). Indeed, according to Zapka, Lemon, Magner, & Hale (2009), practicing health care providers such as nurses can exhibit high levels of overweight and obesity linked to poor nutrition and physical activity choices.

The gap between course content and the wellness practices of students takes on even greater relevance in certain high-risk urban environments where college students themselves are at high risk for chronic disorders such as obesity, diabetes, hypertension and food insecurity.

With an Associate's degree in Dietetics and Nutrition, Public Health or Nursing, many of our students will immediately or ultimately enter the health care sector as nurses and health educators. Others will go on to four-year degree programs in these professions. These students will be confronted with the issue of reconciling their own health-related behavioral choices and their professional practice. This is particularly important because these health care providers function as role models and are expected to provide lifestyle modification advice to their clients or patients.

This issue comes to the fore at a time of discussion of an enhanced role of U.S. community colleges in producing graduates for a more diverse public health workforce (Santos, 2016).

The goal of this article is to describe an extra-curricular experiential learning activity associated with health-related courses and how this simple but highly effective activity addressed all of these important issues. We saw positive changes in dietary habits of the college students from a

challenging urban community environment. Food insecurity was addressed. In addition, a number of ancillary benefits such as student retention and intercultural socialization were noted.

### **The community, the students and the Dietetics and Nutrition program**

This community college is located in the Bronx borough of New York City, a borough with one of the lowest rankings in the New York City Community Health Profiles 2015 (New York City, 2016). The college serves a non-traditional urban student population that is mostly low-income, 90% of color (African-American and Hispanic), young adult to older adult learners from over 35 different countries. The college is designated as a Hispanic-Serving Institution. This student population includes a number of single parents with many demands on their time, from part-time jobs to raising a family in a stressful environment.

Not surprisingly, this population is at high risk for poor eating habits and lack of access to healthy food choices. These students have been bombarded with messages encouraging high fat, sugar and salt intake in the form of readily available fast foods. Healthy food is often perceived as too expensive. Students from immigrant backgrounds rapidly adopt fast-food habits given the proliferation of these establishments in their communities.

Overweight/obesity among students is visibly a major problem. Although less visible, there is certainly a high risk for type 2 diabetes, hypertension and food insecurity.

The college offers a Dietetics and Nutrition program aimed at future health professionals such as nurses, dietitians/nutritionists, therapeutic recreational specialists and health educators. In this program, the author teaches a 1000-level introductory course in human nutrition.

This particular course includes at the beginning a 3-day food record in which students assess their food intake according to the USDA dietary guidelines/My Plate. These results clearly confirm that the majority of the students exhibit eating habits consistent with the overall low ranking of the Bronx in the New York City 2015 health survey. During the semester, students are encouraged to increase their fruit and vegetable intake according to the same USDA/My Plate guidelines. Then the 3-day food record is repeated near the end of the course. Students are also asked to report changes in bowel movements, skin condition, mood, weight and energy level.

What was certainly less clear was how students modified their eating habits based on academic course content. This question is what led to the creation of the Food and Garden Club.

The club was created with four objectives in mind:

1. Address in a modest but concrete way the issue of food insecurity of students.
2. Provide a space for students of the nutrition courses to put into practice concepts and ideas from the academic courses.
3. Encourage students to make long-term behavioral changes in their eating habits.
4. Create an environment where experiential, peer and cooperative learning can take place in a most concrete form of the growing, preparing and eating of food.

### **The origins of the Food and Garden Club**

The Food and Garden club originated with a garden created in the spring of 2011 by a group of students with some funding from the college to purchase gardening equipment, earth boxes, soil, fertilizer, etc. A biology professor and this author were asked to serve as advisors to the garden. After the original students graduated in 2012, the professors decided to create a food and garden club with an emphasis on healthy sustainable eating habits.

After successfully lobbying administrators at the college, we acquired a large eat-in kitchen in 2012. This was equipped with electric burners, a refrigerator, a commercial sink, large folding tables and chairs. We purchased cooking equipment, bowls, knives and plates.

### **The Food and Garden Club as a learning environment**

The Food and Garden Club meets once a week on Thursdays for two hours. Any student is welcome to join. However, the majority of members are from the club advisor's nutrition class. Students are offered extra credit as an incentive for participation in the club. Currently the club accommodates 20 to 25 members, the majority of whom are women.

Students cite a number of reasons for joining: extra credit, free food, socialization with friends and the opportunity to improve cooking skills. Students are not required to come every week. Generally a core group of 10-20 students are present on a regular basis. The average attendance is 8 times per student in the 13-week cycle. Club members experience both the garden and the cook shop activities in each of the spring and fall semesters.

Depending on the weather, activities take place either in the garden or in the kitchen. Given our short growing season, most of our activities are held in the kitchen.

### **The learning experience in an organic garden**

The garden is about 210 square feet and is divided into six raised beds of about 35 square feet each. The objectives of the garden experience for the students include:

1. Identify vegetables and fruits that can be grown locally.
2. Understand various aspects of the local growing cycle (seasonal planting and harvesting).
3. Prepare the garden for planting and carry out maintenance.

4. Harvest the vegetables for the kitchen.

The garden-to-table experience is created when the students pick the produce and take it to be prepared in the kitchen. Our observations are consistent with previous research on the positive effects of contact with local, organic foods on higher dietary intake quality (Pelletier, Laska, Neumark-Sztainer & Story, 2006). We also concur with researchers (van Lier, Laila, Utter, Denny, Lucassen, Dyson & Clark, 2017) regarding the positive association of gardening and physical activity, mental health and wellbeing among young adults.

### **The kitchen as a learning environment**

The other component of the Food and Garden club is food preparation in the eat-in kitchen. Few or no disposable items are used, and recycling is emphasized.

Studies have shown that many young adults have lower than recommended levels of fruits and vegetables because of the lack of knowledge and skills in preparing them. (Graham, Pelletier, Neumark-Sztainer, Lust & Laska, 2013). Conversely, knowledge of food preparation in young adults is related to improved diet quality (Larson, Perry, Story, Neumark-Sztainer, 2006)

The objectives of the kitchen activities are for students to:

1. Acquire food preparation technical skills: knife techniques for slicing, dicing, and julienne; healthy cooking techniques such as sautéing and steaming.
2. Learn to use recipes that increase fruit and vegetable intake.
3. Analyze cost and nutritional value of food prepared.
4. Prepare and eat food items that are nutritionally dense, low-cost and mainly plant-based.
5. Prepare and eat culturally diverse healthy foods.

### **Activities of the Food and Garden Club in the kitchen**

Students are instructed in basic principles of safety and sanitation in the kitchen, including washing of hands, use of gloves and aprons. Recipes are distributed and students prepare two to three different dishes. Students are shown how to follow recipes and measure quantities.

Technical skills such as the use of various knives for slicing, dicing and julienne, are demonstrated by the advisor. More experienced students are paired with less experienced ones. Particular attention is paid to the preparation of a variety of local vegetables, preferably picked from the college garden. We include a discussion of the nutritional and economic value of the food with each meal.

The concept of Chef of the Week was introduced as a way to infuse culturally diverse foods into the weekly menu. Students are encouraged to sign up on a given week to prepare a dish that they are familiar with at home. Given the cultural diversity of the student body, participants in the club are then exposed to a wide variety of foods from different cultures. The students experience foods from places such as: Peru, Mexico, Africa, the West Indies, Puerto Rico, the Dominican Republic, Greece and Italy. The Chef of Week must bring recipes, and the ingredients are sourced by the advisor. The whole class helps to prepare the various dishes. These dishes must adhere to healthy guidelines. The club advisor circulates around the tables and stove to observe and reinforce safety and sanitation techniques in the preparation of the food.

Students then set the table and eat family style. The sharing of recipes and discussions around food increase cultural acceptance and bonding through meals taken together. In a community college setting, students have limited opportunities to socialize, so the friendship facilitated during these meals is especially significant.



### **Participation in the Food and Garden Club and dietary behavior change**

While we have not conducted a formal quantitative study, there is considerable anecdotal evidence that points to real and possibly long-term changes of behavior with respect to healthy food-related habits. An informal survey at the end of the activities of the Food and Garden Club highlighted encouraging observations by participants themselves. Students reported an increase of fruit and vegetable intake, more confidence in their ability to prepare a variety of foods at home and less reliance on fast-food restaurants. Students cited an increase in the ability to follow recipes due to the hands-on preparation skills acquired. Students discovered new foods and learned how to prepare familiar foods in healthier ways. In learning efficient food-preparation techniques, students realized that time is not an obstacle to healthy habits.

Most of the students had never seen common vegetable plants, let alone tasted organic produce fresh from a garden. Students realize that healthy food tastes good, is not necessarily more expensive than the unhealthy alternatives and does not require a lot of time to prepare. Many students report feeling better physically and mentally. And all of this fits nicely with the theoretical content of the academic course offering.

### **The Food and Garden Club and student food insecurity**

The Food and Garden Club impacts a small number of students directly but the overall influence has been much greater than numbers may indicate. For example, a close relationship was established with the college food bank that distributes food to students in need. The club organizes workshops to show students how to prepare food that is nutritious and tasty.

The club has also produced five pamphlets of recipes for the food bank. In addition, a dean of the college has approached the club to collaborate with the college food services provider to consider

developing healthy food menus for the campus.

### **The Food and Garden club as a diverse and hands-on learning environment**

Given the very diverse student population of this college, the Food and Garden Club brings together people of many different backgrounds to share their culinary traditions. All the participants concur that the experience of the club is eye-opening and sometimes life-changing. For the students that are in the Dietetics and Nutrition program, the experience of the club has particular relevance. The theoretical contents of the courses are made real and tangible. As future health professionals, they are forced to confront the real issues of their own healthy or unhealthy eating practices.

### **Conclusion**

The experience of the club is highly sensorial and meaningful, from the growing of the food to the preparation and enjoyment of the final product. Students come for the food and stay for the many additional positive aspects of the experience. Since many students will be entering various health science programs, they will be seen as role models of healthy behavior within the family and community. The experience of the Food and Garden Club will assist them in offering tangible, practical and healthy recommendations.

Furthermore, improvements in the dietary practices of students and reinforcement of the theoretical content of the nutrition classes are also significant outcomes.

An activity such as the Food and Garden Club requires a major commitment from all the stakeholders. For the faculty, considerable time over and beyond their regular academic activities is necessary. At various stages, negotiations with administrative bodies can be arduous. There

are issues of space, funding, oversight, maintenance and budgeting.

For the students, the time and commitment are no less significant. Club participation is an enjoyable activity in a pleasant and stimulating environment. We believe that this is conducive to the retention of students in the program and in the college. Not to mention that healthier students are more likely to complete their studies successfully.

The Food and Garden Club addresses a very serious concern: how to bridge the gap between the intellectual study of nutrition and healthy living and the everyday wellness habits of students originating in an at-risk population. The combination of academic and experiential learning is a powerful agent of change.

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