PUBLIC HEALTH EDUCATION TO RURAL TEENS

by

JING HAN

B.M., Anhui University of Traditional Chinese Medicine, 2008

A FIELD EXPERIENCE REPORT

Submitted in partial fulfillment of the requirements for the degree

MASTER OF PUBLIC HEALTH

Master in Public Health Program
Department of Human Nutrition
College of Human Ecology, College of Veterinary Medicine

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2013

Approved by:
Major Professor
Tandalayo Kidd
Copyright

JING HAN

2013
Abstract

The overall focus of this field experience was to communicate nutrition education content effectively to teens in rural Kansas while respecting cultural diversity; recognizing the needs and learning style of the targeted audience; learning program coordination and development, and demonstrating leadership, teamwork, communication skills and creativity in developing food culture and nutrition education resources. The field experience took place in Randolph, KS during the spring and fall semesters of 2012.

To combine my interest in education and degree emphasis in human nutrition, I accepted the volunteer teaching position at Blue Valley high school to teach Chinese food culture and healthy eating in the science classes. The Chinese food culture classes were conducted first in order to minimize the differences in the language and culture background, to communicate effectively with the students, and increase the interests of the class. Secondly, the students received information on the benefits associated with eating breakfast, fruits and vegetables, and food safety to help them make healthier eating choices.

In summary, I feel very positive about the experience. It provided the ideal combination of my nutritional knowledge and personal interests in culture education. As a presenter, I got a comprehensive multi-level experience by applying knowledge acquired throughout my education, increasing my understanding of the American educational system, learning under the supervision of a professional in the field, recognizing the needs and learning style of the targeted audience, and experiencing the various components of the Knowledge of Nutrition and Activity for Communities in Kansas (K.N.A.C.K.) youth curriculum. As an instructor, I helped students identify the benefits of different types of food, experience the Chinese food culture, and increased their understanding of nutrition to make healthier food choices. In essence, this field
experience gave me an opportunity to take a theory and put it into practical application in a safe environment.
Table of Contents

Acknowledgments..................................................................................................................6

Chapter 1- Introduction
Nutrition and Health Education ..........................................................................................7
Chinese Cuisine in America.................................................................................................8
Chinese Food Culture ........................................................................................................9
Chinese Immigrants Dietary Patterns .............................................................................11

Chapter 2- Project Overview
Project Description .............................................................................................................12
Kansas State Research and Extension ................................................................................13
Knowledge of Nutrition and Activity for Communities in Kansas .....................................14
Learning Objectives .........................................................................................................14
Activities and Product to be anticipated ..........................................................................14
Nutrition Education Theory ..............................................................................................15
Logical Model ....................................................................................................................16

Chapter 3- Field Experience Application
Client Demographics .......................................................................................................17
Curriculum Utilized for Field Experience ......................................................................19

Chapter 4- Conclusion ......................................................................................................21

References .........................................................................................................................23
Acknowledgements

First, I would like to thank my advisor, Professor Tandalayo Kidd, who has helped me tremendously with all of the research that has become this report. She is not only an excellent advisor who has been supportive throughout the professional research, but also a wonderful mentor who guided me when I faced the confusions and difficulties in the personal life. I was extremely fortunate to have Mrs. Virginia Barnard as my field experience advisor. I would like to thank her for the continuous support during the entire processes, sharing her knowledge and enthusiasm with the curriculum development.

I also wish to thank Professor Mark Haub and Professor Weiquan Wang who have been kind and generous enough to serve on my committee. Without all of their help, this work might not have been completed.

Foremost, I am thankful for my parents, because of them, I have been able to live the life I wanted. The burden of writing this report was substantially supported by my dear friends: Liu Yang, Arlerta Ndlela, Dajung Woo, Joseph Russell, Wei Wu and Joseph Standard who stuck with me during the long term of writing and re-writing. Special thanks go to the Tutors in the English Department who carefully reviewed chapters, politely pointed out glaring mistakes, and always expanded my vocabulary.

Finally, I want to thank the teacher and students from the science classes in Randolph, KS who made the many exciting possibilities of this report.

Han. Jing

April 22, 2013
Chapter 1 - Introduction

Nutrition and Health Education

Field experience (Service learning) is a type of education strategy in which students engage in sharing information learned in the classroom with the community. Recently, field experience has been seen as a cost-effective means to promote healthy behaviors such as improved diet patterns, increased physical activity, obesity prevention, and food safety promotion\textsuperscript{1}. Nutrition and health-related fields have started nutrition education programs such as “Husky Reads” in urban clinics that promote literacy and proper nutrition choices\textsuperscript{2}, and pharmacy students teaching youth (kindergarten through 3\textsuperscript{rd} Grade) about the food groups after training with a dietitian\textsuperscript{3}.

Field experience has been incorporated with health education to help students both share nutrition information to the community and learn through the evaluation of their experiences\textsuperscript{4}. Nutrition education is increasingly being used as a tool for students to help deliver health messages to the community. It is important in helping to modify behavior for health-related outcomes.

Because of the large population of the country, it is unrealistic to expect that a doctor or a health worker could reach every person and educate him about various health problems, especially for people in rural areas with the lower incomes, and less access to public healthcare. However, health education can be spread through the collective effort of more and more people. Thus, the trained volunteers are needed to help educate people in rural areas about the basic issues affecting health. They can further spread this knowledge in their own circles. The level of involvement of the people in health education helps tackle various problems concerning health through personal as well as community initiatives. Injuries affect the majority of low income
households. Teens have limitations due to size, development, vision, hearing and risk perception as compared to adults; therefore, they are more susceptible and vulnerable to injuries. However, teen injuries are predictable and preventable\(^5\). The approaches to conduct teen injury prevention and care include making road and school environments safer along with greater supervision by parents and healthcare givers. Key additions include vehicle and product safety, environmental modification, legislation and enforcement, education and skill development along with availability of quality trauma care. Providing good healthcare education to teens requires quality data, building human and financial resources, strengthening policies and programs based on evidence and implementing countermeasures along with evaluation\(^6\).

**Chinese Cuisine in America**

Culture works during the human learning process for organizing thoughts, emotions, and behaviors in relation to environment. People are born into a culture; it is not innate but learned. Culture teaches people with an implicit theory of how to think, conditions one how to feel, and instructs one how to interpret the behavior of others and how to act, in other words, how to communicate\(^7\).

Currently, China is the world’s fastest developing country and one of the most influential countries both economically and politically\(^8\). A basic knowledge of Chinese culture gives students an advantage in job competition in terms of building a broad social network with one-fifth of the world. It would enable students to open doors to the second biggest economy in the world and help them to take their career forward to new heights. Andrew Zimmern, an American television personality, chef, food writer said "To understand a culture, you must accept their food." In other words, a culture's food is accessible to foreigners in a much simpler way than a
cultural worldview. Food plays such a significant role in Chinese culture, affecting every corner of China. For instance, the Chinese Philosopher Lao Tza said, “Governing a great nation is much like cooking a small fish.” This means that food culture affects all aspects of culture including the political. Both governing a country and cooking fish require the right "seasonings" and adjustments. In addition, food culture contains a lot of stories and legends; it could be a good approach to get students’ attention and teach them efficiently about culture.

Chinese food has seeped into the American tradition; it was brought by Chinese immigrants who first started settling in large groups in California in mid-19th-century America; then, Chinese cuisine pushed through the restaurants and fast food chains since the ’20s. After World War II, Americans actively put greater attention from the usual Cantonese dishes to other regional cuisines such as Hunan and Szechuan for the exotic flavors.

**Chinese Food Culture**

Chinese food became popular very fast mainly because Chinese cuisine was open to adjustments. However, food in China is drastically different from the “Chinese” food found in most American Chinese restaurants. The most popular dishes on the menu, such as sweet and sour pork, general chicken, and orange beef are not listed on the restaurant menus in China. Chinese food in America is affected by the local culture. These fast, basic meat dishes drenched in standard sauces are easily adaptable or substitutable to fit the American palate. This also misleads Americans to believe that most Chinese food is deep fried, consists of lots of meat which is unhealthy.

However, the authentic Chinese cuisine is incredibly diverse and creative. Contrary to what you might find in your local China Town, the authentic Chinese food is healthier and often
beautifully presented. Texture, flavor, color, and aroma are key considerations for all Chinese cooks. In addition, specific foods have different meanings and must be eaten on various occasions such as festivals, weddings, or to welcome an honored guest. China is a huge country with a myriad of regional cuisines; every region in the country serves its own traditional Chinese food with distinctive characteristics. The immigrants take their dishes all over the world, transforming them according to local diets. The differences in culture between China and America are distinct. The core concepts of Chinese culture are obligation, family and harmony, whereas the United States has a culture based on individuality. These differences lead to two unique food cultures, ranging from food preparation to table manners.

Much of the food people buy from western supermarkets has been harvested days or weeks in advance. Supermarkets are also full of “ready meals”, which tend to be higher in fat and sugar. In contrast, Chinese local markets offer a wonderful choice of fresh foods. Individual booths populate the market and most of the sellers are farmers. There is also a misunderstanding that Chinese foods are oily and deep fried. Actually, there are many steamed, braised, roasted, grilled, stewed, and soup dishes. Compared with Japanese raw fish sushi and western steak cooked medium well, most Chinese main dishes are completely cooked and warm, which is a form of pre-digestion on the outside of the body. Meat plays a less important role in Chinese cookery than it does in Western meals. When meat is used, it tends not to be the focus of the meal. Meat portion sizes are smaller, with a large selection of vegetable and noodle or rice dishes. Also in a traditional meal, soup is served as a beverage; dessert is prepared only on special occasions.

Chinese people also have a very important eating concept which is unfamiliar for Western people—“Medicine food.” The concept of medicine food is based on Traditional Chinese
medicine, which represents health as a balance of Yin and Yang. The basic causative factor of disease is an imbalance between yin and yang\textsuperscript{18}. When a person becomes ill, practitioners attempt to determine the exact nature of the imbalance and then correct it through the use of herbal remedies, acupuncture, diet and lifestyle changes. Since the 5th century BC, Chinese people have discovered the secrets of using herbs and other natural ingredients for healing\textsuperscript{19}. Many Chinese people have a basic understanding of the relationship between food and overall wellbeing. Specific foods will often be recommended as part of the treatment for certain disorders, such as drinking tea to prevent stroke or combating nausea and vomiting with ginger. A detailed example would be the Chinese woman after childbirth during the confinement period which typically lasts 30–40 days and promotes recovery and long term health\textsuperscript{20}. Confinement cuisine basically consists of ‘Yang ingredients’, such as ginseng and dong qui , old ginger, sesame oil, black vinegar, etc. oppositely, medicines with cool or moist properties are classified as Yin\textsuperscript{21}.

**Chinese Immigrants Dietary Pattern**

After immigration, some favorable changes to Chinese immigrants’ dietary intake were reported; these reports showed greater awareness and more knowledge about healthy foods. However, at the same time, they ate bigger portion sizes, dined out more frequently and consumed more convenience foods. They also increased their consumption frequency of all seven-food groups (grains, vegetables, fruits, meat/meat alternatives, dairy products, fats/sweets, and beverages) and of Western foods while decreasing consumption frequency of traditional Chinese foods and Chinese Dietary variety\textsuperscript{22}. This suggests that health promotion strategies
should build on the observed benefits of improved nutritional knowledge and target areas of portion size and convenience eating\textsuperscript{23}.

A study conducted by Pennsylvania State University indicated that Chinese immigrants with higher education and income levels were associated with a larger increase in consumption frequency of grains, vegetables, and fruits. People who resided in the United States longer were more likely to increase greater consumption frequency of vegetables, fats/sweets, and beverages. Moreover, people with better English proficiency had a greater increase in their consumption frequency of grains, fruits, meat/meat alternatives, and fats/sweets\textsuperscript{24}.

\textbf{Chapter 2-Project Overview}

\textbf{Project Description}

The overall focus of this field experience was to communicate nutrition education content effectively to teens in rural Kansas increase the nutrition knowledge and awareness of teens, and promote desirable food behavior and nutritional practices. I was responsible for creating, organizing, and teaching nutrition education classes at Blue Valley high school in Randolph, Kansas. Furthermore, my international background allowed me to create three food culture classes for helping teens have a better understanding of Chinese food culture. After designing and implementing the lesson plans, I continued to revise the course curriculum for future use based on the feedback I got from students after class, the class teacher, my field experience advisor, and academic advisor.

Chinese food culture classes were taught first to minimize the difference of the language
and culture background, to develop relationships with the students, and increase interest in the class. Next, the food culture classes were taught and, students were provided with knowledge about eating breakfast, fruits and vegetables, and food safety, which would help them make healthier food choices. The nutrition information I provided included the nutrition value of foods, the components of an adequate diet, making appropriate food choices, hygienic food preparation and handling of food, and storage, processing and preservation of food.

In the spring 2012 semester, my main effort was on meeting with Virginia Barnard every other week at the Riley County Extension office and discussing the student demographics, education methods, teaching skills, class activity creation, KNACK lesson presentation, and PowerPoint modification. In the following fall semester, we continued to discuss lesson details, the things that did and did not work while giving lessons, and how to revise lesson plans for the future.

**Kansas State Research and Extension**

Kansas State Research and Extension includes health and nutrition and seven other categories. The health and nutrition covers fourteen research topics: Accident Prevention, Aging, Biotechnology, Commercial Processing Community, Diseases, Farm Safety, Food, Homes, Mental Health, Disasters, Nutrition Preparation and Safety. The nutrition topic includes Adults, Beverages and Healthy Drinks, Diabetes, Healthy Cooking and Recipes, Healthy Eating, Healthy Sustainable Diets, Eating Well on a Budget, Getting Started with MyPlate, Infants and Young Children, Nutrition and Activity. In addition, it also provides other educational resources to help people keep healthy habits, provide them with good nutrition knowledge, and inform them of the hot topics and news in town. The KNACK online information is one of these resources.
**Knowledge of Nutrition and Activity for Communities in Kansas (K.N.A.C.K.)**

In order to help children engage in more physical activities and adopt healthier eating behaviors, my advisor, Dr. Tandalayo Kidd, led KNACK program to affect the environment and social norms of children. The program focuses on the problems of adolescent overweightness and obesity, targets youth ages twelve to fifteen, and provides evidence-based and action-oriented resources for parents, youth workers, and the community. The website provides information to assist parents and family members with modeling healthy behaviors, improve the community environment, develop policies that could affect community facilities and programs, and develop after-school and extracurricular activities. The three nutrition classes I gave were primarily based on this resource.

**Learning Objectives**

The field experience was an opportunity for me to combine my theoretical studies with the practical application of this knowledge in a work environment. I was expected to increase my understanding of nutrition education for youth (ages 12 to 15) and the structure of the public school system in the United States; communicate effectively with youth while respecting cultural diversity; recognize the needs and learning style of the targeted audience; learn program coordination and development for a specific population or organization; and demonstrate leadership, teamwork, communication skills and creativity in developing public health practice activity.

**Activities and Product to be anticipated**

I was expected to develop an original nutrition education curriculum for preteens and
teens by completing the field experience, to measure audience satisfaction and curriculum learning objectives, and to pilot-test three nutrition education lessons and three Chinese food culture lessons. The lessons address topics related to food choices, table manners, cooking methods, eating breakfast, benefits of fruits and vegetables, and food safety.

**Nutrition Education Theory**

The Health Belief Model was incorporated to enable students to realize how these lessons could empower them to increase their awareness of food preparation, nutrition factors, and benefits of healthier food choices. One key component of the health belief model incorporated into our study was perceived susceptibility that the youth may have been adopting unhealthy eating behaviors that could lead to obesity. Alongside perceived susceptibility, we provided information about the host of negative consequences that unhealthy food choices now could lead to many chronic diseases in the future. However, we also utilized perceived benefits of eating healthy to demonstrate how these choices can aid in better growth and physical fitness to lead to a better quality of life. However, we also found several difficulties (perceived barriers) to change the youth eating behaviors, such as access to foods that were both healthy and tasty, problems engaging parents and caregivers, engaging students in lessons on eating healthy foods, negative influence of media on food choices, and ability to change negative eating behaviors in youth.

Nutrition education has health related outcomes such as maintaining a healthy BMI in addition to promoting proper weight and protein intake for growth. For example, skipping breakfast has been shown to be a risk factor for obesity. In the United States for the past 30 years (childhood obesity in 1980 to 2008), the percentage of obese children aged 6-11 years increased from 7% to around 20%; for age 12-19 years adolescents, the percentage increased
from 5% to 18%. Overall, more than one third of children and adolescents were overweight or obese in 2008. Youth should be encouraged to eat breakfast to boost their metabolism and prevent them from overeating at lunch and dinner due to skipped breakfasts. As obesity rates continue to rise, learning healthy behaviors related to food choices is an important health outcome for communities and has important implications for youth in Kansas.

**Logical Model**

The Logic model is a practical method for systematically collecting impact data for nutrition efforts. The logical model process is a tool that has been used for more than 20 years by program managers and evaluators to describe the effectiveness of the programs. The model describes logical linkages among program resources, activities, audiences (inputs and outputs), the impact (short-, intermediate- and long- term outcomes) related to a specific problem (situation). (Figure 1) The inputs in this experience include resources as staff, time, money, technology, research base, partnerships. The outputs include activities, such as develop the communication strategy, and implement the action plan; the participations of students and teachers in Blue Valley high school, the agent of Riley County Extension. Another output is satisfaction; participants wanted me to come again. Satisfaction is not an outcome because being satisfied is often a precursor to learning. It does not mean that participants have changed or improved.

Outcomes include students’ get better understanding of the lectures and eating more fruit and vegetable, more variety of foods for breakfast, maintaining food safety. The long-term outcomes are to lead students to eating better, and choosing healthier lifestyle in the future.
Chapter 3- Field Experience Application

Client Demographics

Blue Valley high school is located in Randolph, Kansas. It is 1 of 5 high schools in the Blue Valley school district. The school was notified by the Kansas State Department of Education that it had achieved the Standard of Excellence in all four areas of state assessment: reading, mathematics, science, and social studies. It is also recognized by the U.S. Department of Education as a Blue Ribbon School for 2012.33
Figure 2. Student Enrollment and breakdown of grade 9-12 by ethnic diversity.

![Graph showing enrollment by grade and ethnicity](image)

Figure 3. The overall Student Ethnic/Race Diversity

![Graph showing ethnic/race diversity](image)
At Blue Valley High school, the student body makeup is 55 percent male and 45 percent female, and the total minority enrollment is 4 percent. The class I taught in was 11th grade, and all of the students were American\textsuperscript{34}.

**Curriculum Utilized for Field Experience**

For this practicum, 6 lessons were covered over the course of 6 weeks, and each lesson was given during the science class. The preparedness of each class took about 5 hours, which included brainstorming, making power points, creating activities, discussing with advisor and doing modification. All of those lessons were applied. Each lesson lasted between 40 to 60 minutes and after I presented the information on the power points, handouts, videos, and class activities, we discussed some related questions. Students came up with many questions during every class, especially for chapter one (Chinese Food Culture). I tried to relate as much nutrition
information as I could to keep the science topic consistent. The modification was made on the curriculum based on the feedback from my advisor, the students and my personal experience.

**Overview of Lessons**

Chapter 1: Chinese Food Culture

**Lesson 1- Influence on Food Choice**

Lesson 1 was designed to introduce the specific qualities associated with food and the diverse roles that food plays in Chinese culture. The course began with looking at how food choices were influenced by the formation, development, and dissemination of Chinese culture in China. The topics include dietary rules, social rules of etiquette and banqueting, and regional differences in cuisine.

**Lesson 2-Table Manners**

Lesson 2 was developed to illustrate how the Chinese civilization developed formal orientation of etiquette a thousand years ago. As table manners differ from country to country, it’s important for foreigners to be informed of some details so as to show their respects to a different culture.

**Lesson 3- Cooking with Children**

Lesson 3 offers educators some practical tips for getting youth involved with food preparation and food safety. It will help students receive the greatest benefit from diverse cooking methods, help them understand the core spirit of Chinese cooking, and inspire students to cook dishes with interest and enthusiasm.
Chapter 2: Healthy Eating

Lesson 4 - Eating Breakfast Activity

Lesson 4 helps students understand the importance of eating breakfast. In addition to highlighting how to make breakfast healthy, students will share common breakfast foods, evaluate those foods and discuss how to improve the quality of their breakfast. Students will also look closely at what people have eaten for breakfast in China.

Lesson 5 - Fruits and Vegetables

Lesson 5 is designed to help teach youth the important roles of fruits and vegetables for keeping their bodies fit and healthy. It is about fun and easy ways to increase their fruit and vegetable intake, and identify the main nutrients of certain fruits and vegetables.

Lesson 6 - Food Safety

Lesson 6 explains why food safety is important in maintaining health. It presents the basic concepts of what a food-borne illness is, it states ways to help prevent a food-borne illness from occurring, and it describes safe food handling procedures for every step throughout the food production process.

Chapter 4-Conclusion

When I sat in a classroom as a student, I thought, "when will I ever use that?" or "would that ever work in the real world?" I doubted the efficiency of these classes; I was wondering how or how much I would to make the knowledge applicable to the community.
Now, I strongly realize that almost every class taken as a graduate student had great
crossover with my field experience. For example, Functional Foods for Chronic Disease
Prevention strengthened my knowledge of Traditional Chinese medicine, which I used in the
“Influence of Food Choice” class. Additionally, Science of Food let me analyze the differences
between American and Chinese kitchens, which I concluded on “cooking with children” and
“table manners” lessons. The discussions on Food Behavior class provided me with many
materials to prepare the “Eating Breakfast” lesson. My academic research experience has given
me general ideas about preventing obesity, which was applied on the “fruits and vegetables”
lesson. I learned about classified reasons for food borne diseases in Public Health Nutrition, and
I applied my biochemistry knowledge from Nutrient Metabolism in the “food safety” lesson.
Finally, Nutrient Epidemiology helped to improve my writing and reviewing skills, the statistics
class helped me to explain the figures, and the seminars helped me with confidence in public speaking.

In summary, I feel very positive about the experience. It was an ideal combination of my
nutritional knowledge and personal interests. As a presenter, I understood the nutrition education
model and theory better by applying it in the real world. As an instructor, I helped students to
identify the different types of food, experience the Chinese food culture, and assist them with
understanding of how their food choices impacted their health. Asking students to keep a record
and share areas to improve were effective in making the students more active participants.
Overall, the field experience gave me an opportunity to take a theory and put it into practical
application in a safe environment.
References


31. Medeiros LC, Butkus SN, Chipman H, Cox RH, Jones L, Little D. A logic model
framework for community nutrition education. J Nutr Educ Behav. 2005 Jul-

32. Paul F. McCawley. The Logical Model for Program Planning and Evaluation. CIS1097.
University of Idaho. 400 10-01.

33. Blue Valley High. Available:

34. U.S. News Education. Blue Valley High. Available:
<http://www.usnews.com/education/best-high-schools/kansas/districts/blue-valley/blue-