

Navigating a foreign food environment: a nutrition education curriculum for international students from East Asian countries

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Introduction

As a relatively understudied demographic, international exchange college students from Asian countries are faced with various stressors stemming from immigration, academics, mental health, and personal factors. The purpose of this directed project is to create a nutrition education program for international students from East Asian countries to provide educational resources and support to mitigate the factors contributing to food-related acculturative stress. Utilizing social cognitive theory to guide lesson plans shall improve the nutrition education intervention's efficacy. A four-lesson nutrition education curriculum was created with topics such as foundational nutrition knowledge, nutrition fact label analysis, food environment familiarity, and kitchen skills. An expert review panel of five professionals who are familiar with the target population and/or curriculum creation were recruited to review and provide feedback.

Methods

A thorough review of the literature was conducted to understand the process and effects of dietary acculturation experience, dietary changes, the influences, and health outcomes for international students from East Asia.

Next, a thorough review of the current interventions and curriculums for international students are assessed to determine which components are effective and have the most impact for this specific demographic.

Then, a lesson guide will be developed with objectives that pertain to application of culturally-relevant nutrition education to navigate the food environment in the United States. The curriculum consisted of four sections that cover basic nutrition, applications of knowledge, and culturally-relevant topics for the target audience.

Objective	Lesson	Supporting Literature (message and citation)	Key Social Cognitive Theory Construct
Apply nutrition standards and guidelines to daily food intake	<ul style="list-style-type: none">Basic nutritionMeal composition	Poor basic nutrition knowledge and cooking skills will negatively affect student nutrition (Shi & Allman-Farinelli, 2021)	Outcome Expectation
Identify nutrition labels and interpret nutrition information properly	<ul style="list-style-type: none">Nutrition fact label	There is a positive association with nutrition literacy and healthy eating behaviors (Liao et al, 2019)	Self-efficacy
Examine food procurements and products based on nutrition guidelines	<ul style="list-style-type: none">Food environmentProduct differencesFood procurement	Various factors that influence dietary challenges include time constraints, convenience, price, the food environment, campus environment, religion, and individual preferences (Alakaam & Willyard, 2020; Pearcey & Zhan, 2018; Shi & Allman-Farinelli, 2021).	Facilitation/Behavioral Capability
Construct cultural recipes with available ingredients in the U.S. that maintain traditional flavors	<ul style="list-style-type: none">Maintain cultural flavor with U.S.-available produceSimple meals to be made on a time constraint		Observational learning

Results

- The first lesson focused on **outcome expectation** where the students learned about MyPlate, meal composition, and creating their own meal based on nutritional guidelines and personal nutrition goals.
- The second lesson incorporates the **self-efficacy** construct when the students are developing skills in identifying components of the nutrition label and practicing on an item they brought from home.
- The third lesson focuses on looking at the **college student's experience** with being newly independent, planning meals, and grocery shopping.
- The fourth lesson is an **accumulation** of the previous lessons where students will make simple meals that maintain cultural flavors with produce available in the United States. Proper cooking and sanitation skills will be demonstrated so students are observationally learning and then performing the skills themselves.

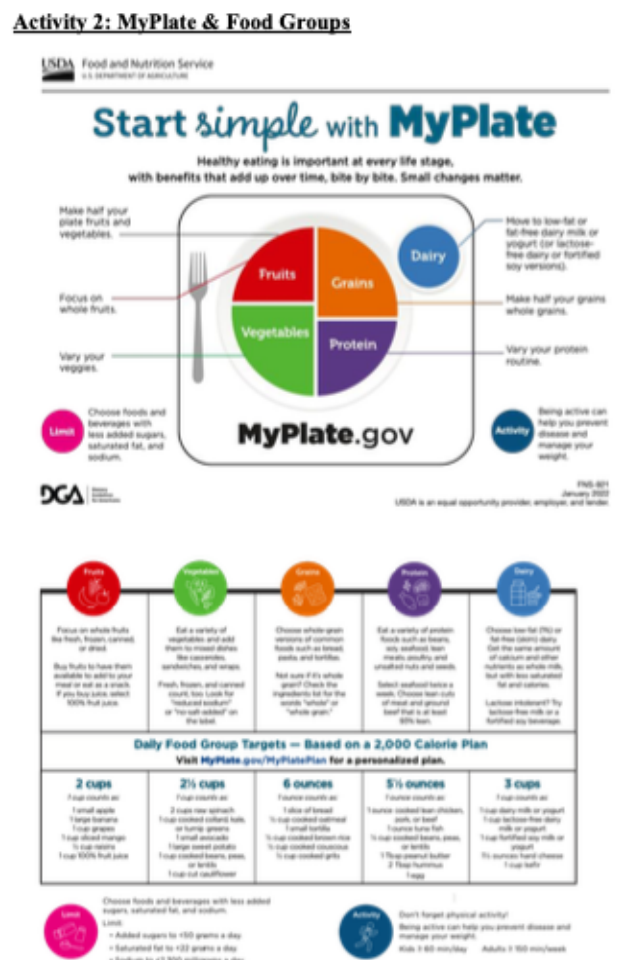
I recruited four registered dietitians and one international student advisor to be a part of my external review panel to provide feedback on my curriculum. They were provided a copy of my curriculum and an evaluation form to be completed in two weeks. The feedback was compiled and utilized to revise my curriculum to better suit the international student population.

Evaluation	Score					Total Average
	1	2	3	4	5	
1. Lesson instructions are clear and easy to read.	0	0	0	1	4	4.8
2. Instructions provide easy to facilitate steps for each of the lessons to guide the facilitator.	0	1	0	1	3	4.2
3. The information within the lesson instructions is evidenced based.	0	1	0	1	3	4.2
4. Lessons include topics that address target audience needs.	0	0	1	1	3	4.4
5. Lessons provide adequate information on the topics and objectives.	0	0	0	2	3	4.6
6. Lesson layout is appropriate for international college students from East Asian countries.	0	0	1	1	3	4.4
7. Lesson activities are appropriate for international college students from East Asian countries.	0	0	1	2	2	4.2
8. Lessons include strategies that the target audience can easily take and apply to real life.	0	0	0	1	4	4.8
9. Lessons are culturally appropriate/sensitive.	0	0	1	1	3	4.4

Discussion

- The curriculum presented information in a format where students could **reflect** and **incorporate** the new information as they deem needed.
- Lesson one, two, and three had activities that promoted **self-reflection** on the student's experience with nutrition back home and **encouraged critical thinking** in a new environment such as the United States.
- A cooking class was a **summation** of the previous lessons of nutrition knowledge, nutrition label interpretation, and meal planning.
- Having **few focused objectives** allow for students to grasp the concepts easily and not be overwhelmed during each lesson.
- Utilizing the **social cognitive theory** as the curriculum foundation highlights the students' self-efficacy and motivations to seek self-change.
- Seeking support from university stakeholders would elevate this curriculum and initiative to include resources that are specific to a cultural nuance.
- The inclusion of familiar cultural aspects within a curriculum may cultivate a sense of **familiarity** and facilitate **receptiveness** to the content.
- It could serve as a **model** for further development of nutrition education curriculums for other cultures so institutions may better serve their international student body.
- A **pilot study** could be conducted to evaluate the curriculum's effectiveness and receptiveness with the target population.

Appendix A: Nutrition Education Curriculum	
Lesson 1: Nutrition Knowledge	
Session Overview	
Target Audience: International College Students from East Asian Countries	
Group size: 5-10 participants	
Time needed: 60 minutes	
Behavioral Objectives: <ul style="list-style-type: none">Describe MyPlate and the five food groupsIdentify similarities/differences between USDA recommendations & home country's food-based dietary guidelinesModify a meal to reflect the MyPlate guidelines	
Materials Needed for Session: <ul style="list-style-type: none">USDA Start Simple with MyPlate handoutFood and Agriculture Organization of the United Nations → Food-based dietary guidelinesPrintout of a blank plate	
Outline of 60-minute session: Welcome & introduction (2 min) Activity 1 (10 min): What do you know about food? Activity 2 (15 min): MyPlate and Food Groups Activity 3 (15 min): How do food guidelines compare? Activity 4 (20 min): Creating Thoughtful Meals	
Welcome SAY: "Hello everybody, my name is YOUR NAME, and I'll be leading today's first class in this nutrition education curriculum. I'll start by handing out some worksheets that we'll be using later in today's lesson. Now, we'll go over the objectives for today's lesson: you'll be able to describe MyPlate and the five food groups, identify similarities and differences between USDA and other country's dietary guidelines, and modify a meal to reflect the MyPlate guidelines. For the first lesson, we're going to talk about what you know about food!"	
Activity 1: What do you know about food? SAY: "Food is important to nourish the body to stay healthy and grow. Everyone thinks about food a little differently and this can be influenced by how you grew up or the cultures that you are familiar with." DO: Reinforce participants' knowledge of food and enthusiasm. ASK: What role does food play in your daily life? SAY: <ul style="list-style-type: none">Food provides the body energy/calories: carbohydrates, proteins, fats, and alcoholsFood provides nutrients: vitamins & minerals, fiber, phytochemicals, etcFood can be grouped into 5 main categories that help us identify how to feed our bodiesFood is also an important part of culture. Every culture has different foods, flavors, dishes, and recipes. All foods are important for feeding the body and connecting to one's culture.Food is also important socially for many people in Asian cultures. It is a time for friends and family to come together over a meal to socialize and build connections. SAY: Recognizing all these roles food plays in our lives is important for nutrition! If we just focus on health, we forget all the reasons people eat. ASK: What are some of your cultural dishes? How is your food, your culture, and your health related? SAY: Now that we've shared a little about our cultures and favorite culture foods, let's dive deeper into the 5 food groups and how that can be applied!	

Activity 2: MyPlate & Food Groups	
	
DO: Pick up the USDA MyPlate Handout and show it to the class. On the USDA MyPlate handout, it shows a picture of a plate with food groups. The image helps you think about what and how much food goes on your plate/cupbowl. There are five food groups: <ul style="list-style-type: none">Fruit group is in redVegetable group is in green	
Activity 3: How do the food guidelines compare? SAY: Now that we have a good understanding of the USDA MyPlate food groups, let's compare with what other countries have! ASK: Are you familiar with other country's food recommendations? We can discover what similarities or differences your home country may have with the United States' food recommendations.	

Conclusion

This directed project involved a literature review of dietary acculturation and the need for nutrition education intervention for international students from East Asian countries, the development of a nutrition education curriculum, and an expert review panel to provide feedback for revision. Incorporating a social cognitive theory foundation, a curriculum of four lessons was created in a sequence to cover nutrition topics that will help the target population with food and nutrition knowledge deficits. The finalized curriculum presents as an opportunity to highlight specialized resources and for higher education to provide unique and culturally inclusive programs to minority populations.

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