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## How Background Factors Affect Culinary Skills and Knowledge

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How Different Background Factors Affect Culinary Skills and Knowledge

An Honors Thesis submitted in partial fulfillment of the requirements for Honors Studies in  
Human Nutrition and Dietetics

By

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Faculty Advisor: Nancy Buckley

Spring 2021

University of Arkansas

Dale Bumpers College of Agricultural, Food, and Life Sciences

## Abstract

Students preparing to be registered dietitians must learn and retain culinary skills and knowledge so they can use it in their future career. If dietitians' nutritional knowledge is limited to medical situations, they cannot educate the public about planning and preparing healthy meals. The purpose of this study was to determine if a student's history of cooking, shopping for groceries, and other background factors affect culinary skills and knowledge, and to determine the appropriate curriculum for undergraduate students to prepare them for their career as a dietitian. This study was in part a continuation of an assessment conducted by my mentor, Nancy Buckley titled, *Culinary Competence: Skills and Knowledge Assessment for Dietetic Students*. The instrument used to measure culinary skills and knowledge was the one Nancy Buckley constructed and validated for her study, and was developed from core competencies established by the Food and Culinary Professionals' (FCP) Dietetic Practice Group (DPG). My study differs, due to COVID 19, in that a post-study could not be completed. This study utilized a culinary skills and knowledge assessment and a background factors survey both of which were given to students enrolled in the Principles of Food course and lab on the University of Arkansas Fayetteville campus. Thirty students of the 31 enrolled in the course completed all the assessments, and their data were subsequently analyzed. The average score from the 30 participants is (46.7 points  $\pm$  11.6 points). Students who did the majority or most of the cooking at home before they came to college received a mean score 14.1 points higher than students who did not. Students who did the majority or all of the buying of groceries before they came to college received a mean score 12.65 points higher than the students that did not. The results of this study indicated that students who did the majority or most of the cooking at home before

they came to college and students who did the majority or all of the buying of groceries before they came to college received higher scores on their culinary skills and knowledge assessments.

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## INTRODUCTION

In the United States, the adult prevalence of obesity increased from 15 percent in 1976-1980 to 31 percent in 1999-2000 and to 38 percent in 2013-2014 (Ogden, Carroll, Fryar, & Flegal, 2015). Obesity is defined as having too high of a body mass index (BMI) due to excess fat and weight in proportion to height. Obesity and a high BMI increase the chances of being diagnosed with heart disease, cancers, and strokes (Center for Disease Control and Prevention, n.d.). Obesity is an increasing issue in many countries throughout the world, and the duty to educate people on healthy eating is crucial. While education is an important part of helping people determine what to eat, most people will not eat food if the food does not taste good. To find food that tastes good, people often resort to dining out which costs a lot of money. Cooking at home is a great way to save money and still create food that tastes great. The inability or dislike of cooking is linked with a lower intake of fruits and vegetables, and eating food prepared away from the home and on the run is associated with a poorer diet, that is higher in total fat and saturated fat (Dietetic Association of Australia, 2017). Many people dislike cooking at home, but it is generally healthier and that is why cooking skills are important for students trying to become dietitians. Dietitians are trained to help others figure out how to eat healthy in the best way for you (Sauer, Kevin, Canter, & Shanklin, 2012). However, even undergraduate dietetic students do not have adequate cooking skills and knowledge in order to be successful. Cooking skills are important competencies for nutrition and dietetic professionals delivering practical nutrition programs (Foley, 2011).

One of the required courses at the University of Arkansas for dietetic students is Principles of Food and an accompanying lab. The class teaches students the core competencies as set forth by the Food and Culinary Professionals DPG as well as the American Dietetic

Association guidelines established on culinary skills and knowledge that exemplify a person who is educated in nutrition and dietetics. The American Dietetic Association focuses more of its resources on clinical/medical nutrition specialties and not as much on food-based nutrition practices (Krieger, 2013). Cooking is an essential part of nutrition, and it is crucial that the dietetic students taking the course learn and retain the information to use it in their career. If dietitians only have knowledge of medical nutrition therapy, they cannot best educate the general public on cooking and preparing healthy meals for prevention of food related diseases. Many students were raised in households where they participated in meal preparation while others were served take-out on a regular basis. It is important to determine the amount of culinary knowledge the students possess when they enroll in the course. Nutrition is a key part of health and quality of life. When a dietitian counsels individuals about nutritional health, having knowledge of a variety of cooking methods and health ingredients, gives them a valuable tool to pass along to others. Since a student's background may affect their culinary experience, assessing the dietetic student's history of meal planning, grocery shopping, and cooking skills can be evaluated to determine how and if one's background affects their culinary skills and knowledge.

### **Problem Statement**

The Academy of Nutrition and Dietetics, formerly the American Dietetic Association, founded in 1917, and is the world's largest organization of food and nutrition professionals. The Academy is committed to improving the nation's health and advancing the profession of dietetics through research, education and advocacy (The Academy of Nutrition and Dietetics, n.d.). The American Dietetic Association focused its resources on clinical/medical specialties and not as much on food-based nutrition practices (Krieger, 2013). If the American Dietetic Association and the guidelines they have set up are used to teach culinary skills to future dietitians, but they

do not focus on food-based nutrition practices didactic program in dietetic (DPD) students are not being taught well enough to help their clients and patients. It is important that DPD students learn culinary skills because it will help make them the most proficient dietitian possible.

### **Purpose of Study**

Nutrition is something that affects every person's life. To live the happiest and healthiest life possible, it is important to know basic nutrition facts. The people who teach nutrition courses need to know the best way to equip future dietitians with nutritional knowledge and culinary skills to prepare them for their future careers. If a student's history of cooking, shopping for groceries, and other background factors affects culinary knowledge and skills, as educators, we need to know what information needs to be included in the curriculum. This study was conducted to help reveal how students with different backgrounds learn nutrition information.

### **Objectives**

The following objectives guided in this study:

- To conduct a survey with students pursuing a degree in nutrition and dietetics at the beginning of the Principles of Food course and lab to determine knowledge and skill levels of basic skills and nutrition information.
- Correlate the survey findings with student background data. This includes the students' socioeconomic background, history of cooking, history of grocery shopping, and other factors.

### **Hypotheses**

**No:** Students in the Principles of Food course and lab, with a history of cooking in their home before college, will have higher competency of the knowledge presented on the culinary skills and knowledge surveys than students that did not.

**N1:** Juniors and seniors in the Principles of Food course will have higher competency of the knowledge presented on the culinary skills and knowledge surveys than underclassmen.

## **LITERATURE REVIEW**

The title 'dietitian' is protected, meaning that dietitians are the only qualified healthcare professionals who are regulated by law to assess, diagnose and treat dietary and nutritional problems. They are governed by an ethical code of conduct and are held accountable to performance standards (British Dietetic Association, 2014). Dietitians apply the science of nutrition to the feeding and education of groups of people and individual's health and disease. The scope of dietetic practice is such that dietitians may work in a variety of settings and have a variety of work functions (British Dietetic Association, 2013). Dietitians use the science of nutrition to devise eating plans for patients to treat medical conditions and promote good health by helping to facilitate positive changes in food choices (Health & Care Professions Council, 2016).

According to the World Health Organization (WHO), people being overweight and obese remain leading causes for premature death worldwide. WHO defines obesity as the condition of excess body fat to the extent that health is impaired (World Health Organization, n.d.). Americans know that obesity is a problem in our country, yet most Americans seem to discredit the severity of it because the problem just keeps increasing. In 1995, obesity prevalence in all 50 states was less than 20 percent. In 2000, only 28 states had obesity prevalence rates of less than 20 percent. In 2005, only four states had rates of 20 percent or higher, while seventeen states had a prevalence rate of 25 percent or more, and three states had a prevalence of 30 percent or higher (Center for Disease Control and Prevention, n.d.).

There is a clear upward trend in obesity, and that is not the only nutrition-related health issue. Dietitians are well positioned to be an important resource for food safety information and advice, whether directly or indirectly, especially for vulnerable populations (Gould, Evans, Redmond, Marklinder, Quinlan, & Ilic, 2019). The delivery of clinically applicable food safety advice by adequately trained dietitians may increase awareness among vulnerable populations about their susceptibility to foodborne disease and enable them to implement risk-reducing food safety practices (Gould et al., 2019). The Principles of Food course could be one of the only places DPD students learn on-hands food safety.

Dietitians are positioned as experts in both food and nutrition (Vision 2020, n.d.). Certain challenges have been associated with including food courses in dietetic undergraduate programs: (i) curriculum restrictions, (ii) lack of funding for updated labs and equipment, (iii) lack of prerequisite food and cooking knowledge for students, and (iv) lack of qualified teachers for the courses (Canter, Moorachian, & Boyce, 2007). In a study looking at perceptions of undergraduate dietetic students on food and culinary knowledge and skills published in the Canadian Journal of Dietetic Practice and Research the researchers found that perceived culinary knowledge and confidence was proportional with the academic year, whereas overall knowledge and skills of food and culinary concepts were moderate among both groups (Cooper, Mezzabotta, & Murphy, 2017). That same study concluded that more dedicated resources including instructors, classrooms, and funding related to food and cooking skills and knowledge competencies in undergraduate dietetic education, may help to ensure that dietitians are positioned to be both experts in nutrition and food (Cooper et al., 2017).

A nutrition teaching innovation known as Culinary Medicine (CM) has rapidly gained popularity and prominence among medical schools and community health programs across the

US (Aspry, Van Horn, Carson, Wylie-Rosett, Kushner, Lichtenstein, et al., 2018). Unlike nutrition programs based on traditional teaching methods, CM programs teach the role that food plays in health through experiential learning in a kitchen (La Puma 2016, Polak, R, Phillips, Nordgren, La Puma, La Barba, Cucuzzella, et al., 2016). A study conducted by BMC Medical Education titled, *Nutrition from the kitchen: culinary medicine impacts students' counseling confidence*, came to the conclusion that compared to traditional methods, CM is a promising approach to nutrition education because students experience nutrition through the lens of practical, real-life eating strategies set in the context of patient care and counseling (Magallanes, Sen, Siler, Albin, 2021).

The Principles of Food course is the only required course for dietetic students that teaches hands-on culinary skills at the University of Arkansas, yet literature shows us that hands on culinary experience improves nutrition knowledge and confidence. The literature also shows that the role of dietitians in fighting obesity and its effects is very important.

## **MATERIALS AND METHODS**

The purpose of this study was to determine if students' history of cooking, shopping for groceries, and other background factors affects culinary skills. My faculty mentor is the instructor of the Principles of Food course and lab and she teaches using experiential learning theory. She conducted a research assessment, *Culinary Competence: Skills and Knowledge Assessment for Dietetic Students* (Buckley, 2016). The survey used for this study was widely adapted from the previous study with a few modifications due to availability of vegetables, herbs, and fruits. This was a non-experimental, quantitative, survey research study. Permission to conduct this study using human subjects was granted by Institutional Review Board and is attached as Appendix A.

## **Research Objectives**

- To conduct a survey with students pursuing a degree in nutrition and dietetics at the beginning of the Principles of Food course and lab to determine knowledge and skill levels of basic skills and nutrition information.
- Correlate the survey findings with student background data. This includes the students' socioeconomic background, history of cooking, history of grocery shopping, and other factors.

## **Sample**

The participants in this study were University of Arkansas students who were enrolled in the Principles of Food course and lab. All of the students were majoring or minoring in Food Science, Food Nutrition and Health, or Human Nutrition and Dietetics. Participants consisted of one freshman, 11 sophomores, 12 juniors, and six seniors. Thirty students participated in this study. While there were 31 students enrolled in the Principles of Food course, one student did not complete the background assessment and, therefore, was not included in the study. The other 30 students completed all portions of the study and represented the sample. There were 28 females and two males who participated and all were between the ages of 18 and 24, with the exception of one student who was 55 years old. Each student signed a consent form before beginning the study.

## **Instrumentation and Data Collection**

The culinary assessment of the study consisted of questions that were previously used by Buckley 2016). *Culinary Competence: Skills and Knowledge Assessment for Dietetic Students*. The culinary knowledge assessment section was identical to the questions used in the previous study. The culinary skills assessment section was very similar, but three of the ingredients the

students were asked to identify were altered due to lack of availability at the grocery store. Buckley's (2016) assessment was completed during the fall semester of 2016 when different fruits and vegetables were in season, while this assessment was conducted during the spring semester of 2020. The survey instrument was developed by using the Food and Culinary Professionals DGP's core competencies and topic areas as a guide, and choosing which topic areas could be taught experientially in the Principles of Food laboratory. Buckley (2016) then chose topics from each competency area and determined how the topic should be assessed. The assessments used for this study are attached as Appendices B and C.

The culinary knowledge assessment and the background questionnaire were given during the first week of class, and a culinary skills assessment was conducted as students signed up, during the first three weeks of the semester. The skills assessment took place in the classroom where the lab is held. Assessment were given by this researcher with assistance from Buckley. Each student scheduled a 20-minute time slot. When they entered the lab, they were told to place all belongings by the door, so not to affect the study. The process was explained, including the layout of the lab by pointing out the dry storage, cooler, and freezer. This was important to include due to questions on the assessment asking the appropriate location to store items asked about in the skills assessment. The assessment began with the students being asked to show proper handwashing procedures according to the standards set by ServSafe. This procedure is taught in the Food Service and Sanitation course (HOSP 2611), which is a pre-requisite for the Principles of Food course. The next portion of the skills assessment covered basic cooking skills, asking students to demonstrate certain knife skills, measure ingredients using the correct tool, and show that they know what it means to separate an egg. Then the participant was asked to identify the equipment and tools used in a kitchen, followed by identifying basic ingredients

often used when cooking. The tools and ingredients were set up around the lab with numbered index cards attached to them. The student was asked to identify a tool or ingredient, and they would have to state which number from the index cards they thought was correct. The tools and ingredients attached to their index cards are shown in Appendix E. To end the assessment students were asked which food items (from the ones in the lab) were considered in season and if they knew what common cooking statements meant. The primary investigator asked the students the questions, while the secondary investigator recorded their answers by writing them down,

After the skills assessments were complete, the skills and knowledge sections were added together and scored. On the knowledge assessment there were 51 possible correct answers, and on the skills assessment there were 49 possible correct answers. The two were added together for a total possible score of 100 points. If the student did not completely get the question correct or only got a portion of the question correct, they received a score of zero points for that question.

### **Limitations**

Data collection began in January of 2020. During this time, all students had face-to-face courses, and there was no doubt that our subjects were going to be on campus through the end of the semester. Sadly, this was not the case. The COVID-19 pandemic caused campus to close mid-March and all students and faculty were forced to continue their courses virtually. This resulted in a disruption of the proposed study methods and completion. While the initial plan as to complete a post-test at the end of the course, this was no longer possible due to COVID-19. The study was amended, therefore, to make use of the data collected without requiring a post-test. Another limitation of the study was the inability to replicate the study another semester, which was intended. During the Fall 2020 semester, the laboratory portion of Principles of Food did occur on campus, but occupancy restrictions and time issues made it impossible to replicate

the study. This study had a relatively small sample size (30 participants) and was not replicated. If the study had been conducted twice, the amount of data could have helped strengthen the conclusions.

Another limitation of the study was that many of the students were from another country or another part of the United States. There were students from Africa and Saudi Arabia, and those students grew up with a different measurement system that we have here in the United States. For this study we used the Imperial system that is the United States system of measurement (InterExchange, 2020) In Saudi Arabia and Africa the metric system is used. (Buchholz, 2019). Also during one of the assessments the student vocalized that in their country traditional measuring is not used, and they mostly throw in ingredients into foods without measuring them. One of the questions asked in the assessment was what fruits and vegetables are currently in season in Arkansas. The majority of the students (18/30) were not from Arkansas, and may not have been in the state long enough to know that information.

## **RESULTS**

The purpose of this study was to see if a student's background affected his/her culinary skills, and in turn see if the way the Principles of Food course is taught needs to be adjusted to accommodate the different levels of culinary skills that are coming into the course. An assessment of the students in the Principles of Food course was completed to find out if their background factors affect their culinary skills. The assessments were graded and compared with the background factors included. Participants in this study were all of the students taking the Principles of Food course and lab, and had a major or minor of Food Science, Food Nutrition and Health, and Human Nutrition and Dietetics. In the study there was one freshman, 11 sophomores, 12 juniors, and six seniors. Thirty students participated in this study.

Table 1 displays the average score of each student classification that was assessed. The average score from the total 30 participants is  $(46.7 \pm 11.6)$ . Of the one freshman, 11 sophomores, 12 juniors, and six seniors that completed the assessment, the data are below.

Table 1  
*Mean scores and Standard Deviation of Data by Student Classification*

Student Classification	n	Mean	Standard Deviation
Freshman	1	27	0
Sophomore	11	45	12.98
Junior	12	45.83	11.17
Senior	6	54.83	6.08

Figure 1 presents the differences in assessment scores between the students who reportedly fixed a majority or most of the cooking at home prior to attending college. These students scored on average 14.1 points higher than students who did not.

Figure 1

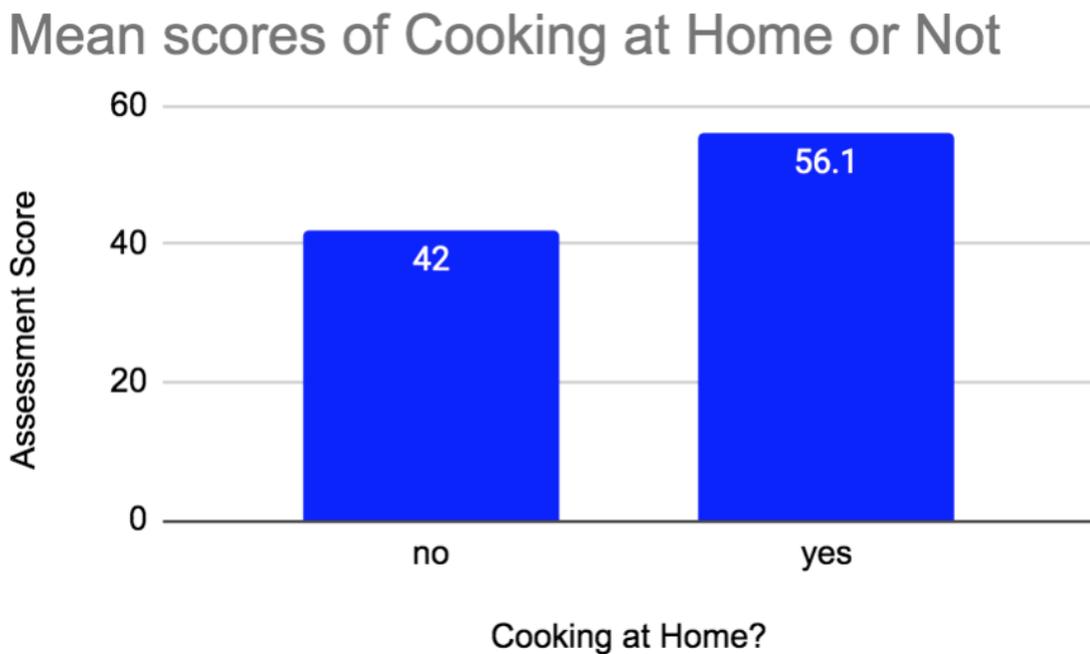
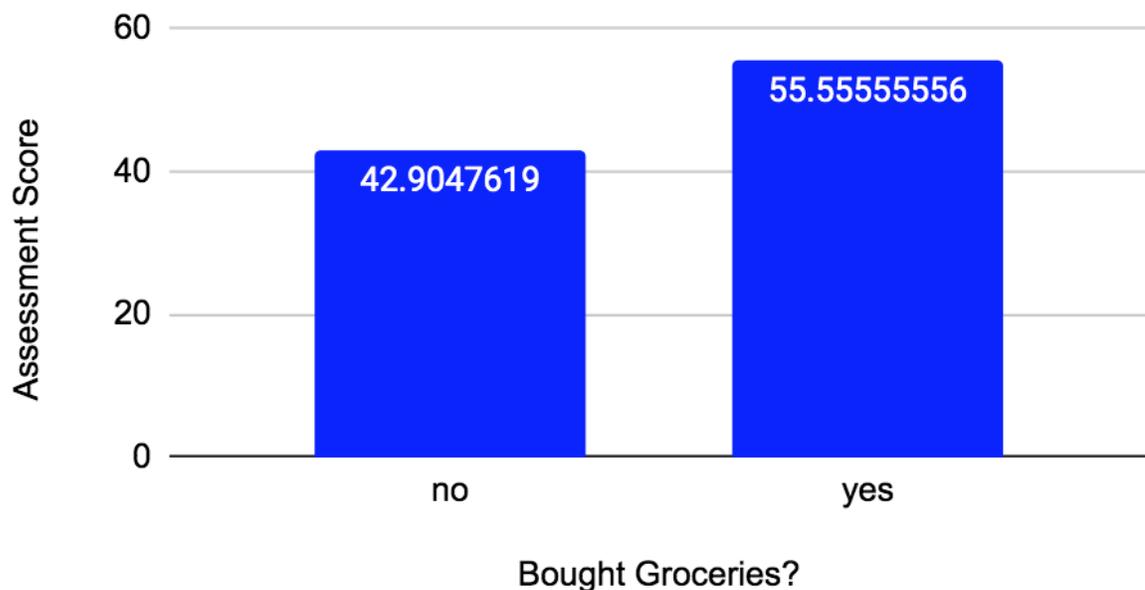


Figure 2 is a bar chart that shows the differences between students who did the majority or all of the buying of groceries before they came to college. Students who did the majority or all of the buying of groceries before they came to college received a mean score 12.65 higher than the students that did not.

Figure 2

### Mean scores of Grocery Buying or Not



A question in the background survey that was asked was: Do you enjoy cooking? Twenty-three out of thirty students reported that they did enjoy cooking by responding yes to the question. Three out of seven of the other responses from the remaining students stated that no, I don't enjoy cooking but I want to learn or am excited to learn. The rest of the seven responses just reported that they did not enjoy cooking. These responses showed no correlation to the scores received on the culinary knowledge and skills assessments.

## CONCLUSIONS

This study was conducted to determine if a student's background in the kitchen during childhood affects how much they know and how much they need to learn in their years as an undergraduate to prepare them for a career as a dietitian. It is important that students who are going to be registered dietitians learn and retain culinary skills and information so they can use it in their future career. If dietitians only know about nutritional medical situations, we cannot best help the public cook and prepare healthy alternative foods. Nutrition is such an important part of life and when a dietitian wants to help a person become the healthiest version they can be; they need to be able to use and teach culinary skills.

This study is in part a continuation of an assessment completed by my mentor Nancy Buckley: *Culinary Competence: Skills and Knowledge Assessment for Dietetic Students*. I have used the skills assessments measuring culinary skills and knowledge that she created in this study. The core competencies used to develop those questions were taken from Food and Culinary Professionals' DPG. My study differs in the fact that no post-study was completed. This study is comprised of the culinary skills and knowledge assessments, and a background factors survey that were given to students enrolled in the Principles of Food course and lab on the University of Arkansas campus.

The results of this study show that students who did a majority or most of the cooking at home before they came to college and students who did the majority or all of the buying of groceries before they came to college received higher scores on their culinary skills and knowledge assessments. This confirms the first hypothesis that students in the Principles of Food course with a history of cooking in their home before college will have higher competency of the knowledge presented on the culinary skills and knowledge surveys. The results also show that

juniors and seniors in the Principles of Food course had higher competency of the knowledge presented on the culinary skills and knowledge surveys which confirms the second hypothesis.

### **Significance and Impact**

Nutrition is something that effects every person's life. To live the happiest and healthiest life you can, it is important to know basic nutrition facts. DPD students become dietitians and they are the ones who educate the public on healthy eating and habits, and we can see from the literature how important it is for DPD students to learn culinary skills. If a student's background affects how much they know and how much they need to learn in the course, educators of these students need to know. Dietetic programs can see that DPD students come into culinary courses with broad ranges of background and knowledge. The culinary course can be altered to help the ranges of these students, especially if they do a background questionnaire at the beginning of the course.

### **Implications**

The results of this study show that the mean scores of seniors and juniors are higher than those of freshman and sophomores. This does lead me to further hypothesize that other courses at the University of Arkansas are teaching things in their curriculum that allude to culinary skills and knowledge and help students understand those factors better. Students who qualify as juniors and seniors have taken more DPD courses, and therefore if my furthered hypothesis is correct have been presented more culinary related things in their curriculum. This could also be due to the fact that juniors and seniors are more likely to live off campus and have to cook for themselves. An additional study or study modified from this one could be done to confirm or deny this furthered hypothesis.

## **Recommendations for Future Studies**

If future research assessments are done on this topic, the sample size needs to be increased. This sample was used because of convenience, and it could be done on a much bigger scale when done the next time. The sample size I would suggest would be the entirety of University of Arkansas students with a major in Human Nutrition and Dietetics. In order to get a large enough number of participants there would have to be an incentive added on or another way to encourage students to do the study.

With the COVID-19 pandemic still occurring, and no clear end in sight research is going to have to be modified in general. If this particular study was repeated there would have to be changes made to complete it. If students are completing the assessments online, there will have to be a way to ensure students are not cheating or looking up answers on an online platform.

Looking at the alternate hypothesis you can see that was accepted, yet it could have been affected by other factors that were not taken into account during this study. Students who qualify as juniors and seniors have taken more DPD courses, but the results could also be due to the fact that juniors and seniors are more likely to live off campus and have to cook for themselves. This would need to be factored in with the replication of this study.

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## Appendix A



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**To:** Mackenzie L Harrell  
BELL 4188

**From:** Douglas J Adams, Chair  
IRB Expedited Review

**Date:** 10/01/2020

**Action:** **Expedited Approval**

**Action Date:** 10/01/2020

**Protocol #:** 1908209015A001

**Study Title:** How Different Background Factors Affect Culinary Skills

**Expiration Date:** 01/13/2021

**Last Approval Date:** 10/01/2020

The above-referenced protocol has been approved following expedited review by the IRB Committee that oversees research with human subjects.

If the research involves collaboration with another institution then the research cannot commence until the Committee receives written notification of approval from the collaborating institution's IRB.

It is the Principal Investigator's responsibility to obtain review and continued approval before the expiration date.

Protocols are approved for a maximum period of one year. You may not continue any research activity beyond the expiration date without Committee approval. Please submit continuation requests early enough to allow sufficient time for review. Failure to receive approval for continuation before the expiration date will result in the automatic suspension of the approval of this protocol. Information collected following suspension is unapproved research and cannot be reported or published as research data. If you do not wish continued approval, please notify the Committee of the study closure.

**Adverse Events:** Any serious or unexpected adverse event must be reported to the IRB Committee within 48 hours. All other adverse events should be reported within 10 working days.

**Amendments:** If you wish to change any aspect of this study, such as the procedures, the consent forms, study personnel, or number of participants, please submit an amendment to the IRB. All changes must be approved by the IRB Committee before they can be initiated.

You must maintain a research file for at least 3 years after completion of the study. This file should include all correspondence with the IRB Committee, original signed consent forms, and study data.

## Appendix B

### Culinary Skills Assessment

Name \_\_\_\_\_

Demonstrate Proper Handwashing methods according to the standards set by ServSafe.

\_\_\_\_\_

Chose the best piece of equipment for the job and demonstrate ability to:

\_\_\_\_\_ Chop an onion in a medium dice

\_\_\_\_\_ Mince Garlic

\_\_\_\_\_ Peel a carrot and julienne

\_\_\_\_\_ Zest a lemon

\_\_\_\_\_ Score a baguette

Chose the proper tools and demonstrate how to measure:

\_\_\_\_\_ 8 oz of water

\_\_\_\_\_ 8 oz of rice

\_\_\_\_\_ 1 cup of flour

\_\_\_\_\_ 1 cup of water

\_\_\_\_\_ 1 tsp of salt

\_\_\_\_\_ Demonstrate how to crack and \_\_\_\_\_ separate an egg

Identify the following equipment and tools. (These items will be displayed and the students must identify them by sight):

\_\_\_\_\_ Saucepan

\_\_\_\_\_ Skillet

\_\_\_\_\_ Pastry Blender

\_\_\_\_\_ Paring Knife

\_\_\_\_\_ Spoon for stirring while cooking in a pot

\_\_\_\_\_ Stock Pot

\_\_\_\_\_ The attachment for the kitchen aid mixer used to beat egg whites

- \_\_\_\_\_ Double boiler
- \_\_\_\_\_ Serrated knife
- \_\_\_\_\_ Jellyroll pan
- \_\_\_\_\_ Candy thermometer
- \_\_\_\_\_ Cookie sheet
- \_\_\_\_\_ Instant read thermometer

Identify the following ingredients (These items will be displayed and the students must identify them by sight):

- \_\_\_\_\_ A scallion
- \_\_\_\_\_ A shallot
- \_\_\_\_\_ Fresh thyme
- \_\_\_\_\_ Fresh mint
- \_\_\_\_\_ Cream of tartar
- \_\_\_\_\_ A Peach
- \_\_\_\_\_ Turnip
- \_\_\_\_\_ Asparagus
- \_\_\_\_\_ Summer Squash
- \_\_\_\_\_ Winter Squash

Chose food items that are considered seasonal for the current season:

- 1.
- 2.
- 3.

**Communication cooking skills and knowledge of terms: These questions will be asked by the primary researcher and recorded by the secondary researcher:**

If a recipe asks you to “cream” butter and sugar what does that mean? \_\_\_\_\_

What are doing when you proof dough? \_\_\_\_\_

What are you doing when you are reducing liquids, as in making a sauce? \_\_\_\_\_

Give an example of when you might use a “folding” technique \_\_\_\_\_

What tool would one use to “cut” butter into flour? \_\_\_\_\_

What does it mean to “score” in culinary terms? \_\_\_\_\_

What does it mean to “blanch” vegetables? \_\_\_\_\_

If a recipe calls for vegetable oil, which of the following would be the best substitute:

canola oil, coconut oil, or olive oil? \_\_\_\_\_

In order to reduce cholesterol in the following muffin recipe, what three items could you substitute? \_\_\_\_\_

Basic Muffins:

2 Cups white flour

1 tablespoon baking powder

½ teaspoon salt

2 Tablespoons sugar

1 egg, slightly beaten

1 cup milk

¼ cup melted butter

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## Appendix C

### Culinary Knowledge Assessment

Name the 5 tastes stimuli:

- 1.
- 2.
- 3.
- 4.
- 5.

Name 2 factors that can affect a person's ability to taste:

- 1.
- 2.

Organoleptic properties of food include:

- 1.
- 2.
- 3.
- 4.
- 5.

Flavor is a combination of \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_

Name 2 factors that can affect perception of flavors:

- 1.
- 2.

What is the main difference between yeast bread and quick bread? \_\_\_\_\_

A fluid ounce measures \_\_\_\_\_, and an ounce measures \_\_\_\_\_.

The temperature danger zone is: \_\_\_\_\_

Foods reheated should be brought to \_\_\_\_\_ for 15 minutes

A food allergen is a \_\_\_\_\_ - in a food or ingredient that some people are sensitive to.

Of the following grains, which are gluten free:

Buckwheat \_\_\_\_\_

Quinoa \_\_\_\_\_

Bulgur Wheat \_\_\_\_\_

Rye \_\_\_\_\_

Millet \_\_\_\_\_

Wild Rice \_\_\_\_\_

Name a common food source of:

Vitamin D \_\_\_\_\_

Vitamin A \_\_\_\_\_

Iron \_\_\_\_\_

Calcium \_\_\_\_\_

Omega 3's \_\_\_\_\_

Omega 6's \_\_\_\_\_

Potassium \_\_\_\_\_

Vitamin B12 \_\_\_\_\_

Name 3 dry heat cooking methods:

1.

2.

3.

Name 2 moist cooking methods:

1.

2.

3.

Name 3 ways to retain nutrients in cooking food:

1.

2.

3.

Identify the following as an Herb or a Spice:

Thyme \_\_\_\_\_

Basil \_\_\_\_\_

Black Pepper \_\_\_\_\_

Cinnamon \_\_\_\_\_

Ginger \_\_\_\_\_

## Appendix D

### Background Assessment:

Name: \_\_\_\_\_

Age: \_\_\_\_\_

Gender: \_\_\_\_\_

Year in school: \_\_\_\_\_

Major and Minors: \_\_\_\_\_

Ethnicity: \_\_\_\_\_

Race: \_\_\_\_\_

Hometown or Location of Upbringing (include as many as you have):

\_\_\_\_\_

Would you consider your hometown to be rural, suburban, or urban?

\_\_\_\_\_

Living Parents (stepparents) and Siblings?

\_\_\_\_\_

Who lived your house before you came to college?

\_\_\_\_\_

Type of Home (apartment, house, duplex, etc.)?

\_\_\_\_\_

Who did the most cooking your household before you came to college?

\_\_\_\_\_

Who did most of the grocery shopping before you came to college?

\_\_\_\_\_

Did you do any cooking before you came to college?

\_\_\_\_\_

How many times of average would you eat out at a restaurant or fast food place per week before you came to college? \_\_\_\_\_

Do you enjoy cooking? \_\_\_\_\_

# Appendix E

