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DETERMINING THE NEED FOR MEAL PREPARATION EDUCATION IN FIRST-YEAR UNIVERSITY STUDENTS

by

Alicia Kunzler

**Capstone submitted in partial fulfillment of
the requirements for graduation with**

UNIVERSITY HONORS

with a major in

Nutrition, Dietetics and Food Science—Emphasis in Dietetics

Approved:

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UTAH STATE UNIVERSITY
Logan, UT

Spring 2019

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Abstract

Title:

Determining Need for Meal Preparation Education in First-Year University Students

Researchers:

Alicia Kunzler; Sheryl Aguilar RD, MS

Learning Outcome:

Increase understanding of adolescents' meal preparation skills/confidence and identify avenues for intervention

Abstract Text:

Background: In previous research, college students reported low confidence and varying skill in meal preparation ability. This study evaluates first-year university students to determine the acceptability of meal preparation programming for this population.

Objective: To assess university freshmen's skill level, confidence, and interest in food budgeting, meal planning, and cooking techniques to determine potential interventions.

Methods: First-year university students (n=265; 58 men, 205 women) were recruited through Facebook and email invitations to complete a 50-item survey. Survey categories included skills/confidence in food budgeting (8), meal planning (12), and cooking techniques (12); class interest (4), student background information (9), and general comment sections (5). Student responses were compiled into food budgeting, meal planning, and cooking technique composite scores. One-way ANOVA and descriptive statistics were used to report mean data and compare groups within <0.05 significance. Qualitative responses were grouped and coded for frequency.

Results: The mean composite scores for food budgeting, meal planning, and meal preparation were 27.8/40 (SD:5.46), 37/53 (SD:6.95), 37.9/48 (SD: 6.87) respectively. Females scored higher than males in food budgeting (p=0.006) and meal planning (p=0.001). Students in health-related majors scored higher in all three categories (p=0.010), (p=0.002), and (p=0.001) respectively. Individuals reporting food insecurity scored lower in all three categories (p=0.001), (p=0.001), and (p=0.001) respectively. 86% of students reported interest in class attendance. Comments indicated desire for flexibility and recipe/application ideas.

Conclusion: Students were more confident in cooking techniques than food budgeting or meal planning. The evidence shows opportunity to propose future interventions for university freshmen.

Acknowledgements

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§ Sheryl Aguilar—my incredible faculty mentor, who has spent countless hours providing critical analysis of my work, guiding me through the research process, dragging me through statistics, contributing many layers of edits, giving me materials, providing career advisement, and celebrating my successes.

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Introduction

University students face dozens of daily barriers to good nutrition. These include time, finances, convenience, self-discipline, stress, academic demands, social and physical environment, preferences, availability of equipment, and perception of inadequate food skills. However, students in secondary school (and just beyond) are an excellent target group for meal preparation education and intervention. This demographic learns well and would benefit from food safety and nutrition information during this highly transitional stage of life. Otherwise, inadequate application in this department can lead to poor nutrition skill, weight gain, and increased risk of chronic diseases.

Previous research has established a need to build meal preparation self-efficacy in university students. Studies demonstrate that students have higher knowledge than confidence in food safety and higher confidence in technical skills than conceptual skill. Yet even when students reported high confidence in preparing meals, 25% reported making a meal less than once per week. This low self-efficacy could be caused by a lack of information, experience, confidence, or any combination of the three.

The purpose of this research is to conduct a needs assessment of first-year students at Utah State University concerning their skill level, confidence, and interest in food budgeting, healthful meal planning, and cooking techniques. A survey tool was used to identify areas of student deficits and potential ways to educate and empower students.

Methods

Survey Creation

A 50-item survey tool was developed for this research. Questions were compiled from three related, previously published, peer-reviewed studies (Ellis, Katelman, Richards). The survey included 8 items related to skills/confidence in food budgeting, 11 items on healthful meal planning, and 12 items on cooking techniques. There were two additional sections. The first consisted of 4 original questions on interest in attending a meal preparation class on campus. The final asked questions about students' demographics, living situations, and methods of choosing foods. Additionally, there were 5 optional general comment sections, one for each page of the survey. No intervention was provided during this justification research. Funding was included from Utah State University's Honors Program.

Recruitment and Participants

Recruitment occurred among first-year university students at Utah State University (USU) in Logan, Utah. Participants were recruited through the official USU freshmen Facebook page and email invitations sent out by Connections professors. It was estimated that 2,600 freshmen students had access to the survey link. A 10% response rate was expected, providing an appropriate sample size to represent the 4000 USU freshmen within a confidence level of 90% and a 5% margin of error. The target number of responses, 250, was calculated with a Qualtrics tool. Students were excluded from participation if they were under the age of 18 and/or did not report that they were first-year university students. Participants who consented to and completed the survey were given the option to enter a randomized drawing for 1 of 6 \$50 Amazon gift cards, unaffiliated from the completed surveys. The incentive was intended to increase the response rate and draw a more diverse population of respondents. The survey was available for 5

weeks and had 265 completed responses (58 men, 205 women). A majority of participants completed the survey in 6-12 minutes. The project was approved by the USU institutional review board on November 9, 2018.

Data analysis

Survey data was analyzed using SPSS version 24 software. Student responses were compiled into food budgeting, meal planning, and cooking technique composite scores. One-way ANOVA and descriptive statistics were used to report mean data and compare groups (age, sex, time living away from home, health-related major, and risk for food insecurity) within <0.05 significance. Qualitative responses from comment boxes were grouped and coded for frequency.

Results and Discussion

Mean Composite Scores

The first area of analysis was to determine current frequency and confidence of meal preparation skills. As discussed above, survey results were compiled into three composite scores—food budgeting, meal planning, and cooking techniques. These were examined by mean of all participants and through comparing groups. Table 1 reports the totals of these scores from all participants and summarizes the differences between groups that were found to be statistically significant.

Table 1: Demographics, Composite Scores, Significant Differences between groups

| Category | Population Size | Budgeting (/40) | Meal Planning (/53) | Cooking Techniques (/48) |
|--|-----------------|--|---------------------------|------------------------------|
| | n (%) | Mean composite score (standard deviation) | | |
| All participants | 265 | 27.8 (5.46) | 37 (6.95) | 37.9 (6.87) |
| Sex | | | | |
| Male | 58 (22.2%) | 25.91 (6.47) | 33.86 (7.24) | 36.76 (8.00) |
| Female | 203 (77.8%) | 28.39 (4.99) ^a | 38.00 (6.58) ^b | 38.18 (6.53) |
| Nutrition/health-related Major | | | | |
| Yes | 26 (9.8%) | 30.46 (4.72) | 40.96 (6.83) | 42.42 (5.22) |
| No | 238 (90.2%) | 27.59 (5.46) ^c | 36.61 (6.85) ^d | 37.36 (6.87) ^e |
| At risk for food insecurity | | | | |
| Yes | 69 (26.0%) | 25.88 (5.37) ^f | 34.30 (7.55) ^g | 35.00 (7.40) |
| No | 196 (74.0%) | 28.54 (5.33) | 37.98 (6.48) | 38.86 ^h (6.40) |
| Higher score, with significance: a: p= 0.006, b: p= 0.0001, c: p=0.010, d: p=0.002, e: p=0.0001, f: p=0.0001, g: p=0.0001, h: p=0.0001 | | | | |

Among all participants, cooking technique mean scores were higher than budgeting or meal planning mean scores when adjusted to a common denominator. Among groups, differences were found between the sexes, report of a nutrition or health-related major, or for risk for food insecurity.

Females had mean scores higher than males in food budgeting and meal planning, but no significant difference was found in cooking techniques. These had significance levels of $p=0.006$ and $p=0.0001$ respectively. This indicated that both male and female students had no perceived difference in their cooking abilities. It should be noted however, that there was a low proportion of male respondents. There were 58 respondents compared to the 203 female respondents. The incentive was designed in part to appeal to a wider audience, including male students, but male respondent rates were still low.

Students who self-reported being in a health-related major had mean scores higher in food budgeting, meal planning, and cooking techniques. These had significance levels of $p=0.010$, $p=0.002$, and $p=0.0001$ respectively. At the freshmen level, it should be noted that choosing a health-related indicated increased interest in health topics but not necessarily training in health areas. Health interest then was correlated with increased frequency and higher confidence in meal preparation skills. Only 26 of the 265 respondents reported that they were enrolled in a nutrition or health-related major.

One survey question was "how often do you worry that your food might run out before you get money to buy more". Participants were given the answer choices of "Always", "Often", "Occasionally", "Seldom", and "Never". Those who chose "Always" or "Often" were designated as at risk for food insecurity, those who answered "occasionally", "Seldom", or "Never" were designated as not at risk for food insecurity. Individuals at risk for food insecurity had mean scores lower than those not at risk for food insecurity. This raises the question of order of causation. Does risk for food insecurity cause lowered confidence in meal preparation skills, or does low confidence or ability in meal preparation skills lead to a risk for food insecurity? This is a possible avenue for future research including focus groups.

In addition to these groups, respondents were also compared based on criteria of reported time living away from school and age. These groups were not found to be significantly different from one another. This was surprising to the research team considering a common aspect of student culture at USU. A significant portion of students at USU have chosen to go on religious missions of The Church of Jesus Christ at Latter-day Saints, many before attending USU. A possible consideration was if students who delayed university attendance for mission, service, work, or health reasons would have increased scores in any of the three categories. However, there was no significant difference found between respondents who reported they had lived away from home for 0-6 months, 6 months-2 years, or 3 years or more. Likewise, there was no difference found between respondents of different ages. This suggested that the majority of meal preparation education and confidence originated before students leave home for other pursuits. It also reaffirmed that first year of university is an ideal arena for intervention, despite former background of the student.

Interest in Meal Preparation Education

An important section of this justification survey was to determine if there was interest in a meal preparation education intervention. Respondents were asked to rate how much they agreed with the following statement "I feel like my peers (first-year university students) would benefit from participating in a health education/cooking class." 86.4% of respondents reported

they agreed, or strongly agreed with the statement. Respondents were also asked about their interest in class attendance. 57% of respondents reported they were interested or very interested in class attendance. Additionally, respondents selected they were most likely to attend classes with 1) food samples, 2) opportunity to practice cooking/skills, 3) alongside a friend. These results indicated there was general interest in meal preparation among respondents and strong enough interest at USU to initiate an intervention.

Areas for Intervention

Areas of highest and lowest scores were identified from the data. For food budgeting, high frequencies were reported for using grocery lists while shopping, comparing prices while shopping, and checking inventory before shopping. In meal planning, high confidence was reported in selecting fruits. Regarding cooking techniques, high confidence was reported for microwaving, scrambling eggs, following recipes, cooking rice, stir-frying, and steaming vegetables. These are areas that would not need to be included in depth in an education intervention.

Among all respondents, the lowest scores were found in the following three areas: confidence in selecting healthy fats; planning quick, easy, healthy snacks; confidence in cooking quinoa, and confidence in baking fish. These are areas to focus on in potential meal preparation education interventions.

Factors for Choosing Foods

In designing a meal preparation intervention, another area of consideration was how students choose the foods they eat. Students were asked to rank factors of food choices, the ordinal data is reported in Table 2.

Table 2: Students ranked which factors most heavily influence their food choices

| Rank | Factors for Choosing Foods |
|-------------|-----------------------------------|
| 1 | Cost |
| 2 | Taste |
| 3 | Convenience |
| 4 | Health |
| 5 | Appearance |
| 6 | Family |
| 7 | Peers |

Two elements in this data are of note. The first was that cost ranked above taste. This emphasized that students are financially concerned and reaffirmed the importance of focusing on cost-effective meal preparation in future interventions. The second was that family ranked above peers. It was expected by the researchers that peers would have greater influence over university students with emerging independence. It would be interesting to use this question to compare first-year university students at Utah State University to students in a less conservative region. At USU, ideal intervention would occur before the university level in a family setting. Still, students can be influenced in an intervention focusing on the preparation of cost-effective, tasty, convenient, and healthful recipes.

Positive Sources of Food Education

To understand future interventions, it was important to ask about previous positive sources of food education. This was a multiple select question on the survey. Results are listed in table 3.

Table 3: Students selected multiple sources of positive food education

| Rank | Resource (n) |
|-------------|--------------------------|
| 1 | Family (253) |
| 2 | Self-taught (207) |
| 3 | Cookbooks (182) |
| 4 | Friends (123) |
| 5 | Blogs (80) |
| 6 | Roommates (79) |
| 7 | Cooking shows (74) |
| 8 | Classes (73) |
| 9 | Food demonstrations (44) |
| 10 | Other (17) |

Of the 265 total respondents, 253 (95%) marked family as a positive source of their food education. The top three answers for meal preparation education were family, self-taught, and cookbooks.

The comments in the “other section” necessitate exploration. Of the 17 respondents, 3 credited general internet sources, 3 credited missions/mission companions, and 2 credited their place of employment. The remaining 9 attributed education from social media sources. Pinterest, Instagram, YouTube, Facebook, Tastemade, and BuzzFeed Tasty were specifically identified. Not including social media in this list was an oversight. In future surveys, social media should be included in sourcing questions. There would likely be a large number of students to select this option including those at USU. Social media may be a viable medium for intervention in university students.

Themes from qualitative data

Each page of the survey had an optional comment box available. The following themes emerged most frequently among the open-ended responses.

Qualitative student feedback (# of comments)

- Looking for more meal ideas/recipes (9)
- Learned meal preparation skills from social media videos (9)
- Noted following a specialty diet (7)
- Mentioned mom or other family positively in comments (6)
- Expressed pride after healthy efforts (5)
- Concerns about cost and spoilage (4)
- Recommend classes of different skill levels (4)

Conclusions

Students reported higher confidence in cooking techniques than food budgeting or meal planning. This finding is consistent with previous research that indicated higher confidence in technical skills than conceptual skills. Interventions may want to include a greater focus on increasing frequency and confidence in conceptual skills.

Family was found to be a highly influential source for meal preparation education and a more significant factor for food choices than peers. This may suggest that influencing university students at this foundational stage of life can have profound impacts as they in turn influence their family members now and future families later. This has public health implications.

There is enough interest among first-year students to begin a meal preparation intervention at USU. Interventions should focus on cost-friendly, delicious foods. They should also consider convenience and health in planning cooking demonstrations and other food elements. Meal preparation interventions could be tailored to appeal to male students and students at risk for food insecurity, these groups had lower mean composite scores.

Interventions beyond a formal cooking class may have a greater impact in this population. Many of the students polled had relatively high frequency and confidence in meal preparation skills but were looking for more recipe and application ideas. Several students suggested having multiple difficulties of classes to suit different skill levels. Another subgroup were following specific diets either by medical necessity or by choice and would require more individualized tutelage. Consider exploring one or more of the three following interventions:

- Institute a one credit meal preparation skills class on campus where students are able to practice food skills and increase in confidence.
- Distribute university cookbooks to the student body. The 2019 graduating cohort of students in the Coordinated Program of Dietetics are drafting cookbooks for distribution.
- Consider social media platforms for education/intervention. Instagram particularly is a popular platform that can reach hundreds of readers rather than the dozens of a formal class. It may be especially powerful if it includes short, consumer-friendly videos and is created in junction with a blog with more detailed information.

The data from this research project supports the justification of a meal preparation education intervention. Ideally, a graduate student in a nutrition-related program would initiate a program for USU within the next 5 years. Dietetics students at USU have received relevant training and must fulfill certain hours of nutrition education—they may be an asset in future meal preparation education programming.

Appendices A

Image of research poster

The following research poster based on this project was presented at the 2019 annual conference of Utah's Academy of Nutrition and Dietetics and at USU's Spring 2019 Student Research Symposium.

Determining the Need for Meal Preparation Education in First-year University Students

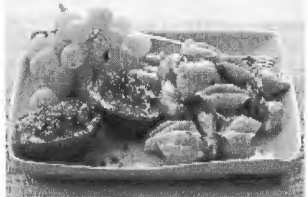
Alicia Kunzler, Sheryl Aguilar, MS, RDN

I. Introduction

University students face daily barriers to good nutrition. These include time, finances, convenience, self-discipline, stress, academic demands, social and physical environment, preferences, availability of equipment, and perception of inadequate food skills [1, 2]. The student demographic is an excellent target group for intervention and would benefit from meal preparation, food safety, and nutrition education during this highly transitional stage of life [3, 4]. Conversely, lack of intervention can lead to poor nutrition skills, weight gain, and increased risk of chronic diseases [4].

Previous research has established a need to build meal preparation self-efficacy in university students [1,2]. Studies demonstrate that students have higher knowledge than confidence in food safety and higher confidence in technical skills than conceptual skills [3, 4]. Yet even when students reported high confidence in preparing meals, 25% reported making a meal less than once per week [4]. This low self-efficacy could be caused by a lack of information, experience, confidence, or any combination of the three [4].

The purpose of this research is to conduct a needs assessment of first-year students at Utah State University concerning their skill level, confidence, and interest in food budgeting, healthy meal planning, and cooking techniques.



II. Methods

Survey Creation
A 50-item survey tool was compiled from three related, previously published tools [5, 6, 7]. The survey included:

- 8 items related to skills/confidence in food budgeting
- 11 items on healthy meal planning
- 12 items on cooking techniques
- 4 original questions identifying interest in attending a meal preparation class on campus
- 9 questions on student background information
- 5 optional general comment questions

Recruitment and Participation

- USU Freshman Facebook page and email invitations sent out by Convocations professors (~2,600 freshman students had access to the survey link).
- Exclusions: < 18 years and/or did not report that they were first-year university students.
- Incentive: Survey completers could enter a drawing for 1 of \$50 Amazon gift cards.
- The survey was available for 5 weeks and had 265 (94.6%) completed responses (58 men, 205 women).
- Survey Time: The majority of participants completed the survey in 6-12 minutes.

Data analysis

- Survey data was analyzed using SPSS version 24 software.
- Responses were categorized into food budgeting, meal planning, and cooking techniques confidence scores.
- One-way ANOVA and descriptive statistics were used to report mean data and compare groups (age, sex, time living away from home, health-related major, and risk for food insecurity) using $p < 0.05$.
- Qualitative responses from comment boxes were grouped and coded for frequency.

III. Results

Reported Scores
There was no significant difference found for students of different ages or lengths of time living away from home.

Highest scores:

- Frequency of using grocery lists while shopping, comparing prices while shopping, checking inventory before shopping
- Confidence in selecting fruits
- Confidence in microwaving, scrambling eggs, following recipes, cooking rice, stir-frying, steaming vegetables

Lowest scores:

- Confidence in selecting healthy fats
- Planning quick, easy, healthy snacks
- Confidence in cooking quinoa and baking fish

Other Interest



- 86.4% reported class attendance would benefit peers
- 57.0% reported interest in class attendance, especially in a class with food samples, opportunity to practice cooking/skills, with a friend

Qualitative student feedback (8 of comments)

- Looking for more meal ideas/recipes (9)
- Learned meal preparation skills from social media videos (9)
- Meal following a specialty diet (7)
- Mentioned more or other family positively in comments (6)
- Expressed pride after healthy efforts (5)
- Concern about cost and spoilage (4)
- Recommended classes of different skill levels (4)

IV. Conclusions

- Students were more confident in cooking techniques than food budgeting or meal planning which is consistent with research indicating higher confidence in technical skills than conceptual skills.
- Family remains the most important information source for meal preparation education and a more significant influence for food choices than peers.
- There is interest to begin a meal preparation intervention. Interventions should focus on cost-friendly, delicious foods. Also consider convenience and health of foods.
- Meal preparation interventions could be tailored to appeal to male students and students at risk for food insecurity.
- Consider distributing a university cookbook to student body.
- Consider social media platforms for education/intervention.

Copy of survey tool

The following pages contain the content of the survey tool used in first-year university students for this research.

USU Freshmen and Meal Preparation

Eligibility and Consent

Thank you for choosing to participate in this research! This survey has 5 remaining pages of questions to be answered. The overall goal is to identify what first-year USU students know and feel confident in regarding meal preparation. Ideally, someday (not your freshman class), there could potentially be a supplemental class offered specifically for freshmen on some of these topics. With this understanding, please answer honestly and completely. The results are anonymous but may be used to benefit future classes of USU freshmen. Please mark your eligibility if the included statement is true. You must be marked as eligible to move forward with the survey.

I am a USU freshman (first year at college) and I am 18 years of age or older

Please indicate your consent by selecting the answer option below. Consent is required to move forward with the survey.

I consent to filling out this anonymous survey. I understand that I can exit out of this survey to withdraw from the research at any time. I understand that answers are final and irretrievable once the survey is submitted. I understand that after submitting this survey I have the option to include an unaffiliated email address to enter a drawing for one of six \$50 Amazon gift cards.

Food Budgeting

How often do you...?

| | Never | Seldom | Occasionally | Often | Always |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Plan meals ahead of time | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Use a grocery list when you go grocery shopping | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Compare prices before you buy food | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Look in the refrigerator/pantry before you go shopping to see what you need | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Change your grocery list in the store to include foods that are on sale | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Worry that your food might run out before you get money to buy more | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

How confident are you that you can...?

| | Not at all confident | Not very confident | Somewhat confident | Confident | Very confident |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Buy healthy foods on a budget | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Choose the best-priced form of fruits and vegetables | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Make low cost meals | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Any comments:

Meal Planning

Please indicate how much you agree or disagree with these statements beginning with the following phrase: I feel confident....

| | Strongly Disagree | Disagree | Agree | Strongly Agree |
|---|-----------------------|-----------------------|-----------------------|-----------------------|
| Selecting lean protein sources | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Selecting whole grain foods | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Selecting fruits | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Selecting vegetables | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Selecting healthy fats | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Selecting beverages | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Planning my meals and snacks one day in advance | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Indicate below how often in the past 3 months you have done the following:

| | Never | Seldom | Occasionally | Often | Always |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Remind myself that planning quick and simple meals is important | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Remind myself to eat in moderation | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Tell myself that fruits and vegetables should be included in every meal | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Indicate how often during the past 3 months you did the following:

| | Never | Seldom | Occasionally | Often | Always |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Planned quick, easy, and healthy snacks | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Purposely added vegetables or fruits to my meals and snacks | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Select beverages with my health in mind | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Any comments:

Cooking Techniques

Please indicate how much you agree or disagree with the following statements:

| | Strongly Disagree | Disagree | Agree | Strongly Agree |
|---------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| I feel confident cooking | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel comfortable in the kitchen | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I like to cook | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel comfortable following a recipe | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel confident using a chef's knife | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel confident microwaving | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel confident scrambling eggs | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel confident cooking quinoa | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel confident cooking rice | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel confident stir-frying | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel confident steaming vegetables | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel confident baking fish | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Mark all of the resources you feel have positively contributed to your cooking ability/confidence so far:

- None
- Self-taught
- Cook books
- Blogs
- Cooking shows
- Family
- Friends
- Roommates
- Classes
- Food Demonstrations
- Other (Please specify in the comments box below)

Any comments:

How do you feel about the class?

How would you respond to the following statement:

I feel like my peers (first-year university students) would benefit from participating in a health education/cooking class?

- Disagree Strongly
- Disagree
- Neither Disagree nor Agree
- Agree
- Strongly Agree

If there was an occasional meal preparation class offered, how interested would you be in attending?

- Not at all interested
- Not very interested
- Somewhat interested
- Interested
- Very interested
- It depends (please justify this answer in the included comment box)

Would you be more likely to attend if the classes were:

Note: if there are other times, please feel free to note them in the comments box at the bottom of the page

- Once a week for a few weeks
- Once a month
- On weekends
- On weeknight evenings
- Regularly throughout the semester

Which of the following would encourage you to attend a meal preparation class (Drag the options into the order of most important to least important to you)?

- Food samples
- Watching cooking demonstrations

- Practicing cooking/other skills
- Small class sizes

- Large class sizes
- Going with people you know

- Door prizes
- In a convenient location

Other (Please specify in the comments box below)

Any comments:

Background information

What is your age?

- 18
- 19
- 20
- 21
- 22
- 23
- 24+

Which best describes you:

- Male
- Female
- Prefer not to say

At this point, I have lived on my own and have been responsible for my own food for:

- I live at home/someone else is responsible for my food
- Less than 3 months
- 3-6 months
- 6-12 months
- 1-2 years
- 3-4 years
- More than 4 years

Are you in a nutrition or health-related major?

- Yes
- No

Rank in order of what is most important to you when choosing your foods (Drag the options into the order of most important to least important to you).

Cost of the food

What the food looks like

What tastes the best

Convenience

What my family eats

What my peers/friends/roommates eat

How healthy it is

Other (Please specify in the comment box below)

Any Comments:

Survey Completion Code

If you would like to enter the raffle, your survey completion code is: " F1N15HED " .

Got it, thank you!

Barik T, Murphy-Hill E. A process for surviving survey design and sailing through survey deployment. *Software Engineering*. 2016;213-218.

This was a book chapter republished in an article written for an audience of software engineers on basic principles of survey design. The article began with a basic description of advantages of surveys. Surveys are useful to reach a greater number of participants to gather both quantitative and qualitative data. Most surveys are online now and there are programs that lead to easier survey design and publication. Closed questions are either multiple choice questions or questions that use a Likert scale, which lend themselves well to statistical analysis. Open-response questions go beyond set answers to offer new and unexpected insights, but they take more effort to both answer and analyze. As a result, open responses are to be used sparingly in online surveys, as these types of questions are better suited to interview-based sections of research. Answer choices should be free from overly technical language and formatted for the ease of the respondent, not for the ease of the analyst. All questions should be purposeful and valuable to the research so the time of the responders is not needlessly wasted. After a survey is designed it should be piloted to catch obvious mistakes and to be checked for clear understanding. Ideally, the pilot test should be performed by people who represent the target population. Surveys should be combined with other techniques (focus groups and interviews) to create more depth to the data. This information is helpful in the capstone project because it reaffirms the value of using a survey, encourages use of multiple choice and Likert questions, reminds to minimize open-ended questions, informs to avoid technical language and cater to the target audience.

Deliens T, Clarys P, De Bourdeaufhuij I, Deforche B. Determinants of eating behavior in university students: a qualitative study using focus group discussions. *BMC Public Health*. 2014;14:53.

This article reports the results of focus groups completed among Belgian university students about their motivations in making food choices. The researchers found that the price point and the convenience of foods were by far the most convincing factors to select any given food. Taste was one of the first to be mentioned, but taste is a neutral element that can be used to make healthy or unhealthy choices. Other cited factors in choosing costs were level of self-discipline, guilt, stress, food knowledge, time management, whether they had been active that day, and past habits with food. The focus group reported that friends, peers, and parents can also hold a large amount of sway with food choices. To increase healthy eating habits in university students, the focus group presented a desire for more low-cost healthy foods sold on campus and even suggested that all students attend a health class. This article reinforces the idea that focusing on efficacy and motivation may be more impactful to students than knowledge and skills. Overall, students have to prioritize what is most important to them and often, healthy food is not at the top of the list. There are some flaws to this study. The focus groups were made up of volunteers and they may hold some selection bias, and the results from a single university in Belgium may not be fully applicable to a school in the United States. This is further justification for the surveys to find the motivations of first year students at Utah State University when choosing their foods.

Deutskens E, de Ruyter K, Wetzels M, Oosterveld P. Response rate and response quality of internet-based surveys: An experimental study. *Marketing Letters*. 2004;15(1):21-36.

This study is most useful in setting up the online survey for the capstone project. It was found that shorter surveys (20 questions or less) had the highest response rates. While the surveys for this project cannot be very short, it is good to note to delete all extraneous survey items. Since this will be a longer survey, this article suggests having some form of voucher as a reward for completion. I would like to ask about being able to give out Aggie ice cream coupons or discounts to on campus cafes as have been used in other surveys on campus. An alternate option would be to offer a donation per survey completed, possibly to the SNAC pantry on campus, but this was shown in the research to contribute a lower response rate than the voucher or lottery concepts. Lottery incentives for multiple changes and smaller rewards were a plausible solution well and produced faster results than the voucher method. This article also suggests making the survey visually appealing and using images or color to lead to a higher completion rate, unless it makes the download time too long. The survey programs I am more familiar with, Qualtrics and survey monkey, are accessible online through survey links and may circumvent the download time. It may be useful to include graphics in the survey. Another suggestion is to vary questions types to maintain interest throughout the survey. This is an important part of this particular survey to include questions about attitudes, confidence, and competency so should not be an issue. Other points include the undesirability of incorporating an "I don't know answer" and that early follow-up surveys had more success than later ones.

McGovern ME, Canning D, Bärnighausen T. Accounting for non-response bias using participation incentives and survey design: An application using gift vouchers. *Economics Letters*. 2018;171:239-44.

This article addresses the issue of non-responders in surveys. The authors use a term, MAR, for blank items designated as "Missing At Random". Data from unfinished surveys/non-responders often cannot be analyzed in a research study. The article addresses using a gift voucher incentive as a method to help negate selection bias. Incentives for completion may encourage people who would not typically participate to do so which may potentially shift the data. The example expounded in this article was a survey related to HIV. The researchers had a significantly higher percent of HIV patients in the incentive group than in the control group. This was because the social stigma of HIV was too great of a pressure until there was a reward motivator attached. Women especially had a high non-response bias, and the results on men were inconclusive.

This study is relevant because it promotes the usage of an incentive tied to the survey to reduce non-response bias. The type of people who are more likely to take surveys for fun might be more experienced with meal planning, budgeting, cooking skills, and relationship to food. Incentives may encourage people from a wider variety of personalities to participate in the survey. Income may also matter in volunteer rate, those students with jobs may have less time to fill out a survey, but may be more interested in the gift card incentive. The results from this article may not apply directly to the food survey, as there is not a negative social reinforcement not to participate in place. Offering an incentive still remains likely to attract more responses and from a wider variety of personalities.

Reicks M, Trofholz AC, Stang JS, Laska MN. Impact of cooking and home food preparation interventions among adults: Outcomes and implications for future programs. *J Nutr Educ Behav.* 2014;46(4):259-76.

This report analyzed the outcomes from 28 separate home food preparation programs. The report found that the interventions almost always had some increase afterwards whether it was in eating or shopping practices, kitchen confidence, knowledge, or clinical outcomes. Confidence in abilities/skills related to foods were noted to be generally increased after the programs. Sixty-three percent of studies noted positive changes to eating habits, like having increased fruit and vegetable intake or decreased starch intake. Seven out of sixteen studies without control groups found increased nutrition knowledge after the class through pre and post assessment surveys. Adults who were at higher risk for food insecurity were found to have decreased their purchases of meat, sodas, treats, snacks and total amount of food after a food/nutrition class. Healthy markers related to heart-disease also improved. These are positive results that justify the potential effect from implementing the capstone project. Confidence and action are the two areas that are most desirable to change in this project. The report also found that when other information was added to a cooking demonstration the program was stronger and the evaluation yielded more consistent results. Strategies related to food security are an example of an appropriate addition. The authors suggested that the following ideas could be implemented to strengthen the research: comparing results to a control group, adding a follow-up at a later date, avoiding sampling bias, increasing data collection, properly analyzing statistics, and using sound evaluation techniques. These are factors that may be important when during the design of the evaluation piece of the capstone project. The report included a reminder to address food background and relationship with change when helping others with food-related concepts.

Richards R, Brown LB, Williams P. Developing a questionnaire to evaluate college students' knowledge, attitude, behavior, self-efficacy, and environmental factors related to canned foods. *J Nutr Educ Behav.* 2017;49(2):117-24.

This research report is the work of three RDs and a statistics PhD in developing a questionnaire for college students to assess their experience and knowledge with foods. The main categories evaluated were knowledge, attitude, behavior, self-efficacy, and environment surrounding canned foods. These are each worthwhile elements to consider in the capstone project. While at 65 items this questionnaire is longer than would be reasonable for use in the study in my capstone project, it was found to be reliable through the Cronbach method and had a test-retest reliability of 0.69. Typically, the adolescent students were found to have lower confidence in food safety than knowledge about food safety. The surveyed group had many misconceptions about health and nutrition. It was postulated in this article that students in secondary school (high school students, soon to be first-year university students) are frequently overlooked when it comes to meal preparation education, but that they are a group that can learn well and would greatly benefit from the food safety and nutrition information. The capstone project would target students who have just finished secondary school.

Schwarz N. Cognitive aspects of survey methodology. *Appl Cognit Psychol.* 2007;21:277-87.

This is an article that delves into the social cognitive theory of surveys. When answering a survey, the responder has several tasks to complete that go beyond merely clicking a button. The responder must interpret the question, retrieve information, form an attitude or other response, and sometimes edit the response all in order to answer a survey question. The creating

group of the survey has the opportunity to communicate through instructions, questions, answer choices, selected scale, layout of the survey, any graphics, and even through the presented name of the organization performing the research. Some complications in the steps of the survey response can be reduced with proper survey design.

The two areas to focus on are communicating intention and reducing bias. It can be all too easy for a respondent to get lost in a question or feel they must infer the questioner's intentions. An online survey is not a setting where clarifying questions can be asked, so initial clarity is paramount. Unfamiliar terms and complicated wordings are to be avoided. Clear instructions with context can reduce some confusion. Keep things as clear, concise, and simple as possible.

The second area is that some respondents will answer with what they perceive the correct answer to be. This is particularly true with items that have social connotations or if the situation described is too broad. Those with an undecided attitude will choose a stance in the moment, which may be influenced by the question's context. One such principle is dubbed 'forbidden-allow asymmetry', where respondents are more likely to reply against forbidding or allowing something if the other option appears to allow for inaction. Another source of bias is of memory bias, there is a higher incidence of events when asked to report daily than when asked to report weekly. Some of these issues can be resolved by establishing anonymity, monitoring and rechecking for bias, and ensuring the questions asked will give relevant results to the true purpose of the research. Not every issue will be solved because every mind works differently, and it should be remembered that surveys are a method of research, not a defined theory.

This article assisted in identifying increased areas of bias that could be prevalent. One of the major biases that may be introduced is that this maybe should not be advertised as a survey from a dietetics student, to prevent social biases toward health in the answers. This was a reminder to be aware of all modes of communication and context that can be conveyed in the presentation of the survey overall.

Slattery EL, Voelker CJ, Nussenbaum B, Rich JT, Paniello RC, Neely JG. A practical guide to surveys and questionnaires. *Otolaryngol Head Neck Surg.* 2011;144(6):831-7.

Surveys are a useful tool of broad evaluation to gather data or measure outcomes. The usage of a survey is actually considered a methodology, where gathered information can be translated into a set of quantitative data to describe a population. To be a reliable method of information gathering, the tool chosen must be correctly constructed and validated so the analysis and conclusion are not formed from false or irrelevant information.

The first step to creating an effective survey tool is to determine its objective. The objective will ultimately determine the design of the study overall, the structure of the instrument, the type of data to be gathered, and the form of analysis used. Then the instrument is to be created. Closed questions and minimal open-ended questions may be used, but each should be short and concise, as complex wordings lead to more unreliable data. Beyond these two distinctions, there are also nominal (having specific options available), ordinal (ranking questions on a reasonable scale, and continuous (giving discrete data) types of questions. The related answers can be considered exclusive to reduce overlap, or inclusive to exhaust all possibilities.

After the basic questions are decided upon, the structure may need revision. Directions should be clear and simple. Questions should be ordered in a logical way that does not lend

easily to bias and that asks general questions before more specific questions. Chronology is also to be included. The beginning of the survey should capture interest as it is here that respondents may choose to leave the survey altogether. A survey should not begin with open-ended questions, these can cause the perception that the survey as a whole is more difficult than it is and they dissuade interest. Another piece of advice was to place the demographic data as the last section of the survey because the questions may cause feelings of intrusion and because these are some of the easiest questions to answer.

The next phase of the survey is the testing and selection. The survey can first go through informal piloting where it is sent to other field professionals for feedback. Then, it should be tested in a sample group representative of the target population to catch any further issues, especially to ensure that the population will be able to clearly understand and answer the questions. After the survey is finalized, it is then distributed. The proper sample size can be calculated using alpha, beta, effect size, and estimate of derivation. Where it comes to selecting individuals to complete the survey, nonprobability selection is the cheaper and easier option, as it relies on volunteers, but this could potentially introduce selection bias.

The most challenging aspect of survey research is often maximizing response rates. Some potential strategies are to maximize interest in the topic at hand, include only clear and simple questions and instruction, remember brevity, assure anonymity, eliminate hesitation about follow-ups, engage habits of good survey design, and to offer incentives. It must be considered that bias can be found in wording, incomplete data, faulty scale usage, leading questions, inconsistency, formatting, survey length, flawed structure.

The objective of this capstone is to assess areas of knowledge, confidence, application and interest in meal planning, food budgeting, cooking skills, and intuitive eating in USU freshmen. This drives the survey-based study and is the basis of the questions in the survey. This article inspired the inclusion of other and comment boxes, of both nominal and ordinal questions, and the planned usage of pre-piloting and piloting audiences. This article included the best descriptor of how to order questions. Many of the principles of this article are to be included throughout the development of this project.

Trubek AB, Carabello M, Morgan C, Lahne J. Empowered to cook: The crucial role of ‘food agency’ in making meals. *Appetite*. 2017;116:297-305.

This article introduces a new term, titled “food agency”, that encompasses the capacity of an individual to use their meal preparation skillset in a specific circumstance. Food agency encompasses more than technical skills, it also includes the social and cultural environment of the individual, essentially any of the many factors that would lead an individual to choose to prepare a meal instead of to consume a meal that was prepared for them. Anything from low cooking skills, stress, low financial means, missing equipment, and deadlines can decrease food agency. Food agency is an accurate term for what is intended to be evaluated by the surveys and to be increased by the program resulting from this capstone project. It is important to remember to ask students why they choose their foods, not just what they choose. This article also includes a quote from a college student who took a class with cooking labs. She read about it taking six weeks to change the neuropathways in the brain and found that six weeks into the class her attitude towards food preparation changed. This supports the idea of making the class in my capstone project six weeks long or longer.

Wilson CK, Matthews JI, Seabrook JA, Dworatzek PDN. Self-reported food skills of university students. *Appetite*. 2017;108:270-76.

University students are in transition and this can lead to poor nutrition and weight gain, as well as increased risk for chronic diseases. An era of “culinary deskilling” has also been described where lack of experience has led to lack of independence in this area. It has also been determined that most adolescents want to make good choices for their health, but often they do not have the information and/or self-efficacy needed to make healthful food decisions. Common barriers for university students include taste, self-discipline, finances, time, convenience, academic demands, social and physical environment, and perception of inadequate food skills. The researchers persuade that examining Social Cognitive Theory is vital to understand current level of knowledge before appropriate education interventions can be established.

Overall, there is a low amount of data on the food-related skills of young adults because of few validated measurement tools and loose definitions used in the current instruments. This was a research survey that examined the food skills of university students in Canada in the categories of planning, preparing, and storage, and types of skills including technical, mechanical, conceptual, and perceptual. The results reflected both actual skill and perception of self-efficacy of the responders. The surveys were created after viewing current, relevant literature and the opinions of experts, then tested by a separate group of undergraduate students.

All students in the Canadian university were invited to participate by email and two subsequent email reminders. Of the 30,310 students invited, 7,132 students completed the survey. 3,000 of these students completed the survey after receiving a reminder email. This response rate of 21.9% is comparative to the response rates of other college health surveys. 30.2% of respondents were first-year attendees. Not all questions were answered by every respondent.

There were seven skills included on the survey: using a kitchen knife, cooking multiple dishes at a time, preparing a meal with available ingredients, batch cooking, making a recipe healthier, choosing a herb/spice to use in a dish, and planning weekly meals. The survey evaluated these using 67 questions, mostly closed, and the answers totaled to a sum of 700 possible points. Disproportionately more female students completed the survey than male students.

Higher total scores were found in females, in people who have taken food courses, and in students who have lived away from home for one year or more. The knife skills received the highest scores and meal planning the lowest, demonstrating that students had higher confidence in their technical skills than their conceptual skills, and that any resulting education should focus on developing the conceptual skills. Of the lowest scores, 53.5% were first-year students and 50.3% lived in university housing, showing that these students may need the most intervention. Observing family meal preparation was evaluated and found to not be enough to determine individual preparation. A majority of students reported high confidence in preparing basic meals, but 25% prepared meals less than once per week.

This study drew conclusions about what should be incorporated in an educational intervention. For example, interventions that lasted less than 12 weeks were found to be the most effective. Formal food and nutrition classes may be encouraged because those students have a demonstrated increased confidence, motivation, and self-efficacy in food preparation and health. First-year students overall were found to be a prime target audience for intervention. The researchers additionally recommended finding ways to engage male participation and to especially involve finding time-considerate methods to perform the meal preparation skills.

This research is relevant to the capstone project because Canada is similar enough to the target population, but it shows a need for more research and allows for contribution from the project. First-year University students were confirmed to be an appropriate target audience. Email was shown to be an effective manner of survey distribution and weekly follow-up emails were found to be appropriate and advantageous. Ideas were contributed of skills to evaluate in USU's population. This article encouraged an increase of focus on conceptual skills as opposed to technical skills. Finally, the response rate was a useful statistic; if the target rate of the capstone research is 200 students, there must be outreach to 1000 freshmen students to obtain as 20% response rate.

Two and a half years ago, I decided the Honors Program was not for me. Eighteen months ago, my professor, Rebecca Charlton begged me to come back and promised we could create a plan of completion together. In spite of my earlier hesitance, I am so glad I finished. This capstone project is one of my top three biggest accomplishments of my undergraduate years.

The capstone project was a cycle of challenges and triumphs. Many of my challenges came from being unfamiliar with the research process. After the struggles of starting a literature review, this really began in the drafting of the survey tool. I created my own survey tool and I was so excited because it had everything I wanted to include in my research. Then, my mentor reminded me of the piloting process. At this point in my student progression, I had not even known piloting was done in nutrition research! After spending more time reading literature on creating surveys, I understood that we did not have the time to build a tool from scratch. This would have added drafting, professional reviews, piloting, and validating to the project, processes that can take many months. Instead, my mentor recommended building a tool from tools used in previously published studies. This would yield a survey of previously piloted and validated questions. This was a perfect solution, but, I was struggling to find articles that included their survey tools. Then, I became extremely grateful for my mentors. My research mentor and departmental advisor both gave suggestions of articles. Then the biggest breakthrough came as I was getting to know my Honors alumni mentor, Katie Brown. She sent me copies of her previous research done on the same topic and allowed for the kickoff of my survey tool. These sources and searching similar terms allowed me to gather the studies I needed to create the tool using Qualtrics.

Survey distribution and collection went well, especially as result of kind university staff and the funding for incentives provided by the Honors Program. Data analysis was the next hurdle. I had only taken an introductory statistics course so the statistical analysis was intimidating. My ever-patient research mentor, Sheryl Aguilar, spent hours walking me through the types of statistical tests I would need and through the workings of the software. It was a moment of triumph when I was later able to read through the endless pages of descriptive statistics, one-way ANOVA tables, and post-hoc tests comfortably.

One of the most fun elements of the capstone came next, I spent many hours combing through the data to identify trends, compare groups, and sort frequency of comments. I especially enjoyed reading the comments of freshmen who responded. It was amazing how many of them took pride in any form of nutritious eating. It was hard to read the comments about their barriers to consistent meals. I was amazed by how impactful the family is in meal preparation education. Towards the end of the research process, I was proud of my layout of the research poster. I was also able to see how far I have come in the past couple years on making my formal writing more concise. The crowning moment of this research was when I was able to present it to members of my chosen profession from across the state in an annual conference. I was nervous in the days leading up to it, but in the moment, I rediscovered my passion for this topic and how important education is for this vulnerable population. This project allowed me to discover a love for research and reignite my passion for addressing public health concerns. I was able to define my career goal; I want to assist families in making empowering nutritional choices enrich a balanced, fulfilling lives.

Due to these discoveries, ultimately, my honors capstone drove me to graduate school. Previously, I was planning a career in clinical dietetics. This project allowed me to identify that my strengths and interests lay elsewhere. I would not have found these so soon otherwise; seniors in my program receive the bulk of their research experience in the last semester before graduation. The project performed then is split among twelve students, so is done in a fraction of the depth of my capstone project. Furthermore, my capstone research gave me better understanding of community applications of all I have learned so far in school. The findings of the research provide continuation. I was able to critically evaluate possible interventions to continue this research. A future graduate student will be able to take this research into an intervention phase. Through my capstone, I developed a proficiency in basic research skills and decided to pursue a degree in public health. This experience was likely the keystone in me obtaining an assistantship that will fund my graduate school opportunities.

Finally, I would like to end with some advice to future students beginning their capstone. First, find something you both love and believe to be important. The capstone is a long and rigorous experience, it helps to have purpose and personal connection to the topic. Second, understand the parameters and expectations before you begin. It will not be fun to go back and fill in the gaps later. Third, start early and stay on schedule. I began my project in May of 2018 and am only now finishing at the end of April 2019, which has at times felt like a time crunch. In contrast, another honors student in my major completed her project junior year and has spend senior year expanding on her research experiences. Fourth, spend time with your mentor. I have loved working with my main research mentor and many others. My mentor has done much more for me than edit my research, she has educated, advised, and counseled me so much along the way, in my academics, research, student involvement, career planning, and personal life. I am beyond grateful for this connection. Fifth and last of all, I cannot recommend choosing to do two capstone projects. I am a community engaged scholar as well as an Honors student and completed a capstone project for each. This was a challenge for my time management, but once I found the tie between my two projects they both became more meaningful. Most of all, enjoy the experience and take this opportunity to learn more about yourself a student, researcher, and almost professional.

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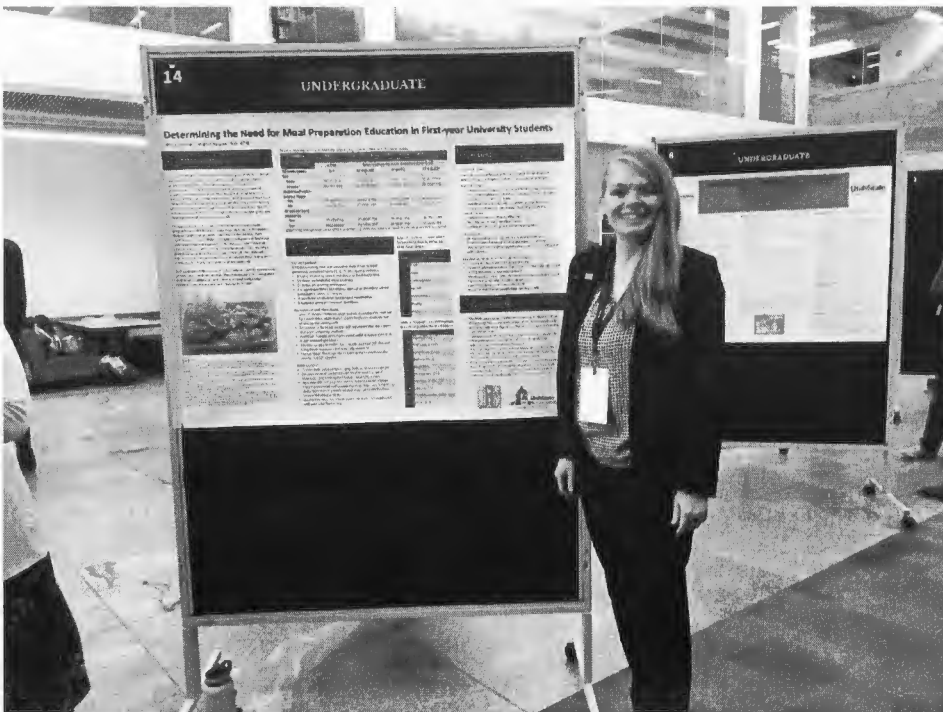
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Appendices B
Photographs

Picture 1: Presentation at annual conference of Utah's Academy of Nutrition and Dietetics, April 2019



Picture 2: Presentation at Utah State University's Student Research Symposium, April 2019



Award Certificate

This research poster presentation was chosen for Outstanding Abstract (Undergraduate) at the annual conference for Utah's Academy of Nutrition and Dietetics on April 5, 2019.



CERTIFICATE of ACHIEVEMENT

THE ABSTRACT AND POSTER TITLED

**Determining the Need for Meal Preparation
Education in First-Year University Students**

HAS EARNED THE RECOGNITION OF

Outstanding Abstract (Undergraduate)

**2019
ANNUAL
MEETING**

*Alicia Kunzler and Sheryl Aguilar,
MS, RD*

AUTHORS

Utah
Academy of
Nutrition and Dietetics
Member of the
International Academies of Nutrition and Dietetics



Verification of Honors Capstone Oral Presentation

The University Honors Program asks faculty mentors to verify that graduating honors students have made a formal, public presentation of their capstone projects. Please submit this form to the University Honors Program office (LLCA 112) by the last day of final exams, which is also the deadline for students to submit paper copies of their final capstone projects.



Honors Electronic Signature Approval

Steps for a Participant's Responsibilities:

1. Email the form, signed by you, to your advisor at 252.328.2000, extension 3022, OSU's Site 307 Transfer Office, Charlotte.
2. Make sure there are no omissions on the Site page.
 - a. *Print out an approval or disapproval letter on a separate page with 252.328.2000 on the approval form and Honors Program's contact information.*
3. Complete all sections of this form.
4. Bring this form to the Honors Program office along with your independent research essay of your Honors project.

Name of Participant: _____ Student Identification #: _____
 Name of supervisor or advisor: _____

SA: A01904220

All of _____, _____, _____
 (First Name Last Name) (First Name Last Name)

Title of Honors Capstone: _____
 Institution: (Date/Month/Year) _____

Reasoning for need for travel: (Number of leaves) _____

Student and Faculty Approval: _____

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Request for Delay or Extension

1. You must explain the your request and use a good reason for the Honors Program. (Should be positive, perhaps you are taking a job or you are working.)
2. The letter must include how long you need the delay or extension, why you are requesting the delay or extension, and why it is a good idea to be able to do so. (It should be clear that you are not asking for a delay or extension.)

Author Biography



Alicia Kunzler is graduating from the Coordinated Program of Dietetics in the Nutrition, Dietetics, and Food Science department. Alicia is beginning a Master of Public Health degree here at Utah State University (USU) in the fall of 2019. She has accepted a community nutrition graduate student assistantship in conjunction with this program, working with low-income individuals and their access to farmers' markets. Alicia also has the goal of becoming a certified registered dietitian nutritionist (RDN) in 2019.

Utah State University has provided Alicia with many amazing memories and experiences. She is especially grateful for her opportunity to publish a peer-reviewed fact sheet, for her undergraduate research projects, and for the chance to co-author a cookbook to be distributed to USU students through the Aggie Recreation Center.