STUDENTS’ PERSPECTIVES OF AN URBAN UNIVERSITY NUTRITION ENVIRONMENT: A QUALITATIVE APPROACH

by

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The purpose of this qualitative study was to explore University of Alabama at Birmingham students’ perceptions of the availability, accessibility and barriers of healthy eating on campus. There was a total sample of 33 participants; 28 participated in focus groups, and 5 were interviewed. Barriers for healthy eating on campus included: accessibility, price, food factors, and student input. Focus groups and interviews were recorded, transcribed, and then analyzed to find themes and subthemes. The themes that emerged were accessibility, money, food, education, and student opinion. These themes were the same for focus groups and interviews. However, subthemes varied between focus groups and interviews. Students seemed to feel like unhealthy and processed foods are more available and accessible than healthy foods. In addition, students reported that for the most part, the healthy foods available on campus were processed, not of good quality, and tasted badly. Barriers for healthy eating on campus included: accessibility, price, food factors, and student input. Students felt like these barriers were not facilitating healthy eating at UAB’s campus. Recommendations for implementation were made to UAB Campus Dining. By working together with students, a greater sense of community and a healthier nutrition environment can be achieved.

Key words: college health, nutrition environment
Dedication

This thesis is dedicated to my sweet baby boy, Sawyer. You have brought so much joy and love into my heart. I never knew I could love something so much. You guide my thoughts and actions daily, as I wish to set an example of what unconditional love can be. I wish you a lifetime of happiness, love and health. I love you.

I would also like to thank my family and friends for their patience and encouragement throughout my life journey. I especially want to thank the love of my life and best friend, Josh, for always believing in me, supporting me, and bringing out the best in me. You can make me laugh like no other, and I can’t wait to spend my life with you. I love you.
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LIST OF ABREVIATIONS

ACHA  American College Health Association
BMI   Body Mass Index
CDC   Centers for Disease Control
NCHA  National College Health Assessment
NHLBU National Heart, Lung, and Blood Institute
RDI   Recommended Daily Intake
SCT   Social Cognitive Theory
UAB   University of Alabama at Birmingham
CHAPTER 1

INTRODUCTION

Statement of the Problem

The American College Health Association (ACHA) (2013) estimated that of college students surveyed, approximately 32.5% are classified as being overweight or obese. Healthy Campus 2020, a document which sets health objectives for the college population, has recognized the growing problem of college obesity. Healthy Campus 2020 lists two objectives relating to the weight status of college students:

(NWS-8) Increase the proportion of students who are at a healthy weight from 61.8% to 67.8.
(NWS-9) Reduce the proportion of students who are obese from 11.6% to 10.4% of students.

Along with prominent organizations, independent research studies have been conducted to study college overweight and obesity.

According to the ACHA- NCHA II (2013), approximately 44% of students reported not receiving any nutrition information from their college. When asked, “Are you trying to do any of the following about your weight?” 25.8% reported weight maintenance and 49.9% reported lose weight. Of all college students surveyed, it was estimated from Body Mass Index (BMI) that 32.5% were overweight or obese, but 34% reported being slightly or very overweight. Approximately 5.3% of students reported eating the Recommended Daily Intake (RDI) for fruits.
and vegetables. The results of the survey show there is a problem with nutrition on campus, but to better understand where the problems are, the nutrition environment needs to be studied.

The National College Health Assessment is a nation-wide research survey which collects information on college students’ health behaviors and perceptions and is distributed by the American College Health Association (ACHA) (ACHA, 2013). Undergraduate students from University of Alabama at Birmingham (UAB) participated in the Spring 2013 ACHA NCHA II and results were analyzed. The results of the Spring 2013 NCHA revealed that of students surveyed, 42.9% said they did not receive any nutritional information. From reported heights and weights, it was estimated that 39.3% of students surveyed were overweight or obese, although only 35.8% reported being slightly overweight or very overweight, respectively. Additionally, only 2.9% of students surveyed reported getting the RDI for fruits and vegetables. The reasons behind UAB students’ behaviors related to the nutrition environment need to be better understood.

Several researchers have conducted studies on different aspects of college health as it relates to nutrition. Burke, Reillu, Morrell, and Lofgren (2009) conducted a survey of 1,701 college students which showed that unhealthy dietary behaviors of many college students put them at an increased risk for chronic diseases. According to Pires, Pumerantz, Silbart and Pescatello (2008), several studies have suggested that more intense interventions, such as nutrition education programs can impact college students’ attitudes and dietary behavior. Previous research conducted by Byrd-Bredbenner and Haung (2009) showed that college-aged and adolescent women tend to read labels at least sometimes, with a main focus on total calories, while men were less likely to use food labels, but when they did evaluated the protein and macronutrients, showing a gender difference. Although food labels have been shown to have an
impact on dietary behavior, they are not universally available to consumers, or are not available at the point of selection/purchase (Chu, et al 2009). All of these factors are contributing to the college nutrition environment and their impact on healthy and unhealthy behaviors needs to be examined.

**Etiology**

The National Heart, Lung, and Blood Institute (NHLBI) (2013) has researched the causes of obesity and found that lack of energy balance, the environment, and inactive lifestyle, genes and lack of sleep are contributing causes. A lack of energy balance, more specifically consuming more energy in that energy exerted over time, will lead to weight gain. This lack of energy balance many times is due to an inactive lifestyle. Of all the contributing factors to overweight and obesity, one of the main offenders is the environment. Environmental components include food advertising, accessibility and affordability of foods, food portions, work schedules and lack of safe places for recreation (NHLBI, 2013). Although genes and family history have been proven to play a role in accumulation of fat, they do not play as large of a role in overweight and obesity as the environmental does. Sleep deprivation may also contribute to weight gain as sleep helps to maintain a balanced level of the hormones which make you feel hungry (ghrelin) and full (leptin) (NHBLI, 2013). All of these contributing causes to overweight and obesity can be found in a college environment.

The college environment, for many, is the first time where students are responsible for making all decisions relating to their eating and exercising habits. An inactive lifestyle is unfortunately a part of the college environment. Students are spending more time in front of their
computers doing schoolwork and are choosing to spend their extra time watching television and doing leisure activities, rather than being physically active (ACHA, 2013). Most college environments do not support healthy eating choices, in fact they may even be promoting unhealthy choices (Wansink, et al., 2012). This is mainly due to a combination of unhealthy food advertisements, buffet-style dining halls, the availability and accessibility of calorie-rich and nutrient-poor food, and lack of adequate and safe recreational places. Additionally, it is known that most college students do not get enough sleep, especially around midterm and final exams. Examining how to increase positive and decrease unhealthy behaviors in these contributing factors is necessary to start to decrease the prevalence of overweight and obesity among college students.

Gaps in Existing Research

Although some previous research has been conducted, there is a gap in nutrition environments and those barriers and facilitators which influence healthy eating habits. Further research on university nutrition environments is needed. This research should address needs for improvement, best practices from other campuses, and development of an interactive tool and set of guidelines for colleges to use to assess their environment (Freedman, 2012; Kicklighter, et al., 2010). Also not explained in the research is what college students’ components they believe are included in and what they perceive to be a nutrition environment.
Addressing the Gaps

Through the exploration of the university nutrition environment, college health professionals and administrators can gather data on students’ perceptions and influencers. The research gathered can be used to make healthy improvements to the college nutrition environment. These environmental improvements can support healthy eating habits through policy change, program development, or other interventions. Supplying college students with nutrition information and a healthy environment can increase their self-efficacy to make healthy choices, and with an improved diet, college students’ grades, focus and health can improve.

Purpose of the Study

The purpose of this qualitative study is to explore University of Alabama at Birmingham students’ perceptions of the availability, accessibility and barriers of healthy eating on campus. A nutrition environment is loosely defined as the physical and psychological environment which influences food consumption and purchasing habits. With a clearer understanding of the definition and factors influencing the nutrition environment, researchers and health educators alike can join forces to make changes to existing college environment to promote a healthy nutrition environment. The Social Cognitive Theory will guide this study.
Research Questions:

The following research questions will guide the study:

(1) How do UAB students feel about the availability and accessibility of healthy foods on campus?

(2) What are UAB students’ perceptions of healthy food on campus?

(3) What are the barriers for healthy eating at UAB?

Delimitations

The study was delimited to currently enrolled students at the UAB who were ages 19-26. To be included in the study, students had to be currently enrolled in classes at the university between the dates of 8/26/2013 and 12/05/2013. Verification of enrollment status was not done as this would require students to submit a request to the registrar’s office and would likely decrease participation. Participants’ also had to be at least 19 years of age, and could not be over the age of 26. These age restrictions were set to exclude children who would need their parent’s consent. Participants also had to be enrolled as a sophomore, junior or senior undergraduate student. Class level restrictions were set so the participants would have experience with and be more knowledgeable about UAB’s nutrition environment.
Limitations

This qualitative study had several potential limitations that may affect transferability of the findings:

1. The sample size was small, due to the small number of focus groups conducted
2. The study is limited to only Sophomore, Junior, and Senior males and females; freshman and graduate students were excluded from the study.
3. The majority of participants lived off-campus, and therefore did not interact with UAB campus dining restaurants as much as those who live on campus
4. Less than half of participants had a meal plan (aside from dining dollars) on campus
5. The focus groups and interviews took place after demolition of one of UAB’s main dining centers
6. Participants were only selected their expression of interest in the study
7. Participants had to rely on memory to answer the questions, and may have not answered accurately.

There was a small sample for this study. This was intentional, as qualitative studies are usually small in number because of their in-depth nature. A total of 5 focus groups were conducted. Freshman students did not have any semesters with the HUC on campus. Therefore, they may have not had as much dissatisfaction with UAB’s nutrition environment. Graduate students, especially those who went to UAB for undergraduate could have added to focus group data and possibly a different perspective.
Assumptions

For this study, several assumptions were made: (a) it was assumed that all participants were honest about their age and enrollment status; (b) participants were honest when they responded to demographic and focus group questions; (c) participants have eaten at each of the UAB dining halls at least once, including the Hill University Center, the Commons, and the Diner and (d) the participants were familiar with other campus restaurants.

Definition of Key Terms

The following is a list of key terms discussed in this study:

**Barrier**: Any obstacle that interferes with or prevents a behavior from occurring.

**Body Mass Index**: A number that is based on a person’s height and weight and is used as a reliable indicator of body fat (CDC, 2011).

**Facilitator**: Any object or action that assists in a behavior or outcome.

**Nutrition Environment**: The physical and psychological environments which influence food consumption and purchasing habits among college students.

**Obese**: Any person with a BMI ≥ 30 (CDC, 2012).

**Overweight**: Any person with a BMI between 25 and 29.9 (CDC, 2012).

**Perception**: A way of understanding or interpreting a phenomenon.
CHAPTER 2
LITERATURE REVIEW

Definition of Nutrition Environment

The Nutrition Environment is not well defined for a college or university setting in the literature. For purposes of this study, the nutrition environment is defined as the physical, psychological, and social factors which influence food eating and food purchasing habits.

Measurement of Nutrition Environment

Physical, psychological and social behaviors and factors all play part in creating a nutrition environment. The college nutrition environment has been more recently studied, as the health of college students is on the decline. The prevalence of obesity among college students is an alarming number, at approximately 30%. The purpose of a study developed by Freedman (2010) was to develop, validate and evaluate two college/university based environmental assessment tools to use in combating the growing prevalence of college obesity rates. Freedman developed two tools, the University Nutrition Environment Assessment Tool (U-NEAT) and the University Nutrition Program Assessment Tool (U-NPAT). The U-NEAT focus on components of the food environment, while the U-NPAT focuses on nutrition services and programs. Email invitations for the surveys were sent to university food service and health center directors at 47
colleges; only 39 of the 47 who completed the survey completed the 10-question evaluation of the tool. Surveys were analyzed using the 10 questions at the end of both surveys that allowed respondents to rate their opinion. Follow-up interviews and site visits were performed to validate survey responses as well as to establish content and face validity. The author does not mention specific software used for data analysis. With respect to U-NEAT, approximately 67% of respondents rated this tool as effective and 78% reported they would be likely to use such a tool in the future. In regards to U-NPAT, 60% of respondents indicated that this tool was effective at assessing nutrition programs and policies, and 63% said they would be likely to use a similar tool in the future. Conducting these types of environmental assessments at universities could lead to healthy improvements for college nutrition environments.

Not all college students are alike, and individual differences can account for the way a food environment affects a person’s feelings, thoughts and behaviors about food. Lowe et al., (2009) conducted a study to test the psychometric properties of The Power of Food Scale (PFS). The researchers set out to replicate the factor structure suggested by Cappelleri et al (in press) and evaluate the internal consistency, test-retest reliability, and validity of the PFS. Four samples from three different universities participated for a total sample of 466 healthy college students. Demographic information was collected for all participants. Assessments included the Restraint Scale (RS), the Three Factor Eating Questionnaire (TFEQ), the Dutch Eating Behavior Questionnaire (DBEQ), and the Marlowe-Crowne Social Desirability Scale (MCSDS). These assessments measure psychological and social factors which influence eating behavior and attitudes. A one-way ANOVA way used to analyze PFS scores between demographic differences in participants. Confirmatory factor analysis was performed using Mplus 4.1 and the fit was measured by the chi-squared test; validity was established using multiple regression. Results
supported a three-factor solution which include food availability, food present and food tasted. Results also proved reliability, with Cronbach’s alpha being .91. Overall, the PFS would be a good measure for the psychological influence of the food environment.

Besides individual factors, college students as a group seem to stand out from their non-college attending peers. Studies have shown that college students seem to be more prone to weight gain than their non-college attending peers (LaCaille et al., 2011). Although there have been many studies proving this, there is a gap in the literature about experiences with the transition to college and underlining factors that influence this phenomenon. LaCaille et al. (2011) conducted a qualitative study to explore determinants of healthy and unhealthy eating patterns, physical activity (PA) levels and weights changes in college students. A total of 49 undergraduate students at a medium-sized Midwestern university participated in this study. The authors conducted 6 focus groups which were assigned based on gender. Facilitators asked participants a series of open-ended questions about their past and present eating and PA habits. Themes emerged during analysis and transcription, and a coding system was developed by the researchers. Additionally, the qualitative analysis software, NVivo 2, was used to categorize and cluster theme patterns. Results showed a significant difference in the psychosocial and environmental characteristics described by males versus females. Analysis revealed factors that intertwine to contribute to healthy and unhealthy eating and PA habits including: self-regulatory behavior, social support, physical environment and motivation. Future research should focus on examining the interactions between all lifestyle factors shared among the college population.

As students enter college, their entire environment changes. For many students, college is the first time they are having to make 100% of their own decisions about food purchasing behavior. Wansink et al. (2012) set out to examine how a la carte snack choices in college
cafeterias change during the passing semesters. The data were collected from Cornell University’s three largest dining halls during the Fall 2006, Spring 2007, Fall 2007 and Spring 2008 semesters. Sales data for a la carte items were collected and divided into four groups: healthy snacks, unhealthy snacks, sandwiches and others. Percentages for separate food categories were calculated as ratios of number sold for the group and total number of servings sold for all items. Additionally, simple panel regressions were conducted for healthy and unhealthy food choices. Overall, healthy snack food purchases only accounted for 22% of total purchases, where unhealthy snacks accounted for approximately 44% of total purchases. Healthy snacks decreased throughout the entire fall semester, but experienced a decreased by 4% in the last two weeks. Unhealthy snack purchases increased by about 0.4% each week until the last two weeks of the semester, where an 8% increase occurred. The conclusions show that many factors in a university environment can influence college students’ purchasing habits. Further research is needed to determine which factors cause increases and decreases in purchasing habits and how these factors influence the college nutrition environment.

Understanding and use of nutrition labels

The use and understanding of food labels is an important part of the nutrition environment. Food labels are an important tool in the communication nutrition information, but not many consumers understand how to and use them properly. Mackison et al (2009) conducted a study to develop a reliable and valid tool that will assess consumers’ use, perception and understanding of food labels in both a retail and cafeteria environment. Content validity was assessed by 26 experts in nutrition with a dietetic background. These experts were given a list of questions and asked to rate each item out of 10 in relation to importance, appropriateness and
phrasing. Face validity was determined by short post-questionnaire interviews with 20 adults (aged ≥18). Reliability was assessed by 97 participants who were asked to complete the survey once and then again in 7 days, but only 81 participants completed the questionnaire as second time. Cronbach’s alpha was calculated to determine internal consistency of like questions. Results showed that overall means for importance, phrasing and appropriateness were 8.77, 8.84, and 8.79, respectively. The majority of participants who assessed face validity found font size and length of the questionnaire to be “just right”; 80% reported questionnaire instructions were easy to understand. Good temporal stability was shown using Spearman’s correlation coefficients, which ranged from 0.51 to 0.97. Cronbach’s alpha was .72, indicating good internal consistency. From participants’ responses and analysis of the questionnaire, adjustments were made. This tool shows promise in helping future researchers to understand consumers’ use, understanding and perception.

Fawkes et al. (2008) also realize the importance of nutrition labels and their potential to affect purchasing behavior among college students. The purpose of this study was to measure the knowledge, comfort level and use of nutrition labels to determine if these factors influence eating patterns in female college students at Simmons University. There were 384 female college students ages 18 years and older. A survey that measured students’ knowledge and behaviors relating to nutrition labels, dietary behavior, perceptions of current weight status and body image was distributed and a total of 281 students completed the survey. For a two week period prior to the distribution of the survey, nutrition labels were placed next to three hot entrees in the university cafeteria. Researchers asked information about the use of the labels on the survey. Data analysis was done using SPSS; descriptive statistics were analyzed using Pearson’s test and demographic data was conducted using frequencies. The majority of students reported obtaining
nutrition information through the internet. Approximately 66.3% of students reported seeing the food labels in the cafeteria; of those who noticed the labels, 50.5% were influenced by them. A significant difference in education level and influence by nutrition labels was established, as graduate students were more likely to be influenced by the presence of the labels when compared to undergraduates. When asked about the comfort level with reading and using nutrition labels, 59.4% of respondents reported feeling “not at all”, “slightly”, or “somewhat” comfortable. A great finding from the study was that 78.4% of respondents reported being “somewhat”, “very”, or “extremely” interested in seeing food labels in the cafeteria on campus. College students’ knowledge of and behaviors relating to nutrition labels is an area that needs much more future research, has proven to be an area that a majority of students are interested in learning about and could positively impact the nutrition environment.

**Attitudes About Weight.**

Although it is well known that college obesity rates are on the rise, specific risk factors for this population have not been well addressed in previous studies. Desai et al (2008) conducted a study to determine if abnormal eating behaviors and attitudes are associated with overweight and obesity in college students at three North Carolina universities. E-mails were sent to undergraduate students at Duke University, University of North Carolina at Chapel Hill and North Carolina State University that contained a link to a web-based survey. A total of 5,144 students who received the emails completed the surveys; those with a BMI of $< 18.5$ and those who did not report height/weight were excluded from analysis, for a total sample of 4,201. The survey contained demographic information and the Eating Attitudes Test-26 (EAT-26). The EAT-26 measured students’ attitudes towards different foods. Descriptive statistics were
calculated and multiple linear regressions were performed on the basis of BMI. In addition, Pearson’s chi test was used to establish associations between EAT-26 scores and physical inactivity, purging behaviors, and previous treatment for eating disorders. The results showed that those students who were overweight or obese had higher EAT-26 scores. Overweight and obese respondents also felt like food controlled their lives more than their normal weight peers. Participants who reported physical inactivity had a higher average BMIs and were also more likely to be overweight. This study shows that the EAT-26 test could be a useful measure to detect disordered eating behaviors in overweight and obese college students and could be a risk factor for college weight gain.

Knowing that attitudes about weight can influence behavioral patterns, Ousley et al., (2008) conducted a study to assess how much time undergraduates spend participating in “fat-talk” and to explore which topics were most discussed in college students at the University of California Santa Barbara. Two hypotheses were developed and tested: (1) Undergraduate students with an eating disorder would participate in fat-talk more often than those without an eating disorder; and (2) College students with and eating disorder would discuss different fat-talk topics in different frequencies than those without an eating disorder. Participants were 1500 undergraduate students, of which 272 completed surveys that were used in analysis. A Likert-type scale survey to identify eating disorders was entitled “The 2002 Weight Management, Eating and Exercise Habits Survey” and mailed to all participants along with informed consent. Frequencies of topics and z tests were used for analysis. Results confirmed hypothesis 1, and showed that significantly more undergraduates with and eating disorder discussed the topics “at least daily”, whereas those without an eating disorder “rarely/never” discussed the topics. Additionally, those without and eating disorder reported engaging in discussions about eating
and exercise habits and other people’s body appearance than those with an eating disorder. Results show that regardless of the presence of an eating disorder, undergraduate students are talking about fat-talk and could be experiencing a false consensus effect. It would be beneficial to the nutrition environment to employ different prevention strategies that can reduce the prevalence of fat-talk.

Perceptions of food

Psychological factors are a part of the nutrition environment and can influence behavior. Lee et al. (2013) examined this further with a published study. The purpose of this study was to define the characteristics of healthy foods as perceived by college students at a major university in the Southwestern United States. Research questions were: (1) what are college students’ healthy eating behaviors; (2) what are the factors that make up healthy food choices; and (3) where do college students get information about healthy foods. Participants were 161 college students. SPSS was used to run descriptive statistics, t-tests, and factor analysis for the data. Descriptive statistics were used to identify an array of participants’ social and demographic characteristics. T-tests were used to analyze factors of food choice for “normal foods” and “healthy foods”. Cronbach’s alpha was used to test reliability and internal consistency for the two factors, and an alpha of .6 was retained for analysis. Participants reported they acquire their information about healthy foods from a variety of sources, with the most popular source being the internet (21.6%) and college classes (17.5%) being the second. Significant differences were found in the scores for “reasonable price” and “nutrition value” between normal foods and healthy food. When asked “Which factors are important when choosing healthy foods?” students chose the following top four statements: (1) “drink water”; (2) “eat vegetable”, (3) “drink fruit
juice”; and (4) “eat fruit”. Factor analyses for “healthy food factors” identified the following categories: low calorie foods, low fat foods & healthy drinks, and low cholesterol foods. These results can be used to assist foodservice workers in creating a healthier nutrition environment through the use of signage that allows college students to associate different characteristics of food as being healthy.

Stockton & Baker (2013) also studied college students’ food perceptions, but were specifically interested in those relating to fast food consumption. This study examined survey results of a Midwestern University’s college students’ fast food menu item selections and how they perceive these choices affect their health. Out of the 12,524 college students who received the invitation to complete the “Health and Fast Food Consumption Survey”, 499 student surveys were received. The survey participants filled out demographic, attitudinal and behavioral information. SPSS for Descriptive Statistics was used for data analysis, and mean, standard deviation, frequency, percentage and chi-squared were all calculated. The majority of respondents indicated two or less visits per week at a fast food restaurant (n=334), and the most frequent meal eaten at a fast food restaurant was dinner. When visiting a fast food restaurant, 251 participants reported occasionally, frequently or always purchasing a regular soda. From the choices provided on the survey, participants selected a cheeseburger as “unhealthiest” (n=267), with a hamburger as “most harmful” (n=305). Interestingly, almost all participants (n=454) reported the quality and type of food influenced feelings of energy. The Pearson’s chi-square analysis revealed significant differences among males and females and between ages. Determining college students’ perceptions of fast food choice and current eating habits could help researchers and health educators to develop tailored interventions to reduce consumption of
fast food among students as well as adapt the nutrition environment to limit availability of fast food restaurants.

**Gender differences**

Gender differences can account for discrepancies in eating patterns and choices between males and females. Morse & Driskell, (2009) focused on the specific differences in nutrition behavior and perceptions between males and females in their study. College students frequently consume fast foods, yet few studies have explored why this population chooses to eat at fast food restaurants. This study set out to determine the influence that gender has on fast-food consumption and nutrition self-assessments at a large Midwestern university. The hypothesis was that sex differences would be observed for some variables. The sample size was 159 college students, 101 men and 158 women, ages 19-24. All participants completed a 12-item written questionnaire that addressed reasons for eating at fast-food restaurants, favorite aspects of fast-food restaurants, how often they eat at fast-food restaurants and consideration of energy content when purchasing fast-foods. Participants also gave anthropometrics measurements. Except for the anthropometric measurements, all data was analyzed by sex using SAS version 9.1 software; anthropometric measures were analyzed using general linear models. Results showed significant gender differences in sources of nutrition information and reasons for consuming fast foods. Both the consideration of energy content and frequency of consuming fast foods differed for males versus females. Additionally, double the amount of women strongly agreed with the statement “the nutrition content of food is important to me”. This study showed that college students frequently eat fast-foods and will continue to do so for an array of reasons; nutrition
educators should create different education materials towards men and women, but direct their focus on how to choose healthier fast food options.

**Nutrition Environment Interventions**

Nutrition intervention programs have proven to increase the overall health of college students by enabling positive dietary changes (Kolodinsky et al. 2007; Pires et al. 2008).

**Nutrition Education**

Unhealthy and poor eating behaviors established during the college years can have long lasting negative effects on college students’ future health. Ha et al. (2009) examined the effectiveness of a nutrition class as it relates to dietary behavior change. The purpose of this study was to assess the intake of fruits and vegetables and to evaluate the effectiveness of participation in a basic 15-week nutrition class in increasing fruit and vegetable consumption in college students at Kent State University. Participants were 90 college students ages 19-35 who were enrolled in a sophomore-level basic nutrition course at the university. From this sample, 10 were excluded from analysis. This pretest-posttest design collected several types of data. Interviews were performed with participants to get anthropometric data, including height and weight, from which BMI was calculated; dietary intake was also collected using a 3-day dietary journal. Dietary analysis for the journals was performed using Nutrition Base IV Clinical software. Means and standard deviations were calculated for all food consumption variables using SPSS. The pretest-posttest differences in food consumption were analyzed using ANOVA and paired t-tests were able to determine overall significant differences in fruit and vegetable
consumption between the two groups. There were no significant differences in consumption between gender, age, or residence groups, so the data was pooled for results. Significant increases in consumption were measured for total vegetable, fresh vegetable, total fruit, and fresh fruit in the posttest group. Additionally for the post-group, a significant difference was noted in French fry consumption. These findings show that theory-based, hands-on, class-based approach to nutrition education can significantly increase both fruit and vegetable consumption.

Many behavior change interventions emphasize health-related outcomes as motivators for change and focus less on other rewarding aspects of behavior change, such as the process itself. Heckler et al. (2010) conducted a study to examine if an educational course focused on societal-level food issues (Food and Society) would promote healthy eating choices among college students at Stanford University. It was hypothesized that a class which focused on society and food-related issues would motive college students to consume more fruits and vegetables while decreasing consumption of high-fat meat and dairy products, processed foods, and sweets. A pretest-posttest group design was selected for this study. The authors collected data from four college classes: “Food and Society”, “Healthy Psychology”, “Community Assessment/Health”, and “Obesity: Clinical/Societal Implications”. For all participants, dietary intake was assessed using an adapted version of the Harvard Food Frequency Questionnaire (FFQ) that included demographic information. Paired t-tests were used for within data pre-post changes, while ANCOVA was used to assess differences between the Food and Society course and comparison courses. The overall impact of the Food and Society course was evaluated using baseline median splits for each food category. Results showed that Food and Society students had within-group significant improvements in vegetable and high-fat dairy consumption. Compared to other courses, the Food and Society group also showed significant improvements in overall healthy
eating and increased students’ beliefs in environmental and healthful diet importance. A course which focuses on food-related societal issues shows promise in improving healthy eating while strengthening students’ environmental and overall health beliefs.

Another variation of the on-site nutrition course was developed by Pires et al. (2008). This study was developed to determine if a nutrition education program, specifically the Everyday Healthy Eating on Campus (EHEC) affected the eating behaviors and perceptions among undergraduate students at the University of Connecticut. The study enrolled a total of 316 participants (166 in EHEC and 153 students in the control group.) Every participant completed a short form of the DHKS (Diet and Health Knowledge Survey) both pre- and one month post-EHEC. The DHKS has content, discriminant and correspondence validity as well as internal reliability. Statistical analysis of both groups was performed using SPSS. When comparing pre- and post-test surveys for those EHEC participants, there were significant increases in factors (1) and (3), perceived value of healthy eating and consumption of low-fat/low-calorie foods, respectively. EHEC participants also indicated improvements for importance of healthy eating in the following six factors: 1) using salt in moderation as somewhat to very important; 2) using sugars in moderation as somewhat to very important; 3) choosing a diet in low in saturated fat as somewhat to very important; 4) choosing a diet with adequate fiber intake as somewhat to very important; 5) choosing a diet with a variety of foods as somewhat to very important; and 6) choosing a diet with plenty of breads, cereals, rice and pasta as somewhat to very important. The only significant improvements in behavior were for factor (11), avoidance of extra fats. In addition, students in the EHEC also reported consumer lower fat luncheon meats then the comparison group, with percentages of 33.0% and 3.4%, respectively.
Kicklighter et al. (2010) added to the knowledge base of on-site nutrition education classes and how to improve effectiveness. Nutrition education interventions are aimed at promoting healthful eating habits and decreasing chronic disease risks associated with college weight gain, but do college students believe these programs are effective? The purpose of this qualitative study was to evaluate college students’ perceptions of Nutrition Survival Skills, a nutrition education module using focus group methodology at Georgia State University. There were two specific research questions: 1) “What are students’ perceptions of the effectiveness of the nutrition module?” and 2) “How can the module’s effectiveness and implementation be improved in the future?” Five focus groups were conducted for a total of 34 participant’s ages 18 years and older who received the nutrition education module. Participants were asked to complete a demographic questionnaire and asked both open- and closed-ended questions during the focus group. Focus group questions related to the benefit of and likability of the nutrition module as well as behavior habits of students. Demographic data were analyzed using SPSS descriptive statistics, while the audio recordings of the focus groups were analyzed using Kruger and Casey’s long-table approach. From analysis, major themes from the focus groups emerged: acquisition of knowledge, behavior change, instructor characteristic for effective learning, effective aspects and less effective aspects. Evaluation of nutrition modules can be done using a qualitative analysis, as shown in this study.

Along with traditional in-classroom nutrition education, online nutrition modules can be used to make improvements in eating behaviors. Franko, et al. (2008) studied online nutrition education and whether they play a role in establishing healthy eating and physical activity habits among college students. The purpose of this study was to test the efficacy of MyStudentBody.com-Nutrition (MSB-N) perceived by college students at six university campuses
throughout the U.S. There were two hypotheses for this study: (1) participants exposed to MSB-N would show improved nutrition behaviors compared to control participants, specifically in the areas of motivation improvements, nutrition knowledge, physical activity, and attitudes; and (2) the booster group would show longer lasting and greater improvements in outcomes compared to the intervention group. Although 606 of the students screened were eligible, only 476 agreed to participate in the study. This was a randomized control trial design, which included the collection of baseline, posttest, 3-month follow-up and 6-month follow-up data. At each of the 4 assessment points, the following validated measures were given to participants: the Food Frequency Questionnaire (FFQ), Stages of Dietary and Physical Activity Change, Nutrition Knowledge Test, Social Support, Encouragement and Self-Efficacy for Dietary Changes, and Exercise Benefits/Barriers. For each outcome, primary analysis was a mixed model which adjusted for gender, baseline BMI, school, pretest measurement and group time interactions. Mean, standard error and continuous outcomes measures were calculated for each group. Results showed that both groups who received MSB-N increased their fruit and vegetable consumption, improved their motivation to change eating behaviors, and were more likely to improve social support and self-efficacy for dietary changes when compared to the control group at posttest. Although it was hypothesized that improvements in physical activity would also occur in the experimental groups, no differences were detected (Franko et al., 2008). These findings show that an internet-based education program designed to increase motivation, self-efficacy and nutrition can have positive outcomes among the college population and health educators and researchers should focus on this area.
Cafeteria/Dining Hall Interventions

These types of interventions are available only at the cafeteria and dining halls on college campuses. They include point-of-purchase and nutrition labeling interventions. Having nutrition information available at the point of purchase can influence decisions of consumers. Hoefkens et al. (2012) examined the effectiveness of a point-of-purchase (POP) nutrition information intervention program, while looking at strategies and methods that were liked compared to those methods that were not liked. One hypothesis was that the POP nutrition information would be most effective among those individuals who were more knowledgeable and motivated. A total of 224 students at Ghent University participated in this one-group pretest-posttest design. The intervention provided POP nutrition information for the 12 “healthiest meal combination”; a score was calculated on a scale of 1-4, with 4 being the best possible choice and 1 meaning the meal only complied with one regulation. A baseline was established before the POP intervention and a follow up test was completed 6 months later, which included a 3-day food log. Of the total sample, 17 maintained high energy intake, 55 maintained moderate energy intake, 16 maintained low or recommended energy intake, and 6 decreased energy intake. From the survey results, there was a positive change in attitude for those participants with low knowledge and high intention, and those people with high knowledge and high intention, with an increase in 30 participants and 34 participants, respectively. In regards to the liking of information; 2 did not like at all, 3 moderately disliked, 12 slightly disliked, 34 were neutral, 39 slightly liked, 11 moderately liked, and 0 liked very much.

Chu, Frongoillo, Jones, and Kaye (2009), conducted a study that examined changes in meal selections by patrons at a university food-service operation when nutrition labels were provided at the point-of-selection at the Ohio University dining center. This was a quasi-
experimental study that examined sales purchases before, during, and after the provision of point-of-selection nutrition labels. A single group for study and 12 entrees to list purchasing information were chosen. During all pre-, intervention, and post- periods, sale information was collected electronically. For each of the 12 study entrees, nutrition information was displayed at the time of the treatment period and included macronutrient data. To test the hypothesis that the energy content of entrees sold during the treatment period was different that the pre- and post-treatment periods, a linear regression model was calculated using SPSS. Paired t-tests were used to detect changes in total sales during successive periods. Results showed that slight negative slope was observed (-0.29 kcal/day) during the treatment period. At the start of the post-treatment period, the average daily energy content of entrees sold increased. It continued to increase across the post-treatment period at a rate of 1.512 kcal/day. It was determined that no loss of revenue occurred during any of the treatment periods. These results support the use of a point-of-selection nutrition label intervention in food-service operations. Supplying college students with nutrition information can increase their self-efficacy to make healthy choices. With an improved diet, college students’ grades and focus can improve.

Point-of-Purchase based nutrition interventions are being advocated for, replacing individualized approaches, but there is limited evaluation of their effectiveness. Freedman et al. (2009) conducted a study to examine the effect of a POP nutrition program on food buying habits of college students who shop at on-campus convenience store at an urban university. The hypothesis was that healthful food items labeled with the “Fuel Your Life” logo would experience and increase in sales compared to those similar food items which were not tagged. Participants were all persons who shopped at the on-campus convenience store at San-Jose State University. Sales data of 16 healthful food items was collected for 11 weeks, 6 weeks as baseline
sales and the other 5 weeks as intervention data. Two different analyses were performed for the data sets. The sales of the tagged items during the baseline period was compared with the intervention period and the tagged items were calculated as a percentage of total items sold during the two time periods. Using SPSS, the Mann-Whitney U test for non-normally distributed data was performed to detect significant differences between periods, with a significance level set at P <0.05. Although there was no significant difference in the sales of any one food item between baseline and intervention, there was an increase in the total sales of tagged items during the intervention. There is still much more research which needs to be conducted on the effectiveness of POP nutrition information.

Several studies have concluded that students use or would use nutritional food labels if present on campus. A study by Kolodinsky et al. (2008) examined when, why and if college students are influenced by the presence of nutrition food labels in a college food court setting. This study posits that students want to see food labels before purchasing items. A total of 16 students aged 18-20 years participated in focus groups; 6 of them were regularly exposed to food labels, and 10 were part of the control group. Those who were exposed to the food labels noticed when they were and were not available. One student said, “They (the labels) helped me so much. I am never going to, like, eat a quesadilla again.” Four of the six students exposed to the food labels made changes in their purchasing behaviors based on them. What the students noticed about the food labels were: calories, fat, and calories from fat. Students exposed also said they noticed the labels because they were places at eye level and in plain view of the food the labels described. It is important to note that the two males that were exposed to labels noticed them, but did not use them to influence their purchasing decisions. The majority of the control group expressed interested in seeing the food labels. This study shows that students want to be more
health conscious, and that college students would find use in the display of nutrition labels in campus restaurants.

Theoretical Framework

The etiology of overweight and obesity can be linked back to both the environment and an individual’s behaviors (NHLBI, 2013). Therefore, the Social Cognitive Theory (SCT) will be used through the entire study.

Figure 1

*Conceptual Model of The Social Cognitive Theory*
Origin and Constructs

According to Shumaker, Ockene & Riekert (2009), Bandura was one of the first people to research the interaction between a person, their behavior and the environment. This idea that a dynamic interaction between the environment, personal factors and behavior exists and that this interaction is influenced by cognitive thought processes defines the SCT (Shumaker, Ockene & Riekert, 2009). Several constructs comprise the SCT: behavioral capability, expectations, expectancies, locus of control, reciprocal determinism, reinforcement, emotional coping response and self-control. The constructs of behavioral capability, expectancies, and reciprocal determinism will guide the development of the study design and analysis (see table 1).

Table 1

Key Concepts and Application of the Social Cognitive Theory

<table>
<thead>
<tr>
<th>Concept</th>
<th>Definition</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral Capability</td>
<td>Knowledge and skills needed to perform a behavior.</td>
<td>This study will help to examine ways to increase behavioral capability.</td>
</tr>
<tr>
<td>Expectancies</td>
<td>The personal values placed on outcomes</td>
<td>Knowing the values college students place on different outcomes can help to increase certain healthy behaviors.</td>
</tr>
<tr>
<td>Reciprocal Determinism</td>
<td>An interaction exists between personal factors, the environment and behavior</td>
<td>This study will examine how students perceive this interaction as well as what changes can be made to produce a more positive outcome.</td>
</tr>
</tbody>
</table>

CHAPTER 3

METHODOLOGY

This chapter addresses the protocols and procedures used to answer the research questions for the study. The topics discussed in this chapter are: theoretical framework, study design, research questions, study population, study sample, data collection and data analysis.

Study Design

Qualitative Methodology is often used when conducting a study of a more in-depth nature. It helps the researcher better understand and explore the central phenomenon or topic. It was the intention of the researcher to gain a better understanding of UAB students’ perceptions of healthy food on campus. This was done by conducting interviews and focus groups with current UAB students.

Five focus groups with and five in-depth interviews with UAB students were conducted. In order to test content validity, a pilot focus group was conducted and focus group questions were adjusted. The remaining six focus groups were divided based on class level and gender. The focus group sessions were broken down into the following groups: (a) sophomore males; (b) sophomore females; (c) junior and senior males; and (d) junior and senior females.
At the beginning of each focus group session, each participant signed in using their UAB email address, filled out a name tag and were handed a packet of information. The packet included the informed consent and demographic information sheet. The principal investigator (PI) went over the informed consent, explaining each section and allowing ample time for questions. After informed consents were signed, the PI asked the participants to fill out the demographic questionnaire and then help themselves to refreshments. The demographic questionnaire included information about age, sex, eating habits, purchasing habits, residence status, race and height/weight information. Once the demographic sheet was handed to the PI, a ten minute break was given for participants to enjoy provided food and drink.

During the focus groups sessions and key informant interviews, participants were asked a series of open-ended questions to which they choose to respond. They were asked questions relating to the nutrition environment, eating habits, and nutritional information received. Focus group inquiry items included: (a) nutrition environments; (b) healthy eating environment; (c) UAB promotion of a healthy eating environment; (d) experience of UAB; (e) availability/accessibility of healthy foods; (f) barriers to healthy eating at UAB; (g) nutrition information received on campus; and (h) wanted changes to the nutrition environment at UAB.

**Study Timeline**

A study timeline was developed and adapted as needed. This timeline was used throughout the duration of the study. (See Table 2)
Table 2

Study Timeline (2013-2014)

<table>
<thead>
<tr>
<th>Task</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>May</td>
</tr>
<tr>
<td>Literature review</td>
<td>X</td>
</tr>
<tr>
<td>Committee selection</td>
<td>X</td>
</tr>
<tr>
<td>Design Methodology</td>
<td>X</td>
</tr>
<tr>
<td>Write Chapters I, II and III</td>
<td>X</td>
</tr>
<tr>
<td>Development of Focus Group Questions</td>
<td>X</td>
</tr>
<tr>
<td>Obtain IRB approval</td>
<td>X</td>
</tr>
<tr>
<td>Present Proposal</td>
<td>X</td>
</tr>
<tr>
<td>Participant Recruitment</td>
<td>X</td>
</tr>
<tr>
<td>Conduct Pilot Focus Group</td>
<td></td>
</tr>
<tr>
<td>Adjust Focus Group Questions as Needed</td>
<td>X</td>
</tr>
<tr>
<td>Conduct Focus Groups</td>
<td></td>
</tr>
<tr>
<td>Data Entry (Transcription of audio recordings)</td>
<td></td>
</tr>
<tr>
<td>Data Analysis (coding of themes and subthemes)</td>
<td>X</td>
</tr>
<tr>
<td>Member Checking of Themes</td>
<td></td>
</tr>
<tr>
<td>Write Chapters IV and V</td>
<td>X</td>
</tr>
<tr>
<td>Defend Thesis</td>
<td></td>
</tr>
</tbody>
</table>
Sampling Procedures

In qualitative research, purposeful sampling is used to identify the population sample and site to ensure selection of participants who have experience with the central phenomenon (Creswell, 2012). For this qualitative study, non-probability convenience sample will be used.

Students were pre-screened before being enrolled in the study. When potential participants expressed interest in the study to the PI, they were asked their age, if they were currently enrolled at UAB, sex, and what year at UAB they are currently in. If they did not meet the inclusion criteria, they were excluded from the study.

Protection of Human Subjects

The researcher submitted the study method and related protocols to the Institutional Review Board (IRB) at UAB. The study was approved on August 30th, 2013. The study had minimal risk to participants, with the benefits of participation outweighing the risks. There were no physical risks to students who participated in the study. Psychological risks were not expected to occur, other than participants potentially feeling uncomfortable discussing certain topics in the presence of their peers or the facilitator.

Research Questions

The following research questions guided the study:

(1) What aspects of a nutrition environment are UAB students familiar with?
(2) What are the barriers for healthy eating at UAB?

(3) What are students’ perceptions of the nutrition environment at UAB and what changes do they want to see occur?

Study Population

The study population consisted of all college students currently enrolled at the University of Alabama at Birmingham. In the Fall semester of 2012, there were 17,999 students enrolled in both undergraduate and graduate programs. Of those students, 11,291 were undergraduate (8,270 full-time students and 3,021 part-time students) and 6,708 were graduate (3,695 full-time and 3,013 part-time students). The University of Alabama at Birmingham was selected because it is in an urban setting and easily accessible to the researcher.
Table 3

*University of Alabama at Birmingham Demographics (N=17,999)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>$f$</th>
<th>% of sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate</td>
<td>6,708</td>
<td></td>
</tr>
<tr>
<td>Undergraduate</td>
<td>11,291</td>
<td></td>
</tr>
<tr>
<td><strong>Enrollment Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>8,270</td>
<td></td>
</tr>
<tr>
<td>Part-time</td>
<td>3,021</td>
<td></td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>4,766</td>
<td>42%</td>
</tr>
<tr>
<td>Female</td>
<td>6,525</td>
<td>58%</td>
</tr>
<tr>
<td><strong>Housing Status</strong></td>
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<td></td>
</tr>
<tr>
<td>On-Campus</td>
<td>2,371</td>
<td>21%</td>
</tr>
<tr>
<td>Off-Campus</td>
<td>8,920</td>
<td>79%</td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian</td>
<td>29</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Asian</td>
<td>538</td>
<td>5%</td>
</tr>
<tr>
<td>African American</td>
<td>2,963</td>
<td>26%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>276</td>
<td>2%</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>9</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>White</td>
<td>6,699</td>
<td>59%</td>
</tr>
<tr>
<td>Two or More Races</td>
<td>328</td>
<td>3%</td>
</tr>
<tr>
<td>International</td>
<td>198</td>
<td>2%</td>
</tr>
<tr>
<td>Race/Ethnicity Not Reported</td>
<td>251</td>
<td>2%</td>
</tr>
</tbody>
</table>

Study Sample

A total of 33 UAB students participated in the study. This breaks down into 28 students who participated in 5 focus groups and 5 students who participated in interviews. There were 12 Sophomore, 11 Junior, and 10 Senior participants. Of the 33 total participants, 15 were male and 18 were female. Additionally, a majority (n=20) of participants lived off-campus. Of those participants who lived on-campus, 6 lived in apartments, and 7 lived in dorms. Approximately 42.4% of the participants were African American, 36.4% were White, 9.1% were Asian, 6.1% were Hispanic, and 3% were Pacific Islander. One person did not fill in an ethnicity, and that accounted for 3% of the total sample. Comparatively, the study sample was very similar to the demographic characteristics of the university.

On the demographic questionnaire, participants were asked to give their height and weight. From reported heights and weights, BMIs were calculated. The average BMI of all participants was 27. Participants were asked about meal plans and dining dollars as well. All but one participant reported having dining dollars. Of the participants, 14 had purchased meal plans for the Fall semester of 2013. Participants who had meal plans had chosen either the three, seven, ten, or twelve meal plans per week.

In addition to the previous information, their information about eating and purchasing habits was asked on the questionnaire. Students reported the median amount of weekly visits to the dining hall was 2.5, and the median weekly number of visits to UAB Campus Restaurants as 3. The median reported daily number of fruits and vegetables per day was 2. Students were asked to rate their eating habits on UAB’s campus on a scale from one to five, with one being very unhealthy and 5 being very healthy. The median number reported was 2.
## Table 4

*Study Sample Demographic Information (n=33)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>f</th>
<th>% of sample</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class Level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sophomore</td>
<td>12</td>
<td>42%</td>
</tr>
<tr>
<td>Junior</td>
<td>11</td>
<td>31%</td>
</tr>
<tr>
<td>Senior</td>
<td>10</td>
<td>27%</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>15</td>
<td>45.5%</td>
</tr>
<tr>
<td>Female</td>
<td>18</td>
<td>54.5%</td>
</tr>
<tr>
<td><strong>Housing Status</strong></td>
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<td></td>
</tr>
<tr>
<td>Apartment On-Campus</td>
<td>6</td>
<td>18.9%</td>
</tr>
<tr>
<td>Dorm</td>
<td>7</td>
<td>21%</td>
</tr>
<tr>
<td>Off-Campus</td>
<td>20</td>
<td>60.1%</td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>3</td>
<td>9.1%</td>
</tr>
<tr>
<td>African American</td>
<td>14</td>
<td>42.4%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>2</td>
<td>6.1%</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>1</td>
<td>3%</td>
</tr>
<tr>
<td>White</td>
<td>12</td>
<td>36.4%</td>
</tr>
<tr>
<td>Race/Ethnicity Not Reported</td>
<td>1</td>
<td>3%</td>
</tr>
</tbody>
</table>
Table 5

Summary of Eating and Purchasing Habits

<table>
<thead>
<tr>
<th>Variable</th>
<th>f (%)</th>
<th>Mean</th>
<th>Median</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dining Dollars</td>
<td>32 (97)</td>
<td>0</td>
<td>0-225</td>
<td></td>
</tr>
<tr>
<td>Meal Plans</td>
<td>14 (42)</td>
<td>0</td>
<td>0-12</td>
<td></td>
</tr>
<tr>
<td>Weekly Visits to Dining Hall</td>
<td></td>
<td>2.5</td>
<td>0-12</td>
<td></td>
</tr>
<tr>
<td>Weekly Visits to UAB Campus Restaurant</td>
<td></td>
<td>3</td>
<td>0-8</td>
<td></td>
</tr>
<tr>
<td>Daily Servings of Fruits and Vegetables</td>
<td></td>
<td>2</td>
<td>1-8</td>
<td></td>
</tr>
<tr>
<td>Rating of Eating Habits at UAB</td>
<td></td>
<td>2</td>
<td>1-4</td>
<td></td>
</tr>
</tbody>
</table>

Data Collection

Each focus group session and key informant interview was audio recorded. Demographic information was collected from participants, but was not linked to their name or email address, as to protect anonymity. The demographic information collected from participants was imported into data analysis software.

Data Analysis

Descriptive statistics was used to summarize data about the study sample. Descriptive statistics were analyzed using the Statistical Package for Social Science (SPSS) software. Descriptive statistics for the study sample are presented in Table 4.
Each focus group and key informant interview audio recording was transcribed verbatim into its’ own word document. Every line of the transcripts were numbered to make categorization easier. While reviewing transcripts, coding categories were developed and each category was assigned a number between 1 and 6. For initial coding, focus group and key informant questions were printed out and taped on a large poster board and each focus group session transcript and key informant interview was printed on different color paper. Then, each piece of text was cut out, labeled with a coding category (number), and taped onto the poster that corresponded with the question. It is important to note that not all pieces of text were mutually exclusive and could be coded with more than one category. Relationships between categories and questions as well as special vocabulary used were noted during the coding process.

After initial coding was complete, focused coding began. For this study, focused coding was done to help eliminate or combine category codes and to look for emerging themes and subthemes. A theme was defined as a large topic that unites a group of subthemes and a subtheme was defined as a group of repeating ideas. The themes and subthemes that emerged are reported in further detail in Chapter 4.

Validity of account was established through the utilization of member checking. This technique was conducted for both the focus groups and interviews. Preliminary findings were summarized and sent to all participants. Participants then had the opportunity to agree or disagree with the proposed themes and subthemes. After responses were reviewed, the themes were found to be valid.
CHAPTER 4

ANALYSIS OF DATA

Data analysis started with the transcription of all interview and focus group recordings. All recordings were transcribed verbatim and recordings were then deleted. Each focus group transcript was kept in a different document. In order to discover themes, each transcript was read and notes were made on post-its, this is referred to as open coding. The post-it’s contained short-phrases, or words that summed up what was being said in the text.

It was important to ensure the themes of the focus groups were valid by accurately reflecting the students’ major themes. This was called validity of account. Validity of account was established through the utilization of member checking. In member checking, the results were sent to participants and they had the opportunity to agree or disagree with the identified themes and subthemes. This technique was conducted for both the focus groups and interviews. Preliminary findings were summarized and send to all participants.

Focus Group Findings

Analysis of transcribed focus group interviews revealed five major themes and several corresponding subthemes in each category. The five major themes were Accessibility, Money, Education, Food, and Student Input. These themes represent the students’ perceptions of UAB’s nutrition environment- both positive and negative aspects.

One quote that seemed to summarize students’ perspectives is:

I feel like, in a way, it’s kind of this dichotomy, because you have the recreation center promoting physical fitness, and you have signs telling you to eat healthy. But it is an
obesogenic environment because you have all-you-can-eat, you have Starbucks, you have pastries all in your face. And the desert in the WOW café. There are so many fried food areas, and this is, again when it comes down to choice and you are trying to go from class to class, it is usually the unhealthy fast food which is going to be the most available

Accessibility

Overall, the most commonly discussed theme was accessibility of healthy foods on campus. When students talked about the accessibility of healthy foods on campus, several subthemes emerged. A student best describes this barrier to healthy food, “I think it is a hassle to go out of your way to be accessible to those (healthy) options.”

Construction. Since UAB has recently undergone some construction projects, students feel the dynamics of the nutrition environment has changed. The new construction has eliminated the Hill University Center (HUC), which provided several different options to students. Students seemed to be upset with the complete elimination of the HUC and its’ food options,

And that’s where I think they made a mistake. But, um… they really should have just come up with better options as far as if you’re going to close down the main hub where students get their food, you should have thought about the options before you decided to shut it down and move things to different places.

Some students feel like the construction left them with no on-the-go options. One student states, “Yeah. Now, they don’t have to-go” And another student comments, “The HUC was a big simply-to-go place, and now that is gone.”

With the new construction underway, students started to see the emergence of food trucks on campus, “It didn’t really give us much of an alternative other than food trucks. So, that’s unhealthy.” Several students stated the university does not promote a healthy eating environment. One student said:

Because they have also taken away some options with the building of the new…HUC. So, they have taken away a lot of options there. Even though a lot of those were kind of unhealthy, but yeah…They had other healthy options there.
While discussing how the food trucks promoted unhealthy eating habits and food, one student stated:

With the food trucks, you know, you have Melt, which is going to be big sandwiches with lots of cheese and lots of things that are not good for you. And you have the donut truck that is going to be here early in the mornings.

Another added, “Especially now that the HUC is gone, you see the students lining up to eat the food trucks every day because the food on campus is so bad.”

Additionally, students revealed they felt like Einstein’s Bagels had some healthy options. However, one student states, “I tried to go to Einstein’s Bagels one day, but they were doing construction, so I did not know how to get in the building. These statements show the ongoing construction on UAB’s campus has negatively impacted the food environment through the elimination of some healthy options, addition of food trucks, and inaccessibility of restaurants.

*Location.* The students believed the locations where healthy food was available were not centrally located and convenience was a factor in facilitating unhealthy food choices. When asked about the barriers of healthy eating, a student responded,

Yeah, convenience. So for the center of campus, or what you could argue for the undergraduate center of campus is unhealthy. You have Starbucks, the new WOW, Subway, and the Commons. And I mean, there isn’t even a salad on the meal plan at WOW…So, I think there isn’t really a healthy option.

Although students felt like ZeBi’s had some healthier options, they did not feel it was easily accessible, because of its’ location in the BEC. One student said “It’s not very, like, accessible to most students unless you are, like a business student or an engineering major, or you just happen to have a calculus class in there.”

Students discussed that by adding a new, centrally located food option that had healthy choices, some of the issue of accessibility could be addressed, “And I guess it would be nice, too, if they added another on-campus location, like ZeBi’s. But, even like if they added a food
truck…” Adding a new location with healthy food options was mentioned in each focus group. Another student added, “I agree with adding healthy food options on campus that are more close to the center of campus- where our classes are.” “Yeah, a Zoe’s would be healthy and quick”, a student suggested.

Market. It was brought up in several focus groups that UAB does not have any type of grocery store or market on campus. Students recommended any type of market which would allow them to purchase on-the-go options and options to cook in their dorm room. Students discussed the availability of healthy food,

I think it’s definitely lacking. I know at one point, there was some talks of trying to get something that resembled a grocery store on campus. I think that would certainly be helpful. Especially since this is kind of a food desert and we don’t have any kind of normal market within like 5 miles. (I think someone once studied it). And, um... I mean that is kind of unacceptable.

A couple of students mentioned adding a farmer’s market on campus. Student discussed that adding a farmer’s market where you can grab fresh fruit on the way to class is one way to positively impact the nutrition environment on campus. One student suggests,

I think something resembling a market would be a really great addition to UAB’s campus. Even if it was just like, a farmer’s market and was seasonal. I think it is one of those things where if you encourage students to do it and it is part of their dining meal plan or dining dollars, then students may actually do it. I think that would be one of the better ways to encourage a better nutritional environment.

Students added that bringing a farmer’s market, organic, reasonably priced produce could be brought to UAB, “I think there are local famers they can bring here and make it reasonable.” One student gives a rationale behind wanting a farmer’s market on campus, “I think it would be great to see UAB buy from local farmer’s and markets. UAB is so active in Birmingham’s economy, and it would also give students a way to have better quality, more nutritious foods Also, it was
mentioned that people could, “…like, stop by, and take a banana on the way to class.” Adding on-the-go options is one way to increase accessibility of healthy foods.

*Time.* One major barrier to healthy eating that appeared in each focus group was the amount of time it took to access healthy foods on campus. A student commented,

I think, for students it’s the time. Especially if you are going from class to class and don’t have time to sit down and enjoy a meal. Which, goes back to what is available may not be the healthiest. I think that is a barrier.

When asked what the barriers to healthy eating are, one student responded, “No time. You don’t have time to go through all that stuff at the commons, waiting in line.” Students seemed to feel the wait time for food in those locations was too long. One student described her thoughts on the food lines,

I think the lines, like how long it takes to get the food… and then the distance, like things are not convenient to where we are located, especially if we only have a few minutes in between classes or our lunch break is short. Those are some barriers.

Since many students do not have the time to wait in line for healthy foods, they must settle for unhealthy choices, like the food trucks. A student discusses, “You have the food trucks. And the food trucks are definitely not healthy.”

*Vending Machines.* Participants revealed their thoughts of campus vending, which was mainly negative. One student described the inaccessibility of healthy food in the vending machines,

The students appeared to be concerned with campus vending and the false advertisement they felt took place. One student describes how the campus has “healthy vending” options that have unhealthy choices available for purchase, “Even though there is a healthy vending machine, it is not all full of healthy choices. Like, what’s the point?”
The students also seemed to believe having “junk” foods readily available was too tempting. A student described that given the choice between having to walk to the Commons to get a healthy snack and having quick access to an unhealthy snack, the unhealthy snack would be chosen. The transcript states, “No one is going to go to it and they will go to the unhealthy snack that is right there.” Several other participants agreed, stating “Yeah”.

Money

Most college students do not have a large budget for food, so pricing and purchasing limits can be key in being a barrier or facilitator for healthy eating. Students brought up many issues relating to the dining dollars and meal plans students buy at UAB. And, a majority of the time, when healthy food was mentioned, the words “expensive” and “overpriced” accompanied it. Some students feel like UAB campus dining is just cheap:

But when it comes to the fruit bar, they have had, like blueberries for the past month. And I feel that... I can see, I am a breakfast person, so when I go to breakfast I see when they are being cheap and when they are not. And I feel that they spend a whole lot of money on pancakes and sausages and stuff like that, and bacon.

Dining Dollars/Meal Plans. A large majority of students seem to be upset with the amount of healthy foods you can buy with dining dollars or a meal plan. A student describes the frustration with the system, “The availability of healthy foods for the money that is delegated—whether it is a meal plan or dining dollars— is not very much.” Another student states, “And produce and stuff isn’t readily available with dining dollars.” For college students, many buy what is affordable to make their meal plans or dining dollars last. Students continued to discuss the unsatisfactory availability of healthy foods with meal plans or dining dollars,
I know universities these days are all business, but you know, if you are going to force a student to have a meal plan or dining dollars, you hold some responsibility of what we are putting into our bodies. Because, if you don’t allow us to have a healthy choice, we can’t make a healthy choice.

Students seemed like they wanted to spend their money on healthful foods. A student said, “Einstein’s has fruit. And that is where I usually eat with my dining dollars because I know they at least have salad, and like, the bagel thin sandwiches and they usually have produce.”

*Overpriced.* When asked what the barriers to healthy eating on campus are, one student blatantly said, “Price. That is a barrier for me.” Other students reported, “There is no place where you can just a piece of produce for a logical price. At least that I know of…” and “…because everything healthy is so much more expensive.” Many other students seemed to agree, stating, “Just everything healthy- fruits, vegetables- is so expensive that it’s really hard to eat healthy on a budget.” A student feels discouraged by the high prices of healthy foods, “I feel like there’s not a lot of healthy choices and they are all expensive, so I feel like, ‘What’s the point?’ I can eat so much cheaper somewhere else.” One student describes the dilemma,

So, the choices we have on campus are really limited. When students don’t have a big budget for food, we buy cheaper food, which is usually unhealthy. It is harder for us to buy more healthy things when they are expensive.

Students reported that the Commons is now unreasonably priced since it moved to an all-you-can-eat style buffet, “And, if you are walking through the Commons you are going to have to pay $9.00 for food. Like, that is how it is now.” It is logical to say that if UAB wants to promote healthy eating, more healthy options should be priced accordingly.
Food

This theme discusses the actual food at UAB. The advertising of healthy food on campus was brought up several times. Additionally, the overall layout and set-up of UAB dining halls and restaurants were addressed. Students suggested that the selection of healthy menu items could be improved. A major subtheme was the way healthy foods tasted, both in general and in comparison to unhealthy food choices. To-go options were also discussed in focus groups, especially in regards to barriers to healthy eating. Lastly, students were not hesitant to bring up their issues with the quality of food, either.

Advertising. The way food is marketed and advertised can certainly influence buying and eating habits. When asked what elements of a nutrition environment UAB has, one student responded, “Is an example, like them advertising?” Another participant stated, “I don’t feel like they advertise to eat healthy, necessarily… I mean, they should just offer it in a better way.” This shows student are aware of what type of food is being advertised around campus. According to their opinions, what is being advertised is not the healthiest:

But, the produce at places like that isn’t very prominent or, they aren’t made to look very appealing to people. It’s like – “Do I want this delicious looking bagel or this apple?” You have to have a lot more willpower to choose the produce because it isn’t marketed very well.

One student states, “Even the dressings, they don’t advertise, like, low-calorie or low-fat dressings.”

Lay-Out. The layout of a cafeteria or restaurant can be a barrier or facilitator for healthy eating. UAB students said the university recently switched to an “all-you-can-eat style” buffet in their main dining hall. There was not one student who reported this type of layout was supportive of a healthy eating environment. In fact, students did not like the way the dining hall was set up.
Students feel like the new layout supports overeating. One student states, “And now, the commons is going to “all-you-can-eat”, so the quality goes down, and that encourages the students to eat as much as you can, instead of having healthy portion sizes”. Another student says, “They are going to eat all-you-can-eat pizza. So, that really does, like she said, encourage healthy eating. And, really binge eating. I don’t know if that is the right definition.” In a funny, but true statement, a participant joked, “Like, no one is going to eat all-you-can-eat salad.”

Many students were open with their dissatisfaction of the all-you-can-eat layout of the Commons dining hall. One student states,

I was so mad about the all you can eat because for breakfast, I would get oatmeal and blueberries, which, you know, is pretty healthy, and a drink and then that was like $2.60. And I would use my dining dollars for breakfast every morning. And now I can’t do that. It’s either like one whole meal, or like $7.99 for breakfast from my dining dollars, which is ridiculous. All I want to do is go in for breakfast, use my dining dollars get my oatmeal, and go to class and eat it in class. Which I can’t do.

An all-you-can-eat buffet is self-descriptive; it implies that you can eat as much of anything as you would like. However, one student says this is not the case when it comes to fresh produce. The student comments,

But, you can only have one piece of fruit. And I think you should be able to take as many as you can eat in that sitting. The Commons is literally all you can eat, but then you can’t take the fruit?? Now we are limiting fruit intake? That’s kind of weird.

Another student adds on, “But, they don’t limit how many hamburgers or French fries you can have, so they are promoting an unhealthy environment.”

In spite of having an all-you-can-eat buffet, the students believe the nutrition environment can still support healthy eating. One student says a way to support healthy eating is
to have a location or bar that is only healthy items, “I would actually like a menu with just healthy choices.” Another student suggests, “And, putting it all together would really help, because then, you’re not looking at a burger and a piece of celery. So, you don’t have to choose, like- it’s all healthy.” Several participants were in favor of having a location with only healthy choices. This is a sound recommendation, and would help to increase healthy eating on UAB’s campus.

*Menu Options.* Students feel there could be more healthy choices on the menus of UAB campus dining restaurants. Having a larger selection of healthier options would be one way to support healthy eating choices. One student said “I would say you could just have more menu items.” There were several students suggested offering a selection of organic foods. A student suggested, “I think as far as offering organic, they should offer organic foods and have a bigger, better selection.”

Since UAB is such a diverse campus, students can have very different eating habits. This can include being vegetarian, vegan, or having religious or having a cultural diet. A student comments on this diversity,

I know, I enjoy vegetarian food, and there is normally only one option during meal time. And I know that there is not always a vegan option. Maybe every other day there is something vegan, but it measly. And, they do have a huge kosher selection… It’s Kosher, I guess. But the vegetarian options are few and far between...

In addition to increasing the overall selection of healthy options in UAB campus restaurants, students suggested adding more late night healthy options. “So, I wish there were more healthier things later in the day because I know not everyone wants to have a burger at 2am,” one student said.
A major issue students brought up was the minimal selection available at the salad bar. One student talks about adding more options to the salad bar, “And, as far as the salad bar goes, like, have more protein to go with it instead of having just lettuce, and cheese.” Another student suggests,

I remember last year they used to have ham a majority of the time and they would have grilled chicken sometimes and that was actually really good. And I have yet to see that like since that one time last semester. So, that was a bummer.

A student commented on the selection of fresh fruit at the Commons:

I think you could have strawberries, you could have like raspberries, there are so many options, you know. You could have mangos. Their fruit selection in general is horrible. Students seemed to agree that just increasing the healthy options on campus would help students to eat healthier.

Another student discusses the selection at the salad bar in the Commons, “Yeah, I wish there were more toppings for the salad bar too. I feel like it isn’t a good selection and doesn’t look appetizing. That is why people don’t choose it more.”

*Taste.* Having healthier options that taste poorly does not support healthy eating habits on campus. Participants seemed to think that for the most part, the healthy options on campus did not taste good. Students reported this being a major barrier for healthy eating. “Taste is a barrier for me,” a participant comments. Another comments, “A barrier would just be that the healthy options, they just don’t taste as good as the unhealthy options.” “Taste is key. It needs to taste good for me to want to buy it. If I try it and it tastes bad, I won’t get it. It seems like all the healthy stuff tastes bad,” says one participant. It seems like students have a difficult time finding foods that taste good. “

Eating items that do not taste good is not satisfying. While discussing the taste of healthy foods on campus, a participant remarks, “So, you are just sitting there thinking, ‘This isn’t good.”
I would rather just be having a burger right now.” One student states, “The healthy items don’t taste good.” In regards to having different types of meal options, a student says, “There shouldn’t be like a gross veggies burger that no one will eat. Or a gross Turkey burger. Like, the veggie burger they had last year was disgusting.”

**To-Go.** During college, the time available to sit down and eat meals at a table becomes hard to find. Between classes, studying, and trying to adapt to a new environment, sitting down for meals becomes difficult. Eating healthy on-the-go is hard, especially on a college campus. Students feel like there are insufficient to-go items which makes it nearly impossible for them to eat healthy on campus. A student comments, “They should have more healthy options on the simply-to-go that look fresher.” One student describes the frustration with to-go options at UAB,

They also don’t have to-go either anymore. Because I know some people that’s hard when you used to be able to get… Like, they still have the smoothies, but you used to could take the yogurt to go and stuff like that for breakfast. And, not having that kind of makes it harder to eat healthy and be on the go. Like, you don’t always have time to sit down and eat.

**Quality.** One of the major subthemes that arose was the quality of foods on campus. Having poor quality of any foods, but especially healthy foods, can deter purchasing and eating habits. Many students spoke of this dissatisfaction of the quality of healthy foods available on campus. One student said, “The healthy element... it’s available. I just don’t think it’s very good quality.” Another participant comments, “If it’s not of good quality, I am not going to buy it. I am going to opt for it, but I will go for the less healthy option because it’s going to taste better.” When asked if UAB promotes a healthy eating environment, a participant commented,

I do think the unfortunate thing is we have sushi, but the sushi is not always fresh. But, I see salads that don’t look fresh. That’s why I don’t buy them. I have been to the new place, WOW, and they have salads, but their salads are already made and look gross.
One student describes her opinion of the food available on UAB’s campus

I also feel like it is a pretty unhealthy eating environment. That’s why, when I used to be forced to have the meal plans, but now that I live off-campus, I am not going to buy them. Because I feel like they are not really that healthy, and the food is usually poor quality.

A big concern for students was the issue that a campus dining restaurant actually lost its food license for a short period of time,

And, at one point this semester, they ran out of their food license, and it took them a week and a half to actually be able to start selling legit food again. So, it was nothing but candy bars, and you had no healthy options whatsoever.

Another student commented on the quality of the salad bar,

The commons should definitely make it more effective. At least, as far as nutrition value is concerned…Sometimes they do have, like, nice romaine or spinach, but it’s like the bottom of the pile and it has been sitting there. So it’s like, if you are going to do that, make sure it is well-kept.

Students notice the quality of the fruits and vegetables,

But when it comes to the fruit bar, they have had, like blueberries for the past month. And that is the only fruit. And the blueberries were frozen. You can taste, oh- those aren’t fresh blueberries, those are frozen blueberries. And they are in some syrup something. And that is what you want to put on your yogurt with your granola?

Students seemed to think that although they pay money for dinning dollars and meals, only a small portion goes towards food. One student said, “There should be more of it going towards food. Because, right now is feels like we are paying so much for food and only spending a 1/100th of that on actual food.” Another student spoke of the topic “I mean, obviously UAB brings in a lot of money, and if they can build a brand new million-dollar building, they can supply better food, like better quality food”. These statement show that students feel shorted on the quality of food for the price.
Some students report that the to-go food is not up to their quality standard, “Those simply-to-go’s look like they sat there forever.” Two words a student used to describe the healthy choices on campus were, “Not fresh.” “Plus, having fresh fruits and vegetables makes all the difference. It really does. And, it makes it taste so much better,” one student said. Students seemed to think the food available on campus was not nutritious and very processed,

I also feel like with the so-called healthy food, it still seems really processed. Like, if I go to ZeBi’s, the bread, it doesn’t seem very fresh, that’s why I just don’t go there. It seems like they thawed it and cooked it- which is probably what they did.

*Education*

*Classes.* While discussing changes that could be made to support healthy eating choices on campus, participants suggested adding nutritional classes. Students feel like these classes would be informative, but would also be classes students would want to learn about. A freshman experience class if offered at UAB, but there is not any nutritional information incorporated into it. A student suggests:

Or, make that like, a component of the first year experience of whatever we have to take. I know mine was more geared towards like- don’t procrastinate, be studious, time management, but I don’t even remember them having like nutrition week.

Another student states, “I think it would be a great idea to incorporate nutrition and like physical activity into the freshman experience class. I think it is something students would want to learn about, too.” A student suggests that a cooking class could be offered to show students how to cook healthy at home, “I think one thing that may be helpful, too, is to offer a class where you can show some people how to make some healthy options.”
Nutrition Labels. Nutritional fact labels, when properly read, can help people make healthier decisions. “I like to have the calories on the menu so that I can make somewhat of an informed decision,” a participant commented. When participants were asked what kind of nutritional information they had received on campus, many mentioned nutritional labels on some food items.

Although students seemed to think UAB is doing a good job, there is still much room for improvement. Students reported they want the nutritional labels to include more items,

I guess, like it depends on the certain things they have if they put out the calories and stuff. And then you have the protein, the fat, and all that. But again, if you order a wrap, there is no difference in a wheat wrap versus a spinach wrap, versus a plain wrap or you know wheat, or white bread. And, it’s only on certain things that too. But even like we said, the salad bar- you have nothing on the salad bar. You don’t see tags on the things or anything.

Another student states, “They will have it on some items, but not others. I wish they had it on every individual item.”

UAB Campus Dining Website. One issue that arose was that finding the nutrition labels for food was difficult. In regards to UAB Campus Dining’s website, a student comments:

Because, even on the dining website I don’t think they highlight the nutrition information. I think they may say what they are going to have for the day in the commons, but they just say the menu for the day at different restaurants, but unless you are in that restaurant. Like the Commons, then you will see the calories. But, you can’t see them ahead of time. You can’t say that you want to go to this restaurant, and get a specific item because of the calories.

Another student described her experience with nutrition facts on UAB’s campus:

Supposedly, it is available on UAB’s dining website. I remember looking at it once, I think last year. But, it’s not like one of those things that I can look up on my smartphone. It isn’t like an app or anything like that…But at all of the other restaurants, that is something you would have to go looking for, from what I understand.”
Recreation Center. A well-run and updated recreation center can help support a healthy lifestyle during college. At UAB, a membership to the recreation center is included in tuition, but not all students are aware of this fact. One student stated, “

The recreation center at UAB has several different programs and resources available to students’ disposal. Many students enjoy utilizing the recreation center and think it contributes a large part to the nutrition environment. One student describes her opinion of the recreation center,

I think on the nutrition level, and physical fitness, the campus recreation has done a better job. They have Wellness Wednesdays and other programs which promote physical activity. Plus, it really open, and I just really enjoy going to the rec center because it has more new equipment. I think that is a positive aspect of the nutrition environment. Students feel like the way these resources are advertised may not be efficient:

A lot of people don’t know they there is a white board where they actually write recipes (And I just happened to see it). But, the recipes are really great because they give you a good, well-rounded diet. And a lot of times, they are written by the nutritionist that is down there, and whatnot. But I just think a lot of people don’t know about it and I think that is a good idea. I just wish it was a little bit more publicized, or they put it maybe where more people would see it and it would be more recognizable

Several participants are aware of the resources offered by the gym, but feel they should not have to pay extra to utilize the services,

I guess the gym does have sessions with the nutritionist and sometimes they have like, I think that one day they have like BMI in the afternoon. Each week they have different things that they want to show. But, I think the one thing that sucks is that you have to pay if you want to go see her privately. Which I think is crazy and that should be included in tuition- there should be some way for us to have that taken care of. I think more people would want to go to that

Another student discusses their feelings on having to pay extra for a trainer, and suggests a solution:
And maybe start some kind of program where we can go to, a class where we don’t really have to pay, or lessen the amount that we have to pay. And even if it is just for a little bit… Just teach us some exercises that we can do, you know and we can go to the gym on our own and do it. Just give us a free session or two. Don’t make us have to pay every time.

Student Input

It was revealed that a majority of the students feel like they have no say so in the food that is served on campus. They did not like this fact, as it is university policy for full-time enrolled undergraduate students to purchase $225 in dining dollars each semester. Approximately 92% and 39% of participants had dining dollars and meal plans, respectively. One student stated, “I feel like we don’t have any say in the food that we are made to pay for and eat.” Another student adds on, “Ask students what they want and stop leaving things out because it’s just like monetarily better for UAB’s bottom line. So, I believe they should start asking students what they want as far as healthy eating and nutrition goes.” It was clear that students want an input in the menu selection and dining options on campus.

The students had great suggestions on how to get students’ opinions. One participant said, “I mean, I guess they should, like try it, or have a focus group to like, try the food before they put it out there because half of the food they have there is disgusting.

I really think they should have asked the students, ‘what do you guys want?’ We are paying for the food, we are paying for the tuition. Can’t we have what we want? And they didn’t really do that. And, we are stuck in long lines for food that we don’t really want and that isn’t really healthy.

On the topic of getting student opinions, a student suggested:

Have more options, and one way to do that is to do survey. And find out, you know, what people like to eat. And, what are their eating habits, you know. And if the majority of people at UAB are
really big on eating vegetables and fruits and they want a healthy lifestyle, but they are not able to... Um… and so, I think a survey would be a huge help to be able to get a better statistical understanding of where people are dietarily.”

Table 6

*Identified Focus Group Themes and Subthemes*

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Interview Findings

Accessibility

Construction. Construction has affected the dynamics of UAB dining. “This year, it has gotten kind of bad because there is no HUC and there’s no um… home-cooked section. Like, they actually used to have home-cooked meals, which was really good and they have sides and they portion out the sides for you. There’s none of that anymore,” stated one participant. Another student said, “What is accessible now is the food trucks, which you can’t even use dining dollars or a meal plan, and is unhealthy.”

Location. Location and accessibility of healthy foods seemed to be an issue for some students. One student stated, “The location of where all this is happening. If UAB wanted students to be more healthy, they would watch like what restaurants they put on campus.” Another student discussed why location of restaurants was a barrier to healthy eating on UAB’s campus, “And Einstein’s bagels is kind of healthy, but is so far away from campus that no one has time to go there.”

Appliances. Having access to the appliances needed to cook healthy food in dorms is necessary to promote a healthy eating environment. Some students feel like the dorms and on-campus housing is not sufficient; especially for the promotion of healthy eating. One student stated,

Some students feel I feel really bad for the freshman because in some of the dorms, they don’t have stoves. Like, Blazer Hall doesn’t have a stove, so therefore they are forced to microwave or use their meal plan. That’s immediate cut-off of nutrition because if I’m getting Dragon claws every day, that’s going to add up because you are not like getting your vegetables and fruits.
Vending Machines. Students seemed to want a way to grab healthy foods on-the-go. It was brought up that vending machines would be a way to accomplish this. During an interview, one participant said, “The vending machines around campus are not healthy either. They are filled with junk food- even the healthy vending machines (which are mislabeled) have junk food.”

Money

It was a common occurrence that when asked ‘What are barriers to healthy eating at UAB’, students responded with an answer that was financially related. To this question, student responded, “I feel like the biggest barrier is cost.”

Dining Dollars/Meal Plans. The issue of dining dollars or meal plans came up in every interview. One student states this is a main barrier for healthy eating on campus, “I feel like one big barrier is like the meal plan and dining dollars system.”

Students seemed to think the dining dollars and meal plan systems are limiting. One student states, “If I go to ZeBi, I mean they have fruit over there, but it’s not good, and it’s not enough. And then it’s not in the meal plan. Like, you can’t use a meal plan on like fruit. You can use dining dollars on fruit, but you can’t use like meal plans on fruit.” Another student remarks, “If I can only use a meal plan at the commons or at WOW or ZeBi that limits me to what I can eat.”

Food

Food, and factors relating to the availability of healthy food were brought up several times during interviews. When asked if UAB promotes a healthy eating environment, one
student responded, “Not really, um… there’s more unhealthy items like available to students on campus than like healthy items”.

Advertising. Students seemed to feel like the healthy foods were not advertised on UAB’s campus as much as the unhealthy food choices. One student stated, “I do not feel like the availability of healthy foods is promoted as well.” One student said that advertisement was a barrier to healthy eating at UAB. A participant commented, “Fast food, the lack of promotion of healthy nutrition.” Another student said, “There is not really any advertising for healthy eating options that takes place on campus. In fact, all of the advertising is for unhealthy food choices.”

Participants also brought up social aspects of UAB’s nutrition environment. A student remarked, “But, they don’t really have social things for a good nutrition environment. Everyone wants to study at the library. And right next door is Starbucks, which has delicious looking pastries all in your face.” Another student described how social relationships influenced nutrition on campus,

You know, if you want to meet your buddy for a cup of coffee... (And a cup of coffee is fine) but, you know, you go to Starbucks and you’re getting a frappe or a caramel macchiato and that’s just full of calories and full of sugars and carbs that are unnecessary. You never say, let’s go study at the Commons or let’s grab a banana to give us energy.

Lay-Out. The way food is set up in a restaurant or around a campus can help to facilitate healthy eating, or can deter it. A student discusses her opinion of UAB’s eating environment,

You have your set fee for lunch or dinner to go into the cafeteria, and it’s all you can eat. In my opinion, I feel like I have to get my money’s worth. So, I’m going to sit there and eat as much as I can until I am full.

The availability of healthy foods can be a barrier to healthy eating on campus. One participant states, “It’s interesting that our library stays open until 2 am, but um… the only eating choices
that stay open that late are very fried, greasy foods.” Another student describes the availability of healthy foods late at night,

I used to live on campus, and I just know for a fact that everything that is open later at night (which you should … if you are going to eat something later at night, it should be healthier) is not available.

Menu Options. Students notice that UAB does have some healthy options available on campus, but the amount and type of healthy options is questioned. One student agrees that the variety of healthy foods, when it comes to complete meal options, is scarce, “I just feel like they are missing the boat on healthy meals.” Another student comments on the types of healthy foods available,

I feel like they have healthy options out there, but they don’t have healthy meal options. They have healthy snacks. They have apples, they have bananas, they have oranges, and every once in a blue moon I can get a vegetable cup. But, I have been trying to find them and I can’t find them lately. So, um... I feel like they try, but I feel like the whole meal isn’t incorporated as a healthy meal.

As suggested in the focus groups, one student mentioned eliminating some of the unhealthy choices, thus making students choose healthy options. This suggestion is described by a participant:

The campus just needs to support healthy eating choices. I mean, take some of the unhealthy options away and provide us with only healthy eating options in some places. For example, take away all of the unhealthy vending and replace it with a fruit and veggies and other health snacks, like pistachios and see what the students do.

The campus just needs to support healthy eating choices. I mean, take some of the unhealthy options away and provide us with only healthy eating options in some places. For example, take away all of the unhealthy vending and replace it with a fruit and veggies and other health snacks, like pistachios and see what the students do.
It was mentioned several times that the menu layout and options need to be changed. One student suggested eliminating unhealthy food choices and providing UAB students with food options that are healthy and nutritious:

I feel like one thing UAB can do is to take unhealthy options away, and replace them with things that are, in fact, nutritious and not full of chemicals and fillers. This would be a good way to show students that UAB wants to follow their motto of “knowledge that will change your world”.

Taste. The way healthy foods taste affects eating and purchasing habits on UAB’s campus. One student tells her opinion of UAB’s healthy food, “Everything just tastes funny. Like, I had a banana from the commons, and like I can get a banana from Publix and it’s like amazing but if you get anything out of the commons it’s disgusting.” Another participant told their opinion of how some healthy foods taste,

And by the off chance that they do have something healthy, it is not something you want to eat. It tastes gross. They need to learn some new recipes or maybe try tasting the food they make before they serve it to the students.

To-Go. Students said they wanted to be able to access healthy foods quickly. A student said, “I wish there was a place on campus to get fresh fruit and health options to go. Maybe a little boutique or vending machine only filled with healthy options.”

Quality. Students seem to feel like the quality of the healthy foods served on UAB’s campus are not up to their standards. A student speaks on the topic, “There are ways to get like great products vegetables and fruits without resorting to cans, which is what I’m pretty sure they (UAB foodservice) use for a lot of stuff”. Another student agrees that healthy food on UAB’s campus tastes like it is out of a can. A participate discusses UAB’s healthy food and states, “Most of it is out of the can. My mother and I went for orientation and they had a sign for their
“new improved” cheese sauce for their pasta, and it’s very clearly nacho cheese sauce out of a can.”

A student commented about the quality of healthy foods, “And a lot of the stuff on campus is packaged and looks super healthy and it’s not.” One student talked about the presentation of healthy foods on UAB’s campus, “I also think that UAB’s food doesn’t look appetizing. It doesn’t look fresh and definitely doesn’t’ look healthy. They should really start focusing on presentation of food and the quality. Another student wants to see more organic options, “And also, all of the food on campus is super processed and not fresh. Like, if I am going to pay $9.00 for a meal, I want it to be organic. Where does their meat come from? Why don’t they offer any organic options?” Why the quality of healthy foods in the Commons was a barrier was addressed with this statement:

And quality. Like, they are going to charge us so much now for an all-you-can eat meal at the Commons, but then you can only get one piece of fruit, and a majority of the time, they only have a banana. There are so many more fruits than a banana. I mean, variety people. We pay you every semester and all you can fork out for is a banana or frozen blueberries in gross syrup? Or iceberg lettuce? That is not okay.

The quality of the salad bar seemed to be a concern of students. One student comments on the selection of salad dressings, “And the dressings and stuff are all loaded with GMO’s and high fructose corn syrup and all that kind of crap.

Education

Education is an important aspect of a healthy nutrition environment. However, they feel like they are not well education in nutrition and other health-related aspects. One student said,
“An as a student, you are not taught on how to be properly… like you are not taught on how to get the proper nutrition. Especially when you’re on your own.”

*Classes.* Some students seemed to feel like a class on campus would be a great way to educate student about nutrition and health topics. One student stated,

Because I am actually doing a project in one of my classes to advocate for a nutrition and exercise 101 course required for freshman. I feel like, it would help educate those who are coming in as to how to eat healthier, how to exercise, and also how to keep from gaining that fearful “Freshman 15” Um. I think that would be helpful, you know, requiring a course like that. I feel like that would be a great start because it would help infiltrate that to the younger people coming in.

Another suggested having a class on how to read nutrition labels,

Maybe even a class on how to read nutritional facts. They are putting people that read a bottle of soda and it will say “1 serving is 180 calories, but they don’t read that the serving size per bottle is 2 servings”. So, I feel like maybe a course on how to read nutrition labels.

It seemed apparent that students wanted some type of educational class to disseminate information to them. A student addressed this issue,

I would also like to see some classes offered on health and wellness in general. Like, it could be for credit or not for credit. It could be like a seminar type thing or the rec could offer “cooking healthy on a budget” classes or something. That would be great and would probably help people from gaining the freshman 15 and other college weight as well.

A participant expresses interest in a class which would focus on how to make better eating choices in college:

I would be more opt to take like a one-hour class that is strictly helping me to make better eating choices during college. I know that’s a big factor for a lot of students. Um… yeah, so yeah, like a class… or even if it wasn’t a class, like a workshop once a week. And it could be targeted at Freshman at first, but I feel like it should be open to everybody. And, honestly, I really would come. Especially if it was in the evenings after classes were done.
Nutrition Resources. Nutrition labels are a great way to display information about the food and help consumers make educated decision. A student stated, “The only thing is their menus- some of the menus include caloric information. And that’s about it”. “I know that on their website, they do put up, like the calories of each serving, but that doesn’t like, um… always match what they serve,” said a participant of their experience with nutrition information on UAB’s campus. Another student displayed her opinion of what components a good nutrition environment should have:

I feel like a campus that’s really concerned with students nutrition, they are going to make sure there are proper labels, they’re gonna make sure that students know how many calories are in this, what ingredients are in that… if it’s whole wheat or if it’s processed vegetables or if they are fresh, farmer’s market vegetables.

Another student discussed nutritional information received in the Commons. Although there was nutritional information available to students, it seemed the way it was presented was confusing. A participant comments on the nutritional resources,

One of them was how to proportion your foods. And another one was ‘25 foods under 100 calories’. The information was really useful. However, most people, when they read things, like the 25 foods under 100 calories, and you have a list of foods, it was almost saying you could eat all of these things to be under 100 calories. Instead, it should have individually stated, ‘this is less than,’ ‘this is less than 100 calories’.

A student described her experience with nutritional information on UAB’s campus:

I have had to ask or seek out any nutritional information I have received. Starbucks used to have a brochure with nutrition information, but now when I ask the workers don’t even know about it. That is ridiculous. I wish they had the nutrition information in an app that you could scan or right next to it so you can see your calories before you buy something.

Recreation Center. It appeared to be that students felt the recreation center was a part of UAB’s nutrition environment. One student felt that the recreation center did a good job at promoting health, but there was still room for improvement:
Well, I think UAB does a good job with the rec center. But, I think they should do more with the nutritionist. And, like, incorporate her into more events and stuff they have around campus. And promote more health-related activities.

Another student commented, “UAB does offer the rec center, and that helps nutrition on campus. Like, they offer nutrition classes and personal training classes sometimes. But, you have to pay for them.”

*Other factors affecting Nutrition.* Smoking can impact the overall health of not only the individual who smokes, but also of those who are exposed to second-hand smoke. One student states:

UAB was actually trying to push for a smoke-free campus and I don’t think that’s happened yet because there are still people who smoke cigarettes and they’re everywhere. No offense, but it’s really, really harmful to like non-smoker’s lungs. It’s actually more harmful because second-hand smoke is more potent than, like, the actual smoke that’s going into like the original smoker. So I feel like that also ties into the nutrition.

Sleep is an issue of concern for most college students. Their sleeping patterns change, and many students become sleep deprived due to studying for tests and other factors. One student mentions the relationship between sleep and nutrition during an interview:

I think sleep and nutrition go hand in hand. I can speak for myself- I don’t eat healthily on campus, and it’s because I’m not in a healthy environment. Like, ever since I started college, I have gained weight and sleep has been off the charts. When I am studying late at night, and the only thing open is the Diner, then I am stuck having to get fried foods. And if I am out on the weekend and sleep in, sometimes I wake up at 2pm… I just feel like since my sleep schedule has been off, so have my eating habits.

*Student Input*

Students feel like their opinions need to be considered when making decisions about the food environment. One student elaborates on this thought:
So, basically, a nutrition based campus is more conscious about the student’s opinions and the students’ voice and they are going to try to be more successful in promoting better nutrition by providing top-of-the-line eating places on campus.

Another student was glad there was a research study going on elating to nutrition at UAB, “I am so glad you are doing this study because maybe the dining managers will listen to us and start giving us the food that we want- and not just what is the cheapest.” It was evident that students wanted a say in the availability and accessibility of healthy food on campus.

Table 7

*Identified Interview Themes and Subthemes*

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CHAPTER 5
CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of this qualitative study was to explore University of Alabama at Birmingham students’ perceptions of the availability, accessibility and barriers of healthy eating on campus. A nutrition environment is loosely defined as the physical and psychological environment which influences food consumption and purchasing habits. With a clearer understanding of the definition and factors influencing the nutrition environment, researchers and health educators alike can join forces to make changes to existing college environment to promote a healthy nutrition environment. The Social Cognitive Theory will guide this study.

This study took place in the fall semester of 2013 at the University of Alabama at Birmingham. There were a total of 33 participants involved in this research study. There were 28 students divided into 5 focus groups, and the remaining 5 students participated in interviews.

There were three research questions for this study:

**RQ1:** How do UAB students feel about the availability and accessibility of healthy foods on campus?

**RQ2:** What are UAB students’ perceptions of healthy food on campus?

**RQ3:** What are the barriers for healthy eating at UAB?
Conclusions

The findings of the study lead to the following conclusions:

1. Students felt the UAB nutrition environment supported unhealthy eating choices.

2. Students seemed to feel like unhealthy and processed foods are more available and accessible than healthy foods. In addition, students reported that for the most part, the healthy foods available on campus were processed, not of good quality, and tasted badly. Compared to unhealthy items, students felt like the healthy foods were too expensive and were generally overpriced.

3. Students brought up several barriers to healthy eating on UAB’s campus. Barriers for healthy eating on campus included: accessibility, price, food factors, and student input.

4. Students felt like these barriers were not facilitating healthy eating at UAB’s campus.

Participants reported the lack of healthy to-go items made it very difficult to eat healthy on campus, as the majority of them did not always have the time to sit down and eat a meal. It was also discussed that many of the healthy options on campus are not centrally located, and are considered out of the way to many students.

Discussion

Accessibility

The accessibility of healthy foods was a common barrier brought up by participants. This barrier included issues with construction, location of healthy foods, lack of a market-type store, time, and vending machines. Elimination of these barriers would help to improve UAB’s overall
nutrition environment. It would also show students and the community they are striving to provide their students with the best environment to promote health and wellness.

The dynamics of UAB dining recently changed following the demolition of one of their main dining halls, the HUC. Construction is now underway to re-build the hall, but it will not be ready for several years. Students were upset the food choices that were available in the HUC are not available anymore on campus. The on-going construction eliminated food choices like Chick-fil-a and the home-cooked section. Elimination of these choices led to more food trucks coming onto campus to feed students. The UAB Campus Dining Website has a schedule of when food trucks will be on campus. Participants reported that the food trucks were a barrier to healthy eating because they were so accessible, and you can get food quickly and on-the-go. Although students commonly eat this food, they know it is unhealthy. One student said eating from the donut truck for breakfast was easier than going to the commons and waiting in line for breakfast, especially with the off-chance there wouldn’t be anything healthy to eat in there anyways.

Students know that eating from the Melt truck is unhealthy, but said they would rather be able to take something on the go and that is convenient rather than eat something healthy. Participants seemed to think that eliminating the food trucks would make them go to other places on campus for food.

Barriers

The location of healthy foods on campus was a barrier brought up during focus groups and interviews. Participants reported processed, unhealthy foods were more convenient and accessible compared to the healthy options. Students felt like there were not many healthy
options located in the center of campus (what they identified as the area around Campbell Hall and Heritage Hall). They said the location of healthier restaurants were major or degree specific. For example, in order for Einstein’s Bagels to be accessible, one would have to be a nursing major or have a class in the nursing building. Students suggested adding restaurants that had a large selection of healthy food items in the center of campus would increase availability, and thus would reduce this barrier.

Student revealed the lack of a market-type store as a barrier for healthy eating. Participants reported they wished there was some type of grocery story or market on campus. They feel that having access to an array of fresh produce and other cooking items would allow them to eat healthier. That way, when they are wanting a healthy food UAB does not have available, they can go to the store, buy the ingredients, and make it themselves. Several students expressed interest in both a market-type store and a farmer’s market coming to campus. In this case, this barrier is the absence of a store. Providing students with access to fresh fruits and vegetables they can purchase for cooking purposes would be a huge step towards reducing the high prevalence of obesity and overweight on campus.

Participants revealed that time constraints are a barrier to eating healthy on campus. Several students said they did not have the time to sit down and enjoy a healthy meal, and the majority of foods that were quick and easy to access were unhealthy. The addition of quick, convenient healthy foods on campus would provide students with a better nutrition environment.

The lack of availability of healthy snacks on the go is a barrier for UAB students. This is important, as time and location are also barriers. Having readily available health foods throughout campus is necessary to help eliminate accessibility as a barrier. Student reported even
the vending machines labeled as “healthy” sometimes have candy bars in them, or other unhealthy foods.

The most common barrier discussed was food factors. This included an array of barriers: (1) layout; (2) food taste; (3) food quality; (4) menu selection; and (5) to-go availability. In order to provide students with a nutritional environment that is supportive of healthy eating and purchasing habits, elimination of barriers is necessary.

Students reported that UAB recently switched to an all-you-can eat style in the Commons. The Commons is UAB’s main dining hall, where breakfast, lunch, and dinner is served. Participants did not feel an all-you-can-eat buffet is the right choice to condone healthy eating. In fact, they said it encouraged over-eating and binge eating. Eliminating the option of all-you-can eat would discourage overeating. Having policies that set standards for healthy portion sizes would be a way to encourage healthy eating habits on UAB’s campus.

Food taste was an issue brought up by almost every participant. The students felt like the healthy food choices did not taste good. They commented on this in a general manner, and as a comparison to unhealthy foods. Students reported they knew healthy options could taste good, but the options at UAB did not meet their standards. For example, one student, a vegetarian knows veggie burgers can taste delicious. However, at UAB, it was reported that the veggie burger was almost inedible because of the taste. Participants discussed they would not repurchase an item if they tried it before and it did not taste good. So, this barrier is decreasing possible revenue for UAB and supports the purchasing of unhealthy foods. The fact that taste is a barrier to healthy foods is unacceptable. UAB should be expanding students’ palates and increasing their affinity for healthy foods, not the opposite. Having healthy foods that taste good is one of the main ways to provide students with a nutrition environment supportive of healthy eating habits.
One huge barrier for students was the quality of the healthy foods. For example, students remarked on the salad bar at The Commons. Specifically, on the lettuce and protein choices. Students reported they knew iceberg lettuce did not have any nutritional value, yet that was the main lettuce choice at the salad bar. Students also mentioned there were not many protein options available with the salad bar. Aside from salad bar options, students reported they wanted to see a larger selection of healthy items on the menus at different restaurants on campus. UAB Campus Dining needs to provide their students with better quality, more nutritious foods.

Expanding the menu selection of healthy foods was suggested. Students reported they wanted to see a bigger selection of healthy items. Having only a couple of items to choose from decreases diversity across the menu and limits students’ food choices.

It was reported in the focus groups that the availability of to-go options is a barrier. Since time is a barrier, one way to eliminate that barrier is to provide students with quick and accessible on-the-go foods. UAB has Simply To-Go, but it is not everywhere, and students reported the selection and quality is not the best. Also, they said they wished you could take food, like salads and fruit to-go from the Commons.

After demographic information was analyzed, it was found that a majority of the participants did not live on-campus. Also, the only 39% of participants had a meal plan on campus. The absence of a meal plan does not meant that participants did not eat on campus, just they did not have money to spend at UAB Campus Restaurants. This is exclusive of dining dollars, as all full-time students are required to have dining dollars.

This research occurred after demolition of one of the university’s main dining halls, the HUC. Major construction had started, and the dynamics of the nutrition environment had
changed. This could account for some of the responses of frustration with UAB Campus Dining. To limit bias, participants were randomly selected after expression of interest in the study. This basis of this research was contingent upon all participants responding truthfully and genuinely. Some reasons for their participation could have included: (a) to offer suggestions to improve UAB campus dining to benefit themselves; (b) to tell their story with UAB food- the frustrations, the good, the bad, and the ugly; or (c) hopes of winning a $100 VISA gift card. Motivation for participation could have included all of these, or none.

**Recommendations**

Findings from this research led to several recommendations. These recommendations were divided into those specifically targeted toward UAB University Foodservice and those for implementation on campus. Lastly, there are general recommendations for future research.

*Recommendations for UAB University Foodservice*

Ultimately, further research is needed to evaluate UAB’s nutrition environment. A larger-scale study which focuses on not only opinions of dining, but also knowledge of nutrition should be conducted. Collaborating with UAB Campus Dining in order to accomplish this evaluation process is key for success. Assessing the university’s adherence to The National Association of College and University Foodservice (NACUF) standards is one area of evaluation focus. It would also be important to utilize the results of any evaluations conducted of UAB’s campus to improve existing programs and create new programs.
Recommendations for Implementation

Based on study findings, there are several recommendations for implementation. These recommendations include seeking out student opinion, implementation of nutrition-related classes, and re-evaluation of food pricing and selection. It is the belief that by addressing these issues, many barriers to healthy eating can be addressed, and a better overall nutrition environment achieved.

One of the major recommendations is for UAB Campus Dining to actively seek out students’ opinions. It was very clear that students wanted to have a say in the food availability and accessibility on campus. Additionally, it is important to ask students’ about what type of program implementation they are interested in. Conducting student surveys to see their knowledge level of nutrition topics, conducting focus groups and hosting recipe-sampling sessions are just a few ideas of ways to seek out student opinion. By working together with students, a greater sense of community and a healthier nutrition environment can be achieved.

It was also learned in the study that students are interested in learning more about nutrition, health and exercise. Offering a class to students about how to cook, how to eat healthy, and how to read nutrition labels is of interest to UAB students. It was also suggested to have a nutrition week be part of the “Freshman Experience” course. Partnering with nutrition resources throughout the community is key in expanding student knowledge. These resources could range from a grocery store to a local farm. Bringing in speakers and seminars to UAB’s campus would give students an opportunity to learn from an array of individuals about different topics.

Lastly, it is suggested to re-evaluate food pricing and selection. Students reported that a main barrier to healthy eating was the pricing of certain food items. By lowering the cost of
healthy foods, healthy foods would become much more accessible to students. Offering a greater variety of healthy food will target more students, and thus could increase revenue for UAB Campus Dining. It is recommended to eliminate the all-you-can-eat style buffet that exists in the Commons in favor of healthy portion sizes. It is also recommended to create new menus with a greater variety of healthy foods for UAB students. With these suggestions, the prevalence of overweight and obesity could decrease. This would improve the overall health of UAB’s campus and community.

**Recommendations for Future Research.** Future studies should be more broadly focused, looking at university nutrition environments as a whole. There is an opportunity to design evaluation tools specifically for utilization by colleges and universities. Having a tool created that is valid and reliable would be a great asset to Campus Dining Programs throughout the country. This tool could look at adherence to NACUF standards. It also could rate current food options, programming, and resources. From this evaluation process, revising current dining service programs and implementing new programs to address needs is a must.

Another area of research that needs to be addressed is advertising/marketing. Research on marketing healthful foods to college students needs to be conducted as well. What prices, offerings, menus, hours, and serving sizes market best to university students?

In the past, campus dining halls have not sought out student opinion. In order to address the issue of college obesity and weight gain, it is important to assess student’s needs and seek their opinion so they can become part of the solution. After all, campus dining and foodservice is a business, and customer satisfaction needs to be evaluated. By understanding the needs and wants of students, universities can provide them with the best nutrition environment possible. By
collaborating with students to create healthy menus, innovative programming and educational resources, the issues relating to college obesity and weight gain can be attended to.

Researcher’s Final Thoughts

This research was eye-opening. Although the sample size was somewhat small, the quality of the information received is exceptional. Students were able to answer the research questions and provide sound justification for their answers. College students want to be educated about nutrition. College students want to live and be surrounded with an environment that promotes nutrition and health. For UAB, I believe this is the start in a change that will come to campus. By becoming aware of improvement areas, the nutrition environment can improve, thus impacting the health and wellness of students. I also believe the recommendations made to UAB Campus Dining are sound, based on student opinion, and can truly make a difference in the health of students. Although much future research is needed to fully understand the components of a university nutrition environment, I wholeheartedly believe this research can be used as a starting point.
LIST OF REFERENCES


University of Alabama at Birmingham college portrait. (n.d.). Retrieved from
http://www.collegeportraits.org/AL/UAB/print

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APPENDIX A

INSTITUTIONAL REVIEW BOARD DOCUMENTS
UAB's Institutional Review Boards for Human Use (IRBs) have an approved Federalwide Assurance with the Office for Human Research Protections (OHRP). The Assurance number is FWA00005960 and it expires on January 24, 2017. The UAB IRBs are also in compliance with 21 CFR Parts 50 and 56.

Principal Investigator: BURNETT, KARA R.

Co-Investigator(s):

Protocol Number: X130819002

Protocol Title: Students' Perspectives of an Urban University Nutrition Environment: A Qualitative Approach

The IRB reviewed and approved the above named project on 8-30-13. The review was conducted in accordance with UAB's Assurance of Compliance approved by the Department of Health and Human Services. This Project will be subject to Annual continuing review as provided in that Assurance.

This project received EXPEDITED review.

IRB Approval Date: 8-30-13

Date IRB Approval Issued: 8-30-13

IRB Approval No Longer Valid On: 8-30-14

Marilyn Doss, M.A.
Vice Chair of the Institutional Review Board for Human Use (IRB)

Investigators please note:

The IRB approved consent form used in the study must contain the IRB approval date and expiration date.

IRB approval is given for one year unless otherwise noted. For projects subject to annual review research activities may not continue past the one year anniversary of the IRB approval date.

Any modifications in the study methodology, protocol and/or consent form must be submitted for review and approval to the IRB prior to implementation.

Adverse Events and/or unanticipated risks to subjects or others at UAB or other participating institutions must be reported promptly to the IRB.
CONSENT FORM

TITLE OF RESEARCH: Students’ Perspectives of an Urban University Nutrition Environment: A Qualitative Approach

IRB PROTOCOL: X130819002

INVESTIGATOR: Kara Burnett, BS

SPONSOR: UAB Department of Human Studies

Purpose of the Research

The purpose of this qualitative study is to explore students’ perceptions of their nutrition environment and the relating barriers/facilitators to healthy eating for college students at the University of Alabama at Birmingham. A nutrition environment is loosely defined as the physical and psychological environment that influences food consumption and purchasing habits. Focus groups and key informant interviews will be conducted to gain a better understanding of what UAB students perceive as their nutrition environment as well as what their food consumption and purchasing habits are. The following questions will guide the study:

(1) What aspects of nutrition are UAB students familiar with?
(2) What are the components of the nutrition environment at UAB?
(3) How do students feel about the nutrition environment and what changes do they want to occur?

It is the intent of the PI to disseminate the results of the study to key personnel at UAB who would be capable of producing or advocating for a healthy nutrition environment. This study will also contribute the general knowledge of college nutrition environments in an urban university setting.

Explanation of Procedures

You will be participating in one focus group session or key informant interview. The focus group sessions will be divided based on gender and class level at UAB. At the start of the session, you will sign in with your email, which will be used for the VISA gift card drawing after all focus group sessions and key informant interviews have been completed. You will be given an informed consent form and the PI will explain all sections and answer questions. You will be asked to put on a name tag with your first name only so the PI can call on you, should you choose to respond to a question. At the start of each focus group session, you will be asked to fill out a demographic questionnaire that includes information about your age, sex, eating habits, purchasing habits, residence status, race and height/weight information. You will be participating in a focus group with approximately 7 peers and 1 to 2 facilitators. The focus groups will last no more than three hours, and the key informant interviews will last approximately one hour. Food and drinks will be provided in both the focus group and key informant interviews. During the focus groups and key informant interviews, you will be asked a series of open-ended questions to which you can choose to respond. The questions are relating to the nutrition environment, eating

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habits, and nutritional information received on campus. Focus group and key informant inquiry items include: (a) nutrition environments; (b) healthy eating environment; (c) UAB promotion of a healthy eating environment; (d) experience of UAB’s nutrition environment; (e) availability/accessibility of healthy foods; (f) barriers to healthy eating at UAB; (g) nutrition information received on campus; and (h) desired changes to the nutrition environment at UAB. The focus groups and key informant interviews will be audio recorded to eliminate risk of recorder bias. After completion of the focus groups and key informant interviews, the recordings will be transcribed into a word document. Participants will be asked not to share any information that was discussed in the focus group or interview session. There will be a total of 56 participants in seven focus groups and 5 key informant interviews.

Risks and Discomforts
There is a potential risk of loss of confidentiality for participants. Since the estimated time of the focus group sessions are 2.5 hours each, you may feel this in an inconvenience. There are no physical risks to students who participate in the study. Psychological risks are not expected to occur, other than you may feel uncomfortable discussing certain topics in the presence of your peers or the facilitator. None of the questions asked during focus groups or interviews should cause you psychological discomfort. You will be given more information if other risks are found.

Benefits
You may not benefit directly from taking part in this study. However, this study may help us better understand factors affecting the food consumption and purchase for UAB students. This study may also help us to understand and improve the nutrition environment at UAB.

Alternatives
You can choose not to participate in the study.

Confidentiality
Information obtained about you for this study will be kept confidential to the extent allowed by law. However, research information that identifies you may be shared with the UAB Institutional Review Board (IRB) and others who are responsible for ensuring compliance with laws and regulations related to research, including people on behalf of UAB Department of Human Studies and the Office for Human Research Protections (OHRP). The results of the study may be published for academic purposes. You may be directly quoted in any publication derived from this study. However, your identity will not be given out.

Voluntary Participation and Withdrawal
Whether or not you take part in this study is your choice. There will be no penalty if you decide not to be in the study. You are free to withdraw from this research study at any time. Your choice to leave the study will not affect your relationship with this institution.

If you are a UAB student or employee, taking part in this research is not a part of your UAB class work or duties. You can refuse to enroll, or withdraw after enrolling at any time before the
study is over, with no effect on your class standing, grades, or job at UAB. You will not be offered or receive any special consideration if you take part in this research.

**Cost of Participation**
There will be no cost to you for taking part in this study.

**Payment for Participation in Research**
All participants will be given an equal chance to win one (1) gift card. Your email address will be collected at the time of the focus groups and key informant interviews. Your email address will serve as the point of contact throughout this study. All participants’ emails will be put into a bowl and one email will be drawn. This participant will be the winner of the $100 VISA gift card and will be notified via email. A time to meet so the winning participant can receive the gift card will be made within one week of the drawing.

**Questions**
If you have any questions, concerns, or complaints about the research, you may contact Ms. Kara Burnett. She will be glad to answer any of your questions. Kara’s number is 205-563.3412. Kara may also be reached by email at kara327@uab.edu

If you have questions about your rights as a research participant, or concerns or complaints about the research, you may contact the UAB Office of the IRB (OIRB) at (205) 934-3789 or toll free at 1-855-860-3789. Regular hours for the OIRB are 8:00 a.m. to 5:00 p.m. CT, Monday through Friday. You may also call this number in the event the research staff cannot be reached or you wish to talk to someone else.

**Legal Rights**
You are not waiving any of your legal rights by signing this informed consent document.

**Signatures**
Your signature below indicates you agree to participate in this study. You will receive a copy of this signed consent form.

Signature of Participant

Date

Signature of Principal Investigator

Date

Signature of Witness

Date

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APPENDIX B

DEMOGRAPHIC QUESTIONNAIRE
Demographic Data Sheet for Focus Group

(1) What is your current class level at UAB?
   Sophomore_____
   Jr._____
   Sr._____

(2) What is your age?

(3) What is your sex?  M______        F_______

(4) With which ethnic/racial group do you identify yourself with?
   __________________________

(5) What is your living situation at UAB?
   Dorm_____
   Apartment on campus_____
   Off campus_____ 

(6) What is your height? ___ft. ___ in
   What is your weight? ________lbs

(7) Do you currently have a campus meal plan _____ or dining dollars ________? Please indicate one or both and how much.

(8) How many times per week do you visit UAB dining halls (HUC, Commons)? _______

(9) How many times per week do you visit UAB campus restaurants (Subway, Starbucks, etc.)? _______

(10) How many servings of fruits and vegetables do you get per day? _________

(11) On a scale of 1-5, with 1 being very unhealthy and 5 being very healthy, how would you rate your eating habits on UAB’s campus?
APPENDIX C

FOCUS GROUP AND INTERVIEW QUESTIONS
Engagement question:
1. Do you feel that UAB promotes a healthy eating environment? Why or Why not?

Exploration questions:
2. What elements of a nutrition environment does UAB have?
3. How do you feel about the availability and accessibility of healthy foods on campus?
4. What are the barriers to healthy eating at UAB?
5. What nutritional information have you received on campus?

Exit question:
6. If any, what changes (environmental/policy/classes) could occur at UAB to make the environment more supportive of healthy eating?