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AN EMPIRICAL TEST OF A FRAMEWORK FOR CASUAL EATING BEHAVIOR

BY

Austin W. Sanders

A Thesis

Submitted to the Graduate Faculty of the  
University of South Alabama  
in partial fulfillment of the  
requirements for the degree of

Master of Science

in

Computer and Information Sciences

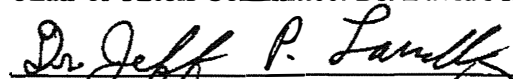
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Approved:


Date:

  
Chair of Thesis Committee: Dr. David M. Bourrie

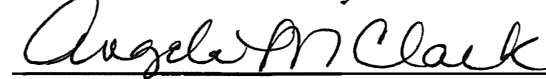
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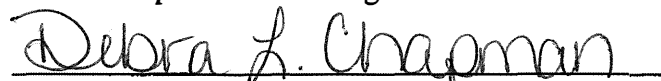
3/17/2021

  
Committee Member: Dr. Ryan G. Benton

3/17/2021

  
Chair of Department: Dr. Angela M. Clark

3/18/2021

  
Director of Graduate Studies: Dr. Debra L. Chapman

3/18/2021

  
Dean of the Graduate School: Dr. J. Harold Pardue

4/6/2021

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## LIST OF ABBREVIATIONS

ATC.....	Attitude Towards Color
AVE .....	Average Variance Extracted
CMB.....	Common Method Bias
EFA.....	Exploratory Factor Analysis
FCQ.....	Food Choice Questionnaire
FCR.....	Food Choice Rating
H.....	Health
M.....	Mood
SA .....	Sensory Appeal
NFI.....	Normed Fit Index
NL .....	Nutrition Label Use
OSL.....	Optimal Sensation Level
PL.....	Pleasure
PLS.....	Partial Least Squares
PR .....	Price
RMS .....	Root Mean Square
SEM .....	Structural Equation Modeling
SO .....	Sociability

SRMR .....	Standardized Root Mean Residual
TEMS .....	The Eating Motivation Survey
VARSEEK .....	Variety Seeking
VS .....	Variety Seeking

## **ABSTRACT**

Sanders, Austin, W., M.S., University of South Alabama, May 2021. An Empirical Test of a Framework for Casual Eating Behavior. Chair of Committee: David M. Bourrie, Ph.D.

This study empirically tests the Framework for Casual Eating Behavior, which is grounded in the Theory of Planned Behavior and explains previous literature regarding food choice. A total of 178 valid student surveys were completed after dining in a Southeastern university's Food Court, resulting in a 75% completion rate. The survey asked user preference in food choice and rating values for the items they consumed. Structural equation models for two different menu items were analyzed. Two supported hypotheses were in common between the two models: pleasure had a positive relationship towards sensory appeal and nutrition label use had a positive relationship towards health. We found that variety seeking had a significant positive relationship towards food choice rating and mood had a significant negative relationship toward the food choice rating with the first menu item. Pleasure had a significant positive relationship towards food choice rating for the second menu item. The supported relationships from the intrapersonal theme contribute to affective modeling of hedonic sensory experiences with menu items as mood, variety seeking, and pleasure are inherent to feelings and sensations. Moreover, the supported relationship from nutrition label use to health implies that nutrition knowledge influences one's food choice attitude.

## **CHAPTER I**

### **INTRODUCTION**

Recommender systems, popular with companies like Amazon, Netflix, and Spotify, are software tools that filter information from users and items to provide personalized suggestions of products or services (Bobadilla et al., 2013; Ricci et al., 2011). The fundamental reason behind using a recommender system is to learn about the customers so companies can offer a more customer centric service. Recommender systems are typically characterized by the type of filtering algorithm which is determined by the method used for predictions and the variables relating to the interactions of a user to a system in a specified business area (Bobadilla et al., 2013). Information about the preference of users for a set of items can be acquired both explicitly, by collecting users' items ratings, and implicitly, such as observing users' behavior.

Common filtering algorithms that are used in recommender systems include demographic, content-based, collaborative, social-based, context-aware, and hybrid. Demographic filtering provides recommendations based on similarities of one's personal profile (sex, age, country, religion, etc.). Content-based filtering analyzes the similarities between features of items frequently purchased together (Kaur & Kang, 2016). Collaborative filtering is used to recommend items based on users' rating values. Context aware filtering focuses on additional contextual information, such as time and

geographical location. Social-based filtering is used to help provide recommendations to users based off information acquired from social networks. Of the existing filtering algorithms, content-based and collaborative filtering are the most used (Bobadilla et al., 2013). Hybrid filtering takes advantage of one or more filtering algorithms to increase performance (Adomavicius & Tuzhilin, 2005), typically by alleviating cold starts, which refers to the difficulty in providing recommendations when a new user or item is introduced to the system (Çano & Morisio, 2017; Hernando et al., 2017). Cold starts are a reoccurring limitation of recommender systems (Çano & Morisio, 2017).

Despite the popularity of recommender systems, they are not commonly used in the restaurant industry. According to the Bureau of Economic Analysis (2019), full-service restaurants, limited-service restaurants, special food services, and drinking places (alcoholic beverages) garner total revenue of \$481.4 billion by the third quarter of the industry fiscal year. A recommender system accepted in the food services industry sector could potentially result in massive economic growth. A digitized menu suggestion can help alleviate the frustration of information overload from large menus, reduce ordering times, and could discover hidden taste preferences to provide a solution through the consumers' lens.

Food choice and preference of casual eating are a complex mixture of diverse components that need to be collectively measured. One's taste preferences in food cannot simply be evaluated by analyzing purchasing history or the contents of the menu items alone. Solely focusing on purchasing history, contents of the items, health, or specific behavioral attributes does not fully capture the causal relationship of food choice behavior of casual eating (Franchi, 2012; Köster, 2009; Lenglet, 2018; Monteleone et al.,

2017). Food choice is both embodied and a part of everyday social interactions, which adds complexity in modeling food intake behavior (Franchi, 2012). Existing research with recommender systems for restaurants (Bharadi, 2013; Ge et al., 2015; Li et al., 2018; Tan et al., 2012) heavily rely on superficial analyses of menu item properties, like price, flavor, and spices, without much regard to the consumer's expectations with menu item suggestions. Without much concern for the users' attitudes and beliefs, menu recommendation systems for casual eating could result in poorly suggested items that do not meet the customers' expectations.

The preference in food choice involves the evaluation of both intrinsic and extrinsic properties of the food item with its intrapersonal relationship to the consumer (Piqueras-Fiszman & Spence, 2015). One's confirmation or disconfirmation of a menu item suggestion is based on the extent the suggested item aligns with the internal representation (Gladziejewski, 2016; Piqueras-Fiszman & Spence, 2015) of an individual's response to sensory stimulus (Arel et al., 2010; Hallem & Carlson, 2006; Julius & Nathans, 2012). An individual's internal representation involves the mapping of filters in terms of predictive coding, which describes the rules the mind develops for one's model of the world; in the case of this thesis, the model of one's preference in food choice. These rules, particularly as it relates to food perception, can be formulated based on associated shared social pleasures or distress, emotions, linguistic information, and health/nutrition labeling of past experiences. Errors in predictions could result in discomfort or a bad experience (Gladziejewski, 2016; Piqueras-Fiszman & Jaeger, 2016; Piqueras-Fiszman & Spence, 2015). Ultimately, any suggestion should be within an acceptable margin of error to provide a positive experience to the consumer.

Shepherd (1999) and Piqueras-Fizman & Spence (2015) demonstrate that expectations are formulated by the interconnection between the consumer, the consumer's attitudes and beliefs, and the context of the food item. Errors in food suggestions could be reduced by optimizing both the nutritional and semantic meaning of the food item to the consumer. The relationship between the users and item ratings in collaborative filtering can be strengthened by uncovering one's preferences. Some researchers have recognized the gains of discovering user preferences with collaborative filtering and included item response theory models as part of one's registered profile, especially to alleviate cold starts (Hernando et al., 2017; B. Hu et al., 2011; Wu et al., 2018). The results from Wu et al. (2018) and B. Hu et al. (2011) reveal that recommendation accuracies and coverage increase when incorporating personality to alleviate errors with cold and non-cold start problems. Akin to these studies, this current research endeavor will focus on testing a theoretical model that maps the relationship between factors relating to socio-economic, intrapersonal, and food context to improve collaborative filtering.

While there are many successful implementations of menu recommendation systems for medical purposes (Agapito et al., 2018; Bianchini et al., 2017), menu recommendation systems for casual eating are not as widely accepted. Current restaurant menu recommendation solutions may be useful for registered, active users who have given a lot of ratings, but likely meaningless to non-registered users (Fernández-Tobías et al., 2016; Hernando et al., 2017). Restaurant menu recommender systems that do not meet one's expectations will likely be rejected instead of having continued use. As mentioned, the limited focus of recommendations based on the contents of items without

much regard to the user's behavior are likely to cause spurious or non-representative result between the users and the items. Thus, the research question for this thesis is as follows:

R<sub>1</sub>: What constructs in the Framework for Casual Eating Behavior can provide value in a menu recommendation system?

The rest of this paper is organized as follows: Chapter II provides the literature review and development of the extended research model. In chapter III, a comprehensive explanation of the methodology is provided. Chapter IV presents the results of the current study and the contribution to theory and practitioners. Chapter V discusses further research, the limitations, and the overall implications of this research.



## **CHAPTER II**

### **LITERATURE REVIEW**

The following chapter contains an overview of the literature and theoretical works that form the basis of the research model. We begin with an overview of the Theory of Planned Behavior and Shepherd's (1999) Social Determinants of Food Choice. Then a discussion of the food choice ratings will detail this study's dependent variable. Afterward, three primary overarching themes are examined as the underlying interrelationships of one's preference and rating of food items: socio-economic, intrapersonal, and food context. The chapter concludes with a presentation of the Framework for Casual Eating Behavior.

#### **2.1 Grounding Theories**

This research is grounded in Ajzen's (1991) Theory of Planned Behavior which has been used extensively in information systems research to measure user acceptance and to evaluate the effectiveness of an information system (Bhattacharjee, 2001; Khalifa & Liu, 2004; Szajna & Scamell, 1993; Thong & Yap, 1996; Vaezi et al., 2016; Wixom & Todd, 2005). The Theory of Planned Behavior includes the interaction between three conceptually independent constructs as determinants of intention: attitude, subjective norm, and perceived behavioral control. Attitude refers to one's evaluation of a target

object or action in judgment. Subjective norm refers to the influences of the social environment. Perceived behavioral control is the extent to which individuals believe they can perform the action. The formation of attitudes, subjective norm, and perceived behavioral control include salient beliefs and information as antecedents to help explain the specific behavior in question. These three constructs are useful as an initial framework in modeling social determinants of consumer behavior (Ajzen, 2001). The Theory of Planned Behavior can help explain one's predisposition to respond favorably when the antecedents of attitude reflect one's previously stored positive experiences encoded in memory. Stored memory is a stronger predictor of attitude (Melone, 1990). Research with food choice behavior often ignore the antecedents to attitudes instead, most researchers on food choice solely focus on the purchasing intentions of food items alone. Figure 1 is a simplified image of the Theory of Planned Behavior.

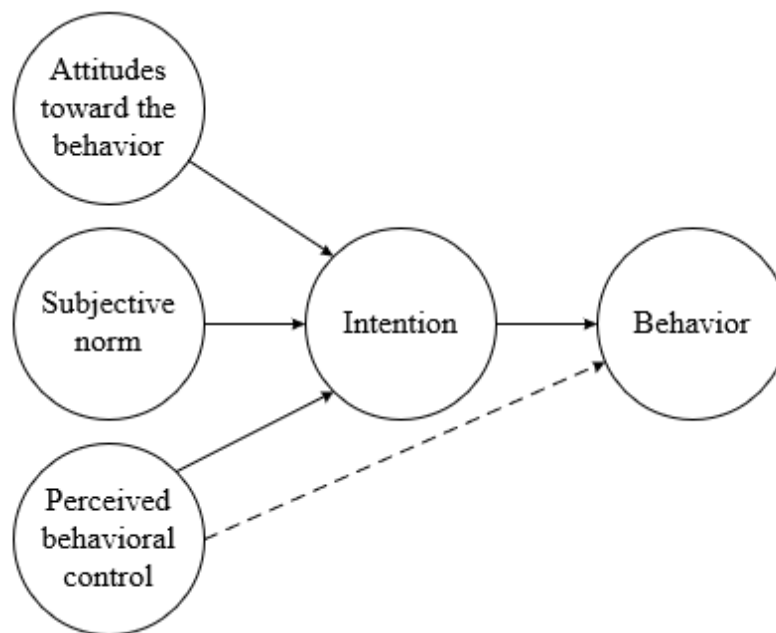


Figure 1. Theory of Planned Behavior, adapted from Ajzen (1991).

Combining the principles of the Theory of Planned Behavior with Shepherd's (1999) Social Determinants of Food Choice, could help better explain the antecedents of attitude in relation to food preferences. Shepherd's (1985, 1999) conceptual framework, which has been used extensively with healthy food choice options, provides insights into probable variables that can be empirically tested with measurement items for a new model with casual eating behavior. Shepherd (1999) points out that physical or chemical properties alone do not determine whether the offering will be consumed. The individual and social influences should also be included in the research design, as delineated in Figure 2 below.

Shepherd and Stockley (1985) and Shepherd (1989) realized the value of using

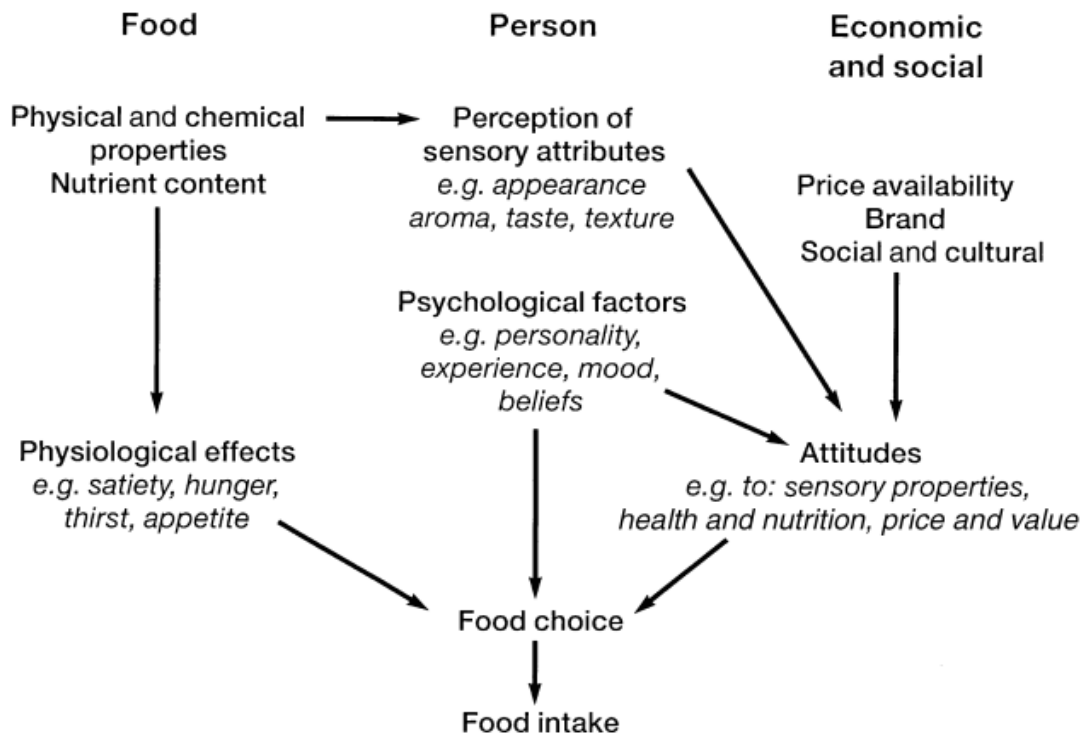


Figure 2. Some Factors Affecting Food Choice and Intake (Shepherd, 1985).

the Theory of Planned Behavior and its contribution to nutrient intake behavior. The statistical significance of attitudes and subjective norms to food choice in Shepherd and Stockley's (1985) study suggest that it is worthwhile further investigating the relationship between attitudes and subjective norms to food choice with restaurant menu item options. Nardi et al. (2019) found that the relationship between attitude, subjective norm, and perceived behavioral control can sometimes be difficult to interpret when related to food choice. In the context of food preferences and intake behavior, objective mediators of attitude and subjective norms to intention and behavior can contribute to the understanding of food intake behavior (Nardi et al., 2019; Scalco et al., 2017; Shepherd, 2001, 2013). The exact relationship of the original constructs (Ajzen, 1991) can be improved (Ajzen, 2001; French & Hankins, 2003), noting that the differences in determinants of attitudes or measures to the intention of behavior may lead to changes in correlation coefficients (French & Hankins, 2003).

## **2.2 Food Choice Rating**

The dependent variable used within the research is food choice rating that can be viewed as the assessment of user-satisfaction (Gallarza et al., 2015; Melone, 1990; Schifferstein, 2001; Vaezi et al., 2016). Prior research related to Expectancy-Value Theory helps establish the relationship between satisfaction with the (information) quality of a system or application (Vaezi et al., 2016). Satisfaction can be interpreted as the fulfillment of one's subjective need (Melone, 1990; Szajna & Scamell, 1993; Vaezi et al., 2016) and can be expressed as the perceived quality of the food offering. The consumer's interpretation of quality is perceived based on the mind's screen of data (e.g., music,

taste, and smell) presented in the environment and predisposition based on the individual's attitudes, beliefs, and internal state (Agyekum, 2015). As such, the perception of quality is selective and varies from person to person. A product highly liked and perceived as excellent is a function of the degree to which the product confirms one's expectations (or mental representation) formulated from past experiences and associations (Piqueras-Fiszman & Spence, 2015; Rivière & Mencarelli, 2012).

### **2.3 Socio-economic**

This section discusses the subsection of Shepherd's (1985) framework by establishing the socio-economic theme of the research and refers to the influences of one's referent social group and the economics of food choice decisions. The socio-economic theme consists of two sub-facets: the attitude of food preferences and normative beliefs.

#### **2.3.1 Attitudes of Food Preference**

Modeling the determinants of one's perception in food offering expectations is a complex task as the perception of food is evaluated both cognitively and affectively. When a product is evaluated as one's expectations to liking, in this case, food choice rating, it is considered to be hedonic where the target item is affectively processed through one's attitude (Schifferstein, 2001). A product that easily accesses positively stored memory that formulates one's attitude results in liking or satisfaction. Having roots from cognitive and social science regarding hedonic responses, the ease in assessing stored positive memory or the affective activation of neurons is known as processing

fluency (Westerman et al., 2015). The cognitive (objective) and affective (subjective) evaluation of consumer behavior makes the target of judgment multi-faceted (Ciunova-Shuleska & Palamidovska-Sterjadovska, 2019; Demirbilek & Sener, 2003; Erenkol, 2015) in turn renders the antecedents of one's attitude towards a collaborative menu recommendation system likewise multi-faceted. Being able to model the multi-faceted drivers of attitude towards an information system can help with a successful implementation.

Affective expectations can be generalized as the judgmental system (Helander & Khalid, 2006). The evaluation process from one's attitude and beliefs are formulated throughout an individual's life from experiences that are internally labeled as either positive or negative, then encoded in stored memory as a network of associative knowledge (Helander & Khalid, 2006; Schifferstein, 2001). Attitudes can be considered as the intuitive evaluation of product offerings which quickly identifies the items that one is willing to pay for having perceived positive valued monetary exchange. In the case of this thesis, three attitudes are identified as determinants for one's immediate demand for the food offering: sensory appeal, price, and health.

#### **2.3.1.1 Sensory Appeal.**

The first attitude, sensory appeal, involves the consumer's attraction to sensory dimensions in product consumption: visual, acoustic, haptic, olfactory, and gustatory perception. It has been used extensively in sensory, experiential, and neuromarketing to offer a more holistic and value-added experience to the consumer (Ciunova-Shuleska & Palamidovska-Sterjadovska, 2019; Erenkol, 2015). To determine one's probability of having a positive hedonic experience requires the understanding of semantic memory,

which emphasizes the encoding and retrieval of stored memory formulated from associations. Offering a product that appeals to the consumer's sensory receptors recreates a positive internal image from the past, thus adding emotional value to the consumer's internal state or feelings (Yoon & Park, 2012). We therefore posit that:

H<sub>1</sub>: Sensory Appeal has a positive relationship toward Food Choice Rating.

#### **2.3.1.2 Price.**

The second attitude, price, refers to the economics of food in the sense of one's affordability or sensitivity to the cost of the food item and its perceived value exchange. The classical definition of economics is the consumer's demand for a product referring to the amount an individual wishes to pay for its intrinsic properties (Shepherd, 2001, 2013). Central to the concept of affordability is a consumer's purchasing power that constrains the acceptable products in the market (Shepherd, 2001, 2013). Further expanding this concept, a consumer's willingness to pay is dependent on the logical value of the product. Logical refers to the rationale of sacrifice and return, such as comparing the price of the product against alternative options (Sánchez-Fernández & Iniesta-Bonillo, 2006). If the consumer's evaluation regarding the price of the target product's properties is preferred amongst alternatives, then inter-value is high and would likely bring satisfaction (Gallarza et al., 2015; Sánchez-Fernández & Iniesta-Bonillo, 2007). We therefore posit the following hypothesis:

H<sub>2</sub>: Price has a positive relationship toward Food Choice Rating.

#### **2.3.1.3 Health.**

The third attitude, health, measures one's predisposition towards intentions of buying healthy product offerings (Pettigrew, 2016; Stevenson, 2017). Research regarding

healthy eating behavior is driven by its relationship to morbidity and mortality where prevention strategies are investigated to reduce critical health issues, such as diabetes and obesity. Health interest is a key driver of fruit and vegetables intake as it is commonly considered to be healthy (Harker et al., 2003). Women typically have stronger attitudes towards nutrition-rich food choices (Pollard et al., 2002). In addition to fruits and vegetables, food items that are low in fat, sodium, and sugar are typically considered to be healthy. Thus, it is hypothesized:

H<sub>3</sub>: Health has a positive relationship toward Food Choice Rating.

### **2.3.2 Normative Beliefs**

Normative beliefs are one of the primary antecedents to the attitudes constructs in the Theory of Planned Behavior which emphasizes the importance of social influences (Ajzen, 1991). Normative beliefs are expectations that one's social group upholds for one's actions. These expectations form what is approved or discouraged in the social group. A sociable individual is more likely to be influenced by others (Kelly & Davis, 2018), whether it be to follow the healthy habits of the group or to seek pleasures.

Family is an early social agent that is likely to shape young adults' eating habits (Pelletier et al., 2014). Families hold shared values and belong to an ethnic group which may contribute to their perceived culture. The customary practices of a family's heritage may influence healthy food choice if healthy food options are available, affordable, and collectively appreciated. Consumers may have a sense of belongingness when they believe that they conform to the expectations of their referent social, cultural, religious, or ethnic group (Verlegh & Ittersum, 2001). The parental diet could condition one's attitude towards healthy eating even into adulthood (Sogari et al., 2018). Shared past experiences



and expectations from one's social group can condition consumer's perception of hedonic experiences, such as sensory stimulus from eating at a restaurant, even when the social agent is not present (Rozin, 1996).

Higgs and Thomas (2016) illustrate that social normative behavior can both encourage or dissuade one from following dietary restrictions. This is especially true when the individual identifies strongly with their peer group (Pelletier et al., 2014). Young adults between the ages of 18-30 are normally more sensitive to peer pressure and are likely to be persuaded to engage in risk taking or healthy behavior, depending on the food choice motives of their referent group (Pelletier et al., 2014; Stok et al., 2016). Sogari et al. (2018) explored what United States college students perceived as barriers and enablers to a healthy eating diet through focus groups. Peer pressure, and food culture were common themes as both barriers and enablers to healthy eating in the ecological model at the social level of college students.

Being around peers could influence a healthy diet if the peers encourage eating healthy food. Social marketing is sometimes used to promote healthy eating behavior which includes not only the individuals, but policy makers and groups of people. Influencing changes in behavior requires the individual to believe that there is a valued monetary exchange. Sellers or policy makers, for example, can encourage nutrition poor individuals or communities by telling them that nutrient rich food tastes good. In turn, the expectations for the food item increase, thus increasing the likelihood to be satisfied with the food offering (Pettigrew, 2016).

Considering the established literature regarding the Theory of Planned Behavior related to the influences of normative beliefs toward attitudes, we posit the following:

H<sub>4</sub>: Sociability has a positive relationship towards Sensory Appeal.

H<sub>5</sub>: Sociability has a positive relationship towards Price.

H<sub>6</sub>: Sociability has a positive relationship towards Health.

## **2.4 Person**

The relationship of one's intrapersonal feelings, emotions, and personality will now be explored. Shepherd (1985) and Piqueras-Fiszman & Jaeger (2016) emphasize that one's feelings or emotions have more importance than traditional social and economic factors when modeling food choice behavior. Affect and emotion are a common bias in the Theory of Planned Behavior, so the inclusion of intrapersonal elements should expand this theory and is a recommended research endeavor (Ajzen, 2011). Ladhari et al. (2017) demonstrate that emotions can have a direct effect on a product's perceived quality and behavioral intention in a hedonic setting. Computer artificial neural processing of hedonic sensory experiences is impaired when neglecting to model influences of mental affective processing, which includes moods, emotions, and other subjective experiences, referring to embodiment and feelings (Krishna & Schwarz, 2020). A consumer's mental affective processing influences one's expectation and subjective need of a food item offering (Ciunova-Shuleska & Palamidovska-Sterjadovska, 2019). Intrapersonal factors have multiple sources when combined have an additive consequence on higher levels of satisfaction and food choice attitudes (Ciunova-Shuleska & Palamidovska-Sterjadovska, 2019; Westbrook, 1980, 1987). Specifically, the sources of intrapersonal factors influencing food choice that we will explore in this study are variety seeking, pleasure, and mood.

### **2.4.1 Variety Seeking**

Variety seeking is a food personality trait derived from a general trait of one's Optimal Sensation Level (OSL) (Lenglet, 2018). Individuals who have a lower OSL have a stronger tendency to avoid unfamiliar or novel food whereas, someone who has a higher OSL is more likely to seek unfamiliar food to satisfy the need for one's gratification. Moreover, variety seeking is even rooted in what is known as the omnivore's dilemma. At one extreme of the omnivore's dilemma is sensation seeking and the other extreme is risk avoidance, less likely to seek variety out of fear of the unknown product (Lenglet, 2018). Instead, most may focus on what is familiar and trusted to be a healthy choice. According to Olabi et al. (2009), fear correlates with sickness from food and food neophobia as an inhibitor to variety seeking behavior.

Cuisine was developed as a solution to the omnivore's dilemma. Social norms are the source of customarily accepted standard for preparations, consumption, and regulations of food choice. From an anthropology perspective, dining etiquette is part of a biocultural coevolutionary process where the body has, depending on the cultural background, shaped the types of food that the body can process. A common example of this phenomena is lactose intolerance (Armelaos, 2010). One's implicit behavior and preferences may be rooted in cultural heritage, such as the fear or pleasure of certain food options. The fear of unknown food items may also weaken one's attraction and attitude to the smell of food (Demattè et al., 2013), which is why restaurants owners may alter the sensory attributes to attract different customer segments (Armelaos, 2010).

Monotony is a related concept to variety seeking behavior in the sense that stimulus satiation, where there is loss in pleasure, sensory appeal, or gratification,

increases when there is little variance in consumption patterns (Hetherington et al., 2002; Poor et al., 2012; Sevilla et al., 2019). A consumer's acceptance of a food choice is a function of the frequency of consumption within a time period (Hetherington et al., 2002). However, strong emotional associations may attenuate the rate of satiation, but moderately liked routine food is resistant to satiation (Poor et al., 2012). Nonetheless, the study of emotions on food variety is a relatively underdeveloped area of study. The satiation process may be influenced by other factors, such as sensitivity to price. Given that price is one of the primary constraints to the available product offerings, an increased income could positively influence one's predisposition to seek variety (McAlister & Pessemier, 1982), thus reducing the chances of satiation

Therefore, we posit the following:

H7: Variety seeking has a positive relationship towards Sensory Appeal.

H8: Variety seeking has a positive relationship towards Food Choice Rating.

H9: Variety seeking has a positive relationship towards Health.

#### **2.4.2 Pleasure**

Pleasure is core to affective processing due to its connection to one's feelings and sensations (Ekkekakis, 2012; Helander & Khalid, 2006). Physical desires are often referred as the irrational unhealthy and risk-taking behavior. Health promotions, for example, are more likely to be ignored by those who have a predisposition to seek immediate bodily pleasures (Santos, 1998). Carnal desires are sensual and instinctive in nature. They have the potential to influence a consumer's attitudes regarding food choice intentions such as sensory appeal and health interests. Unhealthy food properties like fat, sugar, and/or salt are palatable and arousing to the bodily senses. Palatable food

properties are desirable to those who have pleasure-seeking traits (Helander & Khalid, 2006; Pettigrew, 2016).

As pleasure is part of the affective domain, consumers evaluate product (food) offering characteristics as part of their subjective needs. The affective processing from one's pleasure seeking disposition has a substantial influence on product choice (Ciunova-Shuleska & Palamidovska-Sterjadovska, 2019; Helander & Khalid, 2006; Westbrook, 1987). If the features of the product offering meets one's subjective needs, then the offering should bring a pleasurable hedonic experience, meaning the post evaluation of the product should be highly liked (Ciunova-Shuleska & Palamidovska-Sterjadovska, 2019; Helander & Khalid, 2006, Westbrook, 1987).

Therefore, we hypothesizes:

H<sub>10</sub>: Pleasure has a positive relationship towards Sensory Appeal.

H<sub>11</sub>: Pleasure has a positive relationship towards Food Choice Rating.

H<sub>12</sub>: Pleasure has a negative relationship towards Health.

### **2.4.3 Mood**

For this study, mood is used as a general feeling to describe one of the fundamental influences of affective processing of hedonic experiences in food choice. Mood is drawn from three interrelated elements of the affective domain: emotion, mood, and core affect (Ekkekakis, 2012). Unlike pleasure, mood and emotions are reflective. While there are similarities between mood and emotions, mood is not specific to a particular object, such as to a particular menu item or a category of food options, rather it is a totality of self and feeling or appraisal towards a transaction between an object (food item) and self (Ekkekakis, 2012). Compared to emotions, it can be argued that mood is

less intensive, more stable, and has a cognitive influence (Beedie et al., 2005; Ekkikasis, 2012). From this perspective, mood may be more suitable to explain emotional food choice motives with restaurant menu options.

Differences in aromas, spices levels, or phytonutrients elicit various types of emotions (Desmet & Schifferstein, 2008; King et al., 2013; Macht & Mueller, 2007; Piqueras-Fiszman & Jaeger, 2016). It is critical to consider including mood when measuring perceived liking and sensory attraction from food intake as memories and emotions are closely intertwined (Piqueras-Fiszman & Jaeger, 2016). Piqueras-Fiszman & Jaeger (2016) found that memorable meals are associated with a positive emotional experience whereas routine meals have no strong emotional associations. Furthermore, customers with alexithymia, defined as having difficulties explaining their emotions (Nemiah, 1977; Piqueras-Fiszman & Jaeger, 2016), are likely to not have memorable experiences and may expect a mediocre food choice rating. Measuring an individual's emotions can help assess one's health related motives overall wellbeing (den Uijl et al., 2014).

Food preferences may in part, be positively or negatively mediated by emotions with the respective aroma, spice content, or phenotype of the food item. King et al. (2013, p.11) expanded this concept and found that: "The lower spice concentration elicited stronger positive emotions like affectionate, friendly, and happy." Likewise, emotions are also correlated to the bitter tasting compound, 6-n-propylthiouracil, sensitivity (Macht & Mueller, 2007) further implying that emotions influences the perceived value and sensory perception of the food choice.

Thus, we posit the following hypotheses:

H<sub>13</sub>: Mood has a positive relationship towards Sensory Appeal.

H<sub>14</sub>: Mood has a positive relationship towards Food Choice Rating.

H<sub>15</sub>: Mood has a positive relationship towards Health.

## **2.5 Food Context**

The last overarching theme, food context, consists of extrinsic food properties, meaning attributes which are not part of the food item itself. To understand the influences of extrinsic food properties, nutrition label use is investigated. Nutrition label use can help explore how the contextual information from external cues of the food offering influences one's affective and cognitive processing. Nutrition labels are one of the immediate contexts of the food item being evaluated and are temporal as the contents can be related to past experiences and cognitively evaluated from the meaning and beliefs of the information (Meiselman, 1996).

According to the Knowledge-Attitude-Behavior Theory, awareness knowledge enhances people's motivation towards a behavior (Orji et al., 2012). Even though there is conflicting empirical evidence, knowledge is likely to influence healthy eating attitude. Greater nutrition label use has shown an increase in likelihood in eating a healthy diet (Christoph et al., 2016; Christoph & Ellison, 2017). Consumers who have the fear of illness or highly health-conscious are likely to use menu labels or the contextual information of the product from a trusted seller as aid in their food choice (Corallo et al., 2019; Fernqvist & Ekelund, 2014). For example, technology can help manage the product information and use it for marketing. Tailoring nutrition knowledge with technology could positively influence healthy eating.

Since the 1990 Nutritional Label and Education Act, there has been an increase in behavioral research on nutrition labels (Dumoitier et al., 2019; Roseman et al., 2013). The Affordable Care Act amended section 403(q) of the Federal Food and Drug Act requiring all restaurant chains and similar food establishments to provide nutrition labels on standard menu items (Roseman et al., 2013). There are noticeable changes in consumer behavior depending on the labeling design which can have various types of information, such as product brand, origin, nutritional contents, and nutritional recommendations (Dumoitier et al., 2019). For example, brands and labels are more appealing to consumers who have less nutritional knowledge whereas numerical information is more useful to customers who are more familiar with standard nutrition labeling design (Sanjari et al., 2017). As labels change, one's interpretation of the contents and information of the label changes. The color scheme of new label designs, for example, has a considerable amount of influence on food choice behavior (Dumoitier et al., 2019). Even though most college students doubt the truthfulness of nutrition label information, labels are often used when eating a food item for the first time (Dumoitier et al., 2019).

Consumers who often use nutrition labels are more likely to be analytical and more rational in decision making instead of relying solely on intuitive eating (Sanjari et al., 2017; Schifferstein, 2001). Heavy users of nutrition labels are likely to depend on reason-based heuristics in decision making instead of choosing a food option based on immediate sensory appeal. Health enthusiasts, for example, are more heavy users of nutrition labels and likely to rely on knowledge about a menu item when making a decision (Corallo et al., 2019). Intuitive processing is related to fluency and familiarity.



Consumers who predominantly rely on intuition with food choice may be more likely to choose what is familiar. Low nutrition label use is likely to be more dominant to pleasure seeking consumers who rely less on knowledge in decision making but rely on immediate sensory appeal and previous experiential enjoyment instead. Since nutrition label use has been demonstrated to be associated with sensory appeal, pleasure, health interests, and liking for the food item (Christoph et al., 2016; Christoph & Ellison, 2017; Franchi, 2012), nutrition label use should be integrated when modeling eating behavior and guiding decision making. If the ideas from a menu item information reflects one's expectation to liking, it relates to hedonics and influences one's affective processing and attitudes (Schifferstein, 2001).

The following hypothesis are posited:

H<sub>16</sub>: Nutrition Label Use has a negative relationship towards Sensory Appeal.

H<sub>17</sub>: Nutrition Label Use has a positive relationship towards Food Choice Rating.

H<sub>18</sub>: Nutrition Label Use has a positive relationship towards Price.

H<sub>19</sub>: Nutrition Label Use has a positive relationship towards Health.

H<sub>20</sub>: Nutrition Label Use has a negative relationship towards Pleasure.

## **2.6 Proposed Model**

Figure 3 below depicts the Framework for Casual Eating Behavior proposed for this study.

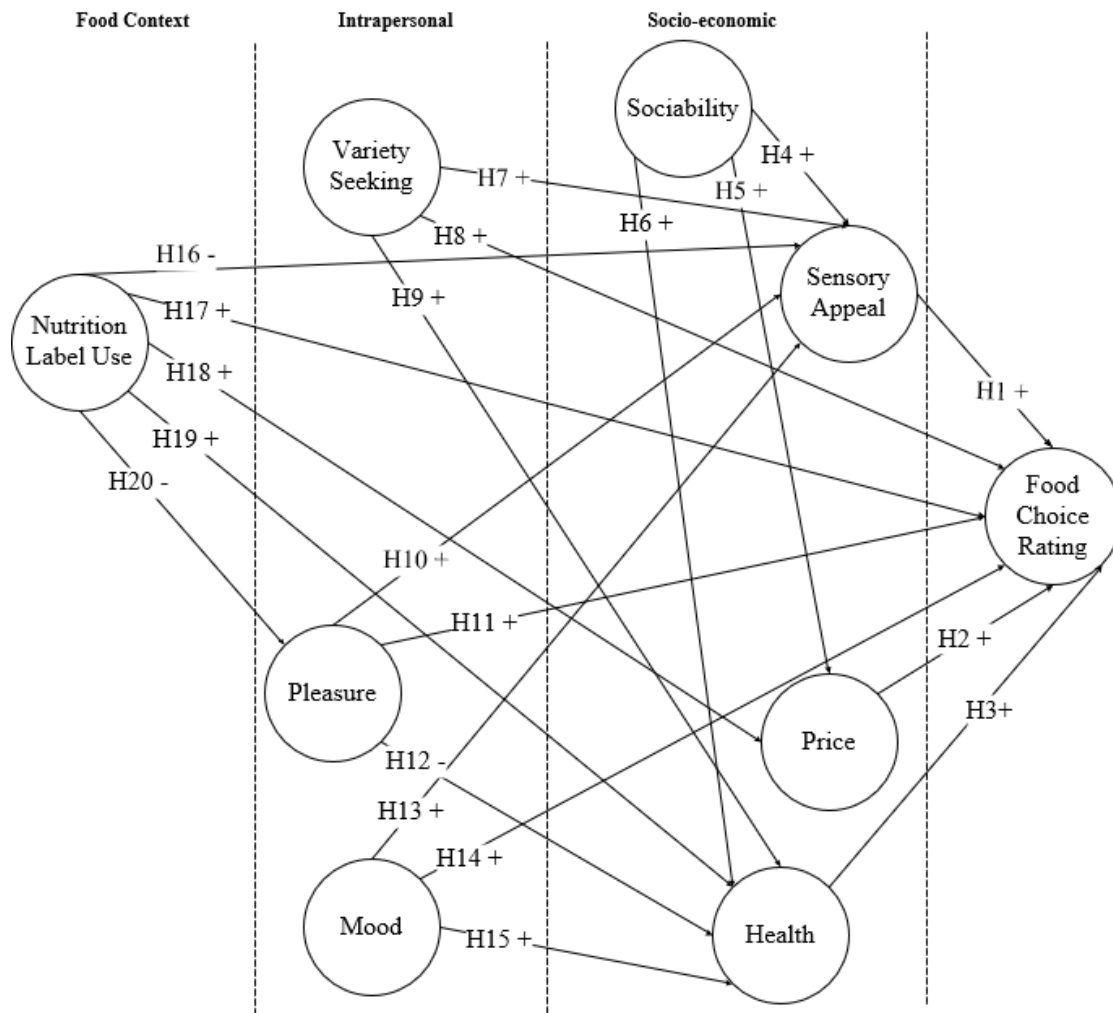


Figure 3. Framework for Casual Eating Behavior.

## **CHAPTER III**

### **METHODOLOGY**

Chapter III outlines the questionnaire development, respondent sampling, and the statistical analysis used to analyze the resulting data.

#### **3.1 Questionnaire Development**

A questionnaire is developed to empirically test the Theoretical Framework for Casual Eating proposed in this study. The questionnaire is divided into six sections: food choice motives, variety seeking scale, nutrition label use, food choice rating, assessment of common method bias, and demographic and control variables. The IRB approval forms for this survey are included in Appendix A.

##### **3.1.2 Measurement Items**

Structural equation modeling has become common place in social sciences and marking for testing theories involving complex relationships of latent constructs (Sarstedt et al., 2017). A latent construct, also called a factor or latent variable, is a theoretical concept which itself cannot be directly measured but can be explained by theoretically similar indicators (Bhattacharjee, 2001; Brown, 2015). Allowing the measurement of concepts that are naturally unmeasurable, researchers develop measurement scales

consisting of items that collectively are longitudinally evaluated and debated. While the general approach to developing measurement scales have varied over time, the fundamental goal is to find statistically invariant items with convergent and discriminant validity, meaning theoretical constructs do not vary across time or groups and distinctly different constructs do not interrelate (Brown, 2015; Churchill, 1979; MacKenzie et al., 2011; Peter, 1981).

Often poor model fit with structural equation models are due to the selected measurement items and not the defined relationship between the latent variables of interest (Brown, 2015). Constructs with high reliability reduces the probability of a type II error, thus increasing statistical power (Grewal et al., 2004). Ensuring the validity of explanatory variables reduces the chances of misleading conclusions. The constructs selected for this study are analyzed with previously validated measures so better inference can be made regarding the posited relations of the theoretical model proposed in this study. The construct definitions and scale sources selected for this study are listed in Table 1.

#### **3.1.2.1 Food Choice Motives.**

Food choice motives have been examined with many quantitative research endeavors regarding interconnected factors of eating behavior, particularly after Steptoe et al.'s (1995) original Food Choice Questionnaire (FCQ). There are many variations of measuring general food choice motives; however, the original FCQ from Steptoe et al. (1995) has been the most widely used and accepted as the general bases of examining underlying motives of normal eating behavior. Additionally, the FCQ has been supported to be invariant between factors across different countries (Eertmans et al., 2006;

Fotopoulos et al., 2009; Lindeman & Väänänen, 2000; Milošević et al., 2012).

Table 1. Construct Definitions and Sources of the Framework for Casual Eating Behavior.

Construct	Adapted Definition	Definition Source	Scale Source
Sensory Appeal	The consumer's attraction to the appearance, smell, and taste of food	Step toe et al. (1995)	
Price	Encompasses motives related to the cost of food	Step toe et al. (1995)	
Health	Encompasses food choice motives related to one's health values	Step toe et al. (1995)	
Sociability	Encompasses social reasons for food choice	Renner et al. (2012)	
Variety Seeking	The motivational factor that aims at providing variation in stimulation through varied food product consumption, irrespective of the instrumental or functional value of the food product alternatives	Van Trijp, H. C., & Steenkamp (1992)	Lenglet, F. (2018)
Pleasure	Encompasses motives related to please oneself through food	Renner et al. (2012)	
Mood	Encompasses food choice motives regarding one's emotional affect	Step toe et al. (1995)	
Nutrition Label Use	Assesses the general use of food labels	Marietta et al. (1999)	
Food Choice Rating	Assesses a consumer's post consumption evaluation of the food choice	Schifferstein (2001) & Vaezi et al. (2016)	
Attitude Towards Color	Used as a marker variable	Lindell & Whitney (2001)	

All the food choice motives for the research are measured on a seven-point Likert scale (“1 = strongly disagree” and “7 = strongly agree”).

Health, mood, sensory appeal, and price from Steptoe et al.’s FCQ (1995) were measured using nineteen items. Health consisted of six items (e.g., “It is important to me that the food I eat on a typical day contains a lot of vitamins and minerals.”). Mood consisted of six items (e.g., “It is important to me that the food I eat on a typical day helps me cope with stress.”). Sensory appeal consisted of four items (e.g., “It is important to me that the food I eat on a typical day smells nice.”), and price consisted of 3 items (e.g., “It is important to me that the food I eat on a typical day is not expensive.”).

Renner et al. (2012) carefully selected constructs from a review and compilations of previous research on food choice, including factors from Steptoe et al.’s (1995) to develop The Eating Motivation Survey (TEMS). Eleven items from TEMS were used for the research. Sociability was measured with six items (e.g., “I eat what I eat because it is social.”), and pleasure was measured with five items and (e.g., “I eat what I eat because I enjoy it.”).

#### **3.1.2.2 Variety Seeking Scale.**

Variety Seeking (VARSEEK) measures one’s tendency to seek variety with respect to food (Van Trijp & Steenkamp, 1992). VARSEEK has a greater predictive power than OSL and food neophilia (Lenglet, 2018; Van Trijp & Steenkamp, 1992). Six items were used to measure VARSEEK using a seven-point Likert scale (“1 = strongly disagree” and “7 = strongly agree”). The following is an example of a measurement item from the VARSEEK scale: “When I eat out, I like to try the most unusual items, even if I am not sure I would like them.”

### **3.1.2.3 Nutrition Label Use.**

This scale measures an individual's general use of nutritional labels. The three items included for this construct are from Marietta et al.'s (1999) Label Reading Survey. Each of these items are rated on a 7-point Likert scale on the frequency of use from Never (1) to Strongly Agree (7). The following is an example item from Marietta (1999): "When you eat a food, do you use the information on the Nutrition Facts label to help you fit that food into your daily diet?"

### **3.1.2.4 Food Choice Rating.**

The participants were asked to rate how much they liked the menu items that they have tried from the food court at the University of South Alabama on a seven-point Likert scale ("1 = dislike a great deal" and "7 = like a great deal"). This section contains a total of sixty-seven items. Five questions ask the participants if they have eaten at any of the locations (i.e., Panda Express, Moe's Southwest Grill, Chick-fil-A, Pizza Hut, and/or Greens-to-Go). If a participant marks "No" for any of the location, then all the associated questions regarding that location were not asked for the corresponding participant. The fifty-six rating value questions ask for ratings for items the participant has tried and provides a "N/A" option for each menu item that the participants have not tried. Six of the questions are regarding miscellaneous details about the rated items, such as the toppings included on the menu item.

### **3.1.2.5 Common Method Bias.**

Common method bias (CMB) refers to inflated or deflated correlations occurring in a dataset due to systematic error rather than the study constructs (Podsakoff et al., 2003). A method bias is likely to occur when optimal answers are not provided when the

respondents are unable or unwilling to devote the cognitive effort to provide accurate answers. There are many causes of CMB with a survey research design, such as response fatigue from a long questionnaire, impulsivity, convenient sample, or complex questions. The presence of CMB signifies that measurement error is influencing validities and reliabilities to some of the correlations present in latent variables which impairs the interpretability of the data. Researchers who detect common method bias cannot state that observed correlations are fully attributable to the underlying relationships present in the studied phenomenon.

Some procedural remedies for reducing the manifestation of CMB include conducting expert panels for purifying measurement items, randomization of items within the instrument, and temporally spacing measurement items as they are presented to the respondent (MacKenzie & Podsakoff, 2012; Podsakoff et al., 2003). Each of these techniques is utilized in the present study. Moreover, this questionnaire includes two types of items to determine the presence of CMB and to control its influences on construct validity: marker variable and attention factor.

**3.1.2.5.1 Attitude towards color.** Lindell & Whitney (2001) proposed using a marker variable as a variable that is deliberately prepared and carefully identified to be unrelated to any of the constructs in a theoretical model. Malhotra et al. (2006), Richardson et al. (2009), Rönkkö & Ylitalo (2011) demonstrate that a marker variable is a convenient and robust way to measure the influence of CMB. Additionally, a marker variable has been shown to perform better than alternative options for handling CMB and is suggested to be used with survey research (Malhotra et al., 2006). To be effective, the marker variable had to be in the same or similar format to the rest of the items (e.g., on a



7-point Likert scale). If the marker variable did not correlate with any of the other constructs or items in the study, it is indicative of the absence of CMB. The four items used as a marker variable were adapted from the attitude towards a particular color scale by (B. K. Miller & Chiodo, 2008). The original items asked the respondents to give their opinion toward the color blue. The color was changed to green (e.g. ‘I like the color green.’) in (Bourrie et al., 2016) so it would not skew the results if a high percentage of males completed the study but was problematic when used in Miller (2019) . For this study, the referenced color has been changed to the silver.

**3.1.2.5.2 Attention factor.** Inattention to self-administered surveys can introduce noise to the collected data. The purpose of an attention factor item is to help screen out participants who are careless with responses to ensure data quality (Kung et al., 2018). Embedded instructed-response items were used for the attention factor. This type of attention factor item asked participants to select a pre-determined answer (e.g. “please select somewhat disagree”) (Huang et al., 2015). Kung et al. (2018) support using this method to protect scale validity and describes attention factors a low cost and low effort way to detect respondent inattention. To function, the question items followed the format of the surrounding items (e.g., on a 7-point Likert scale). These items function as a method to eliminate from the dataset any respondent who was not paying sufficient attention when answering the questions.

### **3.1.3 Demographics**

The survey concluded with a demographics section having five questions. Participants were asked about their age, gender, marital status, and ethnicity. Age is dichotomous to compare traditional vs. non-traditional college students (Chung et al.,

2017) where the respondent either chooses: 1) “19-24 years old” or 2) 25+ years old. Gender includes three options: 1) Male, 2) Female, and 3) Non-binary. Marital status consists of five options: 1) Single, 2) Married, 3) Separated, 4) Divorced, 5) Widowed. Ethnicity consists of 8 options with each ethnic group having a short description of the inclusion criteria. The participants are asked if they would describe themselves as 1) American Indian/Native American, 2) Asian, 3) Black/African American, 4) Hispanic/Latino, 5) White/Caucasian, 6) Pacific Islander, or 7) Other.

### **3.2 Sample**

The sample population includes students at a university in the southeast region of the United States who have eaten at any of the available dining options at the food court (Chick-Fil-A, Moe’s Southwest Grill, Pizza Hut, Panda Express, and Greens-To-Go). The students had the option to either follow a link provided in a student email sent from a marketing listserve or scan a QR code provided on flyers in the food court. To participate, the students had to be 19 years old or older. Students who agree to participate were allowed to continue with the Qualtrics survey. As an incentive to participate, the students who complete the survey have the option to provide their university email address to enter a raffle where students have a chance at winning one of 15 Amazon Gift Cards valued at \$20. The full survey can be found in Appendix B.

A total of 235 students responded to the survey. We removed participants for incorrectly responding to the attention factor questions (51), not answering the control variables (3), missing or incomplete data for additional construct variables (3), and not rating at least one menu item (0). We used the remaining 178 participants for our

subsequent analyses, resulting in a 75% completion rate. Table 2 provides the respondent demographics.

Table 2. Survey Respondent Demographics Frequency Statistics.

	Frequency	Percent
Gender		
Male	30	16.85
Female	146	82.02
Other	2	1.12
Total	178	100.00
Age		
19-24	164	92.13
25+	14	7.87
Total	178	100.00
Marital Status		
Single	170	95.51
Married	7	3.93
Divorced	1	0.56
Total	178	100.00
Race		
American Indian/ Native American	3	1.69
Asian	11	6.18
Black/African American	25	14.04
Hispanic/Latino	9	5.06
White/Caucasian	126	70.79
Other	4	2.25
Total	178	100.00

### **3.3 Statistical Analysis**

For the data analysis, SPSS 26 was used to conduct descriptive analytics, tests for normality, order effect, and for the exploratory factor analysis (IBM, 2019). This process involved a reliability analysis for each construct individually, followed by a principal components factor analysis of all constructs together. Smart PLS version 3 was used for assessment of the model using partial least squares structural equation modeling (PLS-

SEM) (Ringle et al., 2015). The measurement model was tested for reliability and validity, while the structural model was assessed for predictive power and path coefficients.

PLS-SEM is a rebranding of partial least squares path modeling (PLS-PM) that determines the parameters of a set of equations in a path model by combining principle components analysis to assess the measurement models with path analysis to estimate the relationships between latent variables (Hair, Hult, et al., 2017). PLS-SEM allows for a causal-predictive approach to models with reflective measurement models with latent variables (Hair et al., 2018). In recent years, many of the practices of PLS-SEM have been examined, debated, and improved regarding how this statistical approach is being used in IS research (Benitez et al., 2020; Hair, Hollingsworth, et al., 2017; Hair et al., 2018; Sharma et al., 2019). Benitez et al. (2020) outlines 10 substantial changes for the understanding of PLS. We followed the guidelines of Benitez et al. (2020) and Hair, Hollingsworth, et al. (2017) and used the suggested maximum number of iterations as 300 and the number of bootstrapping samples set at 5,000.

To appropriately interpret the significance of the findings, there must be sufficient statistical power. A power analysis was conducted with the Free Statistics Calculator version 4 (Soper, 2019), using a priori values of an effect size equal to 0.30 (moderate), power equal to 0.80, and significance equal to 0.05. Using these values, the research requires 184 completed valid surveys as the minimum sample size to detect effect.

## **CHAPTER IV**

### **RESULTS**

This chapter will report the survey findings. The results were first assessed for reliability as well as convergent and discriminate validity of the constructs. PLS-SEM was used to test the Framework for Causal Eating Behavior developed in Chapter II. The analysis reported in this chapter are based on two food items: averaged Chick-Fil-A sauce ratings from survey participants and Chick-Fil-A Chicken Sandwich ratings.

#### **4.1 Exploratory Factor Analysis**

The data was examined using exploratory factor analysis (EFA) in SPSS 26 (IBM, 2019). This step provides an initial evaluation to determine the appropriate number of factors. Principal components analysis was used with a Varimax rotation to extract factors with at least an eigenvalue of 1 (Hair et al., 2010). Any factor that has less than one eigen value explains less variance than a single indicator (Auerswald & Moshagen, 2019), and was therefore excluded from latent factor analysis. The process of determining the appropriate number of components and eliminating poor communalities are important for establishing the quality of the measurement model (Anderson & Gerbing, 1988). Items associated with a particular construct should exhibit factor loadings of 0.6 or greater and should not exceed loadings of 0.4 or greater with any other factor, referred to

as cross loadings (Hair et al., 2010). With exploratory factor analysis, indicator loadings of 0.30 or 0.40 or higher may be considered salient, depending on the research domain (Brown, 2015).

While the results of the factor analysis indicate the expected number of factors (9 components), there were a couple items that cross load. Three items from mood were dropped (M\_4, M\_5, & M\_6), as three items loaded onto a new factor. One item from pleasure (PL\_5) was dropped as it cross loaded with mood. The results of the factor analysis are provided in Table 3.

The constructs used for this experiment were also individually examined for construct reliability using SPSS 26. This step assesses the reliability of the found factors from EFA using all the valid cases ( $N = 178$ ). Cronbach's alphas are used to determine the initial reliability of the construct measures. The Cronbach's Alpha for each construct is provided in Table 4.

#### **4.2 Determining the Rated Items**

There needs to be a sufficient sample size for statistical power which is the likelihood that the observed effects are the true values (Kyriazos, 2018). If the sample size is too low, the correlation estimates may be more sensitive to outliers causing problems such as improper parameter estimates and model fit, thus effecting the validity of the results. Effect size is a parameter relating to power analysis that measures the strength of examined relationships. Since there needs to be a least 184 valid surveys for moderate effect size, none of the items had enough participants to meet this criterion. Therefore, only the items with the most ratings were selected to be examined.

Table 3. Rotated Component Matrix of the Factor Analysis with the Total Sample.

Item	Component								
	1	2	3	4	5	6	7	8	9
H1			0.845						
H2			0.805						
H3			0.824						
H4			0.751						
H5			0.827						
H6			0.788						
M1				0.907					
M2				0.917					
M3				0.802					
SA1					0.776				
SA2					0.762				
SA3					0.747				
SA4					0.535				
PR1								0.898	
PR2								0.824	
PR3								0.798	
PL1							0.631		
PL2							0.768		
PL3							0.702		
PL4							0.709		
SO1	0.826								
SO2	0.870								
SO3	0.863								
SO4	0.815								
SO5	0.853								
SO6	0.747								
VS1		0.763							
VS2		0.863							
VS3		0.798							
VS4		0.883							
VS5		0.899							
VS6		0.880							
NL1									0.818
NL2									0.622
NL3									0.772
ATC1						0.819			
ATC2						0.749			
ATC3						0.770			
ATC4						0.628			

N = 178; Extraction Method: Principal Component Analysis; Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 7 iterations; Factors included: health (H), mood (M), sensory appeal (SA), price (PR), pleasure (PL), sociability (SO), variety seeking (VS), nutrition label use (NL), and attitude towards color (ATC).

Table 4. Reliability Statistics of the Constructs (N = 178).

Construct	Cronbach's Alpha	N of Items
Health	0.905	6
Mood	0.906	3
Sensory Appeal	0.729	4
Pleasure	0.789	4
Price	0.805	3
Sociability	0.920	6
Variety Seeking	0.927	6
Nutrition Label	0.742	3
Attitude Towards Color	0.756	4

Table 5 provides descriptive statistics detailing the number of participants by location and the menu items reported in this paper. The number of participants per locations were based on the count of marked “Yes” to having eaten at the respective restaurant. Chick-Fil-A had the most participants with a total of 158 valid surveys. The frequency for each menu item was based on the number of participants who has given a rating value to the menu item. The Chick-Fil-A Chicken Sandwich is the most rated entrée (155). The Chick-Fil-A sauces ratings were aggregated and averaged to increase the number of participants. The averaged ratings for Chick-Fil-A sauces had a total of 149 valid surveys and was the third highest rated item and tied with CFA-nuggets. Menu items from other locations (Panda Express, Moe’s Southwest Grill, Greens-To-Go, and Pizza Hut) were not considered for analysis due to the sample size being too small.

#### **4.3 PLS-SEM Model Assessment**

In PLS-SEM, the measurement model is considered the outer model, while the structural model is the inner model (Hair, Hollingsworth, et al., 2017; Wong, 2013).



Table 5. Number of Participants by Location and Menu Item.

	Frequency	Percent
Location		
Panda Express	120	67.42
Moe's Southwest Grill	128	71.91
Chick-Fil-A	158	88.76
Greens-To-Go	22	12.36
Pizza Hut	68	38.2
Selected Menu Items		
Parsed Chick-Fil-A Sauce	149	83.71
Chick-Fil-A Chicken Sandwich	155	87.08
Total Valid Cases	178	100.00

Model assessments were made for both the measurement and structural model. The measurements are examined individually for both target items to ensure validity was upheld in both cases, especially given differences in number of survey participants. The measurement items are checked to confirm that multicollinearity does not exist. Covariance with any construct hinders validity as this imposes bias on the measurement model.

A structural model was examined for both the aggregated and averaged rating values for the Chick-Fil-A sauces and for the regular Chick-Fil-A Chicken Sandwich. Significant relationships and path coefficients assist in determining the drivers of customers' liking for different food groups. With respect to the items analyzed, the results can reveal changes in consumer behavior with Chick-Fil-A sauces against the regular Chick-Fil-A Chicken Sandwich. The path coefficients were examined using bootstrapping with 300 iterations and 5,000 sub-samples. As the relationships indicate directionality, a two-tailed test was used.

### 4.3.1 Chick-Fil-A Sauces

This section will detail the measurement and structural model analysis for the average Chick-Fil-A Sauces as the dependent variable.

#### **4.3.1.1 Analysis of measured control variables.**

The control variables were examined to determine any significant relationships with the parsed Chick-Fil-A sauces as the dependent variable. There were no significant relationships with any of the control variables towards food choice rating, after running a simple linear regression with SPSS 26 (IBM, 2019). Therefore, the control variables were not included in the structural equation analysis for the parsed Chick-Fil-A sauce ratings. The output from SPSS is given in Table 6.

Table 6. Effect for Path Coefficients for Control Variables (Average Chick-Fil-A Sauce Ratings).

	Path Coefficient ( $\beta$ )	T-Stat	P-Value
Age -> Food Choice Rating	0.111	1.131	0.260
Gender -> Food Choice Rating	-0.138	-1.669	0.097
Marital Status -> Food Choice Rating	-0.011	-0.114	0.909
Race -> Food Choice Rating	0.027	0.330	0.742

N = 149

#### **4.3.1.2 Measurement model analysis.**

SmartPLS (Ringle et al., 2015) uses the outer model to test for reliability and validity of the scale indicators. With latent variables, the outer loadings are evaluated for measurement reliability to determine precision and consistency (Hair, Hult, et al., 2017; Wong, 2013). Construct reliability and validity was established using Cronbach's alpha

and AVE after bootstrapping. The combination of the measurements Cronbach's Alpha and AVE are evaluated to reflect a better estimation for the reliability of reflective measures, considering that the sole use of Cronbach's alpha may under or overestimate the true score variance. The AVE should load at 0.5 or higher (Fornell & Larcker, 1981; Hair et al., 2020). Discriminant validity refers to items that measure the respective construct as intended and are adequately differentiated from items measuring theoretically different constructs (Peter, 1981). Discriminate validity is established by comparing the correlations between the constructs and the variance explained by a particular construct. This comparison was determined in accordance with the Fornell-Larcker Criterion (Hair, Hult, et al., 2017; Wong, 2013). There were no correlations between latent constructs for either the of the selected food, suggesting the latent factors used in the study are distinctly different from each other.

Convergent validity for the constructs and associated items was assessed by examining factor loadings and factor correlations against the AVE score. Based on the specifications of confirmatory composite analysis, items that display convergent validity with bootstrapping should have standardized loading values of at least 0.708 and below 0.95 with an associated t-statistic above  $\pm 1.96$  for a two-tailed test at the 5% level (Hair et al., 2020; Hair et al., 2010). Initially, nine indicators did not meet this convergent validity threshold with the model for the parsed average Chick-Fil-A sauces: two indicators from sensory appeal (SA3 & SA4), one indicator from pleasure (PL1), one indicator for price (PR3), one indicator from nutrition label use (NL2), and all the items for attitude towards color were below 0.708 and dropped. The AVE should load at 0.5 or higher (Fornell & Larcker, 1981). All the constructs' AVE load above 0.50. Overall, the

constructs examined for the computed average Chick-Fil-A sauces demonstrate strong reliability and convergent validity. The final results of the construct reliability and convergent validity for all constructs with the average Chick-Fil-A sauce ratings are given in Table 7. The correlation matrix that was used to check for discriminant validity is given in Table 8.

#### **4.3.1.3 Structural model analysis.**

The structural model, or inner model, was examined for variable variance, coefficient sizes and significance. Structural path significance was examined by bootstrapping (Hair, Hult et al., 2017; Hair et al., 2020; Hair et al., 2018; Wong, 2013). The  $R^2$  was assessed using values of 0.750, 0.500, and 0.250 for substantial, moderate, and weak values, respectively (Hair et al., 2018). For the parsed average Chick-Fil-A sauce rating model, health was a significant endogenous construct (adjusted  $R^2 = 0.159$ ), which indicated that 15.900% of the variance in health is explained by the latent variable nutrition label use with a moderate Cohen's value ( $f^2 = 0.135$ ) (Ringle et al., 2014; Selya et al., 2012).

The path coefficients were examined with bootstrapping with 300 iterations and 5,000 samples. As the relationships indicate directionality, a two-tailed test was used. Only direct paths were analyzed with this experiment. Moderating relationships were not examined. The average Chick-Fil-A sauce rating model reveals four significant relationships where two are significant to this food choice rating. Hypothesis 8, stating that variety seeking has a positive relationship towards food choice rating was supported ( $\beta = 0.190$ ,  $t = 2.047$ ,  $p < 0.05$ ). Hypothesis 10, stating that pleasure has a positive relationship towards sensory appeal, was supported ( $\beta = 0.222$ ,  $t = 2.239$ ,  $p < 0.05$ ).

Hypothesis 14, stating that mood has a positive relationship towards food choice rating, was not supported but is significant in the opposite direction ( $\beta = -0.195$ ,  $t = 2.135$ ,  $p < 0.05$ ). Hypothesis 19, stating that nutrition label use has a positive relationship towards health, was supported ( $\beta = 0.342$ ,  $t = 4.873$ ,  $p < 0.001$ ). The results for the parsed Chick-

Table 7. Construct Reliability and Validity (Average Chick-Fil-A Sauce Ratings).

Construct	Item	Standardized Loading	AVE	Cronbach's Alpha
Heath (H)	H1	0.864	0.706	0.919
	H2	0.916		
	H3	0.922		
	H4	0.813		
	H5	0.774		
Mood (M)	M1	0.934	0.856	0.916
	M2	0.947		
	M3	0.894		
Sensory Appeal (SA)	SA1	0.940	0.793	0.752
	SA2	0.838		
Pleasure (PL)	PL2	0.803	0.731	0.817
	PL3	0.867		
	PL4	0.892		
Price (PR)	PR1	0.833	0.828	0.832
	PR2	0.982		
Sociability (SO)	SO1	0.763	0.683	0.909
	SO2	0.835		
	SO3	0.880		
	SO4	0.815		
	SO5	0.879		
	SO6	0.780		
Variety Seeking (VS)	VS1	0.812	0.731	0.926
	VS2	0.879		
	VS3	0.798		
	VS4	0.888		
	VS5	0.885		
	VS6	0.864		
Nutrition Label Use (NL)	NL1	0.896	0.840	0.812
	NL3	0.937		

N = 149; average variance extracted (AVE)

Table 8. Construct Correlation Matrix (Average Chick-Fil-A Sauce Ratings).

	FCR*	H	M	NL	PL	PR	SA	SO	VS
FCR*	1.00								
H	-0.059	0.84							
M	-0.199	0.071	0.925						
NL	-0.118	0.387	0.059	0.917					
PL	-0.054	-0.026	0.470	-0.083	0.855				
PR	0.133	-0.017	0.066	-0.116	0.228	0.910			
SA	-0.057	0.154	0.194	-0.070	0.285	0.044	0.891		
SO	0.009	-0.029	0.256	-0.071	0.475	0.067	0.175	0.827	
VS	0.148	0.247	0.003	0.194	-0.002	-0.062	0.015	0.173	0.855

N=149; \* Indicates a single item construct (aggregate average); Square root of AVE is located on the diagonal; Factors included: food choice rating (FCR), health (H), mood (M), nutrition label use (NL), pleasure (PL), price (PR), sensory appeal (SA), sociability (SO), and variety seeking (VS).

Fil-A sauces are presented in Table 9. It is important to emphasize that the results for Chick-Fil-A sauce reflect the averages of grouped rating values and do not reflect individual preferences of Chick-Fil-A sauces. Figure 4 provides an illustration of the significant paths with the parsed Chick-Fil-A sauces.

The overall model fit was examined with several measurements. The standardized root mean residual (SRMR) value should be less than 0.08, the normed fit index (NFI) value should be above 0.9 (Bentler & Bonett, 1980; L. Hu & Bentler, 1998), and the root mean square (RMS) theta should be below 0.12 (Henseler et al., 2014, 2015). For the average Chick-Fil-A sauce ratings, the SRMR (0.065) was below the threshold, but RMS theta (0.165) and NFI (0.725) did not meet the requirements as good model fit.

#### 4.3.2 Chick-Fil-A Chicken Sandwich

This section will detail the measurement and structural model analysis for the Chick-Fil-A Chicken Sandwich as the dependent variable.

Table 9. Total Effects for Path Coefficients (Average Chick-Fil-A Sauce Ratings).

	Path Coefficient ( $\beta$ )	Sample Mean	Standard Deviation	T-Stat	P-Values	Hypothesis Supported
SA -> FCR	-0.031	-0.035	0.085	0.360	0.719	No
PR -> FCR	0.145	0.143	0.086	1.679	0.093	No
H -> FCR	-0.041	-0.037	0.081	0.510	0.610	No
SO -> SA	0.041	0.060	0.085	0.486	0.627	No
SO -> PR	0.059	0.048	0.118	0.503	0.615	No
SO -> H	-0.053	-0.057	0.111	0.474	0.636	No
VS -> SA	0.019	0.010	0.093	0.202	0.840	No
VS -> FCR	0.190	0.194	0.093	2.047	0.041*	Yes
VS -> H	0.190	0.190	0.100	1.895	0.058	No
PL -> SA	0.222	0.226	0.099	2.239	0.025*	Yes
PL -> FCR	0.003	0.009	0.095	0.035	0.972	No
PL -> H	-0.003	-0.002	0.118	0.022	0.982	No
M -> SA	0.083	0.076	0.116	0.718	0.473	No
M -> FCR	-0.195	-0.193	0.091	2.135	0.033*	No <sup>1</sup>
M -> H	0.064	0.072	0.097	0.664	0.507	No
NL -> SA	-0.057	-0.057	0.091	0.631	0.528	No
NL -> FCR	-0.112	-0.113	0.092	1.219	0.223	No
NL -> PR	-0.112	-0.103	0.110	1.012	0.311	No
NL -> H	0.342	0.341	0.070	4.873	0.000***	Yes
NL -> PL	-0.083	-0.083	0.097	0.850	0.395	No

N = 149; \*  $p < 0.05$ ; \*\*\*  $p < 0.001$ ; Factors included: food choice rating (FCR), sensory appeal (SA), price (PR), health (H), sociability (SO), variety seeking (VS), pleasure (PL), mood (M), and nutrition label use (NL); 1 Relationship was significant but in the opposite direction of the hypothesis.

#### **4.3.2.1 Analysis of measured control variables.**

The control variables were examined again for the Chick-Fil-A Chicken Sandwich model to determine any significant relationships with the control variables to this selected menu item. Race was found to have a significant positive relationship towards food choice rating for this target item ( $\beta = 0.102$ ,  $t = 2.024$ ,  $p < 0.05$ ), after running a simple linear regression with SPSS 26 (IBM, 2019) and was included in the

structural model. The output is given in Table 10.

#### **4.3.2.2 Measurement model analysis.**

The combination of the measurements Cronbach's Alpha and AVE are used again for the Chick-Fil-A sandwich model to assess reliability. Following the Fornell-Larker Criterion (Hair, Hult, et al., 2017; Wong, 2013), correlations and variance between constructs are compared to determine discriminate validity. There were no correlations between latent constructs, suggesting the latent factors used for this model are distinctly different from each other.

Convergent validity for the constructs and associated items was also assessed for the Chick-Fil-A sandwich model by examining factor loadings and factor correlations against the AVE score. Nine indicators did not meet this convergent validity threshold

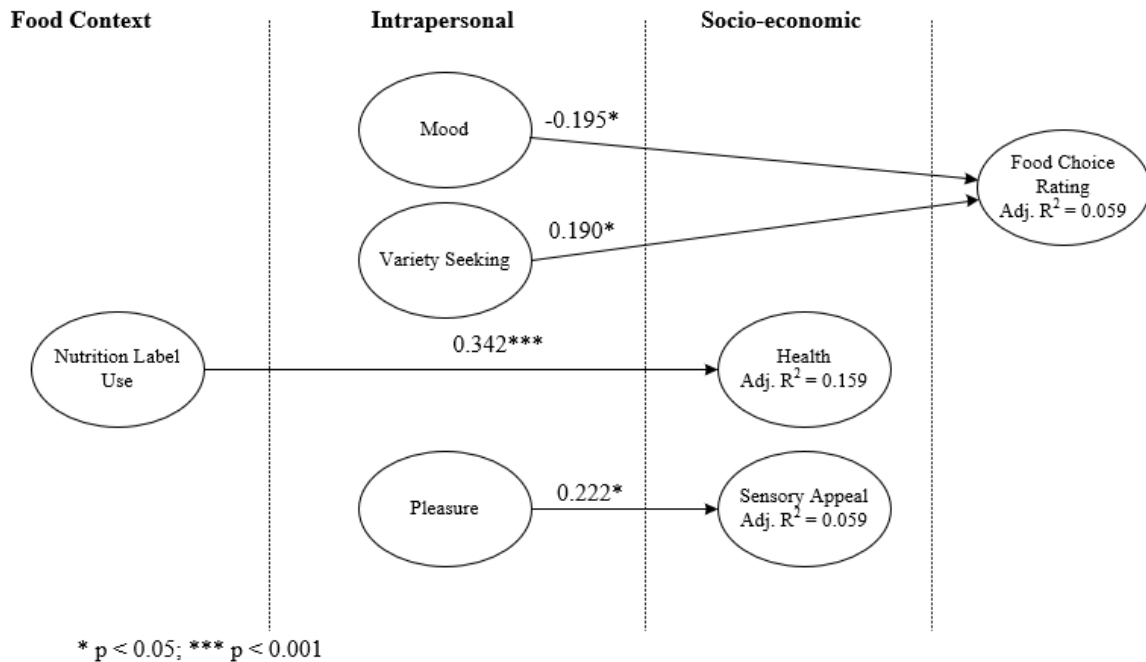


Figure 4. Structural Model (Avg. Chick-Fil-A Sauces) N = 149.



Table 10. Effect for Path Coefficients for Control Variables (Chick-Fil-A Chicken Sandwich Rating).

	Path Coefficient ( $\beta$ )	T-Stat	P-Value
Age -> Food Choice Rating	0.117	0.487	0.627
Gender -> Food Choice Rating	-0.145	-0.951	0.343
Marital Status -> Food Choice Rating	0.093	0.421	0.674
Race -> Food Choice Rating	0.102	2.024	0.045*

\*  $p < 0.05$

with the model for the Chick-Fil-A Chicken Sandwich: two indicators from sensory appeal (SA3 & SA4), one indicator from pleasure (PL1), one indicator for price (PR3), one indicator from nutrition label use (NL2), and all the items for attitude towards color were below 0.708. The items that did not meet the convergent validity criteria were dropped. Moreover, all the AVE scores are again within expected parameters. Overall, the constructs examined for the Chick-Fil-A sandwich demonstrate strong reliability and convergent validity. The results of the construct reliability and convergent validity for all constructs with the Chick-Fil-A sandwich are given in Table 11. The correlation matrix that is used to check for discriminant validity is given in Table 12.

#### **4.3.2.3 Structural model analysis.**

The inner, structural model generated for the Chick Fil A Chicken Sandwich rating reveals that race was no longer supported as a significant relationship towards food choice rating when other variables were included in the model ( $\beta = 0.161$ ,  $t = 1.695$ ,  $p > 0.05$ ). Hypothesis 10, states that pleasure has a positive relationship towards sensory appeal, was supported ( $\beta = 0.211$ ,  $t = 2.267$ ,  $p < 0.05$ ). Hypothesis 11, states that pleasure has a positive relationship towards food choice rating, was supported ( $\beta = 0.187$ ,  $t =$

Table 11. Construct Reliability and Validity (Chick-Fil-A Chicken Sandwich Rating).

Construct	Item	Standardized Loading	AVE	Cronbach's Alpha
Health (H)	H1	0.870	0.681	0.908
	H2	0.899		
	H3	0.891		
	H4	0.775		
	H5	0.782		
	H6	0.719		
Mood (M)	M1	0.928	0.853	0.914
	M2	0.942		
	M3	0.899		
Sensory Appeal (SA)	SA1	0.952	0.813	0.784
	SA2	0.849		
Pleasure (PL)	PL2	0.841	0.739	0.823
	PL3	0.858		
	PL4	0.880		
Price (PR)	PR1	0.813	0.819	0.835
	PR2	0.989		
Sociability (SO)	SO1	0.777	0.690	0.911
	SO2	0.843		
	SO3	0.874		
	SO4	0.816		
	SO5	0.879		
	SO6	0.790		
Variety Seeking (VS)	VS1	0.800	0.731	0.926
	VS2	0.873		
	VS3	0.808		
	VS4	0.886		
	VS5	0.886		
	VS6	0.875		
Nutrition Label Use (NL)	NL1	0.893	0.841	0.815
	NL3	0.941		

N = 155; average variance extracted (AVE)

2.071,  $p < 0.05$ ). Hypothesis 19, states that nutrition label use has a significant positive relationship towards health, was supported ( $\beta = 0.375$ ,  $t = 5.723$ ,  $p < 0.001$ ). The path

coefficients for the Chick-Fil-A sandwich model are given in Table 13.

Table 12. Construct Correlation Matrix (Chick-Fil-A Chicken Sandwich Rating).

	FCR*	H	M	NL	PL	PR	Race*	SA	SO	VS
FCR*	1.000									
H	0.000	0.825								
M	0.200	0.061	0.923							
NL	-0.085	0.415	0.036	0.917						
PL	0.239	-0.080	0.449	-0.087	0.860					
PR	-0.028	-0.050	0.096	-0.148	0.241	0.905				
Race*	0.151	0.048	0.000	-0.031	0.004	0.057	1.000			
SA	0.135	0.159	0.177	-0.047	0.247	0.042	-0.092	0.902		
SO	0.140	-0.046	0.251	-0.054	0.451	0.068	0.017	0.104	0.831	
VS	-0.027	0.211	-0.032	0.186	0.001	-0.091	-0.135	-0.014	0.174	0.855

N = 149; \* Indicates a single item construct; Square root of AVE is located on the diagonal; Factors included: food choice rating (FCR), health (H), mood (M), nutrition label use (NL), pleasure (PL), price (PR), sensory appeal (SA), sociability (SO), variety seeking (VS).

Moreover, health was also a significant endogenous construct (adjusted  $R^2 = 0.175$ ), which indicated that 17.500% of the variance in health are explained by nutrition label use with a moderate Cohen's value ( $f^2 = 0.166$ ). The significant paths and coefficients for the Chick-Fil-A sandwich model are illustrated with Figure 5. This discovery suggests that there is a probable causal relationship with sensory appeal to pleasure and from pleasure to food choice rating for the regular Chick-Fil-A sandwich when the directionality of pleasure and sensory appeal is reversed.

The overall model fit was examined with several measurements: SRMR, RMS, and NFI. The SRMR (0.064) score was under the threshold, but RMS theta (0.160), and NFI (0.725) not met to be considered a good model fit (Hair, Hult, et al., 2017).

Table 13. Total Effects for Path Coefficients (Chick-Fil-A Chicken Sandwich Rating).

	Path Coefficient ( $\beta$ )	Sample Mean	Standard Deviation	T-Stat	P-Values	Hypothesis Supported
Race -> FCR	0.161	0.155	0.095	1.695	0.090	No
SA -> FCR	0.081	0.082	0.087	0.929	0.353	No
PR -> FCR	-0.108	-0.109	0.084	1.297	0.195	No
H -> FCR	0.017	0.023	0.087	0.200	0.842	No
SO -> SA	-0.014	0.000	0.098	0.142	0.887	No
SO -> PR	0.060	0.046	0.123	0.484	0.628	No
SO -> H	-0.044	-0.049	0.113	0.393	0.695	No
VS -> SA	-0.003	-0.010	0.092	0.038	0.970	No
VS -> FCR	0.002	-0.003	0.089	0.025	0.980	No
VS -> H	0.152	0.160	0.095	1.603	0.109	No
PL -> SA	0.211	0.214	0.093	2.267	0.023*	Yes
PL -> FCR	0.187	0.194	0.090	2.071	0.038*	Yes
PL -> H	-0.070	-0.071	0.106	0.655	0.513	No
M -> SA	0.087	0.083	0.108	0.804	0.421	No
M -> FCR	0.115	0.108	0.097	1.176	0.240	No
M -> H	0.095	0.102	0.093	1.026	0.305	No
NL -> SA	-0.032	-0.033	0.092	0.345	0.730	No
NL -> FCR	-0.088	-0.086	0.094	0.934	0.350	No
NL -> PR	-0.145	-0.135	0.110	1.320	0.187	No
NL -> H	0.375	0.373	0.066	5.723	0.000***	Yes
NL -> PL	-0.087	-0.092	0.094	0.929	0.353	No

N = 149; \*  $p < 0.05$ ; \*\*\*  $p < 0.001$ ; Factors included: food choice rating (FCR), sensory appeal (SA), price (PR), health (H), sociability (SO), variety seeking (VS), pleasure (PL), mood (M), and nutrition label use (NL).

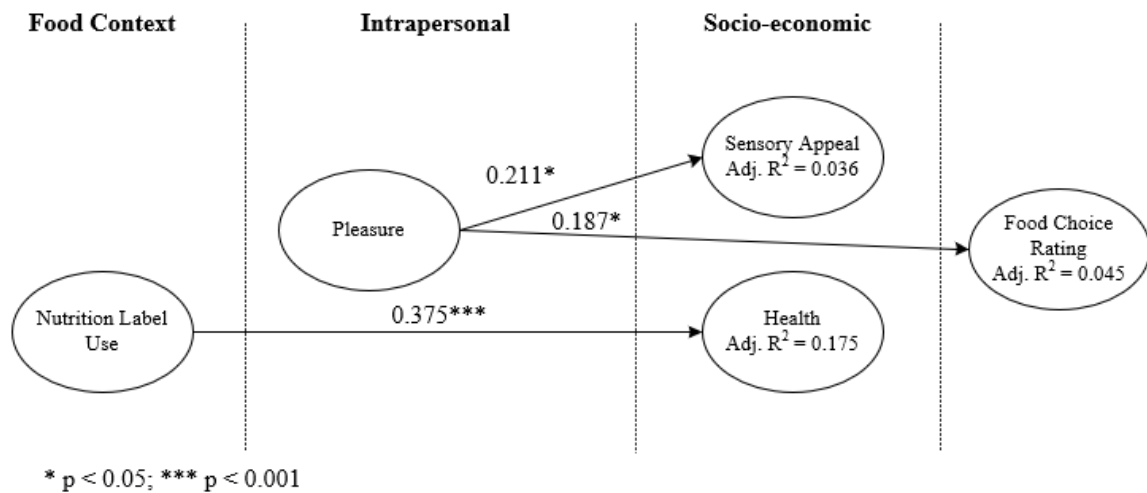


Figure 5. Structural Model (Chick-Fil-A Chicken Sandwich) N = 155.

## **CHAPTER V**

### **DISCUSSION**

This research tests the Framework for Casual Eating Behavior. The empirical results provide contributions to theory and practice. Lastly, limitations and future research will be discussed.

#### **5.1 Contribution to Theory**

The findings from the empirical analysis of the Framework for Casual Eating Behavior validate the overarching themes (food context, intrapersonal, socio-economic) and five relationships presented in Shepherd's (1985) research. This exploratory study provides guidance for future researchers regarding food preferences with the supported relationships. Two hypotheses ( $H_{10}$  and  $H_{19}$ ) were supported in both models. The rest of this section elaborates on each of the relationships.

Variety seeking ( $H_8$ ) had a positive relationship toward food choice rating was significant for the average Chick-Fil-A sauces. Our results imply that consumers who are variety seeking will give the Chick-Fil-A sauces a higher rating than consumers who are not variety seeking. The positive relationship with variety seeking towards food choice rating implies that there is a linear positive reward, intrapersonal motivation, or subjective need for a collection of sauces (McAlister & Pessemier, 1982). Armelagos

(2010) and Lenglet (2018) note that consumers who are variety seeking tend to be risk takers. Armelagos (2010) related variety seeking in an anthropological setting explaining the risks associated with omnivores having a variety of options resulting in an omnivore's dilemma. The sample of undergraduate college students for this study suggests that Chick-Fil-A sauce consumers are risk takers.

Pleasure (H<sub>10</sub>) had a positive relationship towards sensory appeal was supported with both Chick-Fil-A sauces and Chick-Fil-A sandwich. Prior research by Helander and Khalid (2006) suggests that this relationship would be part of the intuitive aspect of dual processing. Intuitive processing are decisions based off previous experiential experiences rather than decisions guided by cognitive evaluation of knowledge and information. Consumers who have a pleasure-seeking disposition are more likely to be attracted to sensory attributes which guides their decision-making process. The examined relationship suggests that pleasure is an additive component of one's subjective evaluation (Westbrook, 1980, 1987) and helps defend the connection between the intrapersonal and socio-economic themes.

Pleasure (H<sub>11</sub>) had a positive relationship towards food choice rating was supported with the Chick-Fil-A chicken sandwich model. The positive relationship suggests that the Chick-Fil-A sandwich evokes a pleasant feeling while it was consumed. It can be inferred that the Chick-Fil-A chicken sandwich had palatable food properties which are often considered to be desirable to those who have pleasure-seeking traits (Helander & Khalid, 2006; Pettigrew, 2016). As pleasure seeking individuals desire a rewarding feeling, one's gratification is an important element to consider for a better understanding one's subjective need in food choice (Heathwood, 2018; Lin, 2020;

Pallies, 2021).

While the original hypothesis (H<sub>14</sub>) was not supported, mood had a significant negative relationship toward food choice for the average Chick-Fil-A sauce. This suggests that consumers at Chick-Fil-A are less likely to consider choosing sauces as comfort food (Spence, 2017). People often seek comfort food to relieve negative emotional states as different food items, such as aromas and spices, may provide pleasant hedonic responses that help with coping (Gardner et al., 2014; Köster & Mojet, 2015). Moreover, the negative relationship from mood to sauces indicates that consumers are more likely to consume sauces for optimal reward stimulation rather than an affective matching of their mood (Lenglet, 2018; Poor et al., 2012).

Nutrition label use (H<sub>19</sub>) had a positive relationship towards health was supported for both the Chick-Fil-A sauces and Chick-Fil-A chicken sandwich models. This finding reinforces the causal role of food context pertaining to Knowledge Attitude Behavior Theory (Fabrigar et al., 2006; Orji et al., 2012). Christoph et al. (2016) previously noted nutrition label use was associated with attitude towards healthy eating among college students and young adults. Results suggest that attitude towards health may be formulated as an expectation from precluding contextual variables (Dacremont & Sester, 2019), such as nutrition labels. Ultimately, nutrition label use is likely to not directly influence food choice rating, rather it is more likely to influence one's attitude towards food choice (Meiselman, 1996).

The findings relating to intrapersonal factors contribute to the understanding of computer artificial neural processing of hedonic sensory experiences (Krishna & Schwarz, 2020). Mood, pleasure, and variety seeking are inherit to feelings and

sensations (Ji et al., 2013; McAlister & Pessemier, 1982; Mukherjee et al., 2017) and . appear to have a strong influence on affective processing of menu items. When the target item is evaluated, in terms of liking, including intrapersonal elements can help model affective activation of neurons (Westerman et al., 2015). The supported relationships from the intrapersonal theme indicate that the two menu items analyzed have a pleasure giving hedonic tone (Smuts, 2011).

## **5.2 Contribution to Practice**

This body of work contributes to information systems and hospitality research. Information filtering systems, such as recommender systems, without empirical guidance on anticipated liking of suggested items are difficult to gain wide acceptance. The significant hypotheses regarding subjective need observed by Chick-Fil-A sauces and chicken sandwich can provide insights to an affective and pleasurable design for applications or menu recommendation systems. Matching the subject need helps attract the consumer to their desired menu items. This could result in better overall satisfaction of menu items or applications.

More specifically, the results provide practitioners with insights especially with respect to the chicken sandwich and sauces. Results suggest that undergraduate students likely have a predisposition to seek immediate gratification and are likely attracted to items that appeal to their subjective need. So, it may be beneficial for university student union food courts to emphasize a variety of flavorful and savory attributes from their menu items. Emphasizing variation in sauces and ingredients may help with a more appealing food court ultimately leading to higher food choice ratings.



### **5.3 Limitations and Future Research**

There are a few limitations. One, the sample size is not large enough to adequately detect effect. While there were two items tested, it is important to emphasize that the average Chick-Fil-A sauce and Chick-Fil-A chicken sandwich ratings do not meet the recommended sample size of 184 participants (Soper, 2019). The sample size was considerably reduced with Covid-19 regulations. A greater sample size should increase the variance of menu item ratings. Since this was not a controlled experiment, there is likely bias in the self-selection of the menu items. The demographics are not representative of the student population and may not be generalizable to other populations since this was a convenience sample (Institute of Education Sciences, 2019).

To address the first limitation, more data is needed to test an extended Framework for Casual Eating Behavior. Future work will build upon these findings to expand and explore other factors that might be involved and propose an improved behavioral-based theory as decision support for menu item offerings. Researchers should consider extending the Framework for Causal Eating Behavior, expanding the grounding theories, and applying data mining methods as solutions to improve the understanding of consumer behavior. Knowledge to attitude-behavior consistency as well as Hybrid Theory concerning phenomenology heterogeneity should be key areas of focus with future iterations. Separating intrapersonal and cognition is a weak point with affective modeling and may provide a competitive advantage if successfully integrated (Helander & Khalid, 2006; Krishna & Schwarz, 2020).

Researchers should consider incorporating the Hybrid Theory to improve the Framework for Casual Eating Behavior. Lin (2020) suggests that satisfied beliefs, desires,

and core pleasures from target objects should be considered together as an overall explanation of gratification. According to Hybrid Theory, the pleasure of hedonic experiences is not only constituted by the distinctive feeling of the pleasure itself, but rather partly perceived by favorable desires and beliefs towards the object. The combination of complementary items as interconnected components consumed with the meal likely constitutes a larger pleasure giving experience. It may be beneficial to integrate the functional and affective design model with algorithm development for menu recommendation systems. Cold starts could be reduced by extending the Framework for Casual Eating Behavior as an affect design model resulting by uncovering preferences in the users.

#### **5.4 Conclusion**

This study empirically tested the Framework for Casual Eating Behavior. The literature review was conducted to find relevant constructs of eating behavior to propose and test the Framework for Casual Eating Behavior. The three underlying themes identified were: food context, intrapersonal, and socio-economic. The Theory of Planned Behavior (Ajzen, 1991) and Social Determinants of Food Choice (Shepherd, 1985) guided the development of the empirical model. Rated menu items were used as the dependent variable for the study.

Students at a southeastern university were invited to respond to a survey consisting of the menu items from restaurants at the university. The students were asked to give ratings for the menu item(s) they have eaten and respond to measurement items relating to the constructs for this study. A total of 235 students responded to the survey.

We removed participants for incorrectly responding to the attention factor questions, not answering the control variables, missing or incomplete data for additional construct variables, and not rating at least one menu item. The remaining 178 participants for our subsequent analyses resulted in a 75% completion rate.

Moreover, the valid data was examined for construct reliability as well as convergent and discriminant validity. The hypotheses for this study were examined using PLS-SEM to determine causality. The results overall reveal four supported hypotheses: H<sub>8</sub>, variety seeking has a positive relationship towards food choice rating; H<sub>10</sub>, pleasure has a positive relationship towards sensory appeal; H<sub>11</sub>, pleasure has a positive relationship towards food choice rating; H<sub>19</sub>, nutrition label use has a positive relationship towards health. While hypothesis 14, mood has a positive relationship towards food choice rating, was not supported, it was significant in the opposite direction as proposed. Future work will build on partially supported themes by focusing on areas such as Attitude Behavior Theory and Hybrid Theory. Researchers should focus on mental affective modeling of hedonic responses as the intrapersonal theme had the most support.

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## **APPENDICES**

## Appendix A: IRB Form

irb@southalabama.edu



TELEPHONE: (251) 460-6308  
AD 240 · MOBILE, AL. 36688-0002

### INSTITUTIONAL REVIEW BOARD

October 15, 2020

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Principal Investigator: David Bourrie, Ph.D.  
IRB # and Title: IRB PROTOCOL: 20-378  
[1652714-1] Framework for Casual Eating Behavior  
Status: APPROVED      Review Type: Exempt Review  
Approval Date: October 15, 2020      Submission Type: New Project  
Initial Approval: October 15, 2020      Expiration Date:  
Review Category: 45 CFR 46.104 (d)(2): Research that only includes interaction involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior (including visual or auditory recording):  
  
ii. Any disclosure of the human subjects' responses outside of the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation

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*This panel, operating under the authority of the DHHS Office for Human Research and Protection, assurance number FWA 00001602, and IRB Database #00000286, has reviewed the submitted materials for the following:*

1. *Protection of the rights and the welfare of human subjects involved.*
2. *The methods used to secure and the appropriateness of informed consent.*
3. *The risk and potential benefits to the subject.*

The regulations require that the investigator not initiate any changes in the research without prior IRB approval, except where necessary to eliminate immediate hazards to the human subjects, and that **all problems involving risks and adverse events be reported to the IRB immediately!**

Subsequent supporting documents that have been approved will be stamped with an IRB approval and expiration date (if applicable) on every page. Copies of the supporting documents must be utilized with the current IRB approval stamp unless consent has been waived.

#### Notes:

## Appendix B: Survey

You are invited to consider participating in this research study. The purpose of this study is to explore why people like what they eat. The information provided from this study may help to empirically test a theoretical model. In order to participate, you must be at least 19 years of age.

If you chose to participate in this study, you will be asked to respond to questions regarding your preference in food. The survey is expected to take no longer than 10 minutes to complete. Participation will remain anonymous and no identifying data will be collected. The information collected will be in a locked file. Only researchers of this study will have access to the information provided.

You have rights as a research participant. Your participation in this research is entirely voluntary. It is your choice whether to participate or not. You may withdraw from this study at any point in time without consequence. All research with human participants is reviewed by a committee called the Institutional Review Board (IRB) which works to protect your rights and welfare. If you have questions about your rights, an unresolved question, a concern, or complaint about this research you may contact the IRB office at 251-460-6308, toll-free at 866-511-6509 or via email at [irb@southalabama.edu](mailto:irb@southalabama.edu). You may also contact Dr. David Bourrie at 251-461-1761 or via e-mail at [dbourrie@southalabama.edu](mailto:dbourrie@southalabama.edu).

If you participate in this research, you will be included in 15 drawings for a chance at winning one of 15 Amazon Gift Cards each valued at \$20. You will be contacted by e-mail if you are selected.

### ELECTRONIC CONSENT:

Clicking on the "I agree to participate." button below indicates that:

1. You are at least 19 years of age.
2. You voluntarily agree to participate.
3. You have read the above information.

If you do not wish to participate in the research study. Please decline the participation by clicking on the "I do not agree to participate." button.

- I agree to participate. (1)
- I do not agree to participate. (2)

*Skip To: End of Survey If You are invited to consider participating in this research study. The purpose of this study is to... = I do not agree to participate.*

Are you at least 19 years of age?

- Yes (1)
- No (2)

*Skip To: End of Survey If Are you at least 19 years of age? = No*

It is important to me that the food I eat on a typical day...

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
contains a lot of vitamins and minerals. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
keeps me healthy. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
is nutritious. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
is high in protein. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
is good for my skin/teeth/hair/nails etc. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
is high in fiber and roughage. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
helps me cope with stress. (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
helps me cope with life. (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
helps me relax. (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

It is important to me that the food I eat on a typical day...

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
keeps me awake/alert. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
cheers me up. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
makes me feel good. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

smells nice. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
looks nice. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mark "agree" for this question.(6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
has a pleasant texture. (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
tastes good. (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
is not expensive. (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
is cheap. (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
is good value for money. (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### I eat what I eat...

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
because I enjoy it. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
in order to indulge myself. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it puts me in a good mood. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
in order to reward myself. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it is fun to eat. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it is social. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
so that I can spend time with other people. (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it makes social gatherings more comfortable. (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it is pleasant to eat with others. (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Mark "somewhat disagree" for this question. (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it makes a social gathering more enjoyable. (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because it facilitates contact with others (e.g. at business meals, events). (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please answer with the amount you agree with the following statements:

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
When I eat out, I like to try the most unusual items, even if I am not sure I would like them. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think it is fun to try out food items one is not familiar with. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am eager to know what kind of food people from other countries eat. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like to eat exotic foods. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Items on the menu that I am unfamiliar with make me curious. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am curious about food products I am not familiar with. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please answer with the amount you agree with the following questions:

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
When you purchase a food product for the first time, do you look at the Nutrition Facts label on the package? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Would you purchase a food item with a health claim statement on the front label rather than the same or similar item with no health claim statement on the label? (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When you eat a food, do you use the information on the Nutrition Facts label to help you fit that food into your daily diet? (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please answer with the amount you agree with the following statements.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I prefer silver to other colors. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like the color silver. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I like silver clothes. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I hope my next car is silver. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



What is your age?

- ☐ 19-24 years old (1)
- ☐ 25+ years old (2)

What is your gender?

- ☐ Male (1)
- ☐ Female (2)
- ☐ Other (3)

What is your marital status?

- ☐ Single (1)
- ☐ Married (2)
- ☐ Separated (3)
- ☐ Divorced (4)

Would you describe yourself as:

- ☐ American Indian/ Native American (a member of any of the indigenous peoples of North, Central, and South America) (1)
- ☐ Asian (a person having origins from the Far East, Southeast Asia, or the Indian subcontinent such as Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam) (2)
- ☐ Black/African American (a person having origins in any of the Black racial groups of Africa such as Kenyan, Nigerian, Jamaican, Ethiopian, or Haitian) (3)
- ☐ Hispanic/Latino (a person having origins from Latin American countries especially Cuba, Mexico, or Puerto Rico) (4)
- ☐ White/Caucasian (a person having origins from Europe, the Middle East, or North Africa such as Irish, German, Italian, Lebanese, Arab, or Moroccan) (5)
- ☐ Pacific Islander (a native or inhabitant of one of the islands in the Pacific Ocean such as Hawaii, Guam, Samoa, Melanesia, Micronesia, or Polynesia) (6)
- ☐ Other (7) \_\_\_\_\_

Mark “Probably not” for this question.

- ☐ Definitely yes
- ☐ Probably yes
- ☐ Might or might not
- ☐ Probably not
- ☐ Definitely not

Did you eat at Panda Express?

- ☐ Yes (1)

- No (2)

*Display This Question:*

*If Did you eat at Panda Express? = Yes*

Please rate the following entrées from Panda Express. Mark N/A if you have not tried the entrée.

	Dislike a great deal (1)	Dislike a moderate amount (2)	Dislike a little (3)	Neither like nor dislike (4)	Like a little (5)	Like a moderate amount (6)	Like a great deal (7)	N/A (8)
Orange Chicken (1)	○	○	○	○	○	○	○	○
Kung Pao Chicken (3)	○	○	○	○	○	○	○	○
Mushroom Chicken (4)	○	○	○	○	○	○	○	○
Beijing Beef (5)	○	○	○	○	○	○	○	○
Broccoli Beef (6)	○	○	○	○	○	○	○	○
Honey Walnut Shrimp (8)	○	○	○	○	○	○	○	○
Grilled Teriyaki Chicken (9)	○	○	○	○	○	○	○	○

*Display This Question:*

*If Did you eat at Panda Express? = Yes*

Please rate the following side choices from Panda Express. Mark N/A if you have not tried the side.

	Dislike a great deal (1)	Dislike a moderate amount (2)	Dislike a little (3)	Neither like nor dislike (4)	Like a little (5)	Like a moderate amount (6)	Like a great deal (7)	N/A (8)
Chow Mein (1)	○	○	○	○	○	○	○	○
White Steamed Rice (2)	○	○	○	○	○	○	○	○
Mixed Vegetables (3)	○	○	○	○	○	○	○	○
Fried Rice (4)	○	○	○	○	○	○	○	○

Chicken Egg Roll (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Veggie Spring Rolls (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cream Cheese Rangoons (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Crispy Shrimp (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*Display This Question:*  
*If Did you eat at Panda Express? = Yes*

Please rate the following sauces from Panda Express. Mark N/A if you have not tried the sauce.

	Dislike a great deal (1)	Dislike a moderate amount (2)	Dislike a little (3)	Neither like nor dislike (4)	Like a little (5)	Like a moderate amount (6)	Like a great deal (7)	N/A (8)
Teriyaki Sauce (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sweet and Sauce (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Chili Sauce (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Soy Sauce (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pot sticker Sauce (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hot Mustard (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plum Sauce (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Did you eat at Moe's Southwest Grill?

- ☐ Yes (1)
- ☐ No (2)

*Display This Question:*  
*If Did you eat at Moe's Southwest Grill? = Yes*

Please rate the following menu items from Moe's Southwest Grill. Mark N/A if you have not tried the menu item.

	Dislike a great deal (1)	Dislike a moderate amount (2)	Dislike a little (3)	Neither like nor dislike (4)	Like a little (5)	Like a moderate amount (6)	Like a great deal (7)	N/A (8)
Burrito (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Salad/Bowl (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stack (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nachos (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quesadilla (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Taco (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Queso (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hand Crafted Guacamole (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*Display This Question:*

*If Please rate the following menu items from Moe's Southwest Grill. Mark N/A if you have not tried t...  
[ Burrito ] (Recode) <= 7*

*Or Please rate the following menu items from Moe's Southwest Grill. Mark N/A if you have not tried  
t... [ Stack ] (Recode) <= 7*

*Or Please rate the following menu items from Moe's Southwest Grill. Mark N/A if you have not tried  
t... [ Quesadilla ] (Recode) <= 7*

What type of tortilla did you choose?

- ☐ Flour Tortilla (1)
- ☐ Whole Grain (2)

*Display This Question:*

*If Please rate the following menu items from Moe's Southwest Grill. Mark N/A if you have not tried t...  
[ Taco ] (Recode) <= 7*

What type of tortilla did you choose for your Tacos?

- ☐ Flour Tortilla (1)
- ☐ Whole Grain (2)
- ☐ Corn Tortilla (3)

*Display This Question:*

*If Please rate the following menu items from Moe's Southwest Grill. Mark N/A if you have not tried t...  
[ Burrito ] (Recode) <= 7*

*Or Please rate the following menu items from Moe's Southwest Grill. Mark N/A if you have not tried  
t... [ Salad/Bowl ] (Recode) <= 7*

*Or Please rate the following menu items from Moe's Southwest Grill. Mark N/A if you have not tried  
t... [ Stack ] (Recode) <= 7*

*Or Please rate the following menu items from Moe's Southwest Grill. Mark N/A if you have not tried*

t... [ Nachos ] (Recode) <= 7  
Or Please rate the following menu items from Moe's Southwest Grill. Mark N/A if you have not tried  
t... [ Quesadilla ] (Recode) <= 7  
Or Please rate the following menu items from Moe's Southwest Grill. Mark N/A if you have not tried  
t... [ Taco ] (Recode) <= 7

What meat choice did you choose for your meal from Moe's Southwest Grill?

- ☐ Chicken (1)
- ☐ Tofu (2)
- ☐ Ground Beef (3)
- ☐ Steak (4)
- ☐ Pork (Carnitas) (5)
- ☐ Veggie (6)

Display This Question:

If Please rate the following menu items from Moe's Southwest Grill. Mark N/A if you have not tried t... [ Burrito ] (Recode) <= 7  
Or Please rate the following menu items from Moe's Southwest Grill. Mark N/A if you have not tried t... [ Salad/Bowl ] (Recode) <= 7  
Or Please rate the following menu items from Moe's Southwest Grill. Mark N/A if you have not tried t... [ Stack ] (Recode) <= 7  
Or Please rate the following menu items from Moe's Southwest Grill. Mark N/A if you have not tried t... [ Nachos ] (Recode) <= 7  
Or Please rate the following menu items from Moe's Southwest Grill. Mark N/A if you have not tried t... [ Taco ] (Recode) <= 7  
Or Please rate the following menu items from Moe's Southwest Grill. Mark N/A if you have not tried t... [ Quesadilla ] (Recode) <= 7

What ingredients did you include on your meal from Moe's Southwest Grill?

- ☐ Shredded Cheese (1)
- ☐ Queso (2)
- ☐ Black Beans (3)
- ☐ Pinto Beans (4)
- ☐ Diced Onions (5)
- ☐ Fresh Jalapenos (6)
- ☐ Chopped Cilantro (7)
- ☐ Diced Tomatoes (8)
- ☐ Corn Pico (9)
- ☐ Grilled Onions (10)
- ☐ Grilled Peppers (11)
- ☐ Grilled Mushrooms (12)
- ☐ Diced Cucumbers (13)
- ☐ Black Olives (14)
- ☐ Shredded Lettuce (15)

- ☐ Pico de Gallo (16)
- ☐ Sour Cream (17)

Did you eat at Chick-fil-A?

- ☐ Yes (1)
- ☐ No (2)

*Display This Question:  
If Did you eat at Chick-fil-A? = Yes*

Please rate the following menu items from Chick-fil-A. Mark N/A if you have not tried the item.

	Dislike a great deal (1)	Dislike a moderate amount (2)	Dislike a little (3)	Neither like nor dislike (4)	Like a little (5)	Like a moderate amount (6)	Like a great deal (7)	N/A (8)
Chick-fil-A Chicken (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spicy Chicken (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Chick-fil-A Nuggets (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Waffle Potato Fries (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Waffle Potato Chips (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Chick-fil-A Biscuit (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bacon Biscuit (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Chick-n- Minis (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sausage Biscuit (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Hash Browns (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hot Buttered Biscuit (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fruit Cup (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Greek Yogurt Parfait (13)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Chocolate Chunk Cookie (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*Display This Question:*

*If Please rate the following menu items from Chick-fil-A. Mark N/A if you have not tried the item. [ Chick-fil-A Chicken ] (Recode) <= 7*

*Or Please rate the following menu items from Chick-fil-A. Mark N/A if you have not tried the item. [ Spicy Chicken ] (Recode) <= 7*

*Or Please rate the following menu items from Chick-fil-A. Mark N/A if you have not tried the item. [ Chick-fil-A Nuggets ] (Recode) <= 7*

Please rate the following sauces from Chick-Fil-A. Mark N/A if you have not tried the sauce.

	Dislike a great deal (1)	Dislike a moderate amount (2)	Dislike a little (3)	Neither like nor dislike (4)	Like a little (5)	Like a moderate amount (6)	Like a great deal (7)	N/A (8)
Chick-fil-A Sauce (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Polynesian (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Honey Mustard (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Garlic and Herb Ranch (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Zesty Buffalo (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Barbeque (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sweet and Spicy Sriracha (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*Display This Question:*

*If Please rate the following menu items from Chick-fil-A. Mark N/A if you have not tried the item. [ Greek Yogurt Parfait ] (Recode) <= 7*

For your Greek Yogurt Parfait from Chick-Fil-A, what topping did you choose?

- ☐ Granola (1)
- ☐ Cookie Crumble (2)

Did you eat at Pizza Hut?

- ☐ Yes (1)
- ☐ No (2)

*Display This Question:*

*If Did you eat at Pizza Hut? = Yes*

Please rate the following menu items from Pizza Hut. Mark N/A if you have not tried the item.

	Dislike a great deal (1)	Dislike a moderate amount (2)	Dislike a little (3)	Neither like nor dislike (4)	Like a little (5)	Like a moderate amount (6)	Like a great deal (7)	N/A (8)
9" Hand Tossed Cheese Pizza (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9" Hand Tossed Pepperoni Pizza (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Did you eat at Greens To Go?

- ☐ Yes (1)
- ☐ No (2)



*Display This Question:*

*If Did you eat at Greens To Go? = Yes*

Please rate the following salads from Greens To Go. Mark N/A if you have not tried the salad.

	Dislike a great deal (1)	Dislike a moderate amount (2)	Dislike a little (3)	Neither like nor dislike (4)	Like a little (5)	Like a moderate amount (6)	Like a great deal (7)	N/A (8)
Southwest Chicken Salad (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Marinated Beef Salad (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Greens Salad (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*Display This Question:*

*If Please rate the following salads from Greens To Go. Mark N/A if you have not tried the salad. [ Southwest Chicken Salad ] (Recode) <= 7*

*Or Please rate the following salads from Greens To Go. Mark N/A if you have not tried the salad. [ Marinated Beef Salad ] (Recode) <= 7*

*Or Please rate the following salads from Greens To Go. Mark N/A if you have not tried the salad. [ Greens Salad ] (Recode) <= 7*

What dressing did you choose for your salad from Greens To Go?

- ☐ Lite Italian Dressing (1)
- ☐ Lite Ranch Dressing (2)
- ☐ Balsamic Vinaigrette (3)
- ☐ Ranch Dressing (4)
- ☐ Buffalo Blue Dressing (5)
- ☐ Creamy Caesar Dressing (6)
- ☐ Blue Cheese Dressing (7)
- ☐ Olive Oil (8)
- ☐ Balsamic Vinegar (9)
- ☐ Salsa Ranch Dressing (10)

Enter your email in the space below for the raffling.

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## Appendix C: Menu Item Frequency Statistics

Table C1. Panda Express Menu Item Frequency Statistics Part 1.

Panda Express		Orange Chicken	Kung Pao Chicken	Mushroom Chicken	Beijing Beef	Broccoli Beef	Honey Walnut Shrimp	Grilled Teriyaki Chicken
N	Valid	106	74	65	72	84	73	92
	Missing	72	104	113	106	94	105	86
Mean		5.940	5.010	4.170	4.680	5.180	5.110	5.830
Std. Deviation		1.379	1.692	1.859	1.775	1.757	2.085	1.372
Skewness		-1.807	-0.841	-0.180	-0.586	-1.098	-0.934	-1.559
Std. Error of Skewness		0.235	0.279	0.297	0.283	0.263	0.281	0.251
Kurtosis		3.577	0.045	-0.965	-0.431	0.543	-0.381	2.673
Std. Error of Kurtosis		0.465	0.552	0.586	0.559	0.520	0.555	0.498

Table C2. Panda Express Menu Item Frequency Statistics Part 2.

Panda Express		Chow Mein	White Steamed Rice	Mixed Vegetables	Fried Rice	Chicken Egg Roll	Veggie Spring Rolls	Cream Cheese Rangoons
N	Valid	100	100	91	114	79	82	83
	Missing	78	78	87	64	99	96	95
Mean		5.600	5.220	5.350	5.440	5.060	5.090	5.330
Std. Deviation		1.815	1.709	1.629	1.790	1.828	1.926	1.988
Skewness		-1.505	-0.735	-1.046	-1.024	-0.793	-0.741	-1.056
Std. Error of Skewness		0.241	0.241	0.253	0.226	0.271	0.266	0.264
Kurtosis		1.383	-0.246	0.616	-0.026	-0.337	-0.587	-0.005
Std. Error of Kurtosis		0.478	0.478	0.500	0.449	0.535	0.526	0.523

Table C3. Panda Express Menu Item Frequency Statistics Part 3.

		Sweet and							
Panda Express		Crispy Shrimp	Teriyaki Sauce	Sour Sauce	Chili Sauce	Soy Sauce	Potsticker Sauce	Hot Mustard	Plum Sauce
N	Valid	55	89	74	51	93	47	44	48
	Missing	123	89	104	127	85	131	134	130
	Mean	4.890	5.720	5.700	4.310	5.440	4.620	3.610	3.830
	Std. Deviation	2.043	1.469	1.550	1.715	1.557	1.929	1.883	1.917
	Skewness	-0.807	-1.499	-1.479	-0.363	-1.160	-0.338	0.045	0.096
	Std. Error of Skewness	0.322	0.255	0.279	0.333	0.250	0.347	0.357	0.343
	Kurtosis	-0.415	2.332	1.956	-0.540	0.931	-0.874	-0.863	-0.841
	Std. Error of Kurtosis	0.634	0.506	0.552	0.656	0.495	0.681	0.702	0.674

Table C4. Moe's Southwest Grill Menu Item Frequency Statistics.

		Moe's Southwest Grill							Hand Crafted Guacamole
		Burrito	Salad/Bowl	Stack	Nachos	Quesadilla	Taco	Queso Rate	
N	Valid	102	94	77	85	95	77	116	96
	Missing	76	84	101	93	83	101	62	82
	Mean	5.970	6.130	6.050	5.800	6.200	5.900	6.330	5.210
	Std. Deviation	1.262	1.330	1.245	1.242	1.208	1.273	1.156	2.132
	Skewness	-1.631	-1.949	-1.235	-1.403	-1.874	-1.254	-2.667	-0.924
	Std. Error of Skewness	0.239	0.249	0.274	0.261	0.247	0.274	0.225	0.246
	Kurtosis	2.878	3.645	0.700	2.483	3.753	0.914	8.405	-0.598
	Std. Error of Kurtosis	0.474	0.493	0.541	0.517	0.490	0.541	0.446	0.488

Table C5. Chick-Fil-A Menu Item Frequency Statistics Part 1.

		Chick-Fil-A Chicken	Spicy Chicken	Chick-Fil-A Nuggets	Waffle Potato Fries	Waffle Potato Chips	Chick-Fil-A Biscuit	Bacon Biscuit	Chick-n-Minis
N	Valid	155	120	149	157	92	134	68	138
	Missing	23	58	29	21	86	44	110	40
	Mean	6.630	6.040	6.590	6.480	4.650	6.220	5.100	6.450
	Std. Deviation	0.695	1.497	0.870	1.023	1.812	1.159	1.971	1.108
	Skewness	-2.051	-1.661	-3.091	-2.852	-0.416	-1.433	-0.834	-2.697
	Std. Error of Skewness	0.195	0.221	0.199	0.194	0.251	0.209	0.291	0.206
	Kurtosis	4.081	2.136	13.020	10.467	-0.567	1.128	-0.366	7.993
	Std. Error of Kurtosis	0.387	0.438	0.395	0.385	0.498	0.416	0.574	0.410

Table C6. Chick-Fil-A Menu Item Frequency Statistics Part 2.

Chick-Fil-A		Sausage Biscuit	Hash Browns	Hot Buttered Biscuit	Fruit Cup	Greek Yogurt Parfait	Chocolate Chunk Cookie	Chick-fil-A Sauce	Polynesian
N	Valid	79	132	91	107	83	111	125	112
	Missing	99	46	87	71	95	67	53	66
Mean		5.200	5.850	6.070	6.140	5.730	5.930	5.950	6.130
Std. Deviation		1.735	1.475	1.348	1.209	1.578	1.571	1.631	1.656
Skewness		-0.683	-1.387	-1.680	-1.907	-1.495	-1.627	-1.532	-2.058
Std. Error of Skewness		0.271	0.211	0.253	0.234	0.264	0.229	0.217	0.228
Kurtosis		-0.527	1.586	2.991	4.203	2.037	2.056	1.411	3.274
Std. Error of Kurtosis		0.535	0.419	0.500	0.463	0.523	0.455	0.430	0.453

Table C7. Chick-Fil-A Menu Item Frequency Statistics Part 3.

Chick-Fil-A		Honey Mustard	Garlic and Herb Ranch	Zesty Buffalo	Barbeque	Sweet and Spicy Sriracha	Avg_CFA_Sauces
N	Valid	112	93	85	87	73	149
	Missing	66	85	93	91	105	29
Mean		5.630	5.160	4.790	4.820	4.450	5.609
Std. Deviation		1.714	1.913	2.048	1.840	1.893	1.229
Skewness		-1.440	-0.997	-0.593	-0.548	-0.227	-0.950
Std. Error of Skewness		0.228	0.250	0.261	0.258	0.281	0.199
Kurtosis		1.454	0.037	-0.716	-0.652	-0.953	0.906
Std. Error of Kurtosis		0.453	0.495	0.517	0.511	0.555	0.395

Table C8. Greens-To-Go Menu Item Frequency Statistics.

Greens-To-Go		9" Hand Tossed Cheese Pizza	9" Hand Tossed Pepperoni Pizza	Southwest Chicken Salad	Marinated Beef Salad	Greens Salad
N	Valid	57	56	18	9	17
	Missing	121	122	160	169	161
Mean		5.790	6.290	5.060	4.670	6.000
Std. Deviation		1.485	1.187	1.765	2.062	1.275
Skewness		-1.659	-2.683	-0.961	-0.746	-2.052
Std. Error of Skewness		0.316	0.319	0.536	0.717	0.550
Kurtosis		2.777	8.773	0.309	-0.212	5.517
Std. Error of Kurtosis		0.623	0.628	1.038	1.400	1.063

## **BIOGRAPHICAL SKETCH**

## **BIOGRAPHICAL SKETCH**

Name of Author: Austin W. Sanders

Graduate and Undergraduate Schools Attended:

University of South Alabama, Mobile, Alabama

Degrees Awarded:

Master of Science in Computer and Information Sciences, 2021

Bachelor of Science in Business Administration, 2019

Bachelor of Arts in Foreign Language, 2019

Awards and Honors:

Institutional Honors: Magna Cum Laude in 2019

Departmental Honors: Foreign Languages in 2019

Phi Sigma Iota International Foreign Languages Honor Society in 2019

I-Corps Innovation Scholar in 2018

Phi Kappa Phi National Honors Society in 2018

Beta Gamma Sigma International Business Honor Society in 2017

Phi Eta Sigma National Honor Society in 2015