An Eye-tracking study:
Do intrinsic and extrinsic cue words of locally grown food menu items associate with consumers' visual attention and menu item choice at hyper-local restaurants?

by

Yoonah Kim Conoly

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Approved by

Yee Ming Lee, Chair, Associate Professor of Nutrition, Dietetics, Hospitality Management
Baker M. Ayoun, Associate Professor of Nutrition, Dietetics, Hospitality Management
Ana Franco-Watkins, Associate Professor and Department Chair of Psychological Sciences
Chih-hsuan Wang, Associate Professor of Educational Foundations, Leadership, and Technology

Abstract

Consumers' interest in locally grown food is growing. However, there has been limited research exploring how certain cue words on menus could be eye-catching and correlate to consumers' food selection decision. Therefore, this research examined whether intrinsic (fresh) and extrinsic (local) cue words of locally grown food menu items associate with consumers' visual attention (TFD and FC) and menu choice of hyper-local restaurants' menus. Furthermore, consumers' visual attention (TFD and FC) to the cue words *fresh* and *local* menu items are compared by demographic characteristics (gender, age, and income). The study further investigated how the demographic characteristics of consumers influence visual attention to the intrinsic and extrinsic cue words *fresh* and *local* on locally grown food menu items. A total of 50 participants partook in this study which involved an eye-tracking experiment, followed by an online Qualtrics survey. For the eye-tracking experiment, Total Fixation Durations (TFDs) and Fixation Counts (FCs) were collected to measure how long consumers' attention lasted on the cue words on a restaurant menu randomly assigned to them. The online survey collected participants' familiarity, attitudes, and purchasing behavior related to locally grown food, as well as reasons behind their menu choice. The findings of this study showed that the participants associated *local* and *hyper local* with the words fresh, organic, healthy, support, and community. The results indicated that there was a relationship between FC on the extrinsic cue word *local* and subsequent menu choice. It appeared that the participants who chose the menu item with the word *local* looked at it more often than other words before making their final menu choice. In regard to demographic characteristics, there was a significant difference in FC between the age groups of 19-25 and over 25 on the intrinsic cue word *fresh* on menu items. Meanwhile, no

significant differences were detected for the other demographic characteristics. These findings suggested that the cue words *local* and *fresh* did not seem to be the main reason determining the participants' menu selection. An analysis of the reasons behind of menu selection revealed that other factors, such as attractive menu descriptions, personal preference and healthfulness could be more important to the participants. The findings suggested that hyper-local restaurants could attract the younger age group by highlighting the cue words *local* and *fresh* through various strategies such as a story marketing approach. Additionally, restauranteurs are advised to use well-crafted descriptions with the word *local* in their menu, as it will influence consumers' menu selections. Other descriptive words such as fresh, organic, healthy, support, and community that are closely related to the word *local* can be used together in menu descriptions.

Keywords: locally grown food, eye-tracking, hyper-local, intrinsic cue, extrinsic cue

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To my loving parents Dr. and Mrs. Iltae Kim

and parents-in-law Mr. and Mrs. Steven Conoly:

For their unconditional love, support, and prayers.

I thank God for sending all of you in my life to call as my parents.

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Table of Contents

List of Tables

List of Figures

CHAPTER 1 INTRODUCTION

1.1 Background

Consumers' interest in locally grown food has grown rapidly in recent years, as the "locavore" movement in the USA continues (Wunsch, 2020). According to Dictionary.com (2019), the word locavore is defined as "a person who makes an effort to eat food that is grown, raised, or produced locally, usually within 100 miles of home." Roughly 82 million respondents in the USA stated that they had bought locally grown food in the spring of 2015 (Wunsch, 2020). In 2014, more than a fifth of consumers responded by consuming local food twice a week when they were asked how frequently they consume local food (Wunsch, 2020). In the restaurant industry, restaurants include local food in their menu to take advantage of this trend as statistics show that consumers are willing to pay 5% more for local food (Statista, 2020). In 2016, the frequent theme in restaurants include selections of locally grown product such as meats and seafood (Wunsch, 2020). Similarly, the National Research Association (NRA) survey showed that some of the popular trends in the industry include local sourcing and sustainability (NRA, 2014).

Moreover, hyper-local food sourcing has been a leading trend since 2012, and it is still listed as one of the ten leading trends by the NRA culinary forecast in 2019 (NRA, 2019b). Hyper-local foods are grown in gardens of restaurants or products made in-house (NRA, 2019a). For instance, Uncommon Ground Restaurant in Chicago, Illinois, USA uses a rooftop garden to grow their produce for the restaurant (Uncommon Ground, 2019). The Irregardless Café in Raleigh, North Carolina, USA, uses a local community garden instead of a rooftop garden to cultivate their own produce. (Irregardless Café, n.d.). Ninety Acres Culinary Center in

Gladstone, New Jersey, USA, on the other hand, is a farm-to-table restaurant model that includes a 12-acre farm. (Natirar, n.d.).

Overall, these facts indicate that consumers' interests in locally grown food is increasing, as well as the popularity of hyper-local trends in the restaurant industry. Consumers are interested in purchasing locally grown food because these ingredients are perceived as fresher, thereby yielding better tasting, high-quality meals, and they want to support the local economy and jobs (Lang & Lemmerer, 2019). More specifically, consumers' positive perceptions of and purchase intentions for locally grown foods were influenced by both intrinsic and extrinsic cues. Extrinsic cues are the items that are somehow related to the product but are not part of the product itself. Examples of extrinsic cues include branding, product labeling, information available at the point of sale, product information, packaging, region of origin, and price (Lawley et. al, 2012). Consumers have recognized and associated the value of region of origin (local) with locally grown food (Aprile et al., 2016; Eastwood et al., 1987; Gallons et al., 1997; Patterson et al., 1999; Vieregge et al., 2007). On the other hand, intrinsic cues are defined as the inherent attributes of a product, such as freshness, appearance, color, odor, taste, and texture. Among these characteristics, freshness has recognized as an attribute that consumers often acknowledge when it comes to local food (Bruhn et al., 1992; Chambers et al., 2007; Feagan et al., 2004; Tregear & Ness 2005; Onozaka et al., 2010). Practically speaking, hyper-local restaurants can potentially leverage the use of these cues in their menus to better describe their food items and yield higher sales. However, limited studies have looked into this aspect.

In addition, most of the previous was research on locally grown food were limited to observing preferences, attitudes, and purchase intentions of consumers by using the survey method (Aprile et al., 2016; Bianchi & Mortimer 2015; Brown, 2003; Campbell, 2013; Campbell

et al., 2014; Eičaitė & Dabkienė 2015). While this survey method is useful, it has several disadvantages. First, when one is asked to self-report one's thinking and emotions, there is a possibility that they may not be truthful. Second, the truthfulness of some respondents' answers can be distorted because they may be unable to articulate their thoughts and feelings. Last, respondents' self-reported thoughts, feelings, and behaviors may not clearly reflect one's decision-making process because their feelings may function at subconscious levels (Oppenheim, 1992). Hence, Wedel and Pieters (2008a) highlighted the importance of capturing the visual attention of consumers.

Eye tracking has been used in realistic market setting to understand the focus of visual attention of consumer during their decision-making process (Wedel & Pieters, 2008a). This method collects information about eye movements and capture how individuals' responses to external sensory stimuli. Because the subconscious movement of eyes is guided by information valuable to the viewers, this method is known to help understand the mechanism of consumers' decision-making process (Bialkova et al., 2014; Wedel & Pieters, 2008a). Advantages of using eye tracker in research include its ability to provide objective and unbiased data and detect where and how long the viewers are actually looking for and focusing on something (Schewbler et al., 2018).

Research in the hospitality sector has utilized an eye-tracking method to capture consumers' visual attention to various hospitality products and services (Hao et al., 2015; Kim et al., 2018; Noone & Robson 2014; Pan et al., 2013; Schwebler et al., 2020; Yang 2012). In the hotel setting, Pan et al. (2013) examined presence of hotel images with number of hotel (five verses twenty listings) on the webpage page influence on visual attention of consumers by using an eye-tracking method. They found that participants spent more time when there were images

and assessed more hotels (twenty). Likewise, Noone and Robson (2014) observed browsing and deliberation stages of consumers during their online hotel selection process to determine influential factors. They stated the importance of hotel images during the hotel selection process as the average number of consumers' fixations on hotel images was high in the deliberation stage and vital in the browsing stage. Meanwhile Hao et al.'s study (2015) that focused on Chinese Generation Y suggested that this group of consumers may prefer a large main image and a small amount of texts when it comes to hotel websites. In summary, previous research discovered importance of images when customers view hotel websites by using an eye-tracking method.

In the restaurant context, the eye-tracking approach has been applied in areas related to menu labeling and design (Kim et al., 2018; Schewbler et al., 2018; Yang, 2012). For example, Kim et al. (2018) assessed the visual attention of consumers on three different calorie menu-labeling formats (numeric, color-coded, and physical activity-based) for fast-food menu items. The researchers concluded that the physical activity-based label format was more favored by consumers than the other two label formats. On the other hand, Schwebler et al. (2020) studied the impact of calorie disclosures and color-coding treatments used on Quick Service Restaurant (QSR) menu items by applying a two-group comparison method. Based on the average visit duration on the calorie Area of Interest (AOI), it was showed that calorie disclosures could influence consumers to change their food choices when they pay attention to it. However, the result of group two was insignificant. Yang (2012) researched the patterns of gaze motion and scanpaths of consumers on restaurant menus using eye-tracking method and showed that "sweet spots" (the spots looked at first, last and the most regularly on the menu) which are currently applied to restaurant menus design, do not seem to exist. However, Yang (2012) suggests "sour spots" might exist due to less attention being paid to the bottom of the menu. In conclusion, prior

findings were able to distinguish prominent aspects of information and designs presented in restaurant menus, as visual attention of consumers can vary.

1.2 Problem Statements

As a growing number of consumers are interested in locally grown food, it is important for the restauranteurs and researchers to understand more about consumer behavior and their decision making in this area. Previous studies on locally grown foods mostly focused on consumers' perceptions of locally grown foods, such as the perceived benefits and its relation to sustainability (Lang & Lemmerer, 2019; Quagrainie, Hart, & Brown, 2008), studies are lacking to link this to final menu choice. Furthermore, these studies were designed as online surveys and data was self-reported. Incorporating methods, such as eye-tracking, which combine visual data with a choice task could provide deeper insight into the process that leads to a final menu decision (Bialkova & van Trijp, 2010). Therefore, Total Fixation Duration (TFD) and Fixation Count (FC) were used in this research to measure consumers' visual attention. Fixation duration is referred to as TFD, and number of fixations is referred to as FC in this research.

Based on previous literature, it also appeared that the hyper-local restaurants could consider incorporating extrinsic and intrinsic cue words related to locally grown products on their menus to better describe their food items and strategically promote these items. However, the list of extrinsic and intrinsic cue words associated with locally grown food is exhaustive (Bruhn et al., 1992; Chambers et al., 2007; Feagan et al., 2004; Lawley et. al, 2012; Tregear & Ness 2005; Onozaka et al., 2010). Narrowing and understanding which extrinsic and intrinsic cue words are associated with locally grown food choice behaviors would be beneficial for restaurant operators to increase the sale of the intended food items featuring locally grown products. Also, there are limited studies investigating how the extrinsic and intrinsic cues could capture

consumers' attention, and consequently, affect their menu choice. Thus, this study was conducted to fill the research gaps with the following research objectives and research questions in mind.

1.3 Purpose of Study

This research aims to investigate whether intrinsic (fresh) and extrinsic (local) cue words of locally grown food menu items associate with consumers' visual attention (TFD and FC) and menu choice of hyper-local restaurants' menus. Furthermore, consumers' visual attention (TFD and FC) to the cue words *fresh* and *local* menu items are compared by demographic characteristics (gender, age, and income).

1.4 Research Questions

This study seeks to answer the following research questions:

(1) What words do the research participants associate with *local* and *hyper-local*?

(2) How do intrinsic (fresh) and extrinsic (local) cue words of locally grown food menu items associate with consumers' visual attention (TFD and FC) and menu choice of hyper-local restaurants' menus?

(3) How do the consumers' visual attention (TFD and FC) to the cue words *fresh* and *local* on menu items differ by demographic characteristics (gender, age, and income)?

1.5 Significance of the Study

In the field of food service provision, menu design is another well-known path of research (Filimonau & Krivcova, 2017). Early studies observed the position and presentation of restaurant menu items from the perspectives of profitability and cost optimization (Morrison, 1996; Raab and Mayer, 2007). As restaurant customers are concerned about obesity and becoming overweight and as public health interventions are enacted, the recent stream of research is

focused on menu re-design to influence customers' choices to become more socially responsible while dining out (Filimonau & Krivcova, 2017). Furthermore, other research examined the role of displaying the origin of food (provenance), methods of production, and information of allergens on the menu (Dupuis et al., 2016; Hartwell and Edwards, 2009). Nevertheless, such menu items were less thoroughly reviewed (Filimonau & Krivcova, 2017). Likewise, observing the role of displaying words (e.g., fresh and origin of food) in menu descriptions has not been well-researched. Therefore, it is necessary to better understand whether certain cue words could be useful in affecting consumers' menu choices at restaurants. This study focused on intrinsic (i.e., fresh) and extrinsic (i.e., local) cue words.

Based on the review of menu labeling requirements, there is no requirement for restaurants to include information about locally grown products in the restaurants. According to the U.S. Department of Agriculture (n.d.), the Country-of-Origin Labelling is a consumer labeling law. It commands stores (grocery stores and supermarkets) to classify the country of origin on specific foods known as "covered commodities." However, restaurants and other food service facilities (e.g., cafeterias, lunchrooms, and schools) are excluded from this (U.S. Department of Agriculture (n.d.). The findings of this study clarify whether extrinsic cues on region of origin, such as the word *local*, are necessary.

Findings from previous literature revealed the limitations of the survey method and dearth of eye-tracking research in restaurant menu call for more innovative research to verify consumers' menu item choices based on visual attention by using eye-tracking methods. Although these researchers have made great strides in restaurant eye-tracking research, more research needs to be done in the area of restaurant menus (particularly in the context of locally grown food) in response to an increase in consumers' interests and demand for locally grown food. This study

overcomes the limitations of using self-reported measure (Dowray et al., 2013; Mackison et al., 2010; Verbeke & Ward, 2006; Yepes, 2015) through the application of an innovative method that is known to be less subjected to bias. In addition, by measuring consumers' visual attentions, the research will reveal which intrinsic and/or extrinsic cues of locally grown food consumers pay attention to. Based on these findings, hyper-local restaurants could include these cues on their menus to better attract consumers who may show interest in purchasing food items that use locally grown ingredients. Furthermore, research findings could help restaurant managers communicate the benefits (e.g., freshness and locality) to their future customers. As this study also examines how do the consumers' visual attention (TFD and FC) to the cue words *fresh* and *local* on menu items differ by demographic characteristics, the findings clarified which groups of consumers would be more likely to be attracted by certain cues.

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CHAPTER 2 LITERATURE REVIEW

Overview

The chapter aims to provide the following information. First, locally grown food movement in the U.S. and its definitions were covered as background information. Second, the terms, intrinsic and extrinsic cues were introduced and defined to explain their relationship with locally grown food. Third, background information on current research theories and their relation to hypotheses development are explained. Lastly, the use of eye-tracking research in the hospitality industry was introduced.

2.1 The local food movement and the definition of local food

All food supplies in the USA were local before the 20th century, so the term local food was seldom used (Frash Jr et al., 2015). While local food initiative has not been thoroughly noted, Ikerd (2011) assumes that the 1960s natural food movement was its origin. As more individuals became conscious on the safety of processed food and environmental perils related to industrial farming, the natural food movement expanded between the 1970s and 1980s (Frash Jr et al., 2015). The lack of national and international food safety has led to a decline in consumers' trust in the modern industrialized food system in the 21st century (Morgan et al., 2006). In conclusion, Sims (2010) said that many consumers today feel isolated in regard to the systems of food production nowadays.

Definitions of local food are essential in order to understand this research context better, however a legally or internationally recognized definition of local food does not exist (Martinez et al., 2010). For example, a study of the attitudes and preferences of consumers concerning local food by Aprile et al. (2016) found no single commonly recognized definition of local food from their respondents in Naples, Italy. In general, local food is defined as food items that travel 400

miles or less from their original place or the state where it is produced (Martinez et al., 2010). The Canadian Food Inspection Agency endorses an interim policy identifying local as "food produced in the province or territory in which it is sold, or food sold across provincial borders within 50 km of the originating province or territory" (Government of Canada, Canadian Food Inspection Agency, Food Labelling and Claims Directorate, 2019). In conclusion, the two definitions are similarly based on the travel distance, although their distances vary.

2.2 Intrinsic and extrinsic cues

Consumers purchase locally grown food for a multitude of reasons. A variety of intrinsic and extrinsic cues are used by the consumers to evaluate the quality of food products (Hansen, 2005; Richardson et al., 1994; Steenkamp, 1990; Szybillo & Jacoby, 1974). Inherent attributes of a product including appearance, color, odor, taste, and texture define intrinsic cues. Consumers can appraise these inherent attributes objectively before and after trying the food products (Lawley et. al., 2012). In contrast, lower-level cues, also known as extrinsic cues, include branding, provided information at the point of sale, information on package, and price (Lawley et. al, 2012). The choices of consumers on products are influenced and strengthened by these extrinsic cues. (Veale & Quester, 2009). Previous research on locally grown food identifies that intrinsic cues such as freshness (Bruhn et al., 1992; Chambers et al., 2007; Feagan et al., 2004; Jekanowski et al., 2000; Onozaka et al., 2010), extrinsic cues such as health benefit (Aprile et al., 2016; Eičaitė & Dabkienė, 2015; Onozaka et al., 2010), and region of origin (local) (Aprile et al., 2016; Brown, 2003; Chambers et al., 2007; Eastwood et al., 1987; Gallons et al., 1997) develop positive perceptions and influence consumers' purchase intention.

2.2.1 Intrinsic cue (freshness) of local food

Consumers have been known to acknowledge the freshness of local food in previous research (Bruhn et al., 1992; Chambers et al., 2007; Feagan et al., 2004; Tregear & Ness 2005; Onozaka et al., 2010). One of the early studies of Bruhn et al. (1992) examined perception of consumers on locally grown food at major grocery stores in two communities in California. Bruhn et al. (1992) discovered that support for local agriculture and selling of fresher produce in supermarkets were the main reasons why consumers buy locally grown food. Likewise, Feagan et al. (2004) studied the motivations of consumers who support farmers' markets in the Niagara region in Ontario, Canada. Feagan et al. (2004) found that the availability of fresh food was the most common reason for the consumers to shop at these markets. In the UK, Chambers et al. (2007) used a qualitative (focus group) method to analyze perceptions and behaviors of consumers on local, national, and imported foods. According to their finding, local food was perceived as fresher than the imported foods to the consumers due to the food travelling a smaller distance (Chambers et al., 2007). In general, freshness of local food is important to the consumers as based on the evidence of these previous studies. Therefore, this research observed the visual attention of consumers on the intrinsic cue word *fresh*.

2.2.2 Extrinsic cues (region of origin) of local food

Researchers have studied country of origin information and brand names on products regularly, as they are influential extrinsic cues (Josiassen, 2010; Siu & Wong, 2002; Srinivasan et al., 2004: Zeithaml, 1988). For instance, Lawley et al. (2012) observed the role and relationship of intrinsic and extrinsic cues and their comparative relevance on fish product affecting the consumption of Australian consumers. They discovered that the extrinsic cue, country of origin (e.g., Australian grown), was especially used as a substitute indicator by

respondents to assess quality of fish. The region of origin (local) has replaced country of origin or brand names in the current study, as consumers have recognized the value of region of origin (local) from previous findings (Aprile et al., 2016; Eastwood et al., 1987; Gallons et al., 1997; Patterson et al., 1999; Vieregge et al., 2007). For example, among the produce, tomatoes were the most frequently purchased produce from an early study by Eastwood et al. (1987) and its region of origin was the greatest concern for the consumers at in Knox County, TN, USA (Eastwood et al., 1987). Following research by Gallons et al. (1997) on consumers' characteristics at direct markets such as the roadside stand, farmer's market, tailgate market, and pick-your-own farm in Delaware, USA, discovered that 92.9% of respondents would shop state-certified produce. Furthermore, 75.2% of respondents preferred produce with the state logo compared to ones without the logo. Locally grown was rated as a very important reason as indicated by 49% of the respondents who bought from these markets (Gallons et al., 1997). Likewise, 74.4% of respondents from the research of Patterson et al. (1999) preferred produce from Arizona, USA compared to other regions. In the case of Europe, Vieregge et al., (2007) examined the perception of consumers on the use of locally grown foods in the standard menu items at McDonalds in Switzerland. They found that 67.4% of respondents in general preferred use of the local produce (Vieregge et al., 2007). In Naples, Italy, Aprile et al. (2016) stated that 95% of respondents attempt to locate and purchase local food. In conclusion, these findings may confirm that the region of origin (local) of food has been established as crucial to consumers. In order to clarify that the extrinsic cue region of origin (local) is valid to be tested in this research, discussion of the Country-Of-Origin Labelling regulations is necessary. As mentioned previously at the introduction, there is no requirement for the restaurants to include such information based on a review of menu labelling requirements. Thus, the region of origin (local) is a valid construct

to be tested. Overall, this research observed the visual attention of consumers on the extrinsic cue word *local*.

2.3 Theory: A theory of attention to visual marketing

2.3.1 Background

The first eye movement research was conducted by Nixon (1924) and Poffenberger (1925) to assess advertisements in the early 1900s. Although the consumers' eye movements were manually recorded by Nixon (1924), the application of eye cameras enhanced efficacy and precision (Karslake, 1940). For a period of time, there was comparatively small amount of research likely due to the commonly believed incorrect perspective that "attention is only a first stage toward higher cognitive processes" (Fawcett, 2015, p.570). For example, the Attention, Interest, Desire and Action model, the hierarchical processing models, inspired such perspective (Starch, 1923; Strong, 1925). In the 1970s, the research started picking up as eye movements and visual attention were recognized as useful for gaining information and deducing other cognitive processes (Kroeber-Riel, 1979; Russo & Rosen, 1975; Treistman & Gregg, 1979; van Raaij, 1977). Entering the 1990s, interest in eye-tracking research suddenly increased, and improvements of infrared recording technology partially motivated this as well. Originally, the research includes descriptive research e.g., documenting attention to ads, nutrition labels, and alcohol and cigarette warnings (Krugman et al., 1994; Lohse, 1997; Fox et al., 1998; Fletcher et al., 1995). Thenceforth, eye-tracking research increased in application, theory testing, and findings in psychology as eye-tracking technology enhanced and its dominant role of attention in consumer behavior was recognized. Most of these theories have been supported and extended in some cases. Prominently, these supported theories opened the way for testing constant assumptions in marketing practice about the usefulness of the visual stimuli.

2.3.2 Theoretical Framework

In the estimated range of 108 ~ 109 bits per second, the amount of transmitted information through the human optic nerve consists of circa 1.5 million axons which is far beyond the human brain's ability to process (Koch, 2004). Hence, the brain needs to depend on mechanisms which select a subsection of pertinent information for improved processing (Wedel & Pieters, 2008b). James (1890) defines this processing of selection and focalization as attention. LaBerge (1995) defines attention as the "limited capacity" or "selective process" which assists in coordinating the "perception-action cycle" and sustaining goals for an extended period. Visual attention is defined as a physiological response, captured from eye movements of individuals (Hoffman, 1998; Rosbergen et al., 1997), which is reliable to measure attention (Krugman, 1965; Rosebergen et al., 1997). In marketing research, the psychological construct of visual attention is a main interest in many eye movements studies (Pieters & Wedel, 2004).

The theory of attention to visual marketing is described by two situations: the determination of attention to visual marketing stimuli reflected on consumers' eye movements, and the influence of attention on communication effects of direct marketing interest (e.g., memory, preference, and choice) (Wedel & Pieters, 2008b). According to the researchers, there are two different types of attention: goal-directed attention and stimulus-driven attention (Norman & Shallice, 2000; Yantis, 2000). The goal-directed attention is influenced by top-down factors and stimulus-driven attention is influenced by bottom-up factors (Wedel & Pieters, 2008b). The top-down factors originate from previous conditions and characteristics of consumers (e.g., expectations, goals, and moods). Whereas the bottom-up factors originate from the characteristics of stimuli to which consumers are exposed. In order to determine the covert patterns of attention in overt eye movements, two factors of influence are combined. The theory

distinguishes that informativeness of stimuli originates from goal-directed attention (top-down) and salience of stimuli originates from stimulus-driven attention (bottom-up). The theory identifies that attention and other processes are influenced by the combination (additively or multiplicatively) of informativeness and salience of objects. Even if consumers are not sensitive to them, highly visible stimuli will still capture their attention. On the other hand, depending on the consumers' expectations and goals, consumers' attention to stimuli will be varied and consumers will discover informative in a different way. Attention of consumers are independent of configurations of specific stimulus because each consumer has different goals and expectations. However, when the salient stimuli are informative, the attention is greatest; but, if stimuli are not informative, the attention is least. To sum up, the theory systematically reconciles different views of attention determinants on informativeness and salience. Furthermore, the theory associates these with the appropriate visual marketing effects (Wedel & Pieters, 2008b).

In marketing research, eye-tracking research grew rapidly because visual attention provides an important channel for distinguishing consumers' visual stimuli such as product labelling (Hernandez et al., 2017; Meißner et al., 2016). Therefore, the eye-tracking technique revealed excellent potential when it came to accurately evaluating consumer perceptions of food product labels and other visual stimuli (Wedel and Pieters, 2008a).

2.4 Top-down effect on visual attention

2.4.1 Familiarity

Familiarity is the most intensely researched top-down effect on visual attention (in print ad context) (Wedel & Pieters, 2008b). Familiarity has been discovered to influence the attention to the ad (as a whole) with differential influences on attention to ad objects from previous research (Pieters & Warlop, 1999; Pieters & Wedel, 2004; Rosbergen et al., 1997; Treistman &

Gregg, 1979). According to Wedel and Pieters (2008b), familiar ads are easier to process relative to unfamiliar ads, so familiar ads need and attract less attention. For instance, Pieters et al. (1999) analyzed the visual attention of consumers through three repeated exposures to print ads using the eye-tracking method. Pieters et al. (1999) found that the total amount of attention had declined by more than 50%. Familiarity decreases the attention paid to the brand, while it does not influence the attention paid to pictures and increases attention paid to the text (Pieters & Wedel, 2004). Clement et al. (2013) examined the effect of design features of jam packages on visual attention. They found no correlation between visual search patterns of consumers and familiarity with the category of jam products or the specific brand of jams. However, they did discover decreases of gazing time in initial visual attention, and further attention time when consumers have previous experience at the grocery store. On the other hand, Fenko et al. (2018) studied the effect of familiarity with a health label placed on yogurt products on visual attention. They found that higher familiarity with the health label did not lead to higher visual attention to this label. Overall, Janiszewski and Warlop (1993) explain that the effect of familiarity is associated with the effects of associative memory on attention, i.e., the learning environment which makes semantic information available from memory is generated by brand conditioning while promoting attention to a brand at the same time. Brand familiarity is a relevant influential visual factor when considering locally grown food as the brand. In previous research, consumers' positive perceptions of and purchase intentions for locally grown foods were influenced by both intrinsic (e.g., freshness) and extrinsic cues (e.g., region of origin). However, these cues and the term hyper-local were not utilized in the descriptions of menu items of hyper-local restaurants to verify whether consumers' familiarity of these cue words are associate with consumers' visual attention (TFD and FC). Therefore, the following hypotheses were proposed:

H1. There is a relationship between familiarity with the intrinsic cue word *fresh* and TFD.

H1a. There is a relationship between familiarity with the intrinsic cue word *fresh* and FC.

H2. There is a relationship between familiarity with the extrinsic cue words *local* and TFD.

H2a. There is a relationship between familiarity with the extrinsic cue words *local* and FC.

H3. There is a relationship between familiarity with the word *hyper-local* and TFD.

H3a. There is a relationship between familiarity with the word *hyper-local* and FC.

2.4.2 Visual attention influence on product choice

Over the different tasks, it has been shown that a variety of gazing parameters are correlated with choice decisions (Glaholt & Reinggold, 2012; Orquin & Loose, 2013). Prior research on eye-tracking revealed that the longer the participants fixated on an item, the more likely they were to choose that item (Schotter, Gerety, & Rayner, 2012). Pieters and Warlop (1999) observed the relationship between consumers' attention and their brand choice. They discovered that consumers are more prone to select the brands they fixated on longer compared to the others. Likewise, Duerrschmid and Danner (2018) examined the relationship between gazing behavior of respondents and their food selection. Respondents were asked to pick the product most appealing to them from four options presented as pictures. Duerrschmid and Danner (2018) discovered a strong correlation between the respondents' probability of choice and their visual attention (i.e., number of fixations and fixation duration). The likelihood of a product being selected was significantly higher when more visual attention was paid to it (Duerrschmid & Danner, 2018). In the context of sustainability label research, Van Loo et al. (2015) observed the importance of sustainability attributes (e.g., Carbon Footprint, Fair Trade, Rainforest Alliance, and USDA Organic) on coffee product labels and their influence on visual attention and willingness-to-pay of consumers in the USA. They found that the respondents for

whom sustainability labels was of higher importance paid higher visual attention to these labels. Furthermore, greater visual attention paid to sustainability labels by respondents has led to a higher willingness-to-pay for items with these labels. However, previous findings are limited to observing the consumers' visual attention and product labels so the following hypotheses were proposed:

H4. There is a relationship between TFD to the intrinsic cue word *fresh* and subsequent menu choice.

H4a. There is a relationship between FC to the intrinsic cue word *fresh* and subsequent menu choice.

H5. There is a relationship between TFD to the extrinsic cue word *local* and subsequent menu choice.

H5a. There is a relationship between FC to the extrinsic cue word *local* and subsequent menu choice.

2.4.3 Demographics:

2.4.3.1 Gender

The relationship between demographic information and visual attention has not been researched extensively (Wedel & Pieters, 2008b). There were no or very slight differences detected in gender (Drèze & Hussherr, 2003; Fox et al., 1998). Schwebler et al. (2020) in study relating the impact of calorie disclosures and color-coding treatments used on Quick Service Restaurant menu items which influenced the food choice of consumers. They could not detect a gender difference on the influence of calorie disclosures nor color-coding treatments used on Quick Service Restaurant menu items. Similarly, Djamasbi and Tullis (2007) examined web design preferences of gender by using an eye-tracking method. They tested four different bricklet

designs: one with an image, one without an image, one with a light background, and one with a dark background. Djamasbi and Tullis (2007) found that the number of fixations between males and females on these designs were not significantly different. On the other hand, Hwang and Lee (2018) examined the gender differences in visual attention to the presentation of information on online shopping screens. They found that the visual attention of males and females were significantly different, as females paid higher and more active visual attention to most of the presented information compared to males.

In a context of the locally grown food research, some findings have shown that women usually hold more positive attitudes to local food compared to men (Gallons et al., 1997; Kezis et al., 1998; Weatherell et al., 2003), but other research did not (Patterson et al., 1999; Tregear & Ness, 2005). Kezis et al. (1998) researched the demographic characteristics of farmers' market shoppers in Maine, USA and found that the majority of participants are employed, highly educated, and aged 35 or older female consumers. Lillywhite and Simonsen (2014) assessed preferences of consumers at restaurants which use local produce with other major attributes such as price and type of restaurants. They also discovered that the number of female consumers who were source-conscious were higher than those who considered other attributes of restaurants such as price or type of restaurants as the important main attributes (Lillywhite & Simonsen, 2014). Likewise, from their research on willingness of consumers to buy locally grown food in Indiana, USA, Jekanowski et al., (2000) found that females were more likely to buy locally grown produce compared to males. Whereas, Patterson et al. (1999) did not identify gender differences from awareness of consumers on "Arizona Grown" program and their preferences for produce from Arizona, USA. Tregear and Ness (2005) also did not note gender differences in consumers' interest in local food. Findings from eye-tracking research and local food studies presented

conflicted results on gender. Previously, using an eye-tracking method in local food studies has not been researched to further verify gender differences, so the following hypotheses were proposed:

H6. There is TFD difference between male and female on the intrinsic cue word *fresh* on menu items.

H6a. There is FC difference between male and female on the intrinsic cue word *fresh* on menu items.

H7. There is TFD difference between male and female on the extrinsic cue word *local* on menu items.

H7a. There is FC difference between male and female on the extrinsic cue word *local* on menu items.

2.4.3.2 Age

The age effect on visual attention was specifically researched by Dreze and Hussherr (2003). They found that gazing time increased along with age, most likely due to the processing of information more slowly. Previous research on local food has not accurately confirmed that age influences preferences for local food (Patterson et al., 1999). Despite this, some findings have shown that mid- or older-aged consumers are more expected to prefer local food than younger consumers (Kezis et al., 1998; Mirosa & Lawson 2012; Szmigin et al., 2003; Tregear & Ness, 2005). Kezis et al. (1998) found that farmers' market shoppers in Maine, USA are likely to be females between 45 to 54 years old, in contrast to the local population. Mirosa and Lawson (2012) observed the characteristics of New Zealand consumers who prefer to purchase locally grown food and found that their age was older as compared to the non-local buyers. Similarly, the older respondents' interest for local food was higher from the finding of Tregear and Ness

(2005). However, members of Generation Z born between 1996 and 2012 put more emphasis on locally produced goods when shopping compared to Baby Boomers born between 1943 and 1968 (Smoley, 2020; Watson, 2019). Additionally, members of Generation Z are drawn to restaurants that utilize local, organic, and sustainable foods (McSweeney, 2019). According to Rewards Network (Rewards Network, 2020), members of Generation Z want to have fresh components in their food including in limited-service dining. As fresh, organic, and sustainable are the buzzwords which attract Generation Z customers to restaurants, it is recommended marketing these words in advertising, website, and restaurant menus at restaurants which serves organic, sustainable, and locally grown food (Rewards Network, 2020). Therefore, in order to further verify the differences between respondents' age groups and their visual attention on intrinsic and extrinsic cue words of locally grown food, the following hypotheses were proposed:

H8. There is TFD difference between the age groups of 19-25 and over 25 on the intrinsic cue word *fresh* on menu items.

H8a. There is FC difference between the age groups of 19-25 and over 25 on the intrinsic cue word *fresh* on menu items.

H9. There is TFD difference between the age groups of 19-25 and over 25 on the extrinsic cue word *local* on menu items.

H9a. There is FC difference between the age groups of 19-25 and over 25 on the extrinsic cue word *local* on menu items.

2.4.3.3 Income

Local food eye-tracking research has not been reported in relation to income differences of respondents. In the local food research, no significant differences between high- and low-income influence interests or awareness of consumers on local food have been reported

(Patterson et al., 1999: Tregear & Ness 2005). In order to further confirm the lack of relationship between income of the respondents and visual attention on intrinsic and extrinsic cue words of locally grown food. The following hypotheses were proposed, noting that in Alabama, USA median household income (in 2019 dollars) of $50,000 was used as an indicator to verify group differences (U.S. Census Bureau, 2019).

H10. There is TFD difference between income below $50,000 and above $50,000 on the intrinsic cue word *fresh* on menu items.

H10a. There is FC difference between income below $50,000 and above $50,000 on the intrinsic cue word *fresh* on menu items.

H11. There is TFD difference between income below $50,000 and above $50,000 on the extrinsic cue word *local* on menu items.

H11a. There is FC difference between income below $50,000 and above $50,000 on the extrinsic cue word *local* on menu items.

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CHAPTER 3 METHOD

Overview

This chapter outlines procedures used in this study. These procedures include sampling methods, participant recruitment procedures, stimulus materials (Tobii X2-60 eye-tracker and restaurant menu with the modified entrée dinner menu items), measures used for an eye-tracking (TFD and FC) and online Qualtrics survey, data collection, and data analysis. Before the study, the research protocol was reviewed and endorsed by the University Research Ethics Board (Appendix A).

3.1 Participants

The participants consisted of the general public, excluding older adults and individuals of any age who have serious underlying medical conditions (e.g., heart, lung disease, diabetes, and all other medical conditions), faculty members, staff, graduate and undergraduate students (19 years or older) from Auburn University. Pernice and Nielsen (n.d.) recommended a minimum size of 39 for the analysis of eye-tracking gaze point analysis. Therefore, this study targeted to recruit 50 participants for this research. All participants have normal or corrected-to-normal vision and full color vision.

3.1.1. Recruitment Procedures

Convenience sampling and snow-ball sampling methods were used to recruit 50 participants of different demographic characteristics in terms of age and income. The participants were recruited by using the following method. First, the researcher visited various department offices in the university to ask for permission to distribute research flyers via email (Appendix B) to faculty, staff, and students. Furthermore, the associate dean for research from the College of Human Sciences also helped distribute research flyers via email. Second, recruitment flyers

were posted on the bulletin boards throughout the university. Third, the director of global education from the College of Human Sciences helped recruit participants by advertising this study in their undergraduate classes. Fourth, for the snow-ball sampling method, former research participants were used to recruit future participants. Lastly, the researcher approached students, faculty, and staff members on campus to recruit participants in person. Each participant received $10 for their involvement.

3.2 Stimulus Material

3.2.1 Tobii X2-60 eye-tracker

The eye-tracking device (Tobii X2-60 eye-tracker) with 1280 x 1024 pixels was placed at the base of a 17" computer monitor to record the participants' eye movements (Appendix C). The Tobii X2–60 is a lightweight eye tracker with a length of 184mm (7.2"). It is a discreet eye tracker that can be used to analyze natural behavior in depth. Also, its wide range of head movement enables subject to move while preserving accuracy and precision during recording. Portable eye tracking labs and studies involving an eye tracker to monitor even large objects at close range (up to 36° gaze angle) are feasible. With a variety of software and stimuli setup choices, the Tobii X2 Eye Tracker provides full flexibility (Tobii Technology AB, 2014) and was thus chosen for use in this study.

3.2.2 Restaurant Menu with the modified entrée dinner menu items

Stimulus materials in this research included four entrée dinner menu items, that featured steak, chicken, salmon, and burger dishes. Two menu items were without intrinsic and extrinsic cues, one menu item was with an intrinsic cue word (*fresh*), and one menu items was with an extrinsic cue word (*local*). An intrinsic cue word (*fresh*) was chosen as consumers have been known to acknowledge the freshness of local food in previous research (Bruhn et al., 1992;

Chambers et al., 2007; Feagan et al., 2004; Tregear & Ness 2005; Onozaka et al., 2010). An extrinsic cue word (*local*) was chosen as consumers have recognized the value of region of origin (local) from previous findings (Aprile et al., 2016; Eastwood et al., 1987; Gallons et al., 1997; Patterson et al., 1999; Vieregge et al., 2007). Two menu items without intrinsic and extrinsic cues items were selected from a casual mid-scale restaurant. The other two menu items including cue words were modified from existing mid-scale hyper-local restaurants. The menu design, font, font size, color of the font, and overall layout of information were unified among all categories. For the internal validity of the finalized menu items and design, two researchers who have expertise in hospitality research and an eye-tracking method verified them before conducting research. The examples of menu design and entrée dinner menu items are provided in Figures 1, 2, 3, and 4.

The order of the menu items was based on the Latin square design. The Latin square design was used to design four menus, A, B, C, and D. "A Latin square design is the arrangement of *t* treatments, each one repeated *t* times, in such a way that each treatment appears exactly one time in each row and each column in the design" (Dodge, 2008, p.297). This method of design is used to minimize the systemic error caused by rows (treatments) and columns (Dodge, 2008). The experimental design of menus is provided at Table 1.

Table 1

The experimental design of menus

	Menu A	Menu B	Menu C	Menu D
None	1	4	3	2
None	2	3	4	1
Intrinsic cue word	3	2	1	4
Extrinsic cue word	4	1	2	3

Figure 1

Example of Menu A

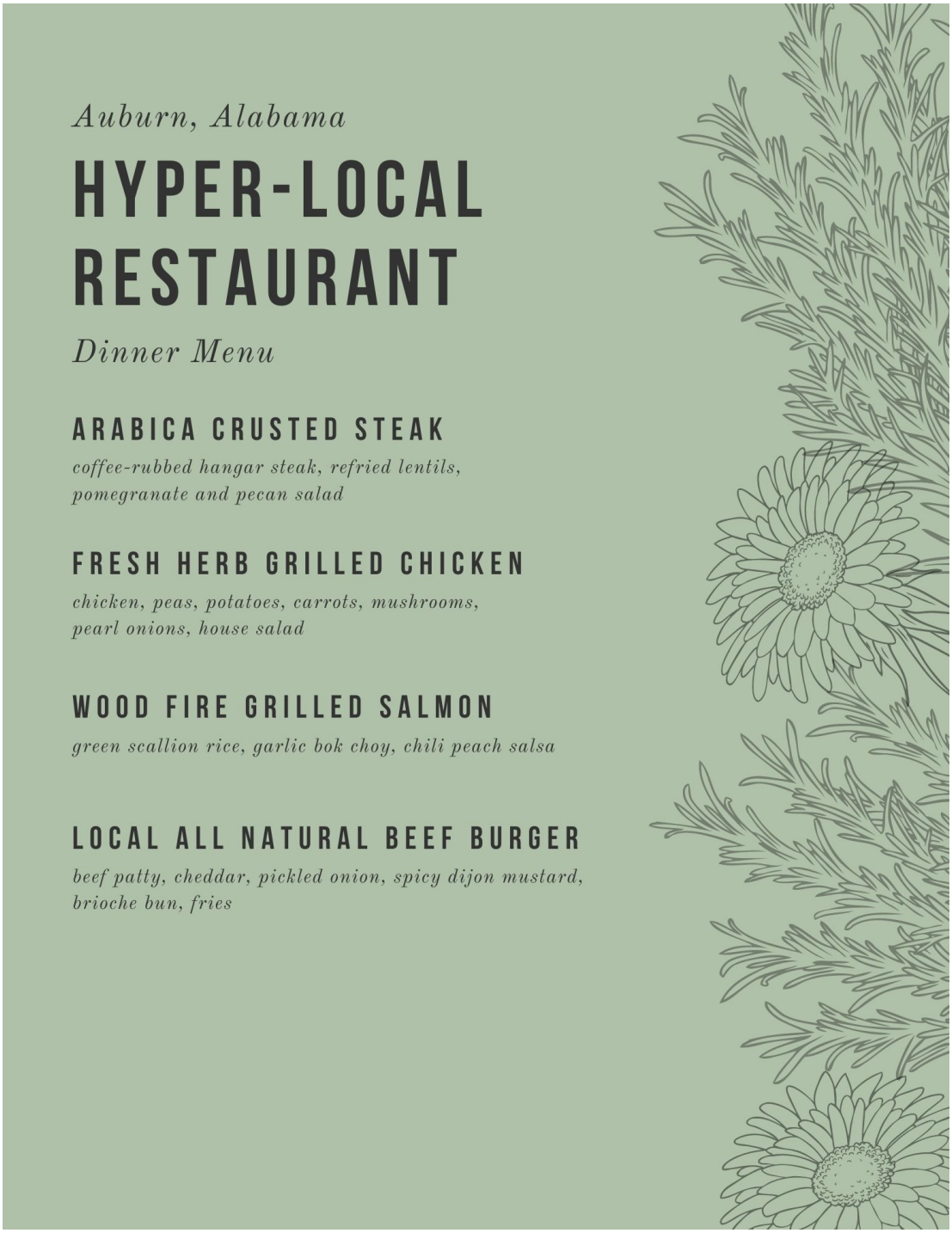


Figure 2

Example of Menu B

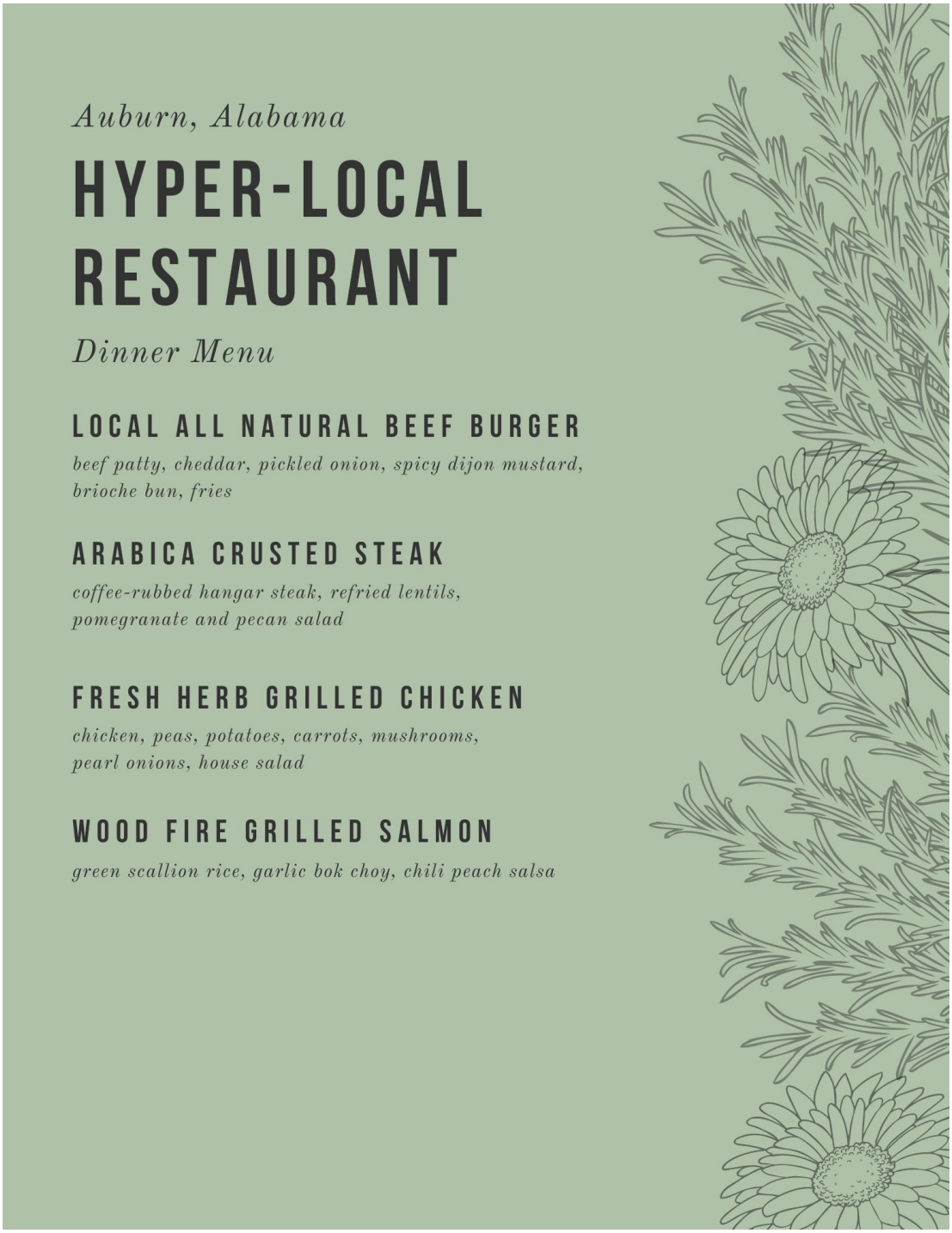


Figure 3

Example of Menu C

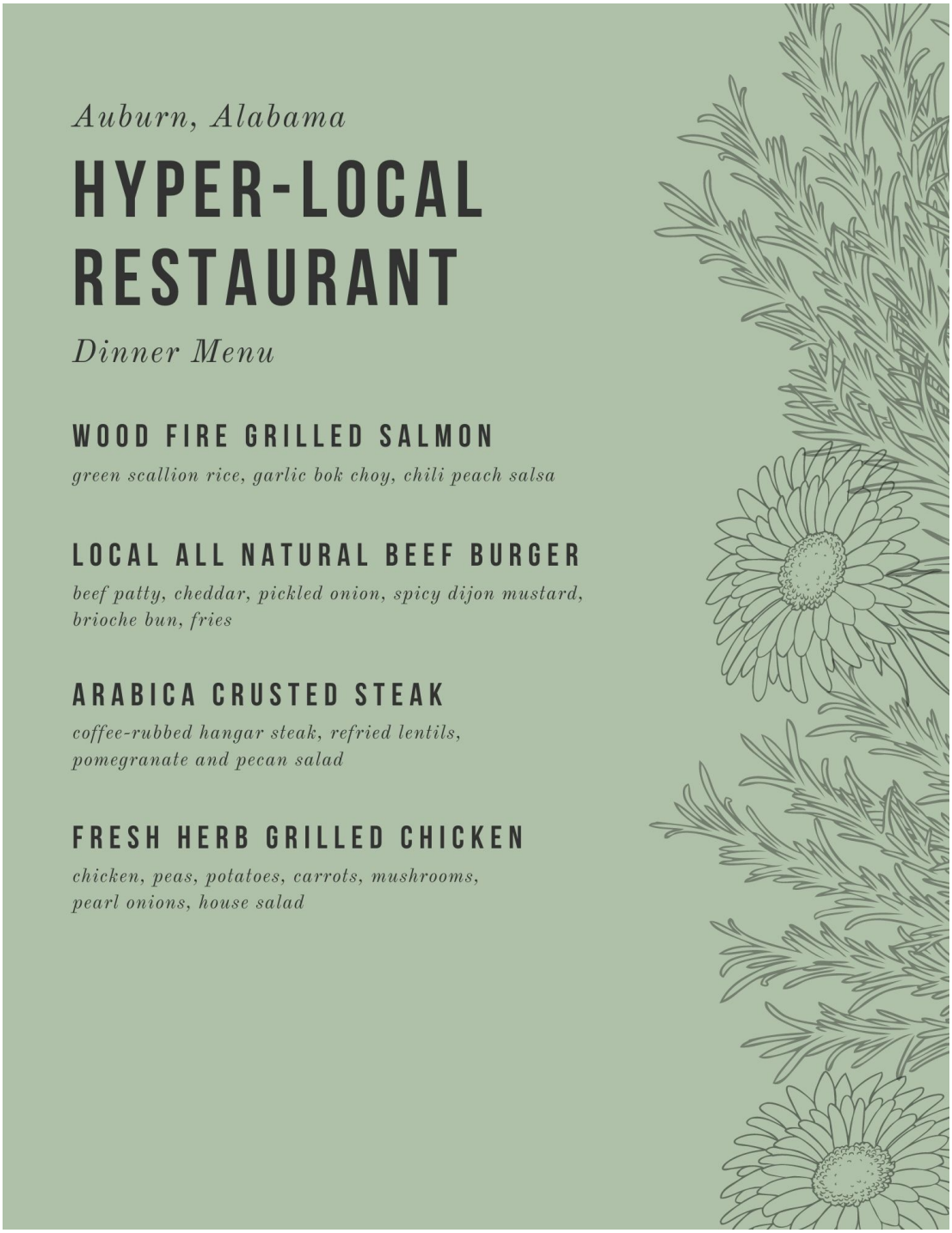
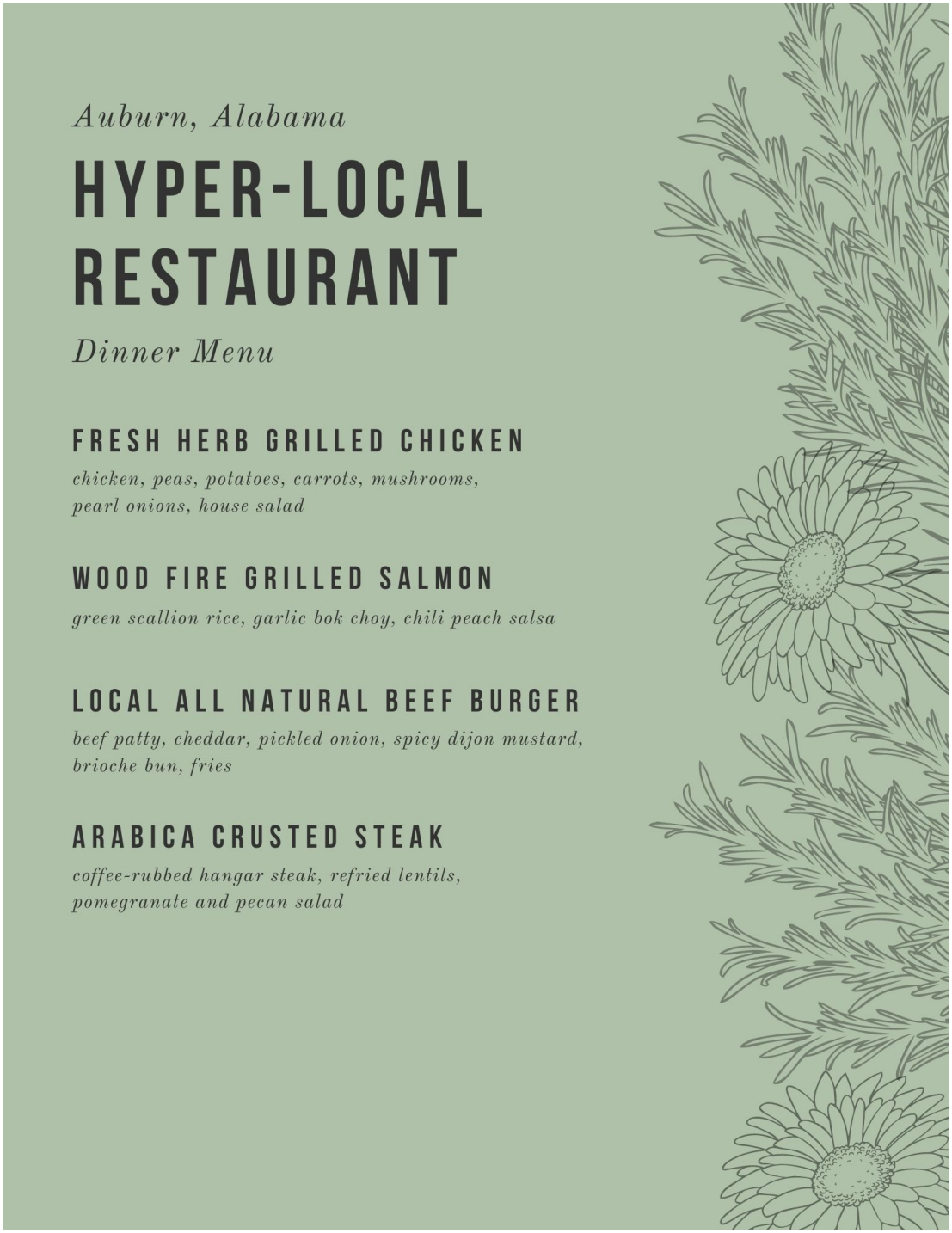


Figure 4

Example of Menu D



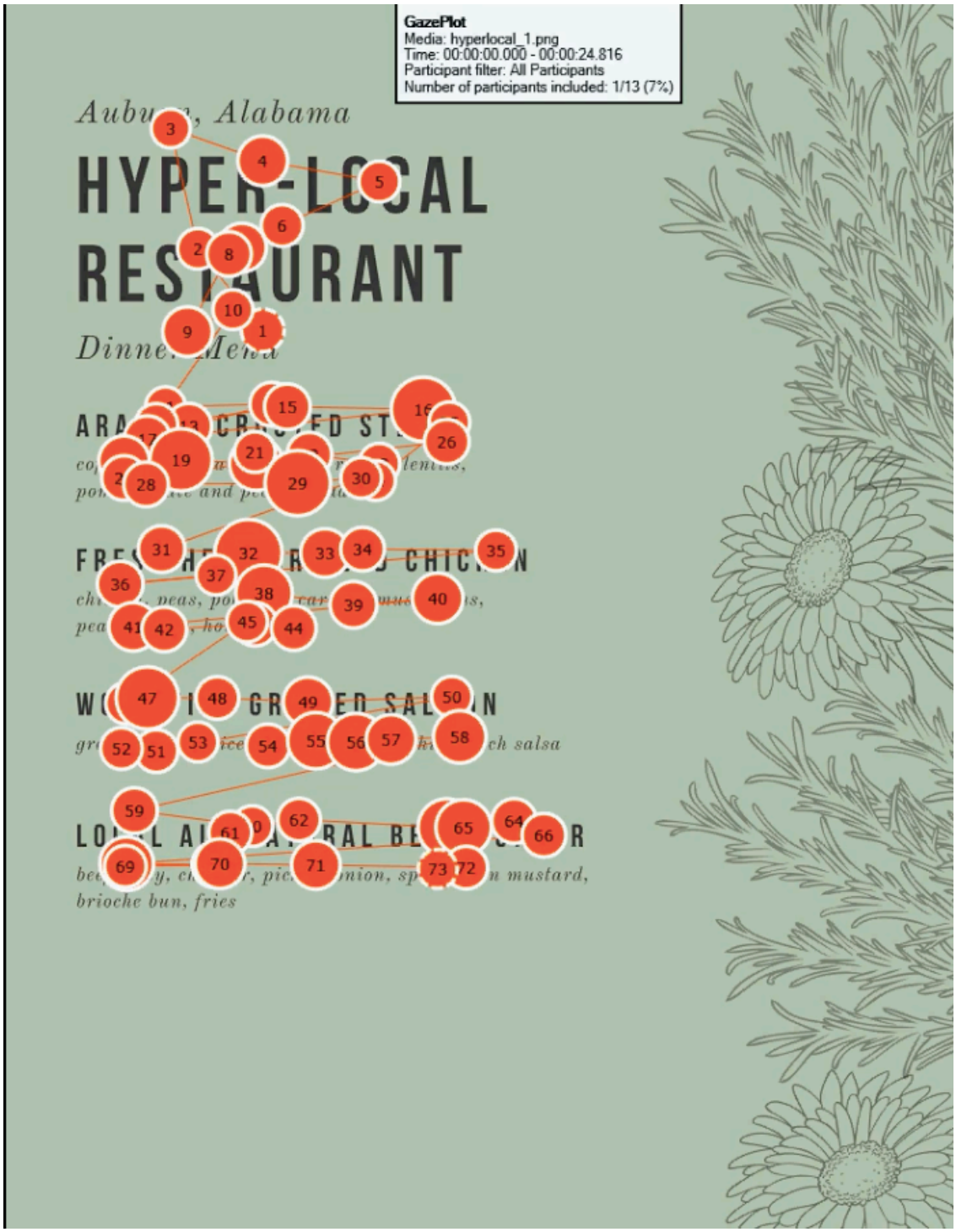
3.3 Measures

3.3.1 Visual attention

The number of fixations and fixation durations (in seconds) on the Areas of Interest (AOI) are reported in eye-tracking data (Rayner, 1998, 2009). The AOI examined in this research include menu name, menu descriptions, and a restaurant logo (Appendix D). The number of fixations measures the number of times participants fixed on an AOI (Fenko et al., 2018). The fixation duration (s) measures the amount of time for participants fixated on an AOI (Fenko et al., 2018). In this research, number of fixations is referred to FC and fixation duration is referred to TFD. The bigger the size of the gaze plots indicates the longer TFD and the numbers on gaze plots indicate the sequence of fixations (Figure 5). This research focused on measuring consumers' visual attention while reading menu items. Thus, the 'Minimum fixation duration' parameter is set to the default value to allow for relatively short fixations (60ms), which are common during reading (Olsen, 2012). In addition, a significant amount of eye tracking research involves analyzing eye movements while reading (Olsen, 2012). For the validity of the eye-tracking data, accuracy and precision are used as indicators (Tobiipro, 2015). Accuracy reflects the average difference between the position of the actual stimuli and the position of gaze measured (Tobiipro, 2015). Precision is described as an eye tracker's ability to replicate the gaze point measurement reliably (Tobiipro, 2015).

Figure 5

Example of gaze plots



3.3.2 Online Qualtrics survey

The post-online Qualtrics questionnaires consisted of 22 items (Appendix E). The name, number, and scales of items used in this survey are summarized at table 2. For the content validity of the finalized questionnaire items, two researchers who have expertise in the restaurant and eye-tracking research verified it prior to use in this study.

Table 2

Measurement scales

Name of items	Number of items	Scales
Familiarity	4 items: modified from Fenko et al. (2018)	Measured with a seven-point Likert scale ranging from "1 = strongly disagree" to "7 = strongly agree"
Attitude on locally grown food	4 items: modified from Arvola et al. (2008), Dean et al. (2012), and Pham et al. (2019) 1 item: made based on previous literature of locally grown food	Measured with a seven-point Likert scale ranging from "1 = strongly disagree" to "7 = strongly agree"
Definitions on locally grown and hyper-local foods	2 items: modified from Aprile et al. (2016)	N/A
Shopping habits	1 item: Purchasing frequencies of locally grown food 1 item: purchasing venue of locally grown food 1 item: dining frequencies at hyper-local restaurants	N/A
Three words in relation to local and hyper-local foods	2 items	N/A
Final menu item choice	2 items	N/A
Demographic information	5 items	gender, race/ethnicity, age, current classifications, and income

3.4 Procedure

3.4.1 Data Collection

Participants contacted the researcher if they were interest in participating in the study by email. If participants were eligible to participate, the researcher scheduled a date for the experiment and survey based on his/her availability. Each participant participated in the

experiment one at a time; COVID19 precautions and the screening protocol of COVID-19 (Appendix F) released by Auburn University was practiced each session. The data was collected from September to December 2020 at Thach Hall, room 104D at Auburn University. The room is 125 sqft. and there is a small interior hall that is 71 sqft. outside of room off main hallway. There was one desk located against the wall for eye-tracking. Only a participant and the researcher were in this room. There was no effective barrier, but 6 feet (social distancing) was maintained between a participant and the researcher, except for when calibrating and starting the study. The length of time needed for research activities that require face-to-face interaction was less than 5 minutes.

The following standard procedures were taken for each experimental session. First, the participants were provided with a brief introduction to the research including information on COVID-19 (Appendix G) and asked to read a consent form (Appendix H). Second, participants completed a calibration task in front of the computer screen to adjust their eyes to the eye-tracker. Participants' eye movements followed a red dot across the computer screen to complete this task. Third, the participants began the formal study by reading a given scenario on computer screen. The scenario informed the participants that they are dining at a hyper-local restaurant, which serves locally grown food for dinner. After reading the menu, they were asked to choose one item at the end of an eye-tracking session. All the sessions were recorded to collect the TFD and FC on AOI. Fourth, the participants scanned the QR code at the end of the eye-tracking session to complete the post-study online questionnaire from Qualtrics. The eye-tracking and completion of the questionnaire took about 10 to 15 minutes in total. Lastly, each participant was thanked and given $10 for their participation.

3.4.2 Data Analysis

Data was analyzed by using Tobii Studio analysis software and the Statistics Package for Social Sciences (SPSS 25). Descriptive and inferential statistics were used in this research. Descriptive statistics were used to present the descriptions of the population. Inferential statistics including correlation analysis, point biserial correlations, and t-test were used to test the hypotheses. The Cronbach's Alpha value was used to check the internal consistency for the reliability of the attitude scale, with the minimum value of .70 (Hair et al., 1995). The Cronbach Alpha value for the attitude scale was 0.70, and thus, meeting this minimum required value (Hair et al., 1995). Word clouds were generated using Pro Word Cloud, which is a plug-in application for Microsoft Word to visually represent other words the participants associated with the words *local* and *hyper-loca*l.

3.4.3 Correlation analysis

In order to answer hypotheses 1, 1a, 2, 2a, 3, and 3a, correlation analysis was used to verify whether intrinsic (*fresh*) and extrinsic (*local*) cue words of locally grown food menu items associate with consumers' visual attention (TFD and FC).

3.4.4 Point biserial correlations

In order to answer hypotheses 4, 4a, 5, and 5a, point biserial correlation was used to validate whether consumers' visual attention (TFD and FC) to cue words (*fresh* and *local*) associate with subsequent menu choice.

3.4.5 t-test

In order to answer the hypotheses 6, 6a, 7, and 7a, a t-test was used to evaluate TFD and FC difference between males and females on cue words (e.g., *fresh* and *local*). In order to answer the hypotheses 8, 8a, 9, and 9a, a t-test was also used to assess TFD and FC difference

between the age groups of 19-25 and over 25 on cue words (e.g., *fresh* and *local*) on menu items. Lastly, to answer the hypotheses 10, 10a, 11, and 11a, a t-test was used to evaluate TFD and FC difference between incomes below $50,000 and above $ 50,000 on cue words (e.g., *fresh* and *local*) on menu items.

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CHAPTER 4 RESULTS

Overview

This chapter reports demographic information and overall findings from this study. First, participants' definitions of locally grown and hyper-local foods were presented. Second, participants' shopping habits and attitudes of locally grown food were reported. Third, three words in relation to local and hyper-local foods were presented. Lastly, the results of the tested hypotheses were reported.

4.1. Participants' profile

Online Qualtrics surveys and eye-tracking data from total of 50 participants were collected between September and December of 2020. There was an almost equal number of female (n = 26, 52%) and male (n = 24, 48%) participants. The age of the participants ranged from 19 to 64 years, with a mean age of 30.76 ± 12.26 years. Most of the participants were White or Caucasian (n = 36, 72%), followed by Asian (n = 6, 12%), Black or African (n = 3, 6%), Hispanic or Latino (n = 3, 6%), American Indian or Alaska Native (n = 1, 2%), and other (n = 1, 2%). More than half of the participants classified themselves as undergraduate or graduate students (n = 28, 56%), followed by non-students (n = 22, 44%). For the household income, both below $25,000 (n = 14, 28%) and above $100,000 (n = 14, 28%) were most selected, followed by $25,000-$49,999 (n = 8, 16%), $50,000-$74,999 (n = 7, 14%), $75,000-$99,999 (n = 4, 8%), and the remaining participants indicated that they preferred not to answer to this question (n = 3, 6%).

Table 3

Participants' profile (N = 50)

Variable	Category	n (%)
Gender	Female	26 (52.0)
	Male	24 (48.0)
Ethnicity	White or Caucasian	36 (72.0)
	Asian	6 (12.0)
	Black or African	3 (6.00)
	Hispanic or Latino	3 (6.00)
	American Indian or Alaska Native	1 (2.00)
	Other: Please specify	1 (2.00)
Current classifications	Students	28 (56.0)
	Non-students	22 (44.0)
Household income	Below $25,000	15 (30.0)
	$100,000 and above	14 (28.0)
	$25,000-$49,999	8 (16.0)
	$50,000-$74,999	7 (14.0)
	$75,000-$99,999	6 (12.0)

4.2. Definitions on locally grown and hyper-local foods

Participants' definitions of locally grown and hyper-local foods were asked in this research. In order to understand the participants' definitions better, these questions were designed to allow selecting multiple answers. For the definitions of locally grown foods, most of the participants selected food purchased from the farmers' market (n = 33, 66%), followed by food grown in the states (e.g., Alabama) where person lives (n = 32, 64%), food verified as state grown (e.g., Alabama grown) (n = 25, 50%), food grown and raised within 400 miles or less where person lives (n = 20, 40%), and food grown in the USA (n = 5, 10%) (Table 4).

Table 4

Definition of local foods as indicated by the participants (N = 50)

Definition	n (%)
Food purchased from the farmers' market.	33 (66.0)
Grown in the states (e.g., Alabama) person lives.	32 (64.0)
Food verified as state grown (e.g., Alabama grown).	25 (50.0)
Food grown and raised within 400 miles or less where person lives.	20 (40.0)
Food grown in the USA.	5 (10.0)

Note. Total percentage more than 100% as participants could select multiple answers.

For the definitions of hyper-local foods, most of the participants selected a restaurant that serves food from their own properties (e.g., gardens or farms) (n = 35, 70%), followed by a restaurant that serves food purchased from the farmers' market (n = 24, 48%), a restaurant that serves food verified as state grown (e.g., Alabama grown) (n = 20, 40%), a restaurant that serves food that is grown in the states (e.g., Alabama) where person lives (n = 18, 36%), a restaurant that serves food grown and raised within 400 miles or less of where person lives (n = 15, 30%), and a restaurant that serves food grown in the USA (n = 1, 2%) (Table 5).

Table 5

Definition of hyper-local as indicated by the participants (N = 50)

Definition	n (%)
A restaurant that serves food from their own properties (e.g., gardens or farms).	35 (70.0)
A restaurant that serves food purchased from the farmers' market.	24 (48.0)
A restaurant that servers food verified as state grown (e.g., Alabama grown).	20 (40.0)
A restaurant that servers food grown and raised within 400 miles or less where person lives.	15 (30.0)
A restaurant that servers food grown in the USA.	1 (2.0)

Note. Total percentage more than 100% as participants could select multiple answers.

4.3. Participants' shopping habits and attitudes on locally grown food

In the last 3 months, participants purchased (including grocery pick up) food labeled as locally grown (e.g., Alabama grown) an average of 4.08 ± 5.25 times, ranging from 0 to 24 times. Participants were asked where they normally purchase the locally grown food (including grocery pick up). Over half of the participants selected grocery store chains (e.g., Publix) (n = 27, 54%), followed by farmers' markets (n = 17, 34%) (Table 6).

Participants dined out (including curb side pick-up and take-out orders) an average of 1.98 ± 4.47 times (range = 0 to 22 times) at hyper-local restaurants which promote locally grown food in last 3 months.

Table 6

Participants' shopping venues for locally grown food (N = 50)

Items	n (%)
Grocery store chains (e.g., Publix)	27 (54.0)
Farmers' markets	17 (34.0)
Others	3 (6.00)
Corner stores	2 (4.00)
Direct from a local farmer	1 (2.00)

Participants' attitudes on locally grown food were also being investigated. The results showed that the participants demonstrated somewhat positive towards locally grown food, with total average mean score of 5.21 ± 0.82. Participants somewhat agreed (n = 21, 42%) and strongly agreed (n = 12, 24%) that buying locally grown food instead of non-locally grown food is beneficial. A total of 22 participants (44%) somewhat agreed that buying locally grown food instead of non-locally grown food is a wise choice. Almost same number of participants indicated that they were either agreed (n = 15, 30%) or somewhat agreed (n = 13, 26%) that buying locally

grown products make them feel pleased. Close to one-third of the participants somewhat agreed (n = 15, 30%) that buying locally grown food instead of non-locally grown food makes them feel good. Several participants disagreed (n = 6, 12%) that they care about buying locally grown food (e.g., Alabama grown) when grocery shopping for fruits and vegetables. buying locally grown food instead of non-locally grown food make them feel pleased (Table 7).

Table 7

Participants' attitudes on locally grown food (N = 50)

Items	*n* (%)							
	Mean±SD	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Buying locally grown food instead of non-locally grown food is beneficial.	5.56 ± 1.03	0 (0.0)	0 (0.0)	1 (2.0)	5 (10.0)	21 (42.0)	11 (22.0)	12 (24.0)
Buying locally grown food instead of non-locally grown food is a wise choice.	5.30 ± .953	0 (0.0)	0 (0.0)	0 (0.0)	10 (20.0)	22 (44.0)	11 (22.0)	7 (14.0)
Buying locally grown food instead of non-locally grown food make me feel pleased.	5.28 ± 1.16	0 (0.0)	1 (2.0)	2 (4.0)	9 (18.0)	15 (30.0)	16 (32.0)	7 (14.0)
Buying locally grown food instead of non-locally grown food make me feel good.	5.24 ± 1.33	0 (0.0)	2 (4.0)	3 (6.0)	8 (16.0)	15 (30.0)	12 (24.0)	10 (20.0)
When grocery shopping for fruits and vegetables I do care for locally grown food (e.g., Alabama grown).	4.68 ± 1.52	1 (2.0)	6 (12.0)	3 (6.0)	9 (18.0)	13 (26.0)	15 (30.0)	3 (6.0)

4.3. Three words in relation to local and hyper-local foods

Figure 5 and Figure 6 represent two different word clouds generated using the keywords provided by the participants to both *local* and *hyper-local* respectively. The size of a word was positively related to the frequency of this word was mentioned. The larger the size of the word, the higher frequency it was being mentioned.

Participants were asked to write three words related to the word *local* and *hyper-local*. The words most frequently associated with the word *local* was fresh (n = 38) followed by organic (n = 10). Additionally, participants also wrote down farm-related words such as farm-to-table, farmer, farm grown, farm, farmed close, farm-raised. Nine of the words that participants noted contain farm in them. The words healthy and expensive were each written down six times. The words support and community were each written down four times. Participants also associated local with distance words, such as near (n = 3), proximity (n = 1), and accessibility (n = 1) (See Figure 6).

Figure 6

Word Cloud of the word local

The word most frequently associated with the word *hyper-local* was fresh (n = 24). Local and tasty was each stated six times. Participants also associate *hyper-local* with farmers (n = 5), healthy (n = 5), and organic (n = 5). *Hyper-local* also made the participants think about market (n = 4) and being expensive (n = 4) (See Figure 7).

Figure 7

Word Cloud of the word hyper-local

Overall, the participants were familiar with the word *fresh* (M = 6.18, SD = 1.18), *local* (M = 6.10, SD = 1.00), and the concept of locally grown food (M = 6.04, SD = 1.10). However, the participants appeared to be less familiar with the word *hyper-local* (M= 3.40, SD = 1.76), as close to one-third (n = 32) of them disagreed that they were familiar with this particular word (Table 8).

Table 8

Respondent's familiarity with fresh, local, locally grown food and hyper-local (N = 50)

Items	*n* (%)							
	Mean ± SD	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I am familiar with the word fresh.	6.18 ± 1.18	1 (2.0)	0 (0.0)	12 (24.0)	0 (0.0)	12 (24.0)	8 (16.0)	28 (56.0)
I am familiar with the word local.	6.10 ± 1.00	0 (0.0)	0 (0.0)	0 (0.0)	1 (2.0)	19 (38.0)	4 (8.0)	26 (52.0)
I am familiar with locally grown food.	6.04 ± 1.10	0 (0.0)	0 (0.0)	2 (4.0)	0 (0.0)	16 (32.0)	8 (16.0)	24 (48.0)
I am familiar with the word hyper-local.	3.40 ± 1.76	6 (12.0)	16 (32.0)	7 (14.0)	3 (6.0)	9 (18.0)	9 (18.0)	0 (0.0)

4.5. Effect of familiarity

A correlation analysis was used to verify the relationship between familiarity with the words *fresh*, *local*, and *hyper-local* and TFDs. The variable words *fresh* and TFD were not found to be correlated r (50) = -.18, p = .22; thus, H1. was not supported. The variable words *local* and TFD were not found to be correlated r (50) = -.18, p = .20; so, H2. was not supported. The

variable words *hyper-local* and TFD were not found to be correlated r (50) = .08, p = .56; hence, H3. was not supported.

Results of correlation analysis showed there was no significant correlation was found between these the words *fresh* (r [50] = -.20, p = .16), *local* (r [50] = -.17, p = .23), and *hyper-local* (r [50] = .06, p = .68) and FCs. Therefore, hypotheses H1a, H2a, and H3a were all not supported.

4.5. Visual attention and product choice

A point-biserial correlation analysis was used to verify the relationship between TFDs to the cue words *fresh* and *local* and subsequent menu choice. There was no relationship between TFD to the intrinsic cue word *fresh* and subsequent menu choice (r_{pb} = .22, n = 50, p = .13); thus, H4. was not supported. Likewise, there was no relationship between TFD to the extrinsic cue word *local* and subsequent menu choice (r_{pb} = .27, n = 50, p = .06); so, H5. was not supported.

Based on the results of a point-biserial correction, there was no relationship between FC to the intrinsic cue word *fresh* and subsequent menu choice (r_{pb} = .26, n = 50, p = .07); hence, H4a. was not supported. However, there was a positive correlation between FC to the extrinsic cue word *local*, which was statistically significant (r_{pb} = .295, n = 50, p = .038); thus, H5a. was supported.

4.6. Demographics

4.6.1. Gender

An independent samples t-test was performed to compare TFDs between males and females on the cue words *fresh* and *local*. There was no significant difference in TFD durations between males (M = 4.12*s*, SD = 2.54*s*) and females (M = 4.57*s*, SD = 3.10*s*) on the intrinsic cue word *fresh* t (48) = -.56, p =.58; thus, H6. was not supported. There was no significant difference

in TFD between males (M = 4.39s, SD = 3.80s) and females (M = 4.54s, SD = 3.56s) on the extrinsic cue word *local* t (48) = -.14, p =.89; so, H7. was not supported.

The results of independent sample t-test for FCs between males and female on the cue words *fresh* (t [48] = -.81, p =.42) and *local* (t [48] = -.32, p =.75) were both insignificant. Therefore, both hypotheses H6a and H7a were not supported (Table 9).

Table 9

t-test results between gender (N = 50)

		Mean		
Visual attention		Male (n = 24)	Female (n = 26)	*t*
TFD (*s*)	Fresh	4.12	4.57	-.56
	Local	4.39	4.54	-.14
FC	Fresh	17.25	19.73	-.81
	Local	18.63	19.92	-.32

Notes. TFD = Total fixation durations (measured in seconds, *s*), FC = Fixation count

Figure 8

TFD by Gender

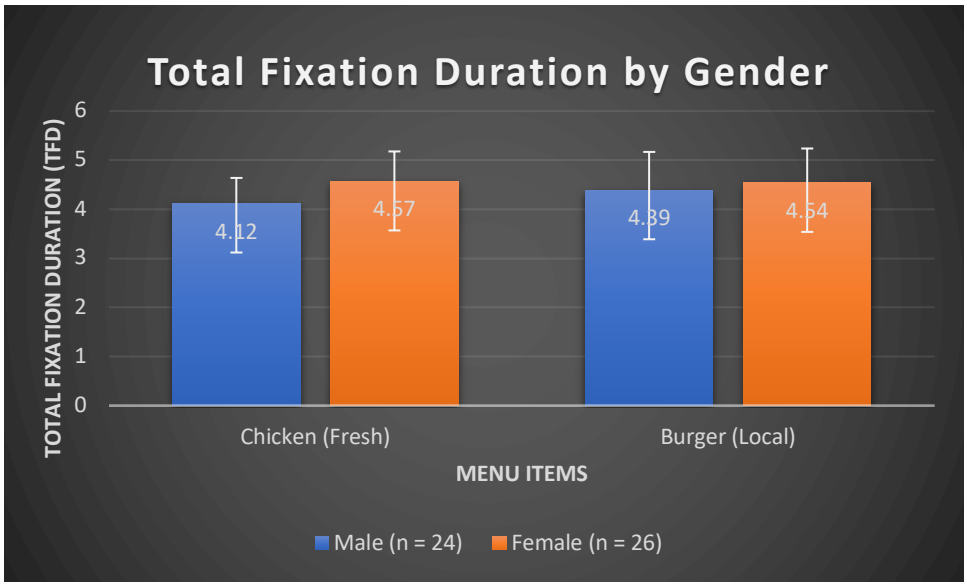
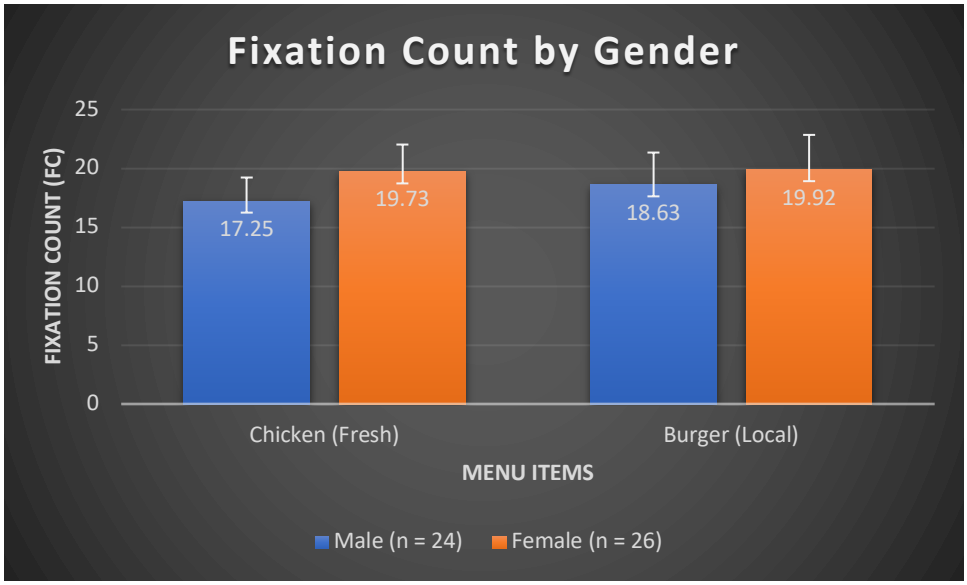


Figure 9

FC by Gender



4.6.2. Age

An independent samples t-test was performed to compare TFDs between age groups of 19-25 and over 25 on the cue words *fresh* and *local*. There was no significant difference in TFD between age groups of 19-25 ($M = 5.11s$, $SD = 3.05s$) and over 25 ($M = 3.70s$, $SD = 2.50s$) on the intrinsic cue word *fresh* $t(48) = 1.80$, $p = .08$; thus, H8. was not supported. There was no significant difference in TFD between age groups of 19-25 ($M = 4.18s$, $SD = 1.69s$) and over 25 ($M = 4.71s$, $SD = 4.74s$) on the extrinsic cue word *local* $t(33) = -.54$, $p = .59$; so, H9. was not supported.

Based on the results of the t-test, there was a significant difference in FC between the age groups of 19-25 and over 25 on the intrinsic cue word *fresh* with moderate effect size, $t(48) = 2.18$, $p = .04$, Cohen's $d = -.62$; hence, H8a. was supported. FC on the intrinsic cue word *fresh* was higher for age groups of 19-25 ($M = 22$, $SD = 11.10$) compared to over 25 ($M = 15.60$, $SD = 9.74$). On the other hand, the difference of FC between age groups of 19-25 ($M = 18.91$, $SD = 6.71$) and over 25 ($M = 19.63$ $SD = 18.27$) on the extrinsic cue word *local* $t(34) = -.19$, $p = .85$ was insignificant. Therefore, H9a. was not supported (Table 10).

Table 10

t-test results between age groups (n = 50)

Visual attention		Mean		*t*
		Age group 19-25 (n = 23)	Age group over 25 (n = 27)	
TFD (*s*)	Fresh	5.11	3.70	1.8
	Local	4.18	4.71	-.54
FC	Fresh	22.0	15.59	2.18*
	Local	18.91	19.63	-.19

Notes. TFD = Total fixation durations (measured in seconds, *s*), FC = Fixation count, *$p < .05$

Figure 10

TFD by Age

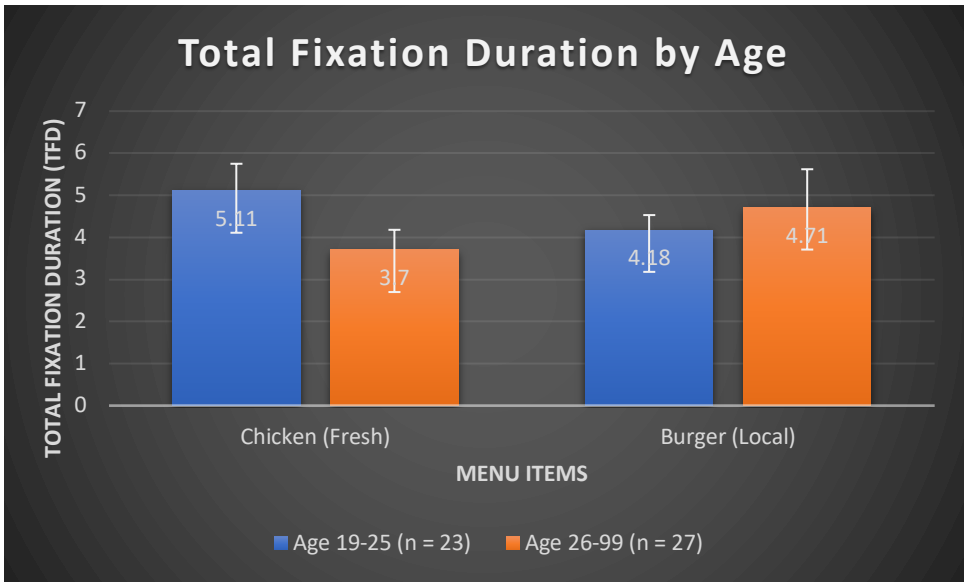
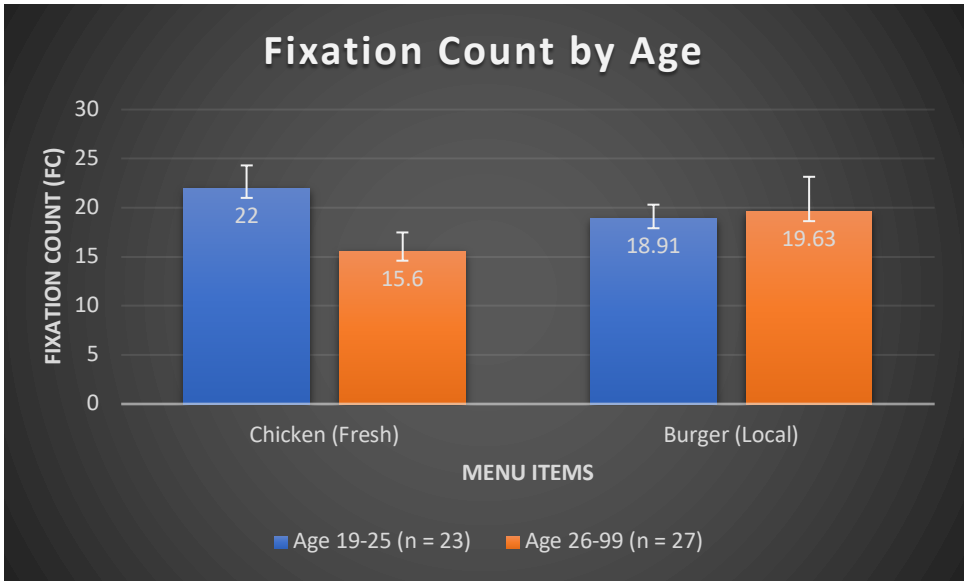


Figure 11

FC by Age



4.6.3. Income

An independent samples t-test was performed to compare TFDs between income groups of below $50,000 and above $50,000 on the cue words *fresh* and *local*. There was no significant difference in TFD between income groups of below $50,000 ($M$ = 4.62*s*, SD = 2.42*s*) and above $50,000 ($M$ = 4.12*s*, SD = 3.15*s*) on the intrinsic cue word *fresh* t (48) = .63, p =.54; thus, H10. was not supported. There was no significant difference in TFD between income groups of below $50,000 ($M$ = 5.00*s*, SD = 4.10*s*) and above $50,000 ($M$ = 4.01*s*, SD = 3.22*s*) on the extrinsic cue word *local* t (48) = .96, p =.34; so, H11. was not supported.

The results of t-test to compare FCs between income groups of below $50,000 and above $50,000 on the cue words *fresh* and *local* showed similar results, in which there was no difference in FCs for *fresh*, t (48) = 2.18, p =.04 and *local,* t (48) = .97, p =.34 for these two groups. Therefore, both hypotheses H10a and H11a were not supported (Table 11).

Table 11

t-test results between income groups (N = 50)

Visual attention		Mean		*t*
		Income group below $50,000 (n = 23)	Income group above $50,000 (n = 27)	
TFD (*s*)	Fresh	4.62	4.12	.63
	Local	5.00	4.01	.96
FC	Fresh	19.39	17.81	.51
	Local	21.39	17.52	.97

Notes. TFD = Total fixation durations (measured in seconds, *s*), FC = Fixation count

Figure 12

TFD by Income

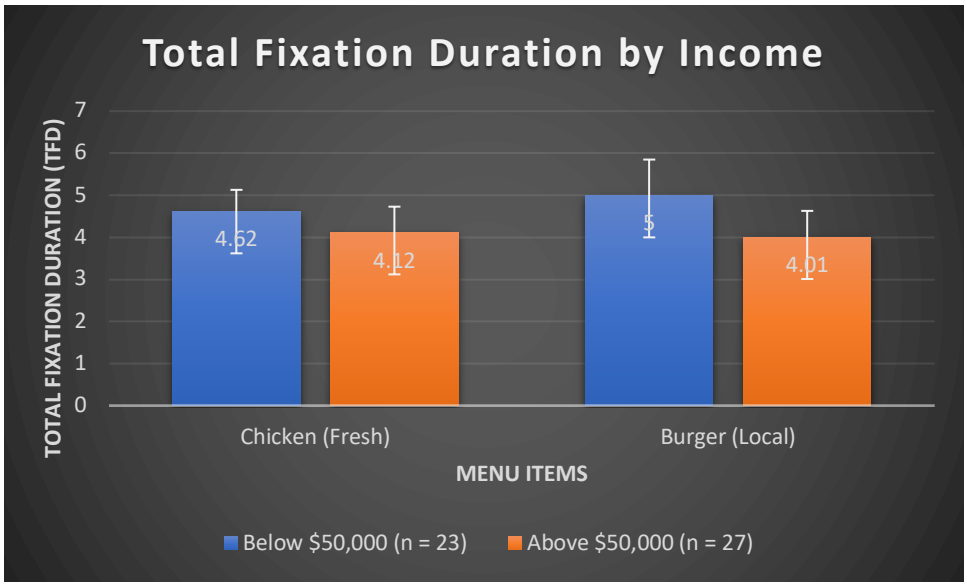


Figure 13

FC by Income

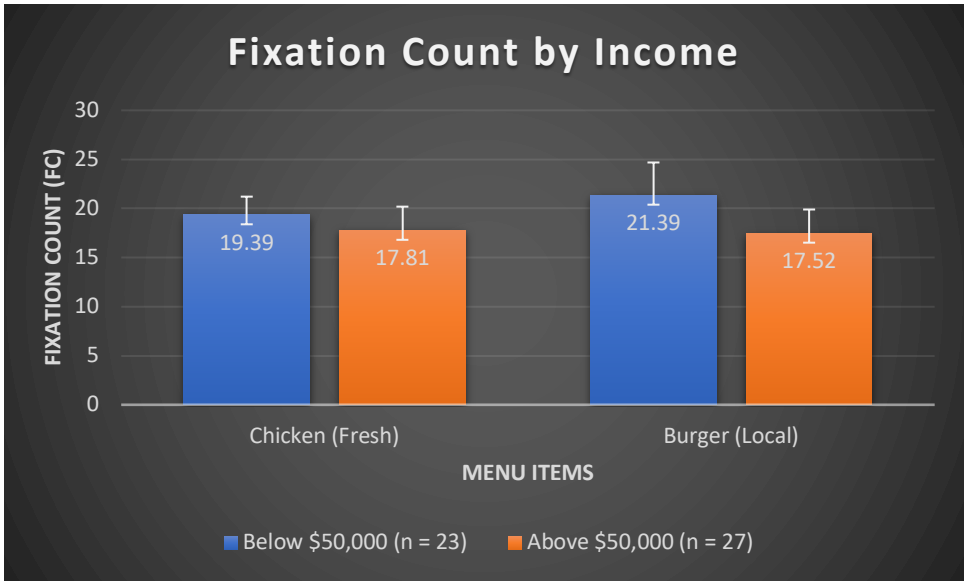


Table 12 below summarized all the hypotheses in this study and the results of the analyses.

Table 12

Summary of the hypotheses and results

Hypotheses	Statements	Results
H1	There is a relationship between familiarity with the intrinsic cue word *fresh* and TFD.	Not supported
H1 a)	There is a relationship between familiarity with the intrinsic cue word *fresh* and FC.	Not supported
H2	There is a relationship between familiarity with the extrinsic cue words *local* and TFD.	Not supported
H2 a)	There is a relationship between familiarity with the extrinsic cue word *local* and FC.	Not supported
H3	There is a relationship between familiarity with the word *hyper-local* and TFD.	Not supported
H3 a)	There is a relationship between familiarity with the word *hyper-local* and FC.	Not supported
H4	There is a relationship between TFD to the intrinsic cue word *fresh* and subsequent menu choice.	Not supported
H4 a)	There is a relationship between FC to the intrinsic cue word *fresh* and subsequent menu choice.	Not supported
H5	There is a relationship between TFD to the extrinsic cue word *local* and subsequent menu choice.	Not supported
H5 a)	There is a relationship between FC to the extrinsic cue word *local* and subsequent menu choice.	Supported
H6	There is TFD difference between male and female on the intrinsic cue word *fresh* on menu items.	Not supported
H6 a)	There is FC difference between male and female on the intrinsic cue word *fresh* on menu items.	Not supported
H7	There is TFD difference between male and female on the extrinsic cue word *local* on menu items.	Not supported
H7 a)	There is FC difference between male and female on the extrinsic cue word *local* on menu items.	Not supported
H8	There is TFD difference between the age groups of 19-25 and over 25 on the intrinsic cue word *fresh* on menu items.	Not supported
H8 a)	There is FC difference between the age groups of 19-25 and over 25 on the intrinsic cue word *fresh* on menu items.	Supported

H9	There is TFD difference between the age groups of 19-25 and over 25 on the extrinsic cue word *local* on menu items.	Not supported
H9 a)	There is FC difference between the age groups of 19-25 and over 25 on the extrinsic cue word *local* on menu items.	Not supported
H10	There is TFD difference between income below $50,000 and above $50,000 on the intrinsic cue word *fresh* on menu items.	Not supported
H10 a)	There is FC difference between income below $50,000 and above $50,000 on the intrinsic cue word *fresh* on menu items.	Not supported
H11	There is TFD difference between income below $50,000 and above $50,000 on the extrinsic cue word *local* on menu items.	Not supported
H11 a)	There is FC difference between income below $50,000 and above $50,000 on the extrinsic cue word *local* on menu items.	Not supported

4.7 Menu Choice and Reasons of Selection

A total of 50 participants completed this study. Of this number, Menu A and Menu B were each read by 13 participants; while Menu C and D were each read by 12 participants.

For the participants who viewed Menu A, only two of them selected the menu item that included the intrinsic cue word *fresh* (Fresh Herb Grilled Chicken) and three of them selected the item that included the extrinsic cue word *local* (Local All Natural Beef Burger). For Menu B, only two participants selected the menu item that included the intrinsic cue word *fresh* (Fresh Herb Grilled Chicken) and another two participants selected the item containing the extrinsic cue word *local* (Local All Natural Beef Burger). Most of the participants who viewed Menu B also selected the Arabica Crusted Steak (N = 6). For Menu C, three of participants selected the menu item that included the intrinsic cue word *fresh* (Fresh Herb Grilled Chicken) and three participants selected the item included the extrinsic cue word *local* (Local All Natural Beef Burger). For Menu D, two participants selected the menu item that included the intrinsic cue

word *fresh* (Fresh Herb Grilled Chicken), and another two participants selected the item that included the extrinsic cue word *local* (Local All Natural Beef Burger). Menu items containing the words *fresh* and *local* were not favored by the participants in this study.

The reasons for their choice were further analyzed to gain a deeper understanding of the participants' menu selection decision. Only three participants stated that they selected a particular menu item because it was described as *local;* and three other participants chose a particular menu item because it contained the word *fresh*. Descriptions of the menu item which made the food sounds appealing and appetizing played a large role in participants' menu selection. Other reasons, such as personal preference, healthiness, combinations of ingredients, familiarity with the food, and new food items also affected menu selection. Tables 13 through 16 list all the reasons that contributing to participants' menu item selection, explained in their own words.

Menu A

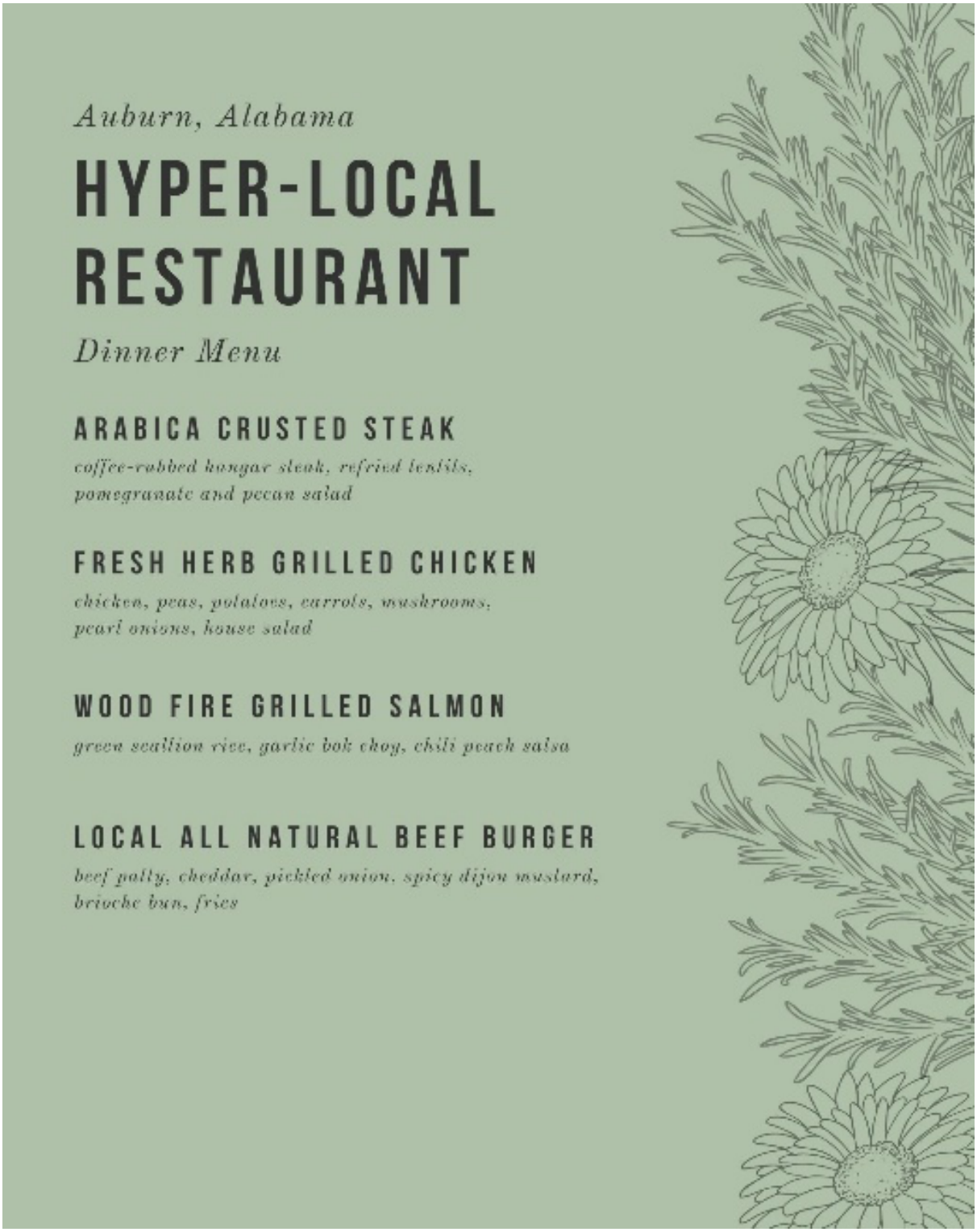

Auburn, Alabama
HYPER-LOCAL RESTAURANT
Dinner Menu
ARABICA CRUSTED STEAK
coffee-rubbed kangar steak, refried lentils, pomegranate and pecan salad
FRESH HERB GRILLED CHICKEN
chicken, peas, potatoes, carrots, mushrooms, pearl onions, house salad
WOOD FIRE GRILLED SALMON
green scallion rice, garlic bok choy, chili peach salsa
LOCAL ALL NATURAL BEEF BURGER
beef patty, cheddar, pickled onion, spicy dijon mustard, brioche bun, fries

Table 13

Participants' reason for menu item selection for Menu A (n = 13)

Menu Selection	Reasons
Arabica Crusted Steak	The crusted steak sounded the most appealing, I usually try steak out when trying new restaurants. The sides sounded the most appealing as well. I typically don't try the salmon or chicken as those are things I usually have at home.
Arabica Crusted Steak	The ingredients in the Arabica Crusted Steak dish appeared to be the most appetizing.
Arabica Crusted Steak	Because I want to have beef today. But not beef burger.
Arabica Crusted Steak	It sounded unique and I could visualize the blend of flavors. I was also curious how the coffee ingredient would go with steak.
Arabica Crusted Steak	I love steak. It is one of my favorite things to order. Also, the description of the steak made it even more tantalizing to order.
Arabica Crusted Steak	The name sounded the most appetizing and the description was equally as appetizing. The name sounded special and intriguing as well.
Fresh Herb Grilled Chicken	I chose the chicken option due to being a lean meat. It also sounded the most appetizing with fresh ingredients.
Fresh Herb Grilled Chicken	I love grilled chicken and I love all the vegetables that come with it except for onions.
Wood Fire Grilled Salmon	I really enjoy salmon but rarely have an opportunity to afford it at a restaurant.
Wood Fire Grilled Salmon	Without the price of each item, I am more prefer to eat salmon because I like it most. It also provide the salad.
Local All Natural Burger	There was things on the other choices I didn't like or didn't sound good.
Local All Natural Burger	Taste.
Local All Natural Burger	The others didn't really sound appetizing to my personal taste palette. Burgers are something I'm comfortable ordering, especially if it's my first time at a restaurant.

Menu B

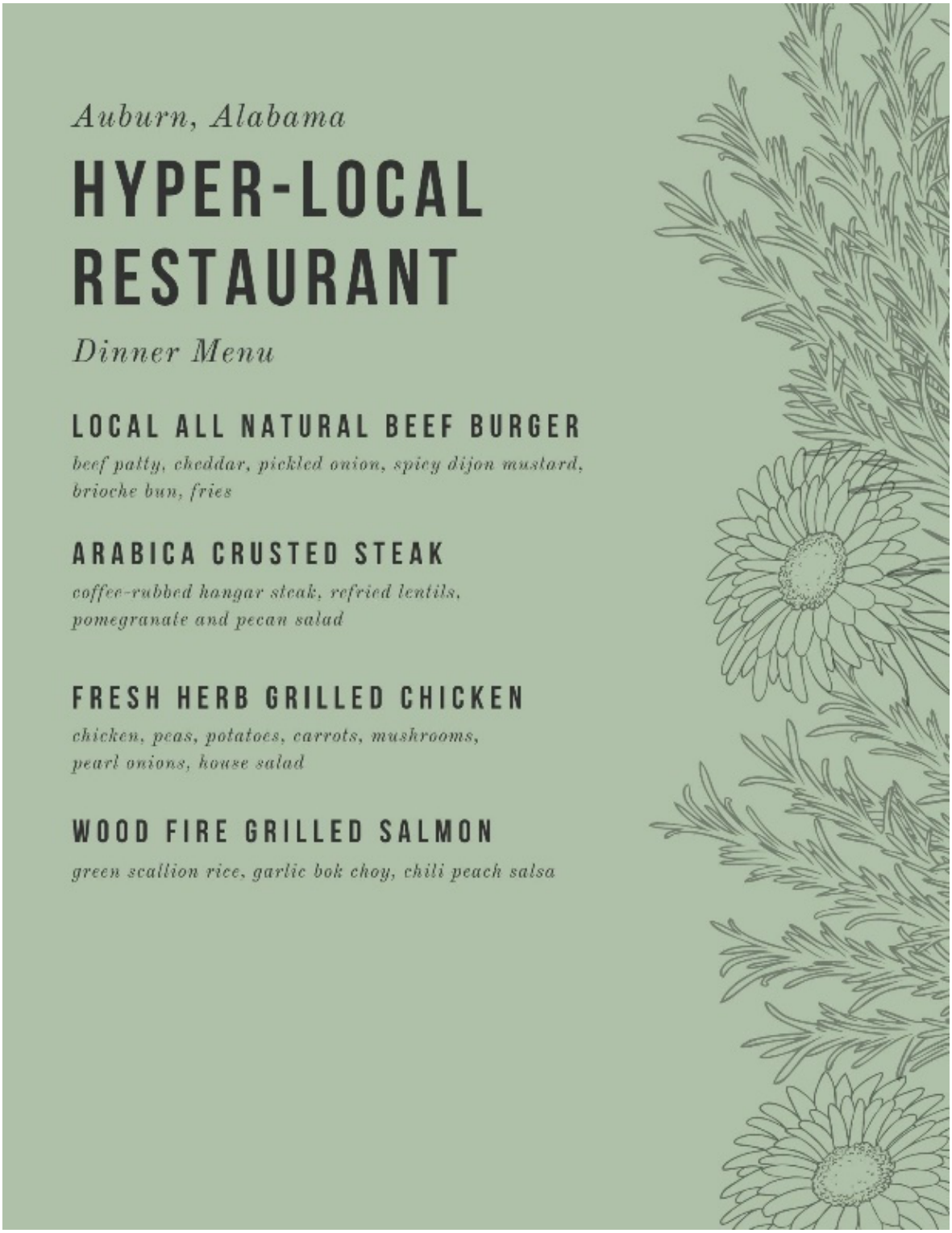

Auburn, Alabama
HYPER-LOCAL RESTAURANT
Dinner Menu
LOCAL ALL NATURAL BEEF BURGER
beef patty, cheddar, pickled onion, spicy dijon mustard, brioche bun, fries
ARABICA CRUSTED STEAK
coffee-rubbed hangar steak, refried lentils, pomegranate and pecan salad
FRESH HERB GRILLED CHICKEN
chicken, peas, potatoes, carrots, mushrooms, pearl onions, house salad
WOOD FIRE GRILLED SALMON
green scallion rice, garlic bok choy, chili peach salsa

Table 14

Participants' reason for menu item selection for Menu B (n = 13)

Menu Selection	Reasons
Arabica Crusted Steak	It sounded delicious and like something I had never tried before.
Arabica Crusted Steak	I love a good steak.
Arabica Crusted Steak	I like steak a lot, but what drew me to that menu item initially was its name. Then, the description under it made me very hungry, so I opted for that one.
Arabica Crusted Steak	Steak seemed like something I would enjoy. The sides sounded healthy.
Arabica Crusted Steak	I order steak when eating at a restaurant.
Arabica Crusted Steak	I do not like fish. I prefer to make chicken on my own. The steak and burger were similar but the steak sounded like more of a treat.
Fresh Herb Grilled Chicken	I chose chicken because after scanning the menu, I thought that the grilled chicken looked the most appetizing and healthiest. It also seemed like it had the most options.
Fresh Herb Grilled Chicken	I really like chicken to begin with, but I felt like it included a really wide array of vegetables, letting me get different flavors and textures.
Wood Fire Grilled Salmon	The burger would be fine but I didn't love the toppings listed. The steak sounded good but I don't prefer hanger steak. Chicken isn't something I typically choose at nice restaurants. Salmon sounded the best and I liked all of the accompanying items for that dish.
Wood Fire Grilled Salmon	I am a very picky eater and fine myself sticking to the basics. I love burgers and everything that came on it sounded very appealing to me. The salmon was a bit out of my comfort zone but I would have been willing to try it. I seemed to like everything that would have come with it or willing to try it.
Wood Fire Grilled Salmon	I usually pick good sea food over anything else.
Local All Natural Burger	The burger and fries seemed tasty. The other items had unusual ingredients.
Local All Natural Burger	This selection was very familiar to me and I knew I could trust it. I know that I have had burgers in the past that I have liked.

Menu C

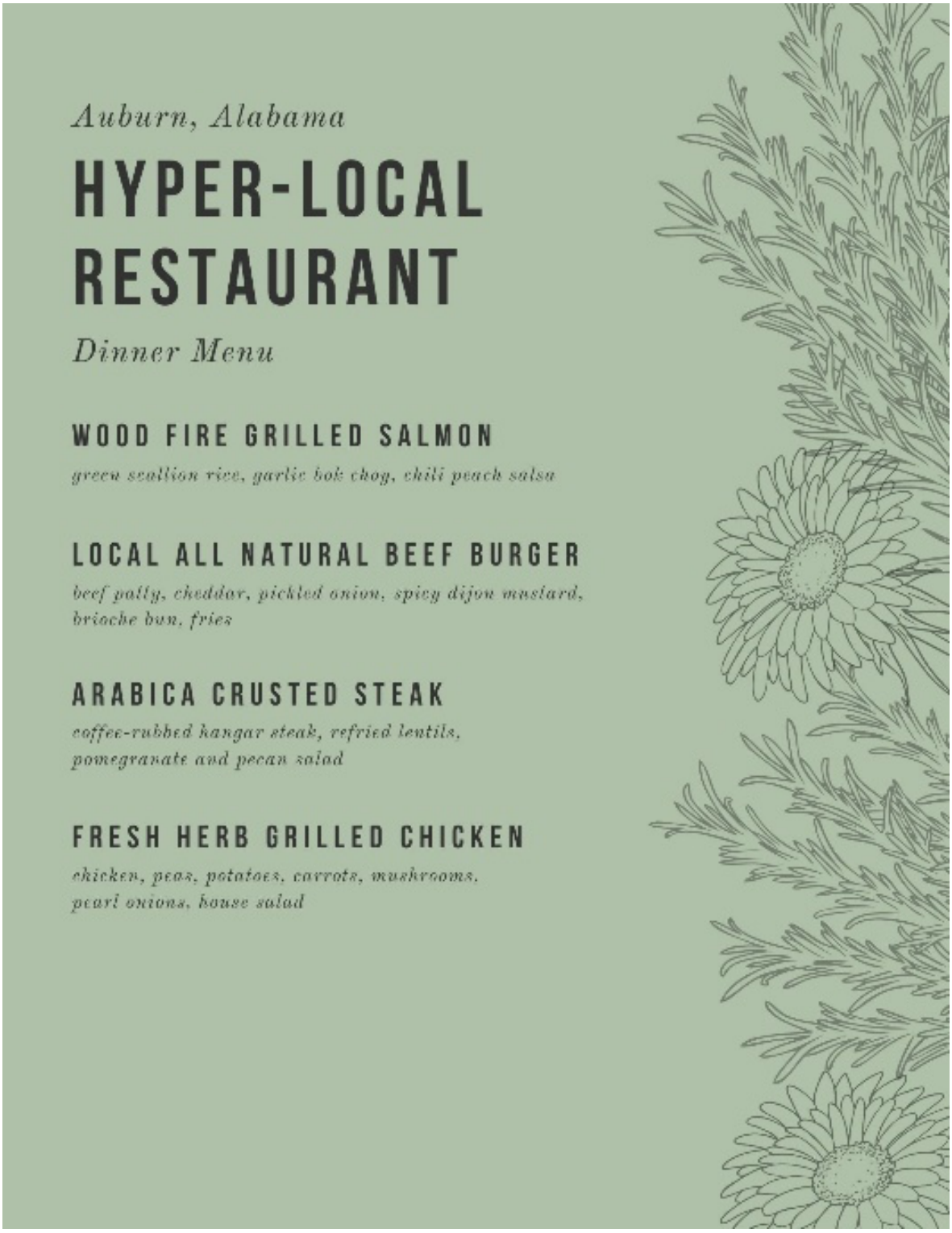

Auburn, Alabama
HYPER-LOCAL RESTAURANT
Dinner Menu
WOOD FIRE GRILLED SALMON
green scallion rice, garlic bok choy, chili peach salsa
LOCAL ALL NATURAL BEEF BURGER
beef patty, cheddar, pickled onion, spicy dijon mustard, brioche bun, fries
ARABICA CRUSTED STEAK
coffee-rubbed hangar steak, refried lentils, pomegranate and pecan salad
FRESH HERB GRILLED CHICKEN
chicken, peas, potatoes, carrots, mushrooms, pearl onions, house salad

Table 15

Participants' reason for menu item selection for Menu C (n = 12)

Menu Selection	Reasons
Arabica Crusted Steak	I really enjoy coffee and tend to go with coffee infused items if they sound good, overall the steak sounded best to me.
Arabica Crusted Steak	I'm a big fan of steak, and the side items seemed very good as well.
Fresh Herb Grilled Chicken	I liked the way it was described.
Fresh Herb Grilled Chicken	I tend to stay away from red meats and I do not like fish so it was the perfect option for me.
Fresh Herb Grilled Chicken	The ingredients were the most appealing to me. Pearl onions are not something you see very often, but I like them a lot, so that was one thing that caught my eyes as I read through the menu.
Wood Fire Grilled Salmon	I like salmon fish rather than chicken or beef.
Wood Fire Grilled Salmon	They all sounded very good but from experience, salmon sounded like the best option.
Wood Fire Grilled Salmon	I like grilled salmon.
Wood Fire Grilled Salmon	It caught my eye because it seemed to have the most flavor.
Local All Natural Burger	I choose the burger because of the beef is locally grown, and the detailed seasoning is my favorite.
Local All Natural Burger	I'm a big fan of the ingredients there, and I like to "start" with something simple, like a burger, when I'm visiting a place initially.
Local All Natural Burger	A burger sounds really good and I like that it's all natural. I also liked the brioche bun aspect of the burger.

Menu D

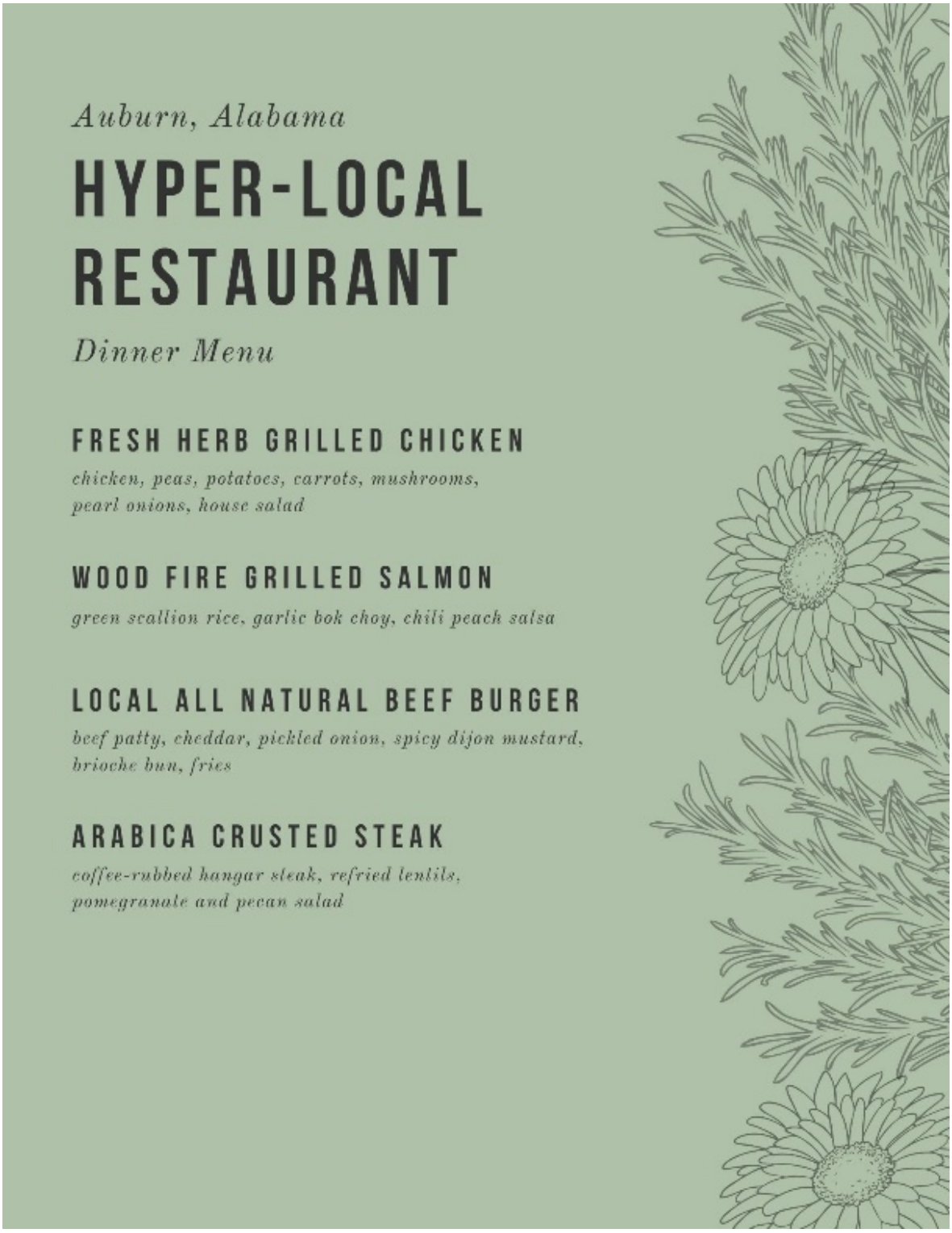

Auburn, Alabama
HYPER-LOCAL RESTAURANT
Dinner Menu
FRESH HERB GRILLED CHICKEN
chicken, peas, potatoes, carrots, mushrooms, pearl onions, house salad
WOOD FIRE GRILLED SALMON
green scallion rice, garlic bok choy, chili peach salsa
LOCAL ALL NATURAL BEEF BURGER
beef patty, cheddar, pickled onion, spicy dijon mustard, brioche bun, fries
ARABICA CRUSTED STEAK
coffee-rubbed hangar steak, refried lentils, pomegranate and pecan salad

Table 16

Participants' reason for menu item selection for Menu D (n = 12)

Menu Selection	Reasons
Arabica Crusted Steak	The ingredients of the steak and the sides looked very unique and sounded like they would be a very good combination of ingredients. It was something I have never seen before.
Arabica Crusted Steak	I love both steak and coffee so it appealed to me.
Arabica Crusted Steak	Description of items and sides sounded better.
Arabica Crusted Steak	It sounded like a unique menu item that I haven't had before. I like to try new things, and I like a variety of flavors.
Arabica Crusted Steak	Choice between steak and salmon, the peach in the salmon threw me toward the steak.
Fresh Herb Grilled Chicken	I saw the chicken first, and I liked the idea of fresh. I was torn between that and the burger, but the description for the chicken sounded better to me.
Fresh Herb Grilled Chicken	The herb chicken sounded the best. I liked how it was very descriptive and sounded the freshest/lighter.
Wood Fire Grilled Salmon	This participant did not provide any reasons of selection.
Wood Fire Grilled Salmon	Sounded delicious, not something I would make at home. The peach salsa (is that what it said?) looked yummy. I don't usually order a burger at a restaurant. I can make chicken at home. The last menu option was confusing and I didn't know what the item actually was.
Wood Fire Grilled Salmon	I prefer seafood.
Local All Natural Burger	I like meat and like the idea of knowing the source of the meat.
Local All Natural Burger	The burger just sounded good at the time. Also, it said it was local and all natural so I figured it would be fresh and good quality.

CHAPTER 5 DISCUSSION AND IMPLICATIONS

Overview

The objective of the research was to examine whether intrinsic (fresh) and extrinsic (local) cue words of locally grown food menu items associate with consumers' visual attention (TFD and FC) and menu choice of hyper-local restaurants' menus. Moreover, consumers' visual attention (TFD and FC) to the cue words *fresh* and *local* menu items are compared by demographic characteristics (gender, age, and income). First, this study identified what words the research participants associated with *local* and *hyper-local*. Second, this research investigated whether intrinsic (fresh) and extrinsic (local) cue words of locally grown food menu items associated with consumers' visual attention (TFD and FC) and menu choice of hyper-local restaurants' menus. Third, the study sought to determine whether consumers' visual attention (TFD and FC) to the cue words *fresh* and *local* on menu items differ by demographic characteristics (gender, age, and income). This chapter compares the results of the current study with previous literature and discusses the implications of this study to the hospitality industry, particularly restaurants.

5.1. Participants' attitudes and descriptions about local and hyper-local

A total of 50 participants participated in this study. Compared to data from other resources (Wunsch, 2020), the participants of this study did not appear to frequently purchase locally grown food or dine out at restaurants that serve locally grown products. Even so, their attitudes towards locally grown food were positive, which was consistent with previous literature (Arvola et al., 2008; Dean et al., 2012; Pham et al., 2019, & Skallerud & Wien, 2019).

5.2. Three words in relation to local and hyper-local foods

The participants each provided three words associated with *local* and *hyper-local* based on their own opinion and experience. Fresh, organic, healthy, support, and community were

some of the words written down by the participants. The word most frequently linked to the word *local* was fresh (n = 38). Fresh (n=24) was also most frequently associated with the word *hyper-local*. These findings are consistent with previous research, as consumers are known to acknowledge the freshness of local food (Bruhn et al., 1992; Chambers et al., 2007; Feagan et al., 2004; Tregear & Ness 2005; Onozaka et al., 2010). Furthermore, these words are relevant to the concept of locally grown food and are commonly included in studies related to this topic. For example, Skallerud and Wien (2019) revealed the connection between participants' motivation to help and support their local community and consuming local food and. Additionally, local food was widely perceived by the consumers as being fresher and healthier (Chambers et al., 2007). Six participants indicated that locally grown local food is more expensive, but an analysis showed that this perception could be incorrect, as local products sold in farmers' markets could be less expensive than non-local products sold in grocery stores (Sauer, 2012).

5.3. Effect of familiarity

There was no relationship between familiarity with the words *fresh, local*, and *hyper-local* and TFD or FC. According to Wedel and Pieters (2008b), familiar ads are easier to process relative to unfamiliar ads; so familiar ads need and attract less attention. Likewise, research of Clement et al. (2013) discovered no correlation between visual search patterns of consumers and familiarity with the category of jam products or the specific brand of jams. In this current research, it seems like participants are familiar with these cues as they did not pay much attention to them, which is aligned with the Wedel and Pieters (2008b) study. Otherwise, these findings are consistent with Clement et al. (2013) that there might not be a relationship between familiarity and visual attention of consumers. Therefore, it seems like consumers' familiarity on these words do not associate with consumers' visual attention (TFD and FC).

5.4. Visual attention and menu choice

There was no relationship between visual attention (TFD and FC) to the intrinsic cue word *fresh* and subsequent menu choice. Likewise, there was no relationship between visual attention (TFD) to the extrinsic cue word *local* and subsequent menu choice. However, the proposed relationship between visual attention (FC) to the extrinsic cue word *local* and subsequent menu choice was supported. It seems like participants who chose the menu item with the word *local* looked at it more frequently before making their final menu choice. This might indicate the importance of the presence of the extrinsic cue word *local* in menu items, which include locally grown food ingredients. This finding was consistent with previous research, as the likelihood of a product being selected was significantly higher when more visual attention was paid to it (Duerrschmid & Danner, 2018). Likewise, Van Loo et al. (2015) observed the importance of sustainability attributes (e.g., Carbon Footprint, Fair Trade, Rainforest Alliance, and USDA Organic) on coffee product labels and their influence on visual attention. They discovered that the respondents who placed importance on sustainability labels had higher visual attention to these labels. In summation, the length of fixation on cue words is not as important as how often they fixated.

5.4.1 Demographics (Gender, age, and income)

There were no TFD or FC differences between male and female on the cue words *fresh* and *local* on menu items. These findings are aligned with the previous research of Schwebler et al. (2020) on the context of restaurant menu items. They studied the impact of calorie disclosures and color-coding treatments used on Quick Service Restaurant menu items, which influenced the food choice of consumers. Schwebler et al. (2020) could not detect a gender difference on the influence of calorie disclosures (TFD and FC), nor color-coding treatments (TFD and FC) used

on Quick Service Restaurant menu items. Furthermore, with in the context of locally grown food research, some findings have shown that women usually hold more positive attitudes toward local food compared to men (Gallons et al., 1997; Kezis et al., 1998; Weatherell et al., 2003), but other research did not (Patterson et al., 1999; Tregear & Ness, 2005). Consistent with previous research (Patterson et al., 1999; Tregear & Ness, 2005), the participants of this study might not be different. While female participants might hold positive attitudes, it might not directly reflect their visual attention to cue words, as there were no gender differences detected in current research.

It seems like the extrinsic word *local* does not play a significant role in the descriptions of current menus to the members of Generation Z, as there were no (TFD and FC) differences between generations. Previous research has found that the members of Generation Z born between 1996 and 2012 put more emphasis on locally produced goods when shopping compared to Baby Boomers born between 1943 and 1968 (Smoley, 2020; Watson, 2019). Moreover, members of Generation Z are drawn to restaurants that utilize local, organic, and sustainable foods (McSweeney, 2019). Another study further supported the idea that consumers who are at least 36 years old would be more interested in supporting locally grown products (Quagrainie, Hart, & Brown, 2008). Therefore, findings from this research seem inconsistent with current restaurant trends and previous research. Interestingly, there was a FC difference between the age groups of 19-25 and over 25 on the intrinsic cue word *fresh* on menu items. This finding is consistent with Rewards Network (2020) as the members of Generation Z want to have fresh components in their food including limited-service dining. Fresh, organic, and sustainable are the buzzwords which attract Generation Z customers to restaurants. Therefore, marketing these words in advertising, website, and restaurant menus at restaurants which serves organic,

sustainable, and locally grown food is recommended (Rewards Network, 2020). The importance of the intrinsic cue word *fresh* was also identified by participants from current research as it was the word that was most related to the words *local* and *hyper-local*. Overall, our finding also highlighted the importance of the intrinsic cue word *fresh* included in the menu item descriptions as this will attract the members of Generation Z or younger generation in general.

There were no TFD and FC differences between incomes below $50,000 and above $50,000 on the cue words *fresh* and *local* on menu items. These findings aligned with preceding research, as they did not find any significant differences between the high- and low-income influence of interests or consumers' awareness of local food (Patterson et al., 1999: Tregear & Ness 2005). In fact, Quagrainie, Hart, & Brown (2008) found that higher income groups were less interested in locally grown products. Income status of participants does not seem to be a good indicator of different interests or levels of awareness of locally grown food, as there were no visual attention differences to the cue words *fresh* and *local* between these groups. Moreover, Quagrainie, Hart, and Brown, (2008) suggested that the ability to purchase and pay for local products (i.e., seafood) is independent of income level.

5.5. Menu Choice and Reasons of Selection

The cue words *local* and *fresh* do not seem to be the main reason determining menu item selection. Only three participants stated that they selected a particular menu item because it was described as *local;* and three other participants chose a particular menu item because it contained the word *fresh*. These findings are inconsistent with previous literature on locally grown food. A study conducted by Kim, Rahman, and Bernard (2020) showed that patrons at hyper-local restaurants at the UK and US stated importance of the region of origin (local) at their online restaurant reviews Baiomy, Jones, and Goode's (2019) research also recommended restaurants to

increase the identification of local products to attract customers. However, it was worthwhile to note that the participants of this study may not represent avid consumers of locally grown products based on their reported purchasing behavior of locally grown food.

Menu item descriptions which made the food sound appealing and appetizing played a large role in participants' menu selection. Good descriptions increased the menu selection, as evident by evident by steak was the most chosen item because of the descriptions that make it appealing. Previous literature showed that consumers may like or dislike a dish based on its descriptions (Reynolds, Merritt, & Pinckney, 2005). A detailed menu description could entice customers, increase their perceived food quality and satisfaction (Baiomy, Jones, & Goode, 2019; McCall & Lynn, 2008). It was possible that the insignificance of the results of those intrinsic and extrinsic cue words may be because the participants were distracted by the superfluous descriptions. Thus, this study could serve as a preliminary study for a more comprehensive research in the future.

Other reasons, such as personal preference, healthfulness, ingredients, familiarity with the food, combinations of ingredients, and interest in trying new food item also affected menu selection. These reasons have been stated in previous studies related to customers' menu choice (Lee & Carnage, 2007; Peters & Remaud, 2020). For example, Peters and Remaud (2020) commented that restaurants should emphasize on combination of ingredients rather than solely focusing on the sustainable produces. The findings of this study supported these studies.

5.6. Practical Implications

Based on the major findings from this research, some of the practical implications are provided for restauranteurs who serve locally grown food. There was a relationship between FC of the extrinsic cue word *local* and subsequent menu choice. It seems like participants who chose

the menu item with the word *local* looked at it more frequently before making their final menu choice. This might indicate the importance of the presence of the extrinsic cue word *local* in menu items. This study further provided two additional pieces of evidence to support the significance of *local* as extrinsic cues. First, three participants that selected 'Local All Natural Burger' as their menu choice specifically mentioned *local* as being the reason for their choice. Second, the results from the analysis of words showcased *local* as frequently associated with *hyper-local*. Combining these findings together, restaurants that want to promote and market locally grown food could consider including *local* as part of the name of the menu item or as part of the item descriptions.

In the current research, many participants picked steak, as the description made it look appealing. Therefore, it is important to note that description of food items plays an important role in menu selection as well-crafted descriptions increased the menu selection. Based on this, restauranteurs are suggested to use proper descriptions with the word *local* if they want to sell their locally grown food menu. Additionally, other descriptive words such as fresh, organic, healthy, support and community that are closely in relation with the word *local* can be used together in menu descriptions.

Even so, the results of this study further revealed that the definitions of the word *local* varied among participants, as most of the participants selected food purchased from the farmers' market (n = 33, 66%), followed by food grown in the state (e.g., Alabama) where person lives (n = 32, 64%), food verified as state grown (e.g., Alabama grown) (n = 25, 50%), food grown and raised within 400 miles or less where person lives (n = 20, 40%), and food grown in the USA (n = 5, 10%). The participants seemed interested in locally grown ingredients in their menu items but were less aware of the definition of the word *local*. Therefore, the goal of menu descriptions

would be maintaining consumer interest by increasing their exposure to the word *local* and raising awareness of the definition of the word *local*.

In order to achieve this, a story marketing strategy can be applied to the menu descriptions. Story marketing is defined as a strategic marketing tactic that uses audio, visual, and immersive storytelling to generate a brand experience that puts the consumer at the core of the story, resulting in profitable interactions (Howell, 2019). For instance, restaurants can define what the word *local* means for their operations. The Shed restaurant located in London, UK, incorporates this practice in their menu descriptions (Figure 4). In defining the word *local*, the Shed's menu states, "We use all things wild, foraged, and locally grown, including sustainable livestock from the Gladwin's family farm in West Sussex – we call this local and wild" (The Shed, 2020). Incorporating such messages visually in the menu would provide restaurants a better brand experience to their customers, as they can connect with their commitments and values. As a result, restaurants can expect a potential increase of sales for those items with locally grown food ingredients.

Figure 14

Menu of The Shed

We use all things wild, foraged, and locally grown, including sustainable livestock from the Gladwin's family farm in West Sussex –

we call this 'local & wild'.

DECEMBER 2020

NUTBOURNE WONDER – APPLE, DRAMBUIE, LEMON, SUGAR AND BITTERS 10.00

THE SHED BREAD, GARDEN HERB BUTTER 4.0

MUSHROOM MARMITE ÉCLAIRS, EGG CONFIT, CORNICHON 2.0 EACH
CONFIT PORK FRITTERS, NUTBOURNE TOMATO CHUTNEY, PICKLED SHALLOT 5.0

CURED CHALK STREAM TROUT, CRANBERRY, CREME FRAICHE, DILL OIL 8.5
SHAVED SQUASH, PUMPKIN SEED BUTTER, LANDCRESS, SEED CLUSTERS 9.0
PORK & LARDO FARMHOUSE TERRINE, QUINCE & GOLDEN BEETROOT CHUTNEY 9.0
PAN-FRIED SCALLOP, PARSLEY & BLACK TRUFFLE RISOTTO, CHILLI & APPLE 10.0
PAPPARDELLE, VENISON RAGU, RACHELS GOATS CHEESE 12.0
CRAB CLAW, DILL MAYO 12.0 EACH

HODMEDODS PULSES & FERMENTED VEGETABLE PITHIVIER, TAHINI DRESSING 22.0
BRAISED SUSSEX SHORT RIB, CARROT PUREE, SPROUT TOPS 24.0
DORSET CRAB THERMIDOR, SHAVED FENNEL AND LEMON SALAD 24.0
BAKED WHOLE PLAICE, CAPER AND LEMON BUTTER 15.0
PORK & VENISON SAUSAGE, ROASTED JERUSALEM ARTICHOKE, BLACK CABBAGE 15.0

SUSSEX BEEF WELLINGTON, MUSHROOM DUXELLES, RED WINE JUS 72.0 (TO SHARE)

ROASTED HERITAGE POTATOES, ROSEMARY 5.0
SHAVED BRUSSELS SPROUTS, STILTON, APPLE & WALNUT SALAD 5.5

BAKED TRUFFLE TUNWORTH, CRISPBREAD, PEARS 18.0

HAZELNUT PRALINE CHOCOLATE TORTE, CREME FRAICHE 7.0
CLEMENTINE & CRANBERRY FRANGIPANE, BURNT BUTTER CUSTARD 6.5
A PIECE OF HONEYCOMB CRUNCHIE, VANILLA MASCARPONE, TARRAGON SUGAR 3.0
MINCE PIE JAMMY DODGER 1.5 EACH

PLEASE LET US KNOW IF YOU HAVE ANY ALLERGIES OR DIETARY REQUIREMENTS SO WE CAN MAKE SUITABLE SUGGESTIONS. A DISCRETIONARY 12.5% SERVICE CHARGE IS ADDED TO EVERY BILL.
GAME MAY CONTAIN SHOT

There was a FC difference between the age groups of 19-25 and over 25 on the intrinsic cue word *fresh* on menu items. This conveys the importance of the intrinsic cue word *fresh* included in the menu item descriptions for the members of Generation Z. Furthermore, our participants in general identified the word *fresh* as the most closely related to the words *local* and *hyper-local*. Story marketing tactics can also be employed to effectively incorporate the word *fresh* into menu items. This should focus on explaining how their ingredients are fresh compared to other brands, which would differentiate them from their competitors and enhance the branding experience for their customers. For instance, Chick-fil-A uses the following descriptions to introduce their salad: "Our salads are made of whole vegetables and fruits that are delivered fresh to the restaurant and hand-chopped throughout the day" (Chick-Fil-A, 2021). This sentence is simple, yet it provides information about when and how their produce is prepared daily to highlight the freshness of their ingredients. Including messages like this can increase the exposure to the word *fresh* and customers who might seek this word would appreciate their efforts which would contribute to an increase in sales in these items.

Alternatively, a social media platform, such as Instagram can be used actively to communicate the freshness of ingredients used in restaurant menus to attract Members of Generation Z and Millennials. According to Campisi (2021), members of Generation Z share their culinary experiences and seek out "personable" and "photogenic" food. Indeed, 75 % of Instagram users are from members of Generation Z (Campisi, 2021). Members of Generation Z and Millennials also use Instagram to plan their next meal apart from food sharing (Campisi, 2021). Hence, the word *fresh* and pictures of fresh ingredients are encouraged to be posted at restaurants' social media accounts regularly to attract these generations.

Lastly, the responses to the reasons of menu selection gathered from this study may also suggest that customers' menu selection could be affected by a wide range of factors. Therefore, it is critical for the restaurants to understand their clientele, their food preference, and what these customers truly value. The restaurants may administer short surveys to their clients on a regular basis in order to better understand their wants and needs.

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CHAPTER 6 SUMMARY AND CONCLUSIONS

Overview

Major findings and significant implications of this study are summarized and highlighted in this chapter. In addition, limitations of this study are discussed and recommendations for future research are presented.

6.1 Summary of Research

The objective of the research was to examine whether intrinsic (fresh) and extrinsic (local) cue words of locally grown food menu items associate with consumers' visual attention (TFD and FC) and menu choice of hyper-local restaurants' menus. Additionally, consumers' visual attention (TFD and FC) to the cue words *fresh* and *local* menu items are compared by demographic characteristics (gender, age, and income). The following research questions were addressed by the study: (1) What words do the research participants associate with *local* and *hyper-local*?

(2) How do intrinsic (fresh) and extrinsic (local) cue words of locally grown food menu items associated with consumers' visual attention (TFD and FC) and menu choice of hyper-local restaurants' menus?

(3) How do the consumers' visual attention (TFD and FC) to the cue words *fresh* and *local* on menu items differ by demographic characteristics (gender, age, and income)?

In order to answer these research questions, participants' TFDs and FCs on the cue words were collected with an eye-tracker, followed by an online survey. A total of 50 participants consisted of the general public, faculty members, staff, graduate and undergraduate students (19 years or older) from Auburn University. The participants each provided three words associated with *local* and *hyper-local* based on their own opinion and experience. Fresh, organic, healthy, support, and community were some of the words written down by the participants. The word

most frequently linked to the word *local* was fresh (n = 38). Also, the word most frequently associated with the word *hyper-local* was fresh (n = 24). Participants' attitudes on locally grown food were also being investigated. The results showed that the participants demonstrated somewhat positive attitudes towards locally grown food, with a total average mean score of 5.21 ± 0.82.

Next, the relationship between the cue words *fresh* and *local* of locally grown food menu items and consumers' visual attention for them with product choice were observed. There was a relationship between FC on the extrinsic cue word *local* and subsequent menu choice. It appears that the participants who chose the menu item with the word *local* looked at it more often before making their final menu choice. This might indicate the importance of the presence of the extrinsic cue word *local* in menu items, which include locally grown food ingredients. Besides, the research examined how do the consumers' visual attention (TFD and FC) to the cue words *fresh* and *local* on menu items differ by demographic characteristics (gender, age, and income). There was a significant difference in FC between the age groups of 19-25 and over 25 on the intrinsic cue word *fresh*. FC on the intrinsic cue word *fresh* was higher for age groups of 19-25 compared to over 25. This result suggests that the presence of the intrinsic cue word *fresh* on menus appears to be more important for the age group of 19-25 in current research. In summary, TFD on cue words *local* and *fresh* is not as important as FC. When it comes to participants' reasons for their menu selection, the cue words *local* and *fresh* do not seem to be the main reason determining their menu item selection. Only three participants stated that they selected a particular menu item because it was described as *local;* and three other participants chose a particular menu item because it contained the word *fresh*. Many participants picked steak, as the description made it look appealing in this research. Hence, it is important to note that description

of food items plays an important role in menu selection as well-crafted descriptions increased the menu selection.

This study contributes to the existing literature of locally grown food by utilizing an eye-tracking approach in the investigation of consumer menu choice and identifying if extrinsic (*local*) and intrinsic cue words (*fresh*) could capture participants' visual attention. The findings suggested that hyper-local restaurants should utilize and highlight the important cue words *local* and *fresh* by making them appear more frequently in menu items and by using a story marketing approach in menu design to attract the members of Generation Z or younger generation. Additionally, restauranteurs are advised to use well-crafted descriptions with the word *local* in their menu as it was shown in this study to influence the menu selection of consumers. Other descriptive words such as fresh, organic, healthy, support and community that are closely related to the word *local* can be also used together in menu descriptions.

6.2 Limitations and Future Study Recommendations

This study has several limitations. First, the samples obtained for the current research were recruited from the southeastern United States. Samples from different regions might hold different perspectives on tested cue words. Thus, the findings may not be generalized beyond this population group.

Second, this research observed the visual attention of consumers on the words *fresh*, *local*, and *hyper-local*. While consumers recognized the words *fresh* (Bruhn et al., 1992; Chambers et al., 2007; Feagan et al., 2004; Tregear & Ness 2005; Onozaka et al., 2010) and *local* (Aprile et al., 2016; Eastwood et al., 1987; Gallons et al., 1997; Patterson et al., 1999; Vieregge et al., 2007) as important factors, other words written down by the participants such as healthy, organic, and price might attract consumers' attention as well. Therefore, future studies

should expand the scope of this research by measuring TFDs and FCs of words more familiar to consumers.

Third, it appeared that the participants were not familiar with the word *hyper-local*. Therefore, asking them to provide three words associated with this concept might not be an accurate reflection of how much they understood this concept. Hence, the survey instrument can be improved by defining this term to the participants before the open-ended question is shown.

Fourth, this study did not consider other confounding factors that could have affected consumer food choice selection, such as personal preference and health. In addition, financial status of the participants, which mostly consisted of student groups could also be a confounding variable, which may influence students' shopping and dining habits by prioritizing the presence of the word *fresh* in their menu items. Hence, future research could add a few more questions into the online survey to collect more complete data about these confounding variables and to better control them in the analyses. Future studies could also include questions that classify participants into groups that are highly supportive of locally grown food and those who are not (high vs. low) and compare how visual attention differs based on such status.

Fifth, there was a limited number of menu items, 4 items, used in this research. As this was an exploratory research, more menu items can be included in the future. Lastly the Tobii X2-60 eye-tracker used in this research was attached to the computer to collect the TFDs and FCs. As a result, findings may not be reflected of real customer behavior when using other devices such as mobile phones, tablets, and laptops. Moreover, the study was conducted in a lab setting and was not a real reflection of a real commercial restaurant. It is recommended that the future studies be conducted in a restaurant to be more realistic.

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Appendix A Auburn University IRB Approval

Kim Approval, Protocol #20-270 MR 2006, "An Eye-tracking study: Does intrinsic and extrinsic cue word of locally grown food menu items influence consumers' visual attention and product choice at hyper-local restaurants?

IRB Administration <irbadmin@auburn.edu>
Mon 8/3/2020 10:11 AM
To: Yoonah Kim <yzk0054@auburn.edu>
Cc: Yee Ming Lee <yzl0085@auburn.edu>; Martin O'Neill <oneilm1@auburn.edu>

2 attachments (4 MB)
Investigators Responsibilities rev 1-2011.docx; Kim 20-270 MR 2006 revisions 1.pdf;

Use IRBsubmit@auburn.edu for protocol-related submissions and IRBadmin@auburn.edu for questions and information.
The IRB only accepts forms posted at https://cws.auburn.edu/vpr/compliance/humansubjects/?Forms and submitted electronically.

Dear Ms. Kim,

Your protocol entitled "An Eye-tracking study: Does intrinsic and extrinsic cue word of locally grown food menu items influence consumers' visual attention and product choice at hyper-local restaurants?" has received approval as "MR" under federal regulation 45 CFR 46.110(b)(Expedited 9). Please find approval of your protocol attached.

Official notice:
This e-mail serves as official notice the protocol has been approved. By accepting this approval, you also accept your responsibilities associated with this approval. Details of your responsibilities are attached. Retain a copy for your records.

Expiration:
Your protocol will expire on June 20, 2021. Submit a final report or renewal request **four to six weeks** prior to expiration.

When you have completed all research activities, have no plans to collect additional data and have destroyed all identifiable information as approved by the IRB, please submit a final report.

Best wishes for success with your research!

IRB Admin
Office of Research Compliance
Auburn University
115 Ramsay Hall
Auburn, AL

Appendix B Participant Recruitment Flyer

ARE YOU A FOODIE?
SEEKING VOLUNTEERS FOR AN EYE-TRACKING RESEARCH

Study Title: Does intrinsic and extrinsic cue word of locally grown food menu items influence consumers' visual attention and product choice at hyper-local restaurants?
Principal Investigator: *Yoonah Kim, PhD Candidate, NDHM*

The purpose of this study is to observe how does intrinsic and extrinsic cue word of locally grown food menu items influence consumers' visual attention and product choice at hyper-local restaurants.

To participate in this research, you must:

- Be a Student/faculty/staff of Human Sciences Department at Auburn University
- Be 19 years old or older
- Required to have normal or corrected-to-normal vision and full color vision
- Excluding older adults and an individual of any age who have serious underlying medical conditions (e.g., heart, lung disease, diabetes, and all other medical conditions)

Participation in this study involves:

- A time commitment of 15 minutes
- Coming to laboratory for integrative decision science (LIDS) at Auburn University to complete eye-tracking and survey
- A monetary reward of $10 for participation

To find out more information about this study, please contact Yoonah Kim:
Email: yzk0054@auburn.edu

Eye-tracking research Yoonah Kim yzk0054@auburn.edu

Email invitations

Hello everyone, are you a foodie? We are seeking volunteers for an eye-tracking research. The purpose of this study is to observe how does intrinsic and extrinsic cue word of locally grown food menu items influence consumers' visual attention and product choice at hyper-local restaurants.

Study Title: Does intrinsic and extrinsic cue word of locally grown food menu items influence consumers' visual attention and product choice at hyper-local restaurants?
Principal Investigator: *Yoonah Kim, PhD Candidate, NDHM*

To participate in this research, you must:

- Be a Student/faculty/staff of Human Sciences Department at Auburn University
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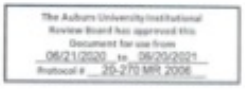
Email: yzk0054@auburn.edu



Appendix C Tobii X2-60 Eye-tracker

Appendix D AOI (Area of Interest)

Appendix E Questions for Online Qualtrics Survey

The purpose of this section is to obtain information on the final menu choice and perceptions on locally grown food.

1. What is your final menu choice?
   ☐ Arabica crusted steak
   ☐ Fresh herb grilled chicken
   ☐ Local all natural beef burger
   ☐ Wood fire grilled salmon

2. What are the reasons for your final menu choice?

   _____

   _____

Based on your previous purchase experience of locally grown food, please rate each item on a scale of 1 (strongly disagree) to 7 (strongly agree).

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	agree	Strongly agree
3. I am familiar with the word *fresh*.	1	2	3	4	5	6	7
4. I am familiar with the word *local*.	1	2	3	4	5	6	7
5. I am familiar with the word *hyper-local*.	1	2	3	4	5	6	7
6. I am familiar with locally grown food.	1	2	3	4	5	6	7
7. When grocery shopping for fruits and vegetables I do care for locally grown food (e.g., Alabama grown).	1	2	3	4	5	6	7
8. Buying locally grown food instead of non-locally grown food is beneficial.	1	2	3	4	5	6	7
9. Buying locally grown food instead of non-locally grown food is a wise choice.	1	2	3	4	5	6	7
10. Buying locally grown food	1	2	3	4	5	6	7

	instead of non-locally grown food make me feel good.						
11.	Buying locally grown food instead of non-locally grown food make me feel pleased.	1	2	3	4	5	6	7

12. How would you define local foods? Please, select all that applies.
    - ☐ Grown in the states (e.g., Alabama) person lives.
    - ☐ Food grown and raised within 400 miles or less where person lives.
    - ☐ Food grown in the USA.
    - ☐ Food verified as state grown (e.g., Alabama grown).
    - ☐ Food purchased from the farmers' market.
    - ☐ Other (Please specify) _____

13. How would you define hyper-local foods? Please, select all that applies.
    - ☐ Restaurant that serves food that grown in the states (e.g., Alabama) person lives.
    - ☐ Restaurant that serves food grown and raised within 400 miles or less where person lives.
    - ☐ Restaurant that serves food grown in the USA.
    - ☐ Restaurant that serves food verified as state grown (e.g., Alabama grown).
    - ☐ Restaurant that serves food purchased from the farmers' market.
    - ☐ Restaurant that serves food from their own properties (e.g., garden or farms).
    - ☐ Other (Please specify) _____

14. Name the three words you can relate to locally grown food.

    _____

15. Name the three words you can relate to hyper-local food.

    _____

16. In the last 3 months how many times have you bought (including grocery pick up) food labeled as "locally grown" (e.g., Alabama grown)?

    _____

17. In the last 3 months how many times have you dined (including curb side pick-up and take out order) at hyper-local restaurants which promote locally grown food?

    _____

18. Overall, where did you purchase locally grown food (including grocery pick up)?
    - ☐ Direct from a local farmer

☐ Grocery chains (e.g., Publix)
☐ Farmers' markets
☐ Corner stores
☐ Other (Please specify) _____

The purpose of this section is to obtain demographic information that will be aggregated to provide a summary of respondent characteristics.

19. What is your gender?
☐ Male
☐ Female
☐ Prefer not to answer

20. What is your race/ethnicity?
☐ White or Caucasian
☐ Black or African
☐ American Indian or Alaska Native
☐ Asian
☐ Native Hawaiian or Pacific Islander
☐ Hispanic of Latino
☐ Prefer not to answer
☐ Other (Please specify) _____

21. What is your age (in years)?

_____

22. Which of the following categories describes your household income**?**
☐ Below $25,000
☐ $25,000 - $49,999
☐ $50,000 - $74,999
☐ $75,000 - $99,999
☐ $100,000 and above
☐ Prefer not to answer

Appendix F COVID19 Precautions and the Screening Protocol of COVID-19

Risk of COVID-19

(a)General Precautions: The research activities will take place on campus. There is a location where a researcher and participants may wash their hands. Hand sanitizers will be available for a researcher and participants. COVID-19 risks and precautions will be included in consent documents. The researcher will self-quarantine (refrain from contact with others for a period of time) prior to the time-period they are physically interacting with participants.

(b) Screening and Rescreening: Screening process will be used for participants and a research personnel. All research participants should be screened remotely (by email, text, or phone) for fever, cough, and flu-like symptoms the day before and rescreened at the time at the time of an in-person visit (Auburn Health check). Following questions will be used for screening and rescreening:

1. Have you had any of the following symptoms in the past two weeks, even if they were mild?

- Fever or chills
- Cough
- Shortness of breath or difficulty breathing
- Fatigue
- Muscle or body aches
- Headache
- New loss of taste or smell
- Sore throat
- Congestion or runny nose
- Nausea or vomiting
- Diarrhea

2. In the past three weeks, have you visited another state, country, or facility with sustained (ongoing) occurrence of COVID-19?
3. Have you had close contact with a person that has tested positive for COVID-19 or who is under investigation for possible COVID-19?
4. Is there any additional information you would like to provide related to your possible exposure to COVID-19?

   Screening/rescreening will fail when potential participants refuse to respond during the screening/rescreening processes or have addressed symptoms from 1-4.

(c) Personal Protective Equipment (PPE):

A cloth face cover and disposable gloves will be worn by the researcher. All participants will need to bring and wear their own cloth face cover. There will be no donning and doffing PPE training for a researcher and participants. A researcher will change PPE after each session. PPE of a researcher will be disinfected by cleaning with disinfectant spray and gloves will be discarded.

(d) Surface Decontamination:

Participants will make contact with physical items (e.g., desk surfaces, chair, computer keyboard etc.) while present for research activities. Before and after each participant, a researcher will decontaminate physical items by cleaning with disinfectant spray.

Appendix G Information on COVID19 For Research Participants

Information on COVID-19 For Research Participants

Auburn University recognizes the essential role of research participants in the advancement of science and innovation for our university, community, state, nation, and beyond. Therefore, protection of those who volunteer to participate in Auburn University research is of utmost importance to our institution.

As you are likely aware, COVID-19 references the Coronavirus that is being spread around the world including in our country, state, and community. *It is important that we provide you with basic information about COVID-19 and the risks associated with the virus so that you can determine if you wish to participate or continue your participation in human research.*

How is COVID-19 spread? COVID-19 is a respiratory virus that is spread by respiratory droplets, mainly from person-to person. This can happen between people who are in close contact with one another. It is also possible that a person can get COVID-19 by touching a surface or object (such as a doorknob or counter surface) that has the virus on it, then touching their mouth, nose, or eyes.

Can COVID-19 be prevented? Although there is no guarantee that infection from COVID-19 can be prevented and no vaccine is currently available, there are ways to minimize the risk of exposure to the virus. Examples include but are not limited to, "social distancing" where individuals physically distance themselves from others (a minimum of 6 feet is often used as a standard distance); using effective barriers between persons; wearing personal protective equipment like masks, gloves, etc.; washing hands with soap and water or sanitizing hands after touching objects; disinfecting objects touched by multiple individuals, etc.

What are the risks of COVID-19? For most people, COVID-19 causes only mild or moderate symptoms, such as fever and cough. For some, especially older adults and people with existing health problems, it can cause more severe illness. While everyone is still learning about this virus, current information suggests that about 1-3% of people who are infected with COVID-19 might die as a result.

Who is most at risk? Individuals over age 65 and those with chronic conditions such as cancer, diabetes, heart or lung or liver disease, severe obesity, and conditions that cause a person to be immunocompromised have the highest rates of severe disease and serious complications from infection.

What precautions should be taken? Based on the proposed research, precautions for the risk of COVID-19 will be addressed on a project by project basis. You will be provided with information about precautions for the project in which you may participate. Any site where research activities will occur that are not a part of Auburn University (offsite location) are expected to have standard procedures for addressing the risk of COVID-19. It is important for participants to follow any precautions or procedures outlined by Auburn University and, when applicable, offsite locations. Further, participants will need to determine how best to address the risk of COVID-19 when traveling to and from research locations. The US Center for Disease Control and Prevention has issued recommendations on types of prevention measures you can use to reduce your risk of exposure and the spread of COVID-19.

Auburn University is continuing to monitor the latest information on COVID-19 to protect our students, employees, visitors, and community. Our research study teams will update participants as appropriate. *If you have specific questions or concerns about COVID-19 or your participation in research, please talk with your study team.* The name and contact information for the study team leader, along with contact information for the Auburn University Institutional Review Board for Protection of Human Research Participants, can be found in the consent document provided to you by the study team.

Appendix H Informed Consent Form

AUBURN UNIVERSITY
COLLEGE OF HUMAN SCIENCES
Department of Nutrition, Dietetics, and Hospitality Management

INFORMED CONSCENT

An Eye-tracking study:
Does intrinsic and extrinsic cue word of locally grown food menu items influence consumers' visual attention and product choice at hyper-local restaurants?

You are invited to participate in a research study, which investigates how does intrinsic and extrinsic cue word of locally grown food menu items influence consumers' visual attention and product choice at hyper-local restaurants by using an eye-tracking method.

The study is being conducted by Yoonah Kim, a PhD. Candidate, Dr. Yee Ming Lee, Associate Professor from the Department of Nutrition, Dietetics, and Hospitality Management. You have been identified as one of the possible participants because you are the student/faculty/staff of Department at Auburn University or general public who are not older adults and are not an individual of any age who have serious underlying medical conditions (e.g., heart, lung disease, diabetes, and all other medical conditions),and are age 19 or older. You are required to have normal or corrected-to-normal vision and full color vision.

If you decide to participate in this research study, you will be asked to complete the eye-tracking session and survey related to dining scenario at the hyper-local restaurant which serves locally grown food in their menu and will be asked to choose one entrée item from the displayed menu. We intend to recruit a least 50 participants for our study. Your total time commitment of eye-tracking session and survey will be approximately 10-15 minutes.

Risk & Precautions for COVID-19
Due to the need for your physical presence at the research site and face to face interaction with the researcher or others there is a risk that you may be exposed to COVID-19 and the possibility that you may contact the virus. For most people, COVID-19 causes only mild or moderate symptoms. For some, especially older adults and people with existing health problems, it can cause more severe illness. Current information suggests that about 1-3% of people who are infected with COVID-19 might die as a result. You will need to review the Information on COVID-19 for Research Participants that is attached to this consent document. To minimize your risk of exposure, we will follow Human Research COVID-19 precautions prepared by Auburn University. This will include screening/rescreening of participant(s)/researcher(s), personal protection equipment (face covers and gloves) for participant(s)/researcher(s), decontamination of surfaces, location configuration and 6 feet social distance between persons. You will need to follow any precautions or procedures outlined by Auburn University and, when applicable, offsite locations.
Participant's initials _____