NEAR EAST UNIVERSITY
INSTITUTE OF GRADUATE STUDIES
MARKETING PROGRAM

EXPLORING THE IMPACT OF SENSORY MARKETING ON CONSUMER PURCHASE INTENTION USING FUZZY LOGIC

ADNAN OMAR ADNAN ALSALIHI

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I ADNAN OMAR ADNAN AL-SALIHI, hereby declare that this dissertation entitled 'Exploring the impact of sensory marketing on consumer purchase intention using fuzzy logic' ' has been prepared myself under the guidance and supervision of 'ASSIST. PROF. DR. GÜNAY SADIKOĞLU' and 'PROF. DR. RAHIB ABİYEV' in partial fulfilment of the Near East University, Graduate School of Social Sciences regulations and does not to the best of my knowledge breach and Law of Copyrights and has been tested for plagiarism and a copy of the result can be found in the Thesis.

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DEDICATION

To those who stood beside me throughout my studies, to my family, my friends.

To those who left this world early, for those who stood in the face of despotism to obtain their most basic rights.

To 500 martyrs, more than 22 thousand wounded, more than 3 thousand detainees and about 70 civilian activists were kidnapped and disappeared.

For those who stood until their last breath, fighting under a barrage of smoke bombs and at the mercy of sniper shots.

25th October 2019

This date will remain eternal forever

To your soul, peace

Martyrs of Iraq

Martyrs of the October Revolution

Nation martyrs

We will not forget you..

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ABSTRACT

EXPLORING THE IMPACT OF SENSORY MARKETING ON CONSUMER PURCHASE I USING FUZZY LOGIC

Sensory marketing is a useful marketing application that offers enterprises a real chance to increase their goods and services' profitability. Consumers' purchasing habits and satisfaction keep changing day after day from regular shopping to experience shopping. These changes in consumers' buying habits must be matched by developments that affect consumers' buying behaviour and push them to consume more products and use more services. The most crucial sensory marketing goals are to push the consumer to buy and consume more. This study will seek to analyse the impact of sensory marketing on customer satisfaction and customer satisfaction on customer purchase intention in Erbil city – Northern Iraq supermarkets by developing a Fuzzy logic model. For this purpose, five-sensory variables, sight, sound, taste, touch, smell, are used as input variables to determine mediating output variable customer satisfaction in the first stage. In the second stage, the impact of customer satisfaction on the output variable- purchase intention is determined. To perform the present research, 193 questionaries were distributed among customers. Based on statistics and fuzzy set theory, customer satisfaction degrees are determined. The methodology used to determine customer satisfaction is based on fuzzy conjoint analysis that measures the customers' closest opinions and experts to evaluate customer satisfaction degrees. Afterwards, the influence of customer satisfaction on purchase intention is determined. The obtained research results indicate the efficiency of the presented approach in determination buying intention in retail markets.

Keywords: Sensory marketing, Customer satisfaction, Purchase intention, Fuzzy logic, Supermarkets, 5 senses.

ÖZET

BULANIK MANTIK KULLANARAK TÜKETİCİ SATIN ALMA DAVRANIŞLARINDAKİ DUYUSAL PAZARLAMANIN ETKİSİNİN BELİRLENMESİ

Duyusal pazarlama, işletmelere mal ve hizmetlerinin karlılığını artırmak için gerçek bir fırsat sunan faydalı bir pazarlama uygulamasıdır. Tüketicilerin satın alma alışkanlıkları ve memnuniyeti, düzenli alışverişten, alışveriş deneyimine kadar her geçen gün değişiyor. Tüketicilerin satın alma alışkanlıklarındaki bu değişiklikler, tüketicilerin satın alma davranışını etkileyen ve onları daha fazla ürün tüketmeye ve daha fazla hizmet kullanmaya iten gelişmelerle eşleşmelidir. En önemli duyusal pazarlama hedefleri, tüketiciyi daha fazla satın almaya ve tüketmeye itmektir. Bu çalışma, bir Bulanık mantık modeli geliştirerek, Kuzey Irak süpermarketlerindeki, Erbil şehrinde duyusal pazarlamanın müşteri memnuniyeti üzerindeki etkisini analiz etmeyi amaçlamıştır. Bu amaçla ilk aşamada müşteri memnuniyetine aracılık eden çıktı değişkenini belirlemek için girdi değişkenleri olarak beş duyusal değişken olan görme, ses, tat, dokunma, koku kullanılmıştır. İkinci aşamada müşteri memnuniyetinin çıktı değişkeni - satın alma niyeti üzerindeki etkisi belirlenmiştir. Araştırmayı gerçekleştirmek için müşteriler arasında 193 soru formu dağıtılmıştır. İstatistiklere ve bulanık küme teorisine dayalı olarak müşteri memnuniyeti dereceleri belirlenmiştir. Müşteri memnuniyetini belirlemek için kullanılan metodoloji, müşterilerin en yakın görüşlerini ve müşteri memnuniyet derecelerini değerlendiren bulanık konjoint analize dayanmaktadır. Daha sonra müşteri memnuniyetinin satın alma niyetine etkisi belirlenmiştir. Elde edilen araştırma sonuçları, sunulan yaklaşımın perakende pazarlarında satın alma niyetinin belirlenmesindeki etkinliğini göstermektedir.

Anahtar Kelimeler: Duyusal pazarlama, Müşteri memnuniyeti, Satın alma niyeti, Bulanık mantık, Süpermarketler, Beş duyu

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CHAPTER 1

INTRODUCTION AND BACKGROUND OF THE STUDY

1.1 INTRODUCTION

A routine food shopping trip at the end of the 19th century was not as convenient, fast, and quick as today. For instance, there can be several stops to buy food; stop at the meat butcher, stop at the fruit store for fresh goods, and so on. Before the supermarkets' concept, a "chain store" name people used in the late 1870s (Reardon and Gulati, 2008). In the early days of retailing, purchasing the product's process was usually by picking up the goods only by the seller from shelves behind him when buyers stood in front of the counter and indicated the things they wanted (Vadini, 2017). At that time, the shopping process was slow in nature and very labour intensity. Therefore it was costly due to the nature of the products coming without packaging for consumers, which forced the seller to package the goods to suit the consumer needs. Then, between 1920 and 1930, the idea of supermarkets started and went global in the 1950s (Chathuranga & Lakshika, 2019). Historically, there was an argument about supermarkets' origin and concept before the Food Marketing Institute (FMI) and Smithsonian Institution & H.J. Heinz funding researched the issue. They defined the supermarket as "a self-service, separate product departments, offering a full line of groceries, meat, and produce with at least $2 million in annual sales and up to 15 per cent of their sales in general merchandise (GM) and health & beauty care (HBC). Stores typically carry anywhere from 15,000 to 60,000 SKUs (depending on the size of the store) and may offer a service delivery, a service bakery, and a pharmacy" (Bishop, 2014). (depending on the size of the store) and may offer a service delivery, a service bakery, and a pharmacy" (Bishop, 2014). On

August 4, 1930, they also decided that retired Kroger employee, Michael J. Cullen, opened the first real store in the United States inside a 6,000-square-foot (560 m2) former garage in Jamaica, Queens in New York City (Sicilia, 1997). King Kullen store run under the slogan "pile it high, sell it low", and seventeen King Kullen stores running in business at Cullen's death in 1936. While Saunders brought self-service, uniform shops and national marketing to the world, Cullen expanded on this idea by introducing separate food departments, selling large quantities of food at discounted rates, and adding a parking lot. The other started to follow Cullen's idea and started to open their stores and chains in different U.S. cities and then to the world. At first, Kroger and Safeway Inc. ignored Cullen's idea but finally were forced to create their stores as the economy dropped into the Economic Crisis. At the same time, customers were price-sensitive to a level never before seen (Mathews , 1996). Kroger took the concept a step forward and built the first store surrounded by a parking lot on all four sides.

During that period and to this day, supermarkets have witnessed significant development, starting from the shopping chain stores to the supermarkets, Hypermarkets and now online market. These changes occurred due to the intense competition between the retail trade and the significant changes for buyers. Their focus was only on the products' functions and attributes in the early days. Now the situation is different. The buyer focuses on the importance and the added benefits given to them. One of those is the store experience which cannot be ignored (Australia Market Research, 2020).

As competition for store-based business has become too high, retailers need to develop and build a new and detailed competitive predominance and transaction philosophy regarding price, ease, time savings and trading effectiveness (Ogden-Barnes & Barclay, 2011). In retail practice, the entire process can be viewed as a sensory experience when a person enters a retail store, including vision, hearing, touch, smell and taste. All these elements influence their purchase intention, and subjective feeling and experience could make a final purchasing decision (Krishna A. , 2012). The concept of sensory marketing is not new; marketers focused on the use of sight for branding during the 1950s. They concentrated on colour and shape; this was because posters became the primary medium for advertisement. As TV became popular, the

sound was appealed in advertising; this was mainly due to jingles during TV advertisements. Marketers started to learn in the 1970s that scent could be used in the marketing of goods. To make them more appealing to the customer, they could even change the smell of their goods. Sensory branding has expanded recently to include the five senses because marketers today realize that the more senses they appeal to, the more efficient the branding will be (Valenti & Riviere, 2008). Sensory marketing relies on the manipulation of the senses connected closely to a product or service. Sensory gratification increases the product's attributes to make it more memorable and enduring in the buyer's memory. Sensory marketing is a modern phenomenon of the millennium that arose from a need to deal with evolving customer preferences from the marketer's perspective. Research also suggests that it will help boost the shop differentiation by developing a desirable environment using the sensory attributes (Sakamoto & Watanabe, 2017). Therefore, most retailers appear to be an incentive to communicate with the customer's five senses. In reality, it is acknowledged by a variety of retailers that sensory interaction has played a significant role in revitalizing the atmosphere of the shop (Ogden-Barnes & Barclay, 2011).

Consumers now demand a broader variety of buying and consumption experiences (Klopotowska , 2017). Kim and Jung (2018) mentioned that modern customers rely on memorable and sensory experiences (Kim & Jung, 2018). Hultén (2015) concluded that sensory marketing activates the five humans' senses to impact consumption activities (Hulten B. , 2015) Sensory marketing produces optimistic feelings that eventually contribute to behavioural responses, such as purchases or revisits (Krishna A. , 2012). (Klopotowska , 2017) agreed that sensory marketing affects customer buying decision-making. According to MONDAL (2017), in the article "Study on the factors affecting customer purchase activity in retail stores by confirmatory factor analysis" the author explained that "Customer satisfaction is a reaction to anticipation, product functioning after buying, experience with the product, or experience during shopping". Thus, sensory marketing increases brand and product recognition and contributes to more positive consumption actions by supporting customer trust. Sensory marketing plays essential roles in different fields such as packaging design (Krishna, Cian, & Aydınoğlu, 2017), Clothing

stores (Wade Clarke, Perry, & Danson, 2012), and fast food industry (Hussain, 2014). However, few studies explored the importance of sensory marketing in supermarkets. Hence, this study explores all sensory marketing attributes and how they affect customer satisfaction and customer purchase intention in supermarkets.

The goals of this study are:

1- Investigating the impact of the sensory marketing attributes (Sight, smell, touch, taste, and sound) on customer satisfaction in Erbil city – Northern Iraq supermarkets.

2- Investigating the impact of customer satisfaction on customer purchase intention in Erbil city – Northern Iraq supermarkets.

1.2 Background of the Study

Theoretically and in reality, sensory marketing is an evolving marketing strategy (Hultén, Broweus , & Van Dijk, 2009); (Krishna A. , 2010). Sensory marketing is a type of marketing that humans' five senses are involved in the procurement and consumption process, leading to a brand image, customer satisfaction, value, and experience (Hultén, Broweus , & Van Dijk, 2009). People using their five senses of smell, hearing, seeing, tasting, and touching in their daily experiences to understand and feel the environment and the outer world (Achrol & Kotler , 2011). The five senses help create multisensory, consumer and personal brand perceptions with goods, products, services and physical or digital service environments (Hulten B. , 2020). A popular view is that sensory marketing brings new challenges and possibilities to address the desires, wants and needs of a customer on a deeper, inner personal level than ever before (Hulten B. , 2020).

In the modern context of the experience economy, many retailers identified that it is not enough to provide products and services to people and enterprises to satisfy their needs and wants (Caru & Cova, 2003). A significant pattern preferred by dozens of customers is that they hope to have a more individualised shopping experience when visiting a supermarket against the

almost similar and unified retail design (Dowdy, 2008). Therefore, in high product homogenisation, empathising with interior design could be an effective retail store tactic to improve exclusion from several rivals. In retail stores, when individuals enter a store, the entire process may be classified as a sensory experience, including vision, hearing, touch, smell and taste, influencing their purchase intention, and the subjective feeling and experience can lead to the final purchasing decision (Krishna A. , 2012). Researchers also argued that creating a favourable store atmosphere using sensory marketing could enhance store differentiation (Sakamoto & Watanabe, 2017). Therefore, for most retailers, it appears to be an incentive to communicate with customers' five senses. Indeed, most retailers agree that sensory engagement has played a large part in revitalising the customer experience (Ogden-Barnes & Barclay, 2011). According to MONDAL (2017), in the article "Study on the factors affecting customer purchase activity in retail stores by confirmatory factor analysis" the author explained that "Customer satisfaction is a reaction to anticipation, product functioning after buying, experience with the product, or experience during shopping".

Therefore, this study aims to fill the gap by developing the fuzzy logic model that measures sensory marketing's effect on customer satisfaction degree and analyses the relationship between customer satisfaction and customer purchase intention.

1.3 Problem Statement

Several studies on this subject have been undertaken. For example, Krishna (2012) stated that sensory marketing and customer satisfaction and experience are growing. There are many changes and important aspects of sensory marketing that need to explore further in future studies. Lindstrom (2005) mentioned that traditional advertising is not a more useful tool to achieve goals. This author also stated that sensory marketing is a great tool to build robust emotional ties between consumer and products, which had not been investigated.

This study has been neglected in marketing in Iraq, especially in Erbil city. Moreover, the tested models are not enough (Hulten B. , 2020). Many studies

suggested various indications that might work best with sensory branding. According to Issanchou (1996), sight is the most robust sense of creating a brand image. However, Hulten (2011) argues that each sensor measures a different impression and is related to the five senses. Many authors stated that taste was seen as a primary source of response that should be explored further, but Allison, Gualtieri and Petsinger (2004) state that, besides flavour (taste) and texture (touch) only, there was a need to communicate about more touchpoints. Another difficulty in the practical study of sensory branding was that one could easily copy others' sensory experiences. A store could have a unique commodity, such as Starbucks using proprietary coffee beans to make the best-selling coffee. However, the design, architecture and ambience of the café may be imitated and would be the elements that differentiate the brand (Kent, 2003). Therefore, retailers try to develop valuable innovation to ensure that they met today's customers' needs and wishes (Soars, 2009). Another gap suggested by Lesschaeve (2007) is that one area that has not been thoroughly discussed to date was how buyers equate their sensory preferences to the goods or services they purchased and how to end them. Siba and Miller (2011) showed that sensory marketing is the best practice to create a multisensory branding experience for consumers.

Consumer behaviour and consumer preferences are other areas that should be investigated in order to understand the preferences and behaviour of consumers towards different products or services through sensory marketing aspects. A few sensory marketing studies attempted to separate the impact of internal and external indications on consumers' behaviour and choice (Enneking, Neumann, & Henneberg, 2007). Unfortunately, most of these studies limited their approach to single sensory attributes, such as sweet taste or pleasant smell, preventing multiple sensory indicators from interacting. All the gaps mentioned above suggest studying the impact of sensory marketing on customer satisfaction and customer purchase intention.

1.4 Purpose of the Study

The purpose of this study is to invistigate the effect of multisensory attributes on customer byuing intention which decomposed into two stages- investigating

the effect of sensory marketing attributes (sight, touch, taste, smell, and sound) on customer satisfaction and analysing the impact of customer satisfaction on customer purchase intention in supermarkets in Erbil city.

1.5 Research Objectives

This study aims to develop a fuzzy logic model that investigate the impact of sensory marketing attributes on customer satisfaction and analyze the relationship between customer satisfaction and purchase intention in Erbil city-Iraq supermarkets. The theoretical objectives are to review the theoretical literature of sensory marketing elements (Sıght, Taste, Sound, Touch, and Smell), customer satisfaction and customer purchase intention.

1.6 Justification of the Study

This study is essential to the practice and body of knowledge in sensory marketing. Several recent experiments have led to sensory marketing as a technique that positively impacts purchase intention (Krishna A. , 2012). However, no similar studies have been previously done in Erbil city supermarkets until the author knowledge. Moreover, there is limited research that had been conducted in this field in other countries. From previous studies, results showed that sight is one of Sri Lankan supermarket customers' most essential sensory attributes that effect on purchasing products process compared to other sensory attributes such as sound, scent, touch, and taste. This research will develop a Fuzzy logic model to analyse the data obtained through questionnaire from supermarket shoppers across Erbil city. This model will provide a novelty to this research due to the limited research used the same model and methodology. Moreover, The researcher focused on supermarkets because there is a lack of customer senses in this sector.

A fuzzy logic model used in this study will help supermarkets owners, sales managers, and marketers increase their knowledge of how consumers should be familiar with sensory indications in retail stores and enhance customer satisfaction, leading to customer purchase intention.

1.7 The significance and contribution of the Study

This study contributed first of all by designing a fuzzy model that determine the impact of sensory marketing attributes on buying intention. Second, analysing sensory attributes and how to impact customer satisfaction by using the fuzzy model. Third, designing a fuzzy model that determine the impact of customer satisfaction on customer buying intention.

The results of this study will clarify the right attributes and purchase intention criteria of supermarket shoppers and how they respond to different sensory marketing elements.

This study's significance is to show the following; Firstly, this study can provide new sensory marketing information in retail stores. This information can also be used as a foundation or framework for future studies of a similar nature. The study can also be used as reference material by other scholars. Besides, this study findings may be necessary to the education sector of the northern Iraq region. It has the potential to determine the impact of sensory marketing on purchase intention and how these sensory marketing elements can enhance customer satisfaction level. Lastly, this study fulfils the researcher's requirements for obtaining a Master's degree in Social Science Marketing program.

1.8 Research Questions

Q1: How does the sensory marketing attribute influence customer satisfaction degree?

Q2: How does customer satisfaction degree influence purchase intention?

1.9 Conceptual Framework

Independent Variables
Sensory Marketing

Dependent Variables
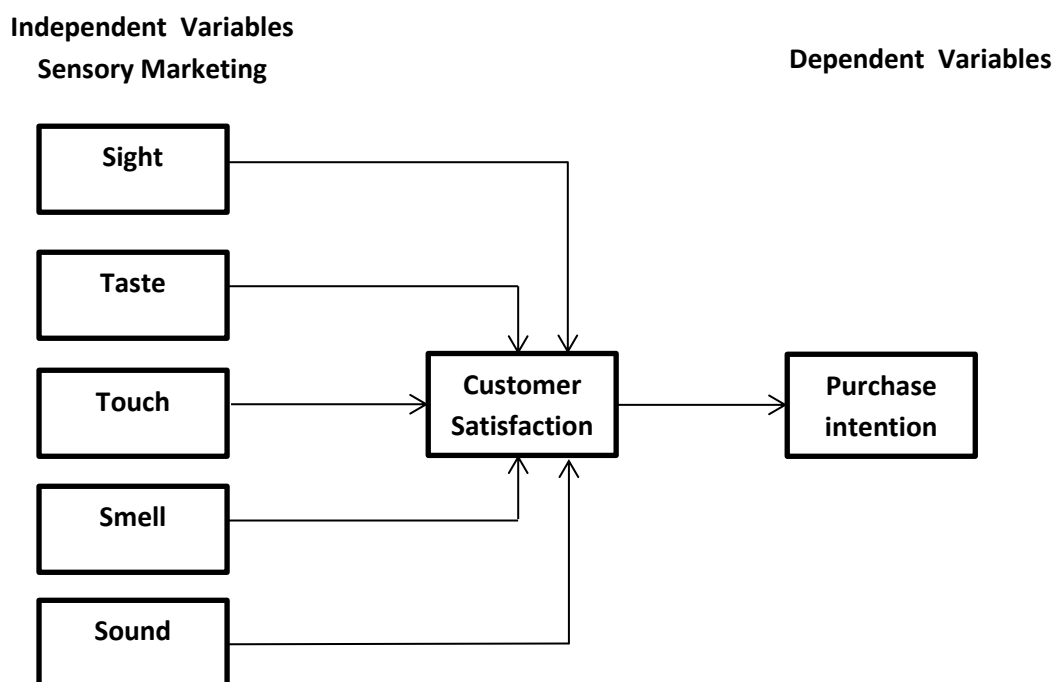
Figure 1.1 Conceptual framework

The model above represents the relationship between independent and dependent variables. The study seeks to determine the effect of the sensory marketing variables (Sight, Taste, Touch, Smell, and Sound) on customer satisfaction and customer satisfaction on purchase intention in supermarkets.

1.10 Structure of the thesis

Chapter 1 This chapter introduces the research topic in detail and provide a general overview of the whole study. This chapter provides the conceptual model, research questions, research objectives that guide the study. İt also highlight the reasons for the conduction of the study.

Chapter 2 This chapter reviews theoretical and empirical literature regarding sensory marketing and its impact on purchase intention.

Chapter 3 This chapter deals with the methodology of the study. Detailed information regarding research design, data collection procedures, sampling and analysis methods is provided.

Chapter 4 This chapter focus on analysing the collected data and will provide the findings and discussing the findings obtained from the analysis.

Chapter 5 This chapter provides future recommendations as well as conclusions drawn from the current study.

CHAPTER 2

LITERATURE REVIEW

Marketers have been developing brand identities, product concepts, and communication campaigns based on human hearing and visual senses since the marketing evolution of the 1950s. Nevertheless, Lindström (2005) notes that only these two senses interact with 99 percent of the brands. How will retail stores build and improve this bond between their consumers and their brand in an increasingly growing rivalry and engaging with intelligent, more fair- rational consumers?

Two decades ago, many professionals decided to discover a new technique. They came with a "Sensory Techniques" idea by exploring all five human senses and adapting them to the sector, which gives birth to a new field: "sensorial Marketing." As explained further, sensorial marketing comes along with other principles, such as experiential and emotional marketing.

Work continues from now on, and hypotheses and models on sensorial marketing are still being experimented with, although scholars accept that more work is required. However, very few businesses, including retail stores, have or experiment with a clearly defined sensory strategy. Little literature can, therefore, be found on sensorial marketing applied to a particular sector.

This chapter explains the theoretical frameworks used and overviews all the study variables in terms of both theories and empirical studies on the frameworks. First, the chapter provides an overview of sensory marketing that includes the definition and background of sensory marketing and sensory marketing theories. These theories include the Sensory Marketing (S.M.)

model, the conceptual framework of sensory marketing, the sensory engagement process, brand experience by senses, and the customer experience model. This chapter then shifts from an overview of the theory to the empirical element of the literature review. The study's construct is addressed in depth under the empirical analysis, including sight, sound, touch, taste, smell, customer satisfaction, and purchase intention. In the present study, each construct is described, analysed using related studies, and conceptualised. The time variable has also been discussed briefly.

2.1 Background of Sensory Marketing

Sensory marketing, initially proposed by Schmitt (1999), is a marketing technique that enhances consumer emotions by appealing to the five human senses—"sight," "smell," "sound," "taste, "and" touch (Jang & Lee, 2019). Later on, Martin Lindstrom (2005) states that marketers are increasingly using marketing resources and communicating with customers, while returns are consistently declining – encouraging marketers to find out what appeals to people daily. The author also emphasises that marketers are only used to enhance two of the five human senses: hearing and seeing. Sensory marketing was later described by Krishna (2012) as a marketing strategy that can affect the five senses of consumers and their emotions, perceptions, judgments, and behaviours (Krishna A. , 2012). Erdil (2015) explained the sensory marketing application mechanism: it produces stimuli based on external environmental factors that may appeal to consumers' senses (Erdil, 2015). Such external environmental factors affect consumer emotions and product or company assessments, influencing customer purchasing intentions and behaviours (Erdil, 2015). Based on Lindstrom (2006), all five human senses can be affected by the external environment (Lindstrom M. , 2006). Human beings are most influenced by sight; sight's first perception allows customers to shape the product and brand identity (Ebster , 2011). "Sight" is the most powerful sense for delivering consumer sensory marketing messages (Lindstrom M. , 2005). "Smell" affects memory most strongly and most rapidly. Because smell is related to breathing, this is the one sense that cannot be ignored (Herz & Engen , 1996). "Sound" has a long-term effect on memory, and the sound absorbs a large amount of information. Sound varies according

to rhythm, pace, and intonation (Hultén, Broweus , & Van Dijk, 2009). "Taste" differentiates between sweet, salty, sour, spicy, and savoury (Ikeda, 2002). As humans eat food, the five senses function in harmony, as food is connected not only to taste but also to smell, texture, appearance, and the sound of chewing (Krishna, Cian, & Aydınoğlu, 2017). "Touch" is lastly a sensory element that the skin senses. When a person comes into contact with something or another, touch results in a connection between the two, altering human emotions and dramatically affecting communication (Hultén, Broweus , & Van Dijk, 2009). Sensory marketing is considered an effective marketing technique because it enables customers to distinguish a particular product or brand in various consumer-related decision-making situations (Krishna, Cian, & Aydınoğlu, 2017). As mentioned before, sensory marketing can affect all five human senses. Few studies have investigated all five sensory factors. For example, Clarke et al. (2012) clarified the sensory elements "sight" and "smell" that have a significant effect on customer buying experiences in the fashion industry. Four of the five sensory marketing elements (sight, smell, sound, and touch) are reviewed in the literature (Wade Clarke, Perry, & Danson, 2012). Iqbal (2016) applied these elements in the food service industry; the author assessed that playing music within stores gives the customers a sense of comfort. They also discovered that smell in one fast-food product, Kentucky Fried Chicken (KFC), creates a sense of excitement in customers (Randhir, Latasha, Tooraiven, & Monishan, 2016). Moreira et al. (2017) found that sensory experiences benefit pizza restaurants on brand experience and brand properties (Moreira, Fortes, & Santiago, 2017).

2.2 Sensory Marketing Theories and Models

As an evolving marketing strategy, sensory marketing has been proposed as a recent theoretical and practical approach that acknowledges the human senses' significant role (Hulten B. , 2020). Marketing research ignored human senses a long time ago in understanding how brands, goods and services can be used as customer interactions (Achrol & Kotler, 2012). Also, in sensory marketing, the value of perceptions and sense-making for people is emphasized. Besides, it is evident that consumer experiences are what consumers derive through their senses from their consumption of brands,

goods, and services, expressed as 'people want products because they want the experience of providing services which they hope the product will make' (Abbott, 1955).

It is evident that all brands, products, and services consumption includes customer's senses and reacts to their wants, wishes, and needs, resulting in satisfaction or dissatisfaction with customers' choices. The human senses' involvement lays the ground for the multisensory perceptions of an individual regarding "tastes, touches, smells, sights, and sounds." (Levy, 1999). The human senses can manage and create admire and preferences for products or services and discover a new way to satisfy the desires, needs, and wants. Each brand, products, and services have a sensory aspect relevant to the senses of human. Many brands and products are sensual in attracting one or more human senses to attract customers. Despite this, many brands and products highlight the importance of sensory elements in the consumer experience (Hulten B. , 2020).

2.2.1 Conceptual Framework of Sensory Marketing by Krishna (2012)

Krishna (2012) describes sensory marketing by using a conceptual framework as "marketing that engages consumers' minds and affects their perception, judgment, and behaviour" when considering concepts as perceptions and sensations. The five senses are also suggested to impact consumer attitudes, learning, and behaviour (Krishna A. , 2012). Figure (2.1) shows the Krishna conceptual framework of sensory marketing.
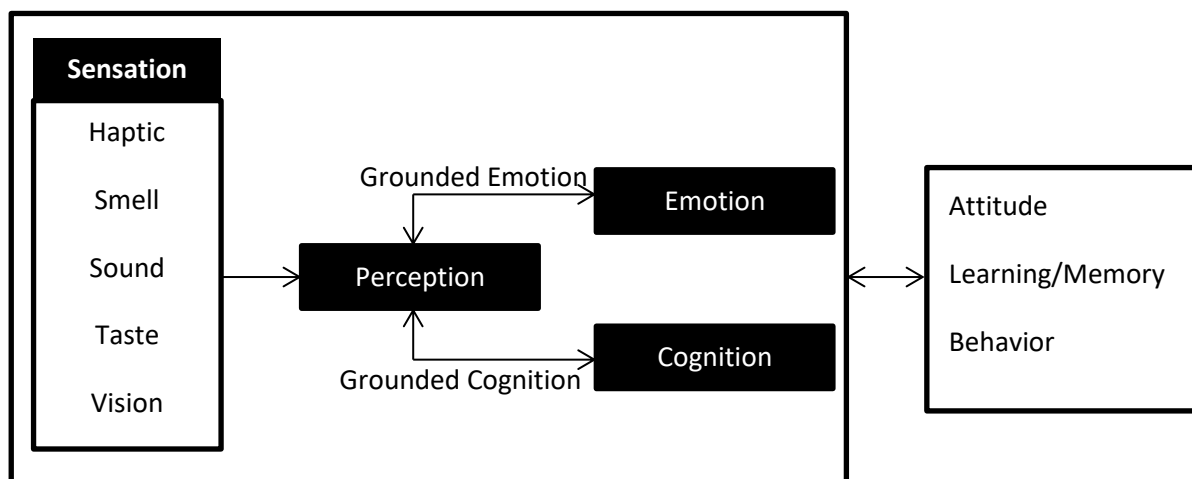
Figure 2.1 Model of Sensory Marketing

Source: Krishna (2012)

In figure (2.1) showed above, Krishna (2012) suggests that sensory marketing is an application for understanding sensation and perception in marketing fields. This process contains all five sensory elements which create perception. Besides, the perception creates emotion and cognition, which lead to define the customer's "attitude, learning and memory, and behaviour" (Krishna A. , 2012). The five human senses are essential for the individual's experience of various purchasing and consumption processes, as previous literature reveals (Agapito, Valle, & Mendes, 2012). Hultén (2011) indicates that the sensory marketing approach's fundamental purpose is to promote the multisensory brand perception concerning the five human senses through sensors, sensations, and sensory expressions. Sensors aim to communicate sensations and sensory expressions that enhance the customer's multisensory brand experience, which can also be represented as communicative means (Hultén B. , 2011). A sensation is described as a feeling or emotion that connects the human mind and the senses purposely (Hultén B. , 2011). A reason that makes a store to deliver a sensation is to be noticed by its customers. It is essential because the human senses continuously observe any slight change in the environment and memories (Lindstrom M. , 2005).

A sensory expression is defined as an experienced trigger that explains the identity and values and helps create a deep memory in customers' minds

(Hultén B. , 2011). All the customer's sensation through the shopping process will turn regular shopping into an experience shopping that will help the stores differentiate themselves.

Sensory marketing aims to make customers consume more by creating a unique atmosphere (Joshi, 2015). Using this model-based sensory marketing approach, marketers must distinguish their goods in a highly individualized way to affect customer behaviour. On the other hand, perception is described as the degree of awareness and understanding of sensory information. The five sensory attributes will be explained in-depth in the following chapter to provide marketers with insights about how to use sensory marketing strategy effectively.

2.2.2 The Sensory Marketing (S.M.) model by Hultin

This model is developed by Hultin et al. (2009) by giving a different perspective to the topic by describing all the sensations a consumer can feel and how in-store signals can express those sensations and transform shopping as an experience. The sensations produced by the five sensors are: Atmospheric (scent), Auditory (sound), Visual (sight), Gastronomic (taste), and Tactile (touch) are nature, where each relates to one of the five senses, and Sensory expressions are generated in relationships to these senses as it is shown in table (2.1) (Hulten, 2020).

Sensors	Sensations	Sensory Expressions
Smell Sensors	Atmospheric	Product congruence, intensity and sex Atmosphere, advertency and theme Scent brand and signature scent
Sound Sensors	Auditory	Jingle, Voice and music atmosphere, attentiveness and theme signature sound and sound brand
Sight Sensors	Visual	design, packaging and style Color, Light and theme graphic, exterior and interior

Taste Sensors	Gastronomic	Interplay, symbiosis and synergies name, presentation, and environmental knowledge, lifestyle and delight
Touch Sensors	Tactile	Material and surface temperature and weight form and steadiness

Table 2.1 Hulten Contribution

Consequently, a multisensory experience is generated that improves the brand positioning, image, and equity perception of customers (Hulten, 2020). It also stated that companies could provide multisensory brand experiences to individuals through service processes and sensory strategies in the sensory marketing model. Multisensory brand experience can be defined as:" A multisensory brand-experience contributes in consumer value, consumer experiences, and brand image as well to individuals" or "self-fulfilment and identity that created by engaging the five senses" (Hulten B. , 2020) figure (2.2). Sensory marketing (S.M.), as shown in figure (2.2), uses sensorial strategies to distinguish and express a product or service. The model consists of Sensors intended to express Sensations to the consumer. Those sensors are seen as follows:

- Scent Sensor

- Sound Sensor

- Sight Sensor

- Taste Sensor

- Touch Sensor
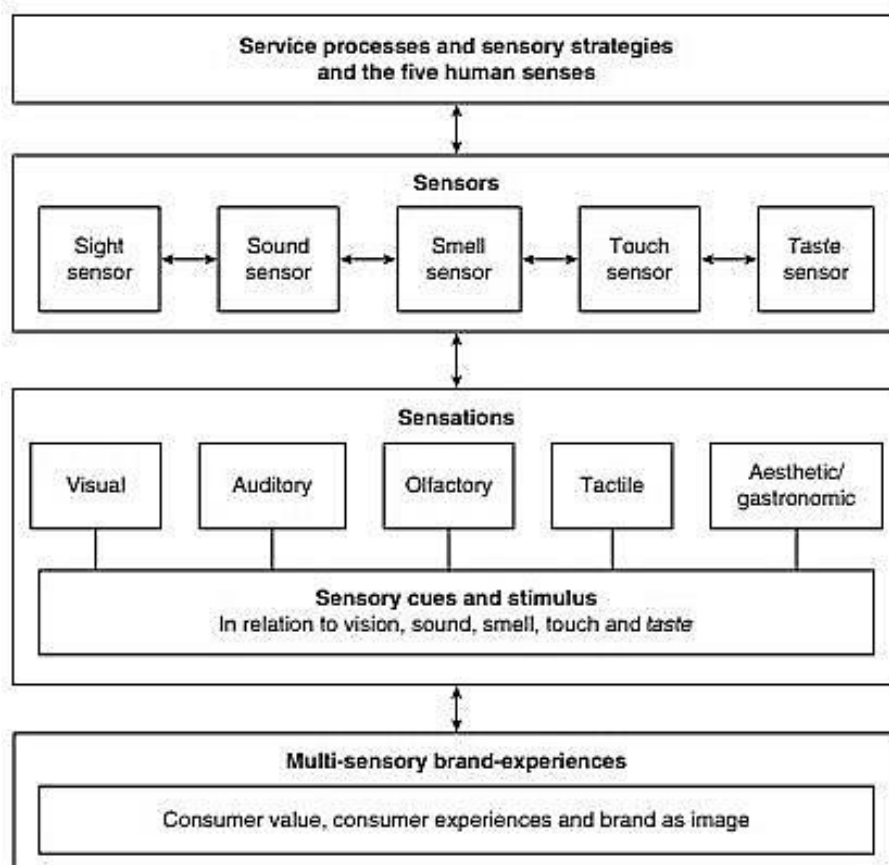
Figure 2.2 Sensory Marketing Model (Developed by Hulten 2009)

The S.M. model differs from the Transaction Marketing (T.M.) and Relationship Marketing (R.M.) models by illustrating how a company or a brand can distinguish itself in service processes through sensory strategies based on appropriate sensors, sensations, and indications and stimuli, as shown in table (2.2).

	TM	RM	SM
Marketing	Goods logic	Service logic	Experiential logic
	Exchange perspective	Relationship perspective	Brand perspective
	TM	RM	SM
Strategic marketing	Product focus	Customer focus	Mind and sense focus
	Customer acquisition	Customer retention	Customer treatment
	Transactional strategies	Relational strategies	Sensorial strategies
Tactical marketing	Persuasion and promotion	Interaction and interplay	Dialogue and on-line interactivity
	One-way communication	Two-way communication	Multi-sensory communication
	Production technology	Information technology	Digital technology

Table 1.2 From Transaction and Relationship to S.M. (Developed from Hulten 2009)

The S.M. model is based on a logic of experience and has its theoretical basis in branding, marketing, and retail principles such as consumer interest, customer experience, and image branding (Hulten B. , 2020).

The TM and R.M. models have indicated the inability to reach and satisfy individuals as customers on a deeper, more individual level concerning their desires, visions, feelings, and fun (Holbrook & Hirschman , 1982). Therefore, the S.M. model assumes that visual, emotional, and sensory elements generate sensations and sensory experiences for individuals (Hulten B. , 2020).

2.2.3 Brand Experience Through Senses Model

This model developed by Barclay and Odgen (2015) based on the multisensory branding model. Based on this model, brand experience is conveyed by assets of sensations, emotions, perceptions, hedonic and behavioural responses, and feelings (Barclay & Ogden, 2015). The brand experience model identified all five senses that directly associated with brand creation experience through the following features shown in figure (2.3):

- Sight: brand Look
- Taste: Brand flavour
- Touch: brand texture
- Smell: brand scent
- Sound: Brand soundtrack
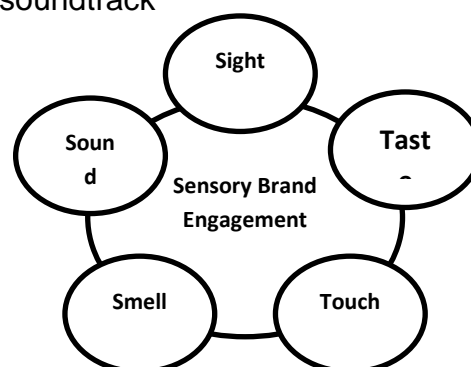
Figure 2.3 Brand Experience through senses

2.2.4 Customer Experience Model

This model has been proposed by Johnston and Clark (2008). This model explains the customer experience in a service space. They illustrate that each place provides services to individuals count as experience for the individual. They divided the service experience into two sections (Johnston & Clark , 2008):

- **Service Provided:** this is the internal operations of the service sector or service provider.
- **Service Received:** this when the customer received the rendered service.

These stages explained above involve the process and experience stages where the process used to create the necessary experience. In light of sensory experience, interaction and involvement of the customer in the overall experience included, as shown in figure (2.4).

Service Provided

OPERATION

INPUTS	PROCESS
	EXPERIENCE	OUTCOMES

CUSTOMER

Service Received
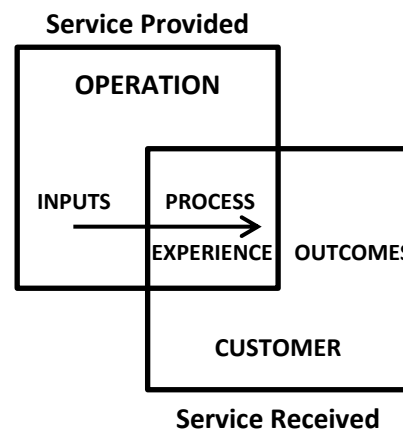
Figure 2.4 Customer Experience Model

2.3 Development of Conceptual Model

Independent Variables
 Sensory Marketing

 Dependent Variables
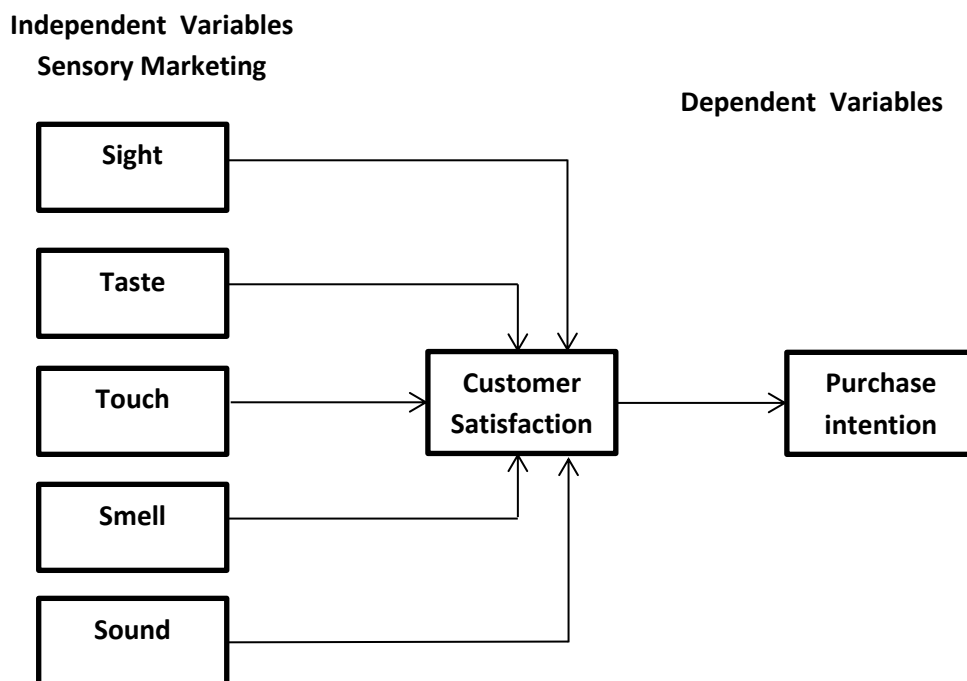
Figure 1.5 Conceptual Model

2.3.1 Sight

Krishna (2012) mentioned that much research had been performed on the sense of sight (vision). The visual aspects considered the easiest way to process the product information. Sight sense is the most controllable sense of consumers' five senses when making a purchase decision (Krishna A. , 2012). According to Barclays et al. (2015), sight considered the building block of retail marketing. Sight can include anything from products in the shop from product design, colour, packaging, space planning, store design, store colour, store signage, point of sale display and all the visual merchandising that utilised as communication to appeal this sense (Barclay & Ogden, 2015). Sense of sight has been defined as the visual aspect of marketing sensory (Soars, 2009). The aim of selling products is more than to aim to serve in each product we buy (Allison, 1999). The right packaging, shape, colour, and visual graphics of the product can represent the lifestyle image through product, customer judgment, and purchase decision (Allison, 1999). Just by looking at a product and its environment, people think about it, whether they like it or dislike it. The importance of appealing sight is to lead the customer to the products or attract

customers to increase brand awareness, leading to increased sales (Barclay & Ogden, 2015). The attracting customer process is also very sophisticated because decision-making is affected by psychological, sociological, and demographic factors. Customers pay attention to the merchandise quality, "visual and verbal elements" on the shelf, and other store cues. The use of visual and verbal elements in in-store products should be assumed to the product type; for example, customers who bought milk will focus on verbal elements rather than visual. Color also plays an essential role in visual elements, different colours, and attractive ones that could affect customer mood and perception in store (Barclay & Ogden, 2015).

Colours and shapes are one of the essential elements in the recognition and differentiation of the products. Many products are identified with a specific colour, so it is more easily memorized in the consumer's unconscious mind: like Coca Cola is red, Pepsi is blue. The colour can help companies differentiate themselves by using specific colour even if there is no written name on the package. According to studies, 78%consumers are more likely to remember a name or brand printed on colour than in black and white (Pantone Institute, 2000). The influence of colours is noticeable and established in the food and beverage industry. The following table (2.3) sums up some colour characteristics and how it impacts consumer behaviour (Eiseman, 2000): The choice and effect of colours varies according to the sector, gender and culture.

Colour	Characteristics	Examples
Red	The powerful force of excitation. Red improves the heart rate and breathing, as it raises blood pressure and enhances appetite.	They are highly used in restaurants to raise the person hanger. Moreover, due to the high level of excitement in red colour, it is more likely to be used in bars. Discounts by fast-food restaurants to increase traffic (eat &run)
Orange	It is friendlier than red, but with the same character to raise	Dunkin Donuts and Burger King is the best example of

	hanger and gain attention, especially among kids and teenagers.	using orange colour in their territories to raise hanger and attract more kids and teenagers.
Pink	This is the best colour for sweets because of the attractive character	They were mainly used by candies producers like sweet' N Low and sweet shops.
Yellow	Yellow point to comfortable and mean tangy, creamy and related to tasty food items,	McDonald's is the best example of a yellow colour. Tea houses or pastry shops also another example of yellow colour.
Green	Refreshment, nature healthiness and connected with vegetables.	Green is a sensitive colour since it is not attractive nor can be repulsive if not used in the right environment.
Blue	Sea, Sky and calmness. It can reflect the trust and purity	Bottled water with an icy blue hue can reflect the coolness and purity
White	Purity, cleanness, coolness, and it is the primary colour for everything else	For example, in restaurants, white is used everywhere can show the cleanness for customers
Black	Top of the range, quality, and sobriety	Used to create an extraordinary environment

Table 2.3 the characteristic of colours

2.3.2 Touch

In the fourth century B.C., the Greek philosopher Aristotle proposed that touch sensitivity was related to sexual touch being seen as an essential element of the five senses (Krishna A. , 2012). Peck and Childers (2003) described that

the only way to make sure that the products are worth to buy is by holding them physically and touch them. Their research also described that people who touch the products before buying them were more confident, leading them to buy them (Peek & Childers, 2003). Some research shows that touch can cause a negative effect when products touch another product; for example, the products touch other products in supermarkets like putting tampons next to the packet of potato chips (Krishna A. , 2012).

Touching is especially essential for the product assessment stage and store perception (Erenkol & Merve, 2015). Customers have different reasons and desires in the retail sector to contact the products or experience the touch (Kotler & Keller, 2016). Krishna (2010) shows that you can identify four forms of touch. The first three types of touch suggest that a customer engages in goal-driven, problem-solving pre-purchase behaviour, which can also be called functional touch. At the most superficial level, consumers may touch the product to make a purchase. The next level shows that consumers can touch a product to obtain non-haptic product details, e.g., touch to inspect the product, smell the product, etc., visually. The final level shows that Consumers may touch a product to obtain information on the haptic product, such as texture, hardness, weight, or product temperature—the fourth type called "hedonic" touch. The main goal of this type is just to touch the product and to have fun. This type may not lead to the purchase of the product (Krishna A. , 2010). Unlike other senses, the sense of touch is a tactile sense involving skin contact and is the most effective when individuals touch an object physically (Hultén, Broweus , & Van Dijk, 2009).

Kotler et al. (2016) prove that when customers touch or test the product, the opportunity to percentage will increase in purchasing this product. The touching product can create an image in mind, trigger a connection with product quality (Kotler & Keller, 2016). Also, touching can relive memories by feeling the product's texture (Hultén, Broweus , & Van Dijk, 2009).

Often touching the product can evoke an emotional reaction from the customer, which may increase the probability of impulsive purchasing and unplanned purchasing (Kotler & Keller, 2016). Therefore, the intended use of

texture in sensory marketing can increase the perceived value of a mark for customers (Hultén, Broweus , & Van Dijk, 2009).

Touch plays a significant role in male and female purchasing decision making. It has been found that males are more likely to respond positively to a product that a woman has come into contact with than a man; Women are likely to show a similar response, but to a lesser extent, if the product is felt by a handsome man (Barclays & Ogden, 2015). Therefore, marketers need to understand how using the sense of touch can be improved in experiential marketing (Soars, 2009).

The consumer who visits the store continues to be highly dependent and searches for unique content that can add value to the overall sensory shopping experience, which also serves the purpose of their visit (Barclays and Ogden, 2015). An excellent example of the touch experience in-store is the Adidas Store. They have provided an interactive shopping wall that allows customers to navigate and inspect 3D models of the shoes.

2.3.3 Smell

Krishna (2012) reflects the psychological connection between smell and memory. Scent-encoded information appears to last longer when transmitted to customers than information encoded with other sensory signals. Memories created through scents have a smaller degree of getting forgotten because scents trigger emotions (Herz R. , 2003). The ambient scent can stay longer in customers' minds, affecting product information processing and assisting customers in choosing during the purchasing time. Krishna (2012) also emphasises scent-based processing power by highlighting that scents can recall the verbal message. The pleasant smell can establish various seeking behaviour, increase product evaluation, and spend more time shopping in the aromatic space (Bosmans , 2006).

The only sense the human cannot turn off is the smell sense. This sense can trigger 75percent of human emotions (Lindstrom M. , 2005). This may be the reason why scents are more commonly used every day. The most popular aroma marketing technique in the food industry is synthetic scents to attract

customers on streets, subways, or supermarkets. However, the influence of scents on customer behaviour has been certified. First, researchers have demonstrated the positive effect of smell on product evaluation (Laird, 1935; Cox, 1969). According to Spangenberg, Crowley & Henderson (1996), a pleasant smell positively influences a customer's rating at the point of sale (and some of their products), intent to roam, and purchase, as does their time spent indoors (real and imagined). Nevertheless, the exact olfactory properties that could be the source of these effects have yet to be determined.

Based on Hulten et al. (2009) research, different expressions can be used to create a smell experience:

- First is the congruence of the product, its intensity, and sex. Product congruence refers to the extent to which the odour is congruent with the retail product or environment. For instance, if the shop's leading colour tone is yellow, it smells like orange and not grape—smell intensity, whether it is distinct or subtle. Besides, sex indicates that perfume may be feminine or masculine.
- Second, scents may be used to create atmospheres, themes, or advertising. Finally, it is possible to use a fragrance as a signature scent or establish a scent brand. Both are used to distinguish the brand from the marketplace. For instance, Victoria's Secrets a perfect example of using fragrance as a signature perfume in their stores (Goldkuhl & Styven, 2007).

There are a lot of individual variables for marketers to take into account. One of these variables is people gender Hirsch & Gay (1991) noted that women are more sensitive to odours than men. However, each sex, though, does not react to the same scent: for example, men stay more than women on the scented spice shelf (Wall Street Journal, 1990), when women are more sensitive to the scent of shampoo than men. Age also plays a role in perceptions. According to Doty (1984), the sense of smell disintegrates as a person ages.

The smell used in the marketplace to gain consumer attention. Many academic experts try to see how the effectiveness of the sense of smell in marketing. According to Hermann et al. (2012), using a congruent scent strategy would

result in a positive outcome, for example, strengthening the brand image and generating additional revenues (Hermann, Zidansek, Sprott , & Spangenberg, 2012).

2.3.4 Sound

Most of the marketing communication messages distributed, such as radio, television, songs, and jingles, are sensory. It also includes music played in the retail space, including stores, restaurants, hotels etc. (Krishna A. , 2012). Many products have their signature sounds like mobile phones with their ringtones, such as; Motorola with (Hello Moto) ringtone (Yorkston, 2010). Sound symbolism, the connection of words to sound, has been found to create favourable brand judgments by having a brand name sound that fits expectations. Millions of brands have used music in advertising for many years because it has meaning for a brand and is capable of evoking emotions as well as referential recall (Zhu & Meyers-Levy, 2005).

Sound has long been applied in mass marketing, with nearly all commercials have to include sound elements to convey the message. Much research suggests that sound was used as a tool to communicate with customers or to arouse the subconscious of customers (Meyers-Levy, Bublitz, & Peracchio, 2009). For example, from the jingle of brand advertising to the familiar alarm tone can hear while using the Apple phone, advertisers managed effectively to form the feelings, decisions, and behaviours of consumers using various sounds (Meyers-Levy, Bublitz, & Peracchio, 2009). According to Yorkston (2010), music's effect on customers can be analysed primarily by the following aspects:

- *Music Tempo:* The tempo of the music also associated with the pace of shopping. It has been shown that slower music keeps customers more engaged in the shop than fast music. On the other hand, fast music helps increase excitement and positive attitudes (Milliman, 1982).
- *Music Type:* It also affects consumer behaviour, not only on the perception of speed and time but also on product selection. To play the appropriate music, the type of music should be chosen according to the target demographics' particular taste (Yorkston, 2010).

- ***Music Volume:*** The amount of time spent in a shop also affects music volume. It has been found that customers remain in a shop less time when the music was soft as compared to music (Yorkston, 2010).

Music's powers lie in its ability to frame different stories and support emotional states and situations (Gumperz, 1977); (DeNora, 1986). The music aims to put the customer in a state of mind that matches the articles being sold: play rock music in a guitar store and imagine themselves playing with their future purchases. Music could then, if connected to the product, be a way to act based on a customer's buying behaviour (North & Hargreaves, 1996).

Studies have been conducted to determine what type of music is best suited to different types of places: for example, classical music will increase the perception of the quality of a wine cellar (North & Hargreaves, 1996). As mentioned before, music tempo can play a "crowd management" role in shops by influencing the time a customer spends indoors. For example, according to two studies from Roballey & Ali (1985) and Milliman (1986), a fast-paced piece of music will prompt a customer to leave early. On the other hand, a slow piece of music playing at a low volume will increase time and spend money indoors. The same studies also revealed that customers would eat faster and consume less with loud bass and fast-paced music. Another research from Smith & Curnow (1966) revealed that the customer adopts his walking speed according to the music's beat at the point of sale. Music offers a wide range of possibilities for marketers to influence customer behaviour and complement the atmosphere to create a robust sales environment.

2.3.5 Taste

Krishna (2012) stated that a person who experiences every single taste is not only a taste since it is a combination of five senses. The taste sensation is dependent on the other five senses, so it is difficult to find the right taste if it lost the sense of smell, especially in food. The brand name could also influence the taste sense and how to perceive taste (Lee, Frederick S. , & Ariely D. , 2006). The advertising, product ingredient, and healthiness report also plays an essential role in taste perception (Krishna A. , 2012). "According to Lidstrom

(2010), states that taste is detected by specific structures: taste buds. The human tongue is fitted with numerous taste buds, and each bud has between 50 and 100 taste cells. These cells pass the information to the brain every time people eat food, and this process helps to establish a sense of taste (Krishna A. , 2010).

Taste is the main driver for product preference. Enneking, Neumann and Henneberg (2007) stated in their study that apart from affinity through other aspects of the product, intent to buy increases if a health message is added to product attributes (Krishna, 2012). The taste trait has mainly been neglected in various studies of sensory analysis. ; Many consumers consider this aspect critical when making food choices (Wansink, 2003).

In some food stores, the consumer is allowed to create their flavour, which is a great way to improve engagement and provide various options (Soars, 2009). According to MacGregor (1999), taste is critical in many cosmologists and can determine consumers' completely different sensory arrangement. Bailey and Nichols (1888) stated that taste complements the sense of smell, and the presence of smell would not be noticeable in the absence of taste. From the experiment by Billy and Nichols (1888), it was discovered that females have a more sensitive response to taste compared to male consumers. Elder and Krishna (2010) also assert that taste cues are generated by incorporating multisensory traits. It has also been observed that women are more responsive when testing their sense of taste (Bailey and Nichols, 1888).

As a result, the sense of taste is much more complex relative to other senses. People are thought to respond differently to their taste. Not only are males and females have varying degrees of sensitivity to the taste but also that their taste often slowly changes (Mojet, Christ-Hazelhof, & Heidema, 2001).

2.3.6 Customer Satisfaction

Customer satisfaction is an emotional reaction to the customer's service during his / her user experience (Westbrook & Oliver, 1991). More precisely, customer satisfaction is characterised as the consequence of a product or service's subjective appraisal over whether it meets the client's needs and requirements

(Zeithaml & Bitner, 2000). Customer satisfaction in marketing is the most relevant marketing strategy and occupies a prominent role in reality and theory (Churchill JR & Surprenant, 1982). Satisfaction occurs when customers' needs and wishes are satisfied to a degree, and the satisfaction level may be pleasant or unpleasant (Tuu & Olsen , 2012). Highlighting the significance of sensory branding, Lindstrom (2005) stated that ads should be created in such a way, giving customers visual satisfaction. Brakus, Schmitt, and Zarantonello (2009) found that brand experience also impacted satisfaction contributing to brand loyalty. Tuu and Olsen (2012) stated that customer satisfaction directly affected the decision to purchase. However, some mediators could influence this relationship and, therefore, should be considered for further research. Barclay and Ogden (2015) showed in their brand experience model that customer engagement is significant to customer satisfaction and confirmed that sensory stimuli affect customer satisfaction, leading to brand loyalty. Customer satisfaction was taken into account as Enneking, Neumann, and Henneberg (2007) note that traditionally sensory branding concentrated only on the intrinsic attributes of products, which may not be appropriate for all kinds of products. Consequently, the effect of multisensory branding is researched to comprehensively evaluate and understand the relationship (Enneking, Neumann , & Henneberg, 2007). According to MONDAL (2017), in the article "Study on the factors affecting customer purchase activity in retail stores by confirmatory factor analysis" the author explained that "Customer satisfaction is a reaction to anticipation, product functioning after buying, experience with the product, or experience during shopping".

Various studies and books highlighted the positive relationship between service quality and customer satisfaction. Oliver (1980) Stated that customer satisfaction reflects a cognitive and efficient response to service. Berry et al. (1988) indicate that service seems to have become a powerful core competence for reaching a company's customer satisfaction. Taylor et al. (1994) found that customer can be satisfied if there is high service quality. Duffy et al. (199) mentioned that customer satisfaction could be influenced strongly by service quality.

In retail stores, service quality is defined by combining the customer's tangible products, which leads to customer motivation and customer satisfaction (Yong, 2000). An analysis of supermarket service efficiency suggests that the two most essential factors in assessing customer satisfaction are "personal interaction" and "physical aspects" (Siu & Chow, 2003). Customer satisfaction comes from the grocery sector's sales force through personal relationships, communication, collaboration, and promotional activities (Biong, 1993). In the store department, the relationship between customer satisfaction and service quality is essentially in line with the outcomes of different industries' outcomes. Sivdas et al. (2000) indicate that customer satisfaction is that store departments can influence service quality. Besides, wong et al. (2003) approved that "physical aspects" is the most critical element that influences customer satisfaction in-store departments (Wong & Sohal, 2003).

Some studies investigated customer satisfaction by using fuzzy logic models. Tadic et al. (2016) proposed a fuzzy decision-making model to evaluate customer satisfaction level and its impact on the bank's competitive advantage and its business. The level of customer satisfaction has been done through this work by using if-then rules, and a case study from real life have been obtained from 22 enterprises to verify the proposed model's usefulness. This study shows that the proposed model is useful and practical to use in such studies (Tadic, Aleksic, Mimovic, Puskaric, & Misita, 2016). Hendalianpour and Razmi (2017) investigated customer satisfaction measurement (CSM) in determining the customer needs and wants from delivered products and services (Hendalianpour & Razmi , 2017) They proposed a novelty approach for measuring the customer satisfaction by contributing and approaches which did not consider any facts and figures previously such as "receiving the customer's comments through both qualitative, quantitative ways", "supposition of a linear relationship between satisfaction calculation functions" and "determining the parameters of the membership grade function based on received data from the customers". (Hendalianpour & Razmi , 2017).

2.3.7 Purchase Intention

Kent (2003) emphasised the intangible dimensions of marketing and suggested that customer behaviour is guided by intrinsic signals such as curiosity, enjoyment, fulfilment, and enjoyment. The exciting aspect has to be considered to trigger buying intention through these (Soars, 2009). Sensory experience in a store that combines the five senses of sight, sound, touch, taste, and scent all improve the desire to purchase and shape the purchasing process through opinions and emotions (Barclay & Ogden, 2015). It is clearly defined that purchasing intention is a consumer's desire to purchase a product or service (Krishna A. , 2012). Barclay and Ogden (2015) note that the in-store arousal also improves sales, and enhancing the in-store experience through sensory stimulation lifts sales by approximately 54 per cent. Seventy per cent of transactions made in-store are based on decisions made by impulse causes, also known as shopping excitations. One of the purchase intention campaigns that used sensory marketing attributes was Hershey's candy shop that introduced sensory branding by incorporating a scent of candy into its New York Times Square location. It directly impacted their profits, which jumped to 34 per cent as customers bought more (Krishna A. , 2012).

2.4 The sensory Marketing campaign in retail stores

Sensory marketing is a great tool to build strong emotional relations between consumer and products (Krishna A. , 2010). Today, many retail stores use different sensory marketing elements to encourage people to interact with their products, services, and store environment. Human senses play an important role in human memories and experience. It is essential to understand the sensory stimulation of human. In the retail sector, design brands related to the sensory experience to attract more consumers and stimulate strong, positive, and distinctive impression across all five senses (Lindstrom M. , 2006). The supermarkets' concept originated between 1920 and 1930 and became worldwide in the 1950s (Chathuranga & Lakshika, 2019). Before the supermarkets' concept, there was a "chain store" name. People were using it in the late 1870s (Reardon and Gulati, 2008). The difference between early days customers and present-day customers is that customers were more

focused on products functionality and attributes in the early days. Nowadays, customers focus more on the added value and benefits given to them by-products or services. The value and benefits in stores are "store experience" which cannot be ignored by stores owners nowadays (Chathuranga & Lakshika, 2019). In the current technological era, it is more important to shift attention from the features and benefits based approach to experience, which is to add values to products and provide them to customers.

Regarding the massive competition between retail stores, they should develop ideas and methods to differentiate from others (Wanivenhaus, 2017). One of the new methods that differentiate each other's experience is sensory marketing, making them unique and memorable to the customers. Sense plays the most crucial role in customer experience. From a retail design point of view, sensory experience attracts more customers, stimulates optimism, and creates unique feelings through all five senses.

Hulten (2012), established a unique sensory experience in one of the IKEA stores. This experience introduced the sight and smells cues based on store design and lights for sight and store ambient scent for the smell to investigate the impact on the desire to touch wine glasses in the store's glasses department. This campaign aimed to:

1) Find the relationship between sensory cues, human senses, and customer touch behaviour
2) How sight and smell can impact on shoppers touching behaviour?
3) How retailers can obtain different sensory cues in order to enhance shoppers touching behaviour in point of sell

Firstly, the findings showed that shoppers would react more favourably and be more likely to shop and purchase in an attractive and thus appealing point-of-purchase environment. In this case, visual and olfactory sensory signals triggered the shoppers' affective reaction and hence the contact actions. However, the most potent sense of sensation through vision and scent was the tactile sense, since wine glasses are connected to the touch of human hands. Secondly, managers should decide precisely how the human senses

are drawn to a store brand articulated by retail atmospherics and recognise the most significant impacts.

Chathuranga and Lakshika (2019) established a sensory marketing study in Sri Lanka's supermarket shoppers. This research's key goals are to investigate the influence of multisensory brand experience, sight, sound, smell, and touch on Sri Lankan Supermarket customers' purchase pattern and define the most influential sensory attribute that affects the purchasing trend impulses. In this study, a quantitative study was carried out using a survey approach and convenient sampling techniques. The researcher used regression analysis methodology to test the hypothesis and define the effect of multisensory branding experience on impulse buying patterns, discussing each independent variable's importance. The sample size was set for 200 consumers in the supermarket. Both inferential and descriptive statistics were used to interpret knowledge. The researcher used the regression analysis methodology as an inferential mathematical method to test the hypothesis and define multisensory branding experience on impulse buying patterns, discussing each independent variable's importance. According to the Data Study, sight and scent have been established as the sensory variable that significantly affects the purchase pattern of impulses; concerning Sri Lankan supermarket consumers.

In comparison, the most notable and influential factor with a standardised coefficient of 0.221 is the impulse buying trend. Sound and touch did not disclose that they had such an effect on the pattern of impulse buying. Furthermore, results showed that, relative to other sensory receptors such as sound, scent, touch, and taste, sight is one of Sri Lankan supermarket customers' most crucial sensory channels to purchase impulses (Chathuranga & Lakshika, 2019).

One of the most outstanding sensory marketing campaigns in the store has been established in Dike & Son hypermarket by Sensory branding expert Simon Harrop. The main goal of this campaign is to increase the sales of "Sausages" in the market. The way has been found to reach consumers deep emotional subconscious level through smell, touch, sound, and taste. The campaign was regular Friday; this store sells around 3.5 pounds from this

owned brand sausages. Simon created a multisensory sausage campaign. First, Simon created a visual display as a butcher model with a sound that can influence people to purchase it. Next to this butcher model in the store entrance, there is a receipt card, flyers, and some marketing materials that influence the people to see the product and understand what this butcher model for. The olfactory method has also been used by creating a smell spray that spread a fresh sausage smell at the store's entrance. More visual displays have also been added as arrows on the store floor point directly on the sale's sausage point. Testing method plays a role in this campaign by giving a free testing sample to people to taste the product, and next to the samples table, there is a fridge which contains all the sausages made by this store. Consumer psychologists prove that if people feel that getting something for free, human nature make them obliged to buy. Simon said, "when people touched or picked up a product, they are 50 per cent willing to buy and much more likely to buy the product when they touched and taste it". This campaign worked very well. The store sold 125.93 pounds from this sausages campaign, which represent an increase of 400 per cent. Regarding this campaign, one of the customers said: "the smell and taste of this product influenced me to purchase it" (Teach, 2014).

Dunkin Donuts has done another multisensory marketing campaign in Seoul-Korea. Seoul nicknamed a city of Coffee due to the enormous numbers of coffee shops in this city. This campaign's mission was to encourage people to drink coffee at Dunkin Donuts stores around the city. Dunkin Donuts researched people and found that most Seoul citizens use public transportation to reach their working locations morning. This research also showed the people who take public transportation to reach work stopping at the nearest coffee shop to subways or busses stations. The campaign's idea is to use this public transportation and release the aroma of coffee along with the Dunkin Donuts jingle on the radio. They created a machine that released coffee smell with Dunkin Donuts Jingle in this transportation busses and subways. At the stop stations, they created many advertising points for the nearest Dunkin Donuts shop. Results show that more than 350,000 people experienced this campaign. Visitors increased by 16 per cent, sales of Dunkin

Donuts shops located next to transportation stations increased by 29 per cent. The ideal result is that people think of Dunkin Donuts when they think of their morning coffee (Ketzmarketing, 2012).

Authors	Research Aim	Research Findings
(Lindstrom M. , 2005)	The research aims to reveal data from a detailed study of the relationship between the five senses and brands.	Results found that 99 per cent of all brand engagement relies on sight and sound, just two of the senses. In a synergy of all five senses, emotional bonds are effectively created. As such, those brands that interact through a multisensory brand channel are more likely to shape emotional connections between customers and their brand.
(Soars, 2009)	This paper aims to understand how sensory marketing factors can affect environments, enhance shoppers' perception, and modify the essence of behaviour in ways outside our awareness.	When they expend their scarce money, customers will become more discerning. The smart retailer will engage in recognising the desires and motives of shoppers to create an improved shopping environment by going beyond simplistic POP displays and signs, where "minor plus est," to the sense of sound, sight, smell and touch of shoppers that will have a direct effect on decision-making, store choice and expenditure.
(Eriksson & Larsson, 2011)	This thesis aims to explore how different styling elements can	The thesis results show that using styling components and sensory signals to communicate

	be used in a retail store and how sensory signals can impact purchasing behaviour by providing a multisensory brand experience for consumers.	with consumers and enhance their emotional response is valuable for marketers. The results also demonstrate that combining the sensory signals of sight and sound leads to a positive and memorable experience. Besides, this thesis's findings suggest that a combination of these sensory measures leads to a shift in consumers' actions and generates approach behaviour through the perception of products that may otherwise be ignored.
(Hultén B. , 2011)	Concerning the human mind and senses, this paper aims to introduce the multisensory brand experience model. It also aims to suggest the multisensory brand perception theory with a sensory marketing (S.M.) model.	The multisensory theory of brand experience indicates that firms should apply sensorial strategies and three explanatory levels. It helps companies identify and place a brand in the human imagination as an icon through sensors, sensations, and sensory gestures.
(Hultén B. , Sensory cues and shoppers' touching behaviour: the	The present research attempts to represent shoppers' touching behaviour in response to the application of visual and olfactory	The author notices significant differences between shoppers' touching behaviours in a manipulated point-of-purchase relative to a traditional one in the reported study. The results

case of IKEA, 2012)	sensory stimuli in a shopping area at the point of purchase. In the study conducted in the Glass department in the IKEA shop, the sample size was (control group n=451) and (n=435)	suggest that visual and olfactory sensory messages positively affect shoppers' touching actions, buying intentions, and overall sales. The findings mentioned that sensory stimuli have a positive impact on consumers' desire to touch. Those findings provided a guideline to managers of service and retail store mentioned the importance of sensory marketing in retail stores.
(Shabgou & Daryani, 2014)	This paper introduces sensory marketing as a new contribution in the marketing field with focusing on five sensory stimuli (Touch, Smell, Sight, Sound, and Taste) and their impact on consumer buying behaviour in shopping centres.	The findings of this study indicate that five sensory marketing elements have a significant impact on consumer behaviour. The results also suggested that sensory marketing elements could be essential strategies that companies can use to affect consumer behaviour to increase their loyalty.
(Elangovan & Padma , 2017)	This paper aims to identify the impact of sensory marketing on consumer behaviour in the restaurant.	This paper reveals that restaurant customers offer more priority to store images that give them quality in service evaluation and affect their degree of satisfaction, desire to repurchase and spread the right word of mouth about the restaurant more than what they

		think is regarded by the consumer.
(Chopra & Chandra, 2017)	The research aims to examine the relationship between sensory marketing and customer satisfaction in coffee shops (Starbucks)	This paper statistically verified a direct relationship between sensory marketing tools used in Starbucks and customer satisfaction.
(Satti, Babar, & Ahmed, 2019)	The aim of this study is Providing empirical proof to support the role of sensory marketing in restaurants	Research results suggest that young people are more attracted to sensory marketing. They consider these restaurants to be full of attraction and want to revisit them. The atmosphere of such restaurants is engaging, leaving customers with a better image. Consumers' education also plays a part in the restaurant's liking. It is supported by the findings that customers with a high degree of schooling are more likely to be attracted to eateries using sensory marketing.
(Chathuranga & Lakshika, 2019)	The study's main aims are to investigate the influence of multi-sensory brand experience; vision, sound, smell and Touch on the purchase pattern of Sri Lankan	The results showed no significant impact of sound and touch on pulse buying pattern, although there is a significant impact of sight and smell on pulse buying. Furthermore, results showed that sight is one of Sri Lankan supermarket

	Supermarket customers and to define the most influential sensory attribute that affects the purchasing pattern of impulse.	customers' most essential sensory channels to purchase impulses compared to other sensory receptors such as sound, scent, touch, and taste.

Table 2.4 results of 20 years of literature review

2.5 Summary

This chapter focused on providing a theoretical and empirical review of previous studies. This chapter provided in-depth details for independent variables of sensory marketing and dependent variables of customer satisfaction and purchase intention. Also, this chapter provides 20 years of old studies that related to the topic. The next chapter will be focused on the methodology of this study.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter provides details on how the researcher collected data, the sources from where it was collected, the design that inspired the project and how the data was analysed, among other things.

In a study (Creswell, 2016). In this study, methodology refers to how the research was done, and its logical sequence includes sample, data collection and data analysis techniques

3.2 Research methodology

This study was based on fuzzy logic. Fuzzy logic was conducted to analyse the relationship between sensory marketing, customer satisfaction and purchase intention.

As has been observed, the study population includes all customers of (Carrefour, Holland Bazar, Blann Bazar, and Team Mart) supermarkets. The reasons for selecting those supermarkets were that all the supermarkets have chain stores in different city locations and follow the same selling method and provide different services in one place. The sampling method used in this study provides detailed descriptions of the targeted population. The population was diverse because it included all the buyers from the supermarkets mentioned before. A purposive sampling technique was used to survey one hundred ninety-three (193), as shown in table (3.1) below, made up of customers who were shops at the supermarkets mentioned earlier. Guba and Lincoln (1981) claimed that the purposeful survey is almost never random but planned as

completely as possible to target differing views and new perspectives. The researcher used a non-probability sampling technique to assess the customers from which data was gathered. The researcher considered this methodology acceptable to use since the survey was collected from many retail consumers. The questionnaire was conducted through Google Forms due to the Erbil city lockdown to seek responses from the customers.

Table 3.1 Realization rate

		N	%
Cases	Valid	193	100.0
	Excluded[a]	0	.0
	Total	**193**	**100.0**

This study is based on quantitative research, in which information sources were gathered using a structured questionnaire. The questionnaire has been modified from previous work by (Lu & Seock, 2008); (Anvar, 2016). A seven-point Likert scale with endpoints of strongly agree and strongly disagree was spread by Google Survey tool to supermarkets customers in Erbil – Iraq.

The questionnaire was structured into eight parts. The first part contained background information to inform the respondent of the study's purpose and the respondent's demographic characteristics. The second part related to the sight factor of sensory marketing. The third part related to the touch factor of sensory marketing. The fourth part related to the taste factor of sensory marketing. The fifth part is related to the smell factor of sensory marketing. The sixth part related to the sound factor of sensory marketing. The seventh part related to customer satisfaction degree in retail stores. The eighth part related to purchase intention in retail stores.

3.3 Data Analysis

The data were analysed in two ways. First, the Reliability tests and demographic questions were conducted to determine the research instrument's usefulness by the Statistical Package of Social Science (SPSS) through a survey questionnaire. Second, Fuzzy logic was conducted to

analyse the relationship between sensory marketing, customer satisfaction and purchase intention.

3.4 Fuzzy Set Theory

In classical theory, everything is precise, and a set in classical theory is defined as a group of elements. It can be measured by one and zero only; for example, if the element belongs to a set, then the set is one if not is zero. In real-world problems, this not always true since some elements do not have definite boundaries. The same word used by humans may have multiple meanings. Lotfi A. Zadeh was the first one to launch the Fuzzy Set Theory in 1965 as a useful research methodology for any field (Zadeh, Fuzzy sets, 1965). A fuzzy set is intended to deal with imprecision and vagueness that cannot be dealt with using the crisp set theory. According to (Mamdani & Assilian, 1975) and (Zadeh, 1985) and (Zadeh, 1992), when a person finds imperfect and ambiguous facts, he or she will sift through the data and come to some conclusion, thus creating an uncertain yet sufficient guide for practical decision making. In his publication Fuzzy logic, neural networks, and soft computation (1994), the "Father of Fuzzy Logic," Lotfi Zadeh, has claimed that "In a general sense, Fuzzy Logic is nearly synonymous with fuzzy set theory. As its name suggests, Fuzzy set theory is a class theory with un-sharp boundaries. Zadeh went on to conclude, "It is necessary to note is that by generalising the concept of a set within that theory to the definition of a fuzzy group, every crisp theory may be skewed."

The processes classifying uncertainty and vagueness are represented by the fuzzy set (FS). Fuzzy set theory can explain concepts sets of human language that cannot be used by traditional set theory. A fuzzy set's fundamental property is its progressive transition from membership to non-membership. A fuzzy set's membership function maps a portion of the real line, enabling a continuum of potential choices. In terms of degrees, an element's value in a fuzzy set is defined at intervals from 0 to 1. A value approaching 0 means that the value becomes 'false', and a value approaching 1 means that the value is approaching 'true' since 0. For example, if μAgree(x) is the membership value degree of agreement, then the closer the value of μAgree(x) is to 1, the more

x belongs to 'Agree', and the closer μAgree(x) is to 0, the less x belongs to 'Agree'. It has been shown that fuzzy sets and fuzzy membership values can induce models from trendy and subjective concepts for evaluation purposes. Figure 3.1 depicts mebership function presented by triangle form. The mathematical formula of triangle mebership function is given by the formula (3).
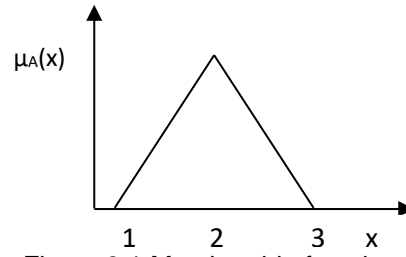
Figure 3.1 Membership function

$$\mu_A(x) = \begin{cases} \dfrac{x - a_1}{a_2 - a_1} r & \text{if} \quad a_1 \leq x \leq a_2 \\[2mm] \dfrac{a_3 - x}{a_3 - a_2} r & \text{if} \quad a_2 \leq x \leq a_3 \\[2mm] 0 & \textit{otherwise} \end{cases}$$

(3)

Fuzzy inference also facilitates the combination of expert data into fuzzy sets in the evaluation process. In the paper (Abiyev, Saner, Eyupoglu, & Sadikoglu, 2016) the use of the fuzzy approach for job satisfaction evaluation is presented.

In the thesis, the Fuzzy set is used for defining customer satisfaction degree which is based on subjective evaluations of preferences. The measurement is based on a Liker-type scale that uses linguistic terms. These linguistic terms are ordered and used to represent preference levels of respondents. The use of fuzzy sets in likert scale alows more flexible evaluation of considered attributes. Level of agreement will not be crisp numbers, it will accept any value between 0 and 1. This will make more flixable evaluation of attributes. Here based on expert belifs' different number fuzzy terms may be used for evaluation. This allows distict evaluation of attributes by respondents.

3.4 Fuzzy Logic Conjoint Model for Evaluating Sensory Marketing and Customer Satisfaction

There are lots of concerns in real life that can be identified and measured using linguistic values. The Fuzzy set theory can represent the numeric meaning of these descriptions of linguistic values. The principle of fuzzy sets provides inference mechanisms for fuzzy set processing. Fuzzy inference combines input data with expert knowledge and uses it to estimate various real-life issues in the process.

In this study, a fuzzy conjoint analyses the impact of sensory marketing on customer satisfaction and the relationship between customer satisfaction and supermarket shoppers' purchase intention in Erbil city - Iraq. The measurement of customer satisfaction is based on evaluations of expert-defined parameters. Many scholars have used the metrics of preferences on factors of such parameters. Linguistic terms are responses to these factors. Using a preference level, these linguistic words can be represented by fuzzy sets.

Turksen and Willson (1994) proposed that Fuzzy conjoint analysis evaluates consumer marketing preferences18. To represent the values of the attributes evaluated by respondents, fuzzy sets are used. For the linguistic label representing item A, the membership degree of the element yj is defined as

$$\mu_R(y_j, A) = \sum_{i=1}^{n} \left[\frac{w_i}{\sum w_i} \right] \cdot \mu_{F_i}(x_j, A) \qquad (1)$$

where w_i is a score of linguistic value given by i-th respondent, $w_i \big/ \sum w_i$ is the weight that represents the level of satisfaction, $\mu_{F_i}(x_j, A)$ is the membership degree for respondent j for item A according to linguistic label $x_j=1,2,\ldots,n$, n is a number of linguistic term, A is an item/a question.

The membership degree reflects the respondent's fuzzy set of responses. This fuzzy set is compared to an expert-defined fuzzy set. The relation is based on the Euclidian distance between two fuzzy sets using the fuzzy similarity measure. The calculation of similarity is measured as follows.

$$Sim(R_i(y_j, A), F(x_j, l)) = \frac{1}{\left[1 + \sqrt{\sum_{j=1}^{n} (\mu_{R_i}(y_j, A) - \mu_F(x_j, l))^2}\right]} ; \text{ i=1,..,M, j=1,...,N} \tag{2}$$

where $R_i(y_j, A)$ is the fuzzy sets determined using the responses of respondents, $F(x_j, l)$ is the standard fuzzy sets determined for linguistic label *l*. M is the number of attributes, N is the number of linguistic terms. The similarity is computed for product m for each of the n possible linguistic terms. The similarity rate ranges from 0 to 1. Here N is the number of members in the linguistic variable vector.

In the above equation, the fuzzy sets $F(x_j, l)$ include membership functions of linguistic variables which have subjective nature. These membership functions can be defined according to experts' opinions as triangular, trapezoidal, Gaussian and etc. forms. Fuzzy set $R(y_j, A)$ is membership functions of respondents that include all states which are going to be ranked. The formula (2) demonstrates that how experts' opinions correspond to the customers' satisfaction.

3.5 Summary

This chapter provided a framework of how the researcher collected and analysed the data. Questionnaires have been distributed to customers through Google survey tool used to collect the data from retail stores shoppers. The SPSS conducted to analyse the study's reliability and Mat lab 2019 conducted to analyse fuzzy logic model that will find the impact of sensory marketing attributes on customer satisfaction and the impact of customer satisfaction on customer purchase intention.

CHAPTER 4

DATA ANALYSIS, FINDINGS, AND DISCUSSION

4.1 Introduction

This study describes the statistical analysis of the data and the findings or results obtained from the collected data that explain how sensory marketing can affect consumer satisfaction and consumer purchase intention at supermarkets in Erbil- Iraq. This chapter will present the data obtained from supermarkets in Erbil – Iraq, and how the data analysed through SPSS and developed a fuzzy logic model. This chapter also will show the findings and discussion of analysed data.

4.2 Response

The questionnaire has been collected through an online survey and social media. The online survey established through Google Forms, then the survey was distributed through social media channels, for example, special Facebook groups and pages for Erbil city shoppers. The responses collected in 12 days between November 17th 2020, to November 29th 2020.

There were a total of 193 agreed to take part in this study and recived a qustionnaire through Google forms. The qustionnaire collected during the time frame. All the questionnaires were correctly responded to, and the following table represents that:

		N	%
Cases	Valid	193	100.0
	Excluded[a]	0	.0
	Total	**193**	**100.0**

Table 4.1 Realization rate

Since all questionnaires were returned, this shows a 100% response rate.

4.3 Reliability and consistency

Cronbach's alpha coefficient was measured to evaluate the reliability of the designed questionnaire's Likert-scale questions and verify the internal accuracy of these scale questions.

Cronbach's Alpha	N of Items
.930	52

Table 4.2 Reliability Statistics

The table above reveals that the majority of the Cronbach alpha coefficient was above 0.9, which means a high level of internal reliability. Based on the above table's degree, it could be concluded that the data from the questionnaire was reliable.

4.4 Descriptive Statistics

A summary of the demographic profile of the respondents captured through the questionnaire is given in this section. Firstly, a discussion is addressed regarding their age, gender and education level. This is followed by the preferable supermarkets, visiting time, the reason for visiting the supermarkets.

4.4.1 Age

Table 4.3 shows the distribution of respondents' ages. The table shows that the respondents' most significant age was over 35 years old, representing 24.9% of the respondents. Followed by age group 18 – 23, which represent 22.3% from respondents, with 21.2% between 24 – 30, 19.2% under 18, and 12.4% between 31 – 35 years old. This distribution has been summarized in Table 4.3.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	under 18	37	19.2	19.2	19.2
	18 - 23	43	22.3	22.3	41.5
	24 - 30	41	21.2	21.2	62.7
	31 - 35	24	12.4	12.4	75.1
	over 35	48	24.9	24.9	100.0
	Total	193	100.0	100.0	

Table 4.3 Age

4.4.2 Gender

The results of respondents' gender profiles are presented in Table 4.4 below. Out of 193 respondents, 104 were female, representing 53.9% from total respondents' gender, followed by 89 males representing 46.1% of the total respondents' gender.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	104	53.9	53.9	53.9
	Male	89	46.1	46.1	100.0
	Total	193	100.0	100.0	

Table 4.4 Gender

4.4.3 Education Level

The results of respondents' education level are presented in Table 4.5 below. Out of 193 respondents, 104 have bachelor degrees, which represents 53.9% from the majority of the respondents, followed by 55 respondents still in high school or holding high school diploma, representing 28.5% from the respondents and 34 respondents holding postgraduate diplomas and they represent 17.6% from total respondents.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High School	55	28.5	28.5	28.5
	Bachelor Degree	104	53.9	53.9	82.4
	Postgraduate Degree	34	17.6	17.6	100.0
	Total	193	100.0	100.0	

Table 4.5 Education Level

4.4.4 Most visited supermarkets

Table 4.6 below represents the most visited supermarkets from the respondents. The analysis shows that 80 respondents visit Carrefour supermarket, most which represent 41.6% of total respondents. Following that 27.5% visiting Holland Bazar, 24.4% visiting Team Mart, and 6.7% visiting Blan Bazar.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Holland Bazar	53	27.5	27.5	27.5
	Team Mart	47	24.4	24.4	51.8
	Carrefour	80	41.5	41.5	93.3
	Blan Bazar	13	6.7	6.7	100.0
	Total	193	100.0	100.0	

Table 4.6 most visited supermarkets

4.4.5 Visiting supermarkets time

Table 4.7 below represent the most visited time to supermarkets from the respondents. The analysis shows that 2 -3 times visiting in a month take the majority respondents with 34.7% followed by 32.1% more once a week supermarket was visiting, then 26.9% one visit per week and 6.2% response for other visiting time.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	More once a week	62	32.1	32.1	32.1
	once a week	52	26.9	26.9	59.1
	2 - 3 times per month	67	34.7	34.7	93.8
	Other	12	6.2	6.2	100.0
	Total	193	100.0	100.0	

Table 4.7 Visiting supermarkets time

4.4.6 Reasons for visit supermarkets

Table 4.8 below represent the reasons for visiting supermarkets. The analysis indicates that 176 respondents out of 193 answered they visited the supermarkets in order to purchase products which represent 91.2% from total responses, followed by 5.2% who visited supermarkets just for spending time,

then 3.1% visiting the supermarkets because they are doing businesses there, and 0.5% visiting the supermarkets because they are working there.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Spend Time	10	5.2	5.2	5.2
	Visit to Work There	1	.5	.5	5.7
	Visit to do Business There	6	3.1	3.1	8.8
	Visit to purchase Products	176	91.2	91.2	100.0
	Total	193	100.0	100.0	

Table 4.8 Reason of Visit supermarkets

4.5 Fuzzy Logic Experimental Results

The variables used to evaluate customer satisfaction in supermarkets are Sensory marketing variables (Sight, Touch, Taste, Smell, and Sound). Each of these variables has different questions related to satisfaction feelings in supermarkets containing 27 questions. As mentioned before, a 193 questionnaire was distributed over 4 Erbil City big supermarkets using the Likert 7 point Scale to understand the relations between sensory marketing and customer satisfaction in these supermarkets. Each of the questions was evaluated by linguistic terms, and the scale was presented as follow: Strongly Disagree (SD), Disagree (D), Somewhat Disagree (SWD), Neutral (N), Somewhat Agree (SWA), Agree (A), and Strongly Agree (SA). Table (4.9) shows Sensory marketing questions.

N	Questions	Facets
Item 7	I feel the store inside is bright	Sight
Item 8	I feel the store inside is colourful	Sight
Item 9	I feel the store inside is interesting	Sight
Item 10	I feel the store inside is organized	Sight
Item 11	I feel the store inside is comfortable	Sight
Item 12	I feel the store inside is attractive	Sight
Item 13	I can touch the products	Touch
Item 14	I feel more comfortable purchasing a product after physically examining it	Touch
Item 15	It is important for me to touch all kinds of products	Touch

Item 16	I am afraid to buy the product because I cannot touch it before I buy it	Touch
Item 17	I feel more comfortable buying a product after touching it	Touch
Item 18	There are other products I would purchase only if I could handle them before purchasing	Touch
Item 19	The test products they offer taste good	Taste
Item 20	I like their products taste	Taste
Item 21	I feel comfortable to taste their products before purchasing it	Taste
Item 22	I am afraid to buy the product because I cannot taste it before I buy it	Taste
Item 23	There are other products I would purchase only if I could taste them before purchasing	Taste
Item 24	The smell of store is fresh	Smell
Item 25	the store has a pleasant scent (Smell)	Smell
Item 26	I like the fragrance they use in this store	Smell
Item 27	I can smell their fresh products	Smell
Item 28	I like the music playing in the store	Sound
Item 29	Music that plays in-store is important to me	Sound
Item 30	pleasant music creates a favourable atmosphere	Sound
Item 31	Music is an important factor that influences my shopping experience in-store	Sound
Item 32	Loud music in-store annoying me	Sound
Item 33	I like loud music in-store as it creates a pleasant in-store experience	Sound

Table 4.9 Sensory Marketing Questions

The triangular membership functions are used to represent the linguistic values. Fig. 4.1 illustrates an example of the fuzzy sets representing the level of satisfaction. The following formula represents the membership functions of the fuzzy terms.

$$\mu_A(x) = \begin{cases} \dfrac{x - a_1}{a_2 - a_1} r & \text{if} \quad a_1 \leq x \leq a_2 \\[2mm] \dfrac{a_3 - x}{a_3 - a_2} r & \text{if} \quad a_2 \leq x \leq a_3 \\[2mm] 0 & otherwise \end{cases}$$

(3)
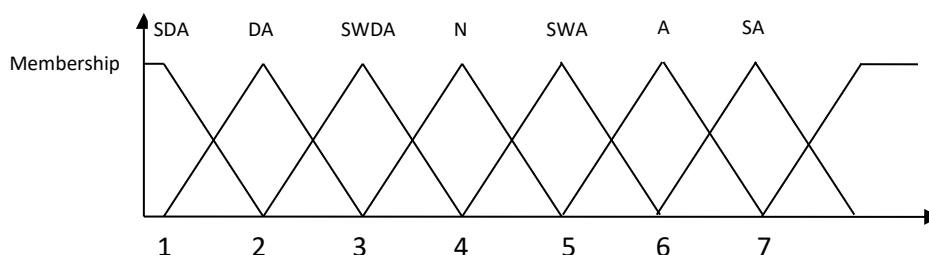
Figure 4.1 The fuzzy sets representing the level of satisfaction.

In formula (3) a_2 is the centre, a_1 is left, and a_3 is right sides of the triangle.

As mentioned above, 27 questions are applied to the questionnaire. The respondents have answered all 27 questions with an agreement degree. The shoppers' level of agreement for each question in terms of 7 point Likert's scales is given in Table (4.9). The numbers of shoppers and their percentages are given in Table (4.10). The results for item 7 and 8 are illustrated below:

- **Item 7.** I feel the store inside is bright: 0% shoppers strongly disagreed 0.5% disagreed, 5.2% somewhat disagreed, 19.7% neutral, 27.5% somewhat agreed, 22.3% agreed, and 24.9% strongly agreed that the store they visited is so bright.
- **Item 8.** I feel the store inside is colourful: 4.1% shoppers disagreed, 1.0% disagreed, 10.4% somewhat disagreed, 22.8% neutral, 20.7% somewhat agreed, 18.7% agreed, and 22.3% strongly agreed that they feel the store they visited is colourful.

The rest results are clearly illustrated in Table (4.10) bellow:

N:193	Strongly Disagree		Disagree		Somewhat Disagree		Neutral		Somewhat Agree		Agree		Strongly Agree	
Questions	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%
Item 7	0	0.0%	1	0.5%	10	5.2%	38	19.7%	53	27.5%	43	22.3%	48	24.9%
Item 8	8	4.1%	2	1.0%	20	10.4%	44	22.8%	40	20.7%	36	18.7%	43	22.3%
Item 9	0	0.0%	10	5.2%	17	8.8%	28	14.5%	31	16.1%	39	20.2%	68	35.2%
Item 10	0	0.0%	6	3.1%	8	4.1%	26	13.5%	30	15.5%	41	21.2%	82	42.5%
Item 11	3	1.6%	6	3.1%	10	5.2%	32	16.6%	34	17.6%	44	22.8%	64	33.2%
Item 12	6	3.1%	5	2.6%	8	4.1%	38	19.7%	42	21.8%	38	19.7%	56	29.0%
Item 13	1	0.5%	1	0.5%	3	1.6%	19	9.8%	31	16.1%	47	24.4%	91	47.2%
Item 14	0	0.0%	0	0.0%	9	4.7%	17	8.8%	16	8.3%	29	15.0%	122	63.2%

Item 15	7	3.6%	13	6.7%	18	9.3%	26	13.5%	22	11.4%	35	18.1%	72	37.3%
Item 16	15	7.8%	17	8.8%	15	7.8%	32	16.6%	25	13.0%	17	8.8%	72	37.3%
Item 17	9	4.7%	5	2.6%	6	3.1%	26	13.5%	18	9.3%	30	15.5%	99	51.3%
Item 18	12	6.2%	9	4.7%	6	3.1%	31	16.1%	25	13.0%	44	22.8%	66	34.2%
Item 19	6	3.1%	0	0.0%	7	3.6%	52	26.9%	50	25.9%	32	16.6%	46	23.8%
Item 20	2	1.0%	4	2.1%	17	8.8%	32	16.6%	39	20.2%	49	25.4%	50	25.9%
Item 21	3	1.6%	12	6.2%	17	8.8%	24	12.4%	36	18.7%	35	18.1%	66	34.2%
Item 22	22	11.4%	17	8.8%	12	6.2%	23	11.9%	26	13.5%	37	19.2%	56	29.0%
Item 23	17	8.8%	11	5.7%	9	4.7%	23	11.9%	18	9.3%	44	22.8%	71	36.8%
Item 24	5	2.6%	1	0.5%	7	3.6%	29	15.0%	45	23.3%	39	20.2%	67	34.7%
Item 25	2	1.0%	4	2.1%	7	3.6%	37	19.2%	50	25.9%	27	14.0%	66	34.2%
Item 26	5	2.6%	2	1.0%	14	7.3%	42	21.8%	49	25.4%	21	10.9%	60	31.1%
Item 27	9	4.7%	3	1.6%	13	6.7%	33	17.1%	41	21.2%	32	16.6%	62	32.1%
Item 28	13	6.7%	18	9.3%	17	8.8%	40	20.7%	22	11.4%	32	16.6%	51	26.4%
Item 29	19	9.8%	11	5.7%	23	11.9%	34	17.6%	30	15.5%	23	11.9%	53	27.5%
Item 30	9	4.7%	7	3.6%	8	4.1%	27	14.0%	25	13.0%	30	15.5%	87	45.1%
Item 31	13	6.7%	3	1.6%	7	3.6%	34	17.6%	30	15.5%	22	11.4%	84	43.5%
Item 32	15	7.8%	7	3.6%	8	4.1%	22	11.4%	15	7.8%	23	11.9%	103	53.4%
Item 33	94	48.7%	20	10.4%	18	9.3%	24	12.4%	12	6.2%	9	4.7%	16	8.3%

Table 4.10 frequency distribution of respondents' among items

In Fuzzy logic, some steps can define customer satisfaction degree in supermarkets. The primary step mentioned in Figure (4.2) below illustrates all attributes, preference levels, and all states are decided in the first step. The questionnaire for sensory marketing and customer satisfaction is developed using attributes and preference levels. As mentioned above, 27 questions are applied to the questionnaire. Agreement levels are determined using linguistic terms "Strongly Disagree", "Disagree", "Somewhat Disagree", "Neutral", "Somewhat Agree", "Agree", and "Strongly Agree".

The seven membership functions are defined using the following expressions.

Strongly Agree is defined as F1={1/1,   0.8/2, 0.5/3, 0.2/4, 0/5,   0/6,   0/7}

Agree F2={0.7/1, ½,   0.6/3, 0.4/4, 0/5,   0/6,   0/7}

Somewhat Agree F3={ 0.4/1, 0.6/2, 1/3,   0.6/4, 0.4/5, 0/6,   0/7}

Neutral F4={ 0/1, 0.3/2, 0.7/3, ¼,   0.7/5, 0.3/6, 0/7}

Somewhat Disagree F5={ 0/1,   0.2/2, 0.4/3, 0.6/4, 1/5,   0.6/6, 0.4/7}

Disagree F6={ 0/1,   0/2,   0/3,   0.4/4, 0.6/5, 1/6,   0.7/7}

Strongly Disagree is defined as F7={ 0/1, 0/2, 0/3, 0.2/4, 0.5/5, 0.8/6, 1/7};

```
┌─────────────────────────────────────────────────┐
│                      Start                        │
└─────────────────────────────────────────────────┘
                          │
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│  Defining  basic  criterions  and  variables.  Desining │
│  linguistic terms.  Using  both  variables  and  linguistics │
│  questionnaire has been built and distributed between │
│  customers                                         │
└─────────────────────────────────────────────────┘
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│  Collecting  the  answered  questionnaire.  Analysis  of │
│  questionnaire                                     │
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│  Calculating  membership  degree  of  customer  opinions │
│  for each questions.                               │
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│  Calculating  similarity  degree  between  customers │
│  opinions and expert opinions.                     │
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│  Ordering and ranking the results using similarity degree │
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│                       End                         │
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```

Figure 4.2 Flowchart of customer satisfaction computation using Fuzzy Logic

In the second step using attributes and preference levels, the customer satisfaction problem questionnaire is constructed and distributed among Supermarket customers. Supermarket customers' opinions for each attribute in the questionnaire are collected. One hundred ninety-three questionnaires are collected from the customers of different retail markets of Erbil City. The collected questionnaires are analysed using customers' opinions regarding a selected linguistic variable.   Table (4.10) demonstrates the results of the analysis. For example, in the table for the first item, 48 customers had chosen Strongly Agree (24.9% of customers), 43 (22.3%) Agree, 53(27.5%) somewhat

agree, 38 (19.7%) neutral, 10 (5.2%) somewhat disagree, 1 (0.5%) Disagree. Analysis of each attribute in the questionnaire has been carried out. In the third step, each attribute's satisfaction degree levels are determined using the fuzzy CA model of Turksen and Willson's formula after reviewing questionnaire outputs (1). The operations were carried out by measuring weight and correspondingly by the degree of membership (R) of respondent j for item A according to the linguistic mark. Table (4.10) depicts the values of membership functions. In the fourth step, the values of the similarity degree between customers' opinions and experts' opinions are determined. This operation was performed by calculating the degree of similarity between fuzzy sets R and F using the formula (2). The full number of degrees of similarity for each state is calculated in the last fifth step. The extent of correlation reflects the maximum closeness of the viewpoints of experts and consumers to each other. The degrees of similarity between F and R's fuzzy sets are seen in the table (4.11).

	F1	F2	F3	F4	F5	F6	F7
C1	0	0.0052	0.0518	0.1969	0.2746	0.2228	0.2487
C2	0.0415	0.0104	0.1036	0.2280	0.2073	0.1865	0.2228
C3	0	0.0518	0.0881	0.1451	0.1606	0.2021	0.3523
C4	0	0.0311	0.0415	0.1347	0.1554	0.2124	0.4249
C5	0.0155	0.0311	0.0518	0.1658	0.1762	0.2280	0.3316
C6	0.0311	0.0259	0.0415	0.1969	0.2176	0.1969	0.2902
C7	0.0052	0.0052	0.0155	0.0984	0.1606	0.2435	0.4715
C8	0	0	0.0466	0.0881	0.0829	0.1503	0.6321
C9	0.0363	0.0674	0.0933	0.1347	0.1140	0.1813	0.3731
C10	0.0777	0.0881	0.0777	0.1658	0.1295	0.0881	0.3731
C11	0.0466	0.0259	0.0311	0.1347	0.0933	0.1554	0.5130
C12	0.0622	0.0466	0.0311	0.1606	0.1295	0.2280	0.3420
C13	0.0311	0	0.0363	0.2694	0.2591	0.1658	0.2383
C14	0.0104	0.0207	0.0881	0.1658	0.2021	0.2539	0.2591
C15	0.0155	0.0622	0.0881	0.1244	0.1865	0.1813	0.3420
C16	0.1140	0.0881	0.0622	0.1192	0.1347	0.1917	0.2902
C17	0.0881	0.0570	0.0466	0.1192	0.0933	0.2280	0.3679
C18	0.0259	0.0052	0.0363	0.1503	0.2332	0.2021	0.3472
C19	0.0104	0.0207	0.0363	0.1917	0.2591	0.1399	0.3420
C20	0.0259	0.0104	0.0725	0.2176	0.2539	0.1088	0.3109

C21	0.0466	0.0155	0.0674	0.1710	0.2124	0.1658	0.3212
C22	0.0674	0.0933	0.0881	0.2073	0.1140	0.1658	0.2642
C23	0.0984	0.0570	0.1192	0.1762	0.1554	0.1192	0.2746
C24	0.0466	0.0363	0.0415	0.1399	0.1295	0.1554	0.4508
C25	0.0674	0.0155	0.0363	0.1762	0.1554	0.1140	0.4352
C26	0.0777	0.0363	0.0415	0.1140	0.0777	0.1192	0.5337
C27	0.4870	0.1036	0.0933	0.1244	0.0622	0.0466	0.0829

Table 4.11 The Values of membership degree of fuzzy sets R

The maximum similarity degrees for each attribute of all states were chosen after measuring similarity degrees. The ranking is based on the degree of maximum similarity between all states. Table 4.12 displays the results of the collection of the highest degrees of similarity and the ranking results.

	F1	F2	F3	F4	F5	F6	F7
C1	0.4130	0.4137	0.4339	0.4580	0.4984	0.5054	0.5063
C2	0.4252	0.4259	0.4463	0.4632	0.4887	0.4897	0.4904
C3	0.4190	0.4200	0.4325	0.4422	0.4781	0.4968	0.5124
C4	0.4109	0.4106	0.4202	0.4312	0.4734	0.5042	0.5276
C5	0.4170	0.4169	0.4290	0.4432	0.4814	0.5038	0.5154
C6	0.4193	0.4192	0.4338	0.4510	0.4871	0.4995	0.5063
C7	0.4041	0.4020	0.4101	0.4214	0.4698	0.5120	0.5419
C8	0.3980	0.3962	0.4020	0.4054	0.4475	0.4888	0.5365
C9	0.4257	0.4255	0.4334	0.4363	0.4682	0.4883	0.5073
C10	0.4340	0.4333	0.4396	0.4382	0.4643	0.4737	0.4929
C11	0.4125	0.4103	0.4148	0.4188	0.4565	0.4905	0.5238
C12	0.4234	0.4216	0.4274	0.4364	0.4715	0.4988	0.5123
C13	0.4173	0.4183	0.4386	0.4640	0.4944	0.4945	0.4942
C14	0.4185	0.4189	0.4356	0.4524	0.4887	0.5035	0.5070
C15	0.4222	0.4223	0.4348	0.4421	0.4790	0.4930	0.5089
C16	0.4393	0.4354	0.4380	0.4373	0.4674	0.4835	0.4953
C17	0.4276	0.4240	0.4261	0.4285	0.4629	0.4933	0.5115
C18	0.4134	0.4118	0.4261	0.4417	0.4856	0.5051	0.5189
C19	0.4139	0.4143	0.4313	0.4488	0.4886	0.4964	0.5092
C20	0.4186	0.4193	0.4397	0.4561	0.4885	0.4876	0.4976
C21	0.4212	0.4199	0.4351	0.4471	0.4830	0.4940	0.5060
C22	0.4378	0.4391	0.4468	0.4510	0.4712	0.4793	0.4866

C23	0.4397	0.4380	0.4503	0.4504	0.4723	0.4740	0.4840
C24	0.4173	0.4155	0.4221	0.4274	0.4647	0.4916	0.5184
C25	0.4187	0.4164	0.4255	0.4322	0.4671	0.4871	0.5111
C26	0.4169	0.4133	0.4155	0.4143	0.4497	0.4807	0.5166
C27	0.5088	0.4778	0.4558	0.4212	0.4235	0.4197	0.4229

Table 4.12 The Values of similarity degree between fuzzy sets F and R (Turksen-Wilson method)

C	Maximum similarity degree for each state	Ranking		Linguistic values
C1	0.5063	7	7.0000	Strongly agree
C2	0.4904	9	7.0000	Strongly agree
C3	0.5124	6	7.0000	Strongly agree
C4	0.5276	3	7.0000	Strongly agree
C5	0.5154	5	7.0000	Strongly agree
C6	0.5063	7	7.0000	Strongly agree
C7	0.5419	1	7.0000	Strongly agree
C8	0.5365	2	7.0000	Strongly agree
C9	0.5073	7	7.0000	Strongly agree
C10	0.4929	9	7.0000	Strongly agree
C11	0.5238	4	7.0000	Strongly agree
C12	0.5123	6	7.0000	Strongly agree
C13	0.4945	9	6.0000	Agree
C14	0.5070	7	7.0000	Strongly agree
C15	0.5089	7	7.0000	Strongly agree
C16	0.4953	8	7.0000	Strongly agree
C17	0.5115	6	7.0000	Strongly agree
C18	0.5189	5	7.0000	Strongly agree
C19	0.5092	7	7.0000	Strongly agree
C20	0.4976	8	7.0000	Strongly agree
C21	0.5060	7	7.0000	Strongly agree
C22	0.4866	9	7.0000	Strongly agree
C23	0.4840	10	7.0000	Strongly agree
C24	0.5184	5	7.0000	Strongly agree
C25	0.5111	6	7.0000	Strongly agree
C26	0.5166	5	7.0000	Strongly agree

C27	0.5088	7	1.0000	Strongly disagree

Table 4.13 Maximum similarity degree and ranking

As shown in Table 4.13, the obtained results are basically "Strongly agree" have best rang with 25 questions. The other was distributed as one question with "Agree" and one question with "Strongly disagree". The seventh and eight states have the best rang. The state 7 is obtained with 0.5% strongly disagree, 0.5% disagree, 1.6% somewhat disagree, 9.8% neutral, 16.1% somewhat agree, 24.4% agree and 47.2% strongly agree. The state 8 is obtained with 0.0% strongly disagree, 0.0% disagree, 4.7% somewhat disagree, 8.8% neutral, 8.3% somewhat agree, 15% agree and 63.2% strongly agree. The states 22 and 23 have very low rang. The worst state is state 27, 48.7% strongly disagree, 10.4% disagree, 9.3% somewhat disagree, 12.4% neutral, 6.2% somewhat agree, 4.7% agree, and 8.3% strongly agree. The states 22 and 23 have very low rang.

4.6 Comparison

We calculated the average and standard deviation of customer responses for each customer item in the questionnaire for sensory marketing, as shown in (Table 4.10). The results of the calculations are shown in Table 4.14 below. Based on this table, we see that the respondents were asked about sensory marketing in supermarkets to understand their interaction with sensory elements in these markets. However, respondents revealed that they could touch the supermarkets' products to feel the product indicated by the high frequency. Most respondents indicate that they feel more comfortable when purchasing a product after physically examine it. Respondents also agreed that they feel that the stores they visit are organized through sensory sight elements. Comparing the findings between Fuzzy logic (Table 4.11) and the traditional analysis method (table 4.14), we found that C7 and C8 are the highest and most preferable in Fuzzy and traditional methods. However, by using the fuzzy approach, we obtain more accurate evaluation of respondents' preferences.

Significant finding: Most respondents indicate that they feel more comfortable purchasing a product after physically examining it.

Questions	N	Mean	SD
C1	193	5.4041	2.6395
C2	193	5.0000	2.4152
C3	193	5.4301	2.6557
C4	193	5.7513	2.8714

C5	193	5.4663	2.6786
C6	193	5.2953	2.5738
C7	193	6.0207	3.0709
C8	193	6.2332	3.2380
C9	193	5.2591	2.5527
C10	193	4.9378	2.3860
C11	193	5.7202	2.8494
C12	193	5.3005	2.5768
C13	193	5.1762	2.5061
C14	193	5.3264	2.5922
C15	193	5.3161	2.5860
C16	193	4.8083	2.3300
C17	193	5.2280	2.5349
C18	193	5.5544	2.7360
C19	193	5.4560	2.6720
C20	193	5.2332	2.5379
C21	193	5.2694	2.5587
C22	193	4.7617	2.3116
C23	193	4.6891	2.2849
C24	193	5.5389	2.7257
C25	193	5.4197	2.6492
C26	193	5.5699	2.7463
C27	193	2.6425	2.6109

Table 4.14. 'Mean and SD calculation using Traditional method'

4.7 Relationship between customer satisfaction and buying intention

A correlation is a statistical measurement of the two-variable relationship. The calculation is best used for variables that display a linear relationship with each other (corporate finance institute, 2015). The correlation coefficient represents how the relations between the two variables are strong. The coefficient can take any value between -1 to 1. The represents of these values are:

- -1: perfect negative correlation
- 0: no correlation
- 1: Perfect positive correlation

The correlation can be found using the following formula:

$$r = \frac{\sum\limits_{i}(x_i - \overline{x})(y_i - \overline{y})}{\sqrt{\sum\limits_{i}(x_i - \overline{x})^2}\sqrt{\sum\limits_{i}(y_i - \overline{y})^2}}$$

Where:

- rxy – the correlation coefficient of the linear relationship between the variables x and y
- xi – the values of the x-variable in a sample
- $\overline{x}$ – the mean of the values of the x-variable
- yi – the values of the y-variable in a sample
- $\overline{y}$ – the mean of the values of the y-variable

The following table 4.15 represents the analysis for purchase intention. Item 49 represent the purchasing of products from a store. Statistically, 26.9% strongly agreed that if they are going to purchase a product, they will consider buying from this store they choose, 26.4% agreed, 25.4 somewhat agreed, 13% natural, 3.6 somewhat disagreed, 2.1% disagreed, and 2.6% strongly disagreed. The rest statistical analysis is shown in table 4.15. The values of membership degrees of fuzzy sets B are given in Table 4.16.

Questions

Item 49	If I'm going to purchase a product, I would consider buying from this store
Item 50	The probability of me considering to buy from this store is high
Item 51	I will recommend this store to someone who seeks my advice
Item 52	I will consider this store as my first choice to shopping

Statistics

Item 49	5	2.6%	4	2.1%	7	3.6%	25	13.0%	49	25.4%	51	26.4%	52	26.9%
Item 50	5	2.6%	3	1.6%	11	5.7%	21	10.9%	43	22.3%	50	25.9%	60	31.1%
Item 51	3	1.6%	0	0.0%	7	3.6%	23	11.9%	44	22.8%	53	27.5%	63	32.6%
Item 52	3	1.6%	3	1.6%	13	6.7%	34	17.6%	47	24.4%	36	18.7%	57	29.5%

Table 4.15 Purchase intention statistical analysis

B1	B2	B3	B4	B5	B6	B7
0.0259	0.0207	0.0363	0.1295	0.2539	0.2642	0.2694
0.0259	0.0155	0.0570	0.1088	0.2228	0.2591	0.3109

| 0.0155 | 0 | 0.0363 | 0.1192 | 0.2280 | 0.2746 | 0.3264 |
| 0.0155 | 0.0155 | 0.0674 | 0.1762 | 0.2435 | 0.1865 | 0.2953 |

Table 4.16 the values of Membership function of Fuzzy set B

Table 4.17 below represents the correlation between sensory marketing elements and purchase intention states. The results show that 44.5% of respondents agreed with item 52 from table 4.15 above, which they consider the store they choose as a first shopping option. 33.3% agreed with item 51from table 4.15 above, which they will recommend this shop to another who seeks advice. 22.2% agreed with item 50 from table 4.15 above, which the probability of considering to purchase from this store is high.

We can observe a significant correlation between sensory marketing elements and customer purchase intention from the correlation analysis. The maximum value of correlation is 0.9849 for item 52 from table 4.15.

Correlation				Maximum value of correlation	Item Having maximum correlation
0.9511	0.9045	0.9149	0.9681	0.9681	4
0.8397	0.8111	0.8275	0.9287	0.9287	4
0.8526	0.9219	0.9201	0.9140	0.9219	2
0.8419	0.9167	0.9172	0.8927	0.9172	3
0.9212	0.9576	0.9649	0.9486	0.9649	3
0.9324	0.9257	0.9393	0.9849	0.9849	4
0.8535	0.9309	0.9294	0.8723	0.9309	2
0.6454	0.7702	0.7637	0.7453	0.7702	2
0.7307	0.8379	0.8351	0.8103	0.8379	2
0.5570	0.6594	0.6611	0.7340	0.7340	4
0.6663	0.7774	0.7782	0.7643	0.7782	3
0.8435	0.9017	0.9137	0.8563	0.9137	3
0.8157	0.7544	0.7779	0.9124	0.9124	4
0.9589	0.9592	0.9648	0.9437	0.9648	3
0.8645	0.9300	0.9235	0.9259	0.9300	2
0.7897	0.8689	0.8733	0.7773	0.8733	3
0.7424	0.8402	0.8447	0.7412	0.8447	3
0.9420	0.9640	0.9676	0.9803	0.9803	4

0.8673	0.8727	0.8790	0.9764	0.9764	4
0.7897	0.7904	0.7978	0.9492	0.9492	4
0.8907	0.9202	0.9251	0.9794	0.9794	4
0.6810	0.7368	0.7572	0.8023	0.8023	4
0.6699	0.7457	0.7496	0.8549	0.8549	4
0.7239	0.8211	0.8221	0.8206	0.8221	3
0.7000	0.7806	0.7860	0.8384	0.8384	4
0.5749	0.7015	0.6991	0.6875	0.7015	2
-0.5347	-0.5236	-0.5115	-0.5554	-0.5115	3

Table 4.17 Correlation between customer satisfaction level and buying intention

4.8 Findings

According to Saunders et al. (2015), the research instrument's reliability should be above 70%. This ensures that it is reliable to be employed in future studies and to produce results reliably. The research reliability was reliable, with all items over 90% reliability, which means a high level of internal reliability. The model is statistically significant. This means that it can be relied upon to predict the relationship between independent and dependent variables successfully. The results revealed that most shoppers' ages were over 35, and females represent 53.9% of the respondents. The most visited supermarkets were Holland Bazar, with 41.5 of total respondents. In this study, a fuzzy conjoint analysis of sensory marketing's effect on supermarket shoppers' customer purchase intention in Erbil city - Iraq. The measurement of sensory marketing is based on evaluations of expert-defined parameters. Many scholars have used the metrics of preferences on factors of such parameters. Linguistic terms are responses to these factors. Using a preference level, these linguistic words can be represented by fuzzy sets. Fuzzy experimental results the variables used for evaluation of sensory marketing in supermarkets are: (Sight, Touch, Taste, Smell, and Sound) Each of these variables has different questions related to purchasing intention in supermarkets that contain 27 questions. The results for the questions are mentioned bellow-

Sight sensory questions (item 7 to item 12) that showed in table 4.10 has been analysed to find the correlation degree with customer purchase intention (item 49 to item 52) table 4.15 by using the fuzzy model. Item 7 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation value was 0.9681 with item 52. Item 8 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation value was 0.9287 with item 52. Item 9 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation value was 0.9219 with item 49. Item 10 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation value was 0.9172 with item 51. Item 11 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation value was 0.9649 with item 51. Item 12 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation

value was 0.9849 with item 52, which is the highest correlation value in this study.

Touch sensory (item 13 to item 18) that showed in table 4.10 has been analysed to find the correlation degree with customer purchase intention (item 49 to item 52) table 4.15 by using the fuzzy model. Item 13 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation value was 0.9309 with item 50. Item 14 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation value was 0.7702 with item 50. Item 15 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation value was 0.8279 with item 50. Item 16 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation value was 0.7340 with item 52. Item 17 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation value was 0.7782 with item 51. Item 18 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation value was 0.9137 with item 51.

Taste sensory (item 19 to item 23) that showed in table 4.10 has been analysed to find the correlation degree with customer purchase intention (item 49 to item 52) table 4.15 by using the fuzzy model. Item 19 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation value was 0.9124 with item 52. Item 20 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation value was 0.96y47 with item 51. Item 21 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation value was 0.9300 with item 50. Item 22 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation value was 0.8733 with item 51. Item 23 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation value was 0.8447 with item 51.

Smell sensory (item 24 to item 27) that showed in table 4.10 has been analysed to find the correlation degree with customer purchase intention (item 49 to item 52) table 4.15 by using the fuzzy model. Item 24 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation

value was 0.9803 with item 52. Item 25 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation value was 0.9764 with item 52. Item 26 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation value was 0.9492 with item 52. Item 27 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation value was 0.9794 with item 52.

Sound sensory (item 28 to item 33) that showed in table 4.10 has been analysed to find the correlation degree with customer purchase intention (item 49 to item 52) table 4.15 by using fuzzy model. Item 28 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation value was 0.8023 with item 52. Item 29 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation value was 0.8549 with item 52. Item 30 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation value was 0.8221 with item 51. Item 31 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation value was 0.8384 with item 52. Item 32 shows a significant correlation with the item (49, 50, 51, and 52) and the maximum correlation value was 0.7015 with item 50. Item 33 shows a significant negative correlation with the item (49, 50, 51, and 52) and the maximum negative correlation value was -0.5115 with item 51.

4.9 Discussion

4.9.1 Sensory Marketing

This study reflected that most shoppers agreed that stores inside are bright, colourful, engaging, organized, comfortable, and attractive. These results indicate an interaction and relationship between sight sense and supermarkets' internal environment. Krishna (2012). The visual aspects considered the easiest way to process the product information. Barclays et al. (2015) sight considered the building block of retail marketing.

For touch sense, most of the respondents agreed that it is essential to touch the products before buying them. Also, the customers feel more comfortable purchasing a product after physically examining it. Moreover, they are afraid to buy a product without touching it, and they strongly agreed if they can touch a product before purchasing it. Kotler and Keller (2016) mentioned that customers have different reasons and desires in the retail sector to contact the products or experience the Touch. Krishna (2010) showed four forms of touch; one of them is a superficial level, which leads the customer to make a purchase. Kotler (2016) proved that the opportunity of purchasing any product would increase after touching or testing the product in the store.

For Taste sense, most of the respondents agree that the taste of supermarkets product was good. Tasting products is essential before purchasing the products. Most of them agreed that there are other products they would purchase if they could taste them before purchasing them. According to MacGregor (1999), taste is critical in many cosmologists and can determine consumers' completely different sensory arrangement. Wansink (2003) stated that taste is the most critical aspect, especially when making a food choice. Soars (2009) showed that in some food stores, the consumer is allowed to create their flavour, which is a great way to improve engagement and provide various options.

For smell sense, the results showed that the stores' smell is fresh, pleasant. Many researchers evaluate the scent factor in store. The most popular aroma marketing technique in the food industry is synthetic scents to attract

customers on streets, subways, or supermarkets. However, the influence of scents on customer behaviour has been certified. According to Spangenberg, Crowley & Henderson (1996), a pleasant smell positively influences a customer's rating at the point of sale (and some of their products), intent to roam, and purchase, as does their time spent indoors (real and imagined).

For sound sense, music is one of the essential elements while doing shopping inside the shops. Also, it creates a favourable atmosphere, and they strongly disagreed that loud music creates a pleasant atmosphere and shopping experience. Sound has long been applied in mass marketing, with nearly all commercials have to include sound elements to convey the message. Much research suggests that sound was used as a tool to communicate with customers or arouse customers' subconscious. The power of music lies in its ability to frame different stories and support emotional states and situations.

4.9.2 Purchase intention

purchasing intention is a consumer's desire to purchase a product or service. Barclay and Ogden (2015) note that the in-store arousal also improves sales, and enhancing the in-store experience through sensory stimulation lifts sales by approximately 5.4percent. Seventy per cent of transactions made in-store are based on decisions made by impulse causes, also known as shopping excitations. Based on the analysis and results obtained from the questionnaires, there is a significant correlation (0.79) between sensory marketing elements and customer purchase intention. The maximum value of correlation was 0.9849 for item 52 from the table (4.15) with item 12 from the table (4.9), which leads to a significant correlation between considering this store as a first purchasing store and I feel the store inside is attractive. The minimum correlations were -0.5115 for item 51 from table (4.15) with item 27 from table (4.9), which leads to a negative correlation between recommended this store to whom seeks for advice and loudness of music inside the supermarket.

4.10 Summary

This chapter focused on the analysis of the obtained data. The researcher got 100% response rate. Readability measuring has been done. Descriptive Statistics were performed to understand the respondents' profiles. Fuzzy logic model has been developed to evaluate sensory marketing and customer satisfaction. The experimental results have been done for 27 sensory marketing questions to measure the impact of sensory marketing attributes on customer satisfaction degree during purchasing process and purchase intention. Correlations were performed to understand the relation between sensory marketing, customer satisfaction and customer purchase intention in the supermarket. Findings reflected a significant positive relationship between customer satisfaction and customer purchase intention in the supermarket.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1 CONCLUSION

Nowadays, in an era of a highly competitive environment and increasing consumer expectations, many companies have been forced to search for a new marketing strategy to achieve shared value creation. Sensory marketing aims to engage humans' five senses and ultimately influence their feelings, judgment, and behaviour (Krishna, 2012). In the modern context of the experience economy, many retailers identified that it is not enough to provide products and services to people and enterprises to satisfy their needs and wants (Caru & Cova, 2003). A significant pattern preferred by dozens of customers is that they hope to have a more individualised shopping experience when visiting a supermarket against the almost similar and unified retail design (Dowdy, 2008). Therefore, in high product homogenisation, empathising with interior design could be an effective retail store tactic to improve exclusion from several rivals. In retail stores, when individuals enter a store, the entire process may be classified as a sensory experience, including vision, hearing, touch, smell and taste, influencing their purchase intention, and the subjective feeling and experience can lead to the final purchasing decision (Krishna A. , 2012). This study investigates the impact of sensory marketing attributes on customer satisfaction and identifies the impact of customer satisfaction on purchase intention in Erbil city – Northern Iraq supermarkets. To achieve the study aim, the author has proposed the research questions, conceptual model. Besides, an online questionnaire has been used to collect data from the supermarkets' shoppers. Fuzzy logic model has been developed to evaluate sensory marketing and customer satisfaction. The experimental results have been

done for 27 sensory marketing questions to understand customer opinions in supermarkets. Correlations were performed to understand the relation between sensory marketing, customer satisfaction and customer purchase intention in the supermarket. Findings reflected a significant positive relationship between customer satisfaction and customer purchase intention in the supermarket.

5.2 Recommendation

5.2.1 Academic Recommendation

For future research, some factors could be recommended. First, this thesis has surveyed only the supermarkets' customers with no limit for products or services; these types of results may not be able to generalise to all forms of retailers. It is recommended that the study be carried out in other retail stores, such as clothing stores, restaurants, or by limiting the product or service inside the supermarket environment.

Furthermore, this study had no mediating variables to affect the relationship between the variables mentioned before. For further study, a suggestion is to conduct a mediating variable and examine it in this relationship.

Future studies can adopt the current study model and test the effect of sensory marketing on other dependent variables by developing a fuzzy logic model.

5.2.2 Supermarket Field Recommendation

This study explored the relationship between sensory marketing and customer satisfaction and Erbil city supermarkets' purchase intention. It helps Iraqi supermarkets managers or marketers find the opportunity to develop their sensory stimuli and link between sensory marketing attributes and customer purchase intention to push to spend more time inside the store, leading them to purchase more products. This study will also help marketers and managers of supermarkets analyse customer perception and position the supermarket, products, and services inside the store in their minds.

Furthermore, customers are more likely to be satisfied if there are an attractive interior design, pleasant smell, good tempo music, good food taste, and the

ability to touch the products. All these elements and output should marketers and managers of supermarkets consider because it will help them keep on the current customers and gain more customers in the future.

If these recommendations successfully implemented in supermarkets, they will see a huge increase in sales, revenue and profit.

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Appendix

Appendix 1: Questionnaire

Near East University

Institute of Social Sciences

Marketing Department

November, 2020.

Impact of Sensory Marketing on Customer purchase intention in Retail Store Questionnaire

Dear participant,

Thank you for your motivation to participate in my research. The questionnaire below is designed as part of my Master's in Marketing thesis study that focus on determining the impact of sensory marketing on customer purchase intention in Erbil city supermarkets. Your contribution will be treated with the utmost confidentiality and used for academic purposes only.

The first part of the survey comprises of a demographic section. Please indicate the extent to which you agree with each statement, by ticking in the appropriate box. The second part of the survey captures responses to the influences on purchase intention. Please tick whichever boxes are applicable. The entire survey should take between 10 to 15 minutes to complete. The questions will be on 7 Likert-Type Scale as follow:

1- Strongly Disagree
2- Disagree
3- Somewhat Disagree
4- Neither Agree nor Disagree
5- Somewhat Agree
6- Agree
7- Strongly Agree

Thank you for considering participating. Should you have any questions, or should you wish to obtain a copy of the results of the survey, please contact me or my supervisor on the following details:

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Section 1 Demographic information

1- What is your age group

Under 18 ☐   18 – 23 ☐   24 – 30 ☐   31 – 35 ☐   over 35 ☐

2- Gender

Male ☐   Female ☐   Other ☐

3- Please indicate your highest academic level

Primary School ☐   High School ☐ Bachelor Degree ☐   Postgraduate ☐

Other ☐

4- Which Retail Store did you visit most?

Holland Bazar ☐   Team Mart ☐   Carrefour ☐ Blan Bazar ☐ Other ☐

5- How you often visit the store

More once a week ☐ once a week ☐ 2 – 3 times per week ☐ Other ☐

6- Reason of visit retail store

Spend time ☐ Visit to work there ☐ Visit to do business there ☐ Visit to

purchase products ☐ other ☐

Section 2 Sight Questions

7- I feel the store inside is bright

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat

Agree ☐ Agree ☐ Strongly Agree ☐

8- I feel the store inside is colourful

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat

Agree ☐ Agree ☐ Strongly Agree ☐

9- I feel the store inside is interesting

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat

Agree ☐ Agree ☐ Strongly Agree ☐

10- I feel the store inside is organized

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat

Agree ☐ Agree ☐ Strongly Agree ☐

11- I feel the store inside is comfortable

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

12- I feel the store inside is attractive

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

Section 3 Touch Questions

13- I can touch the products

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

14- I feel more comfortable purchasing a product after physically examining it

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

15- It is important for me to touch all kinds of products

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

16- I am afraid to buy the product because I can not touch it before I buy it

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

17- I feel more comfortable buying a product after touching it

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

18- There are other products I would purchase only if I could handle them before purchasing

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

Section 4 Taste Questions

19- The test products they offer taste good

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

20- i like their products taste

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

21- I feel comfortable to taste their products before purchasing it

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

22- I am afraid to buy the product because I can not taste it before I buy it

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

23- There are other products I would purchase only if I could taste them before purchasing

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

Section 5 Smell Questions

24- The smell of store is fresh

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

25- the store has a pleasant scent (Smell)

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

26- I like the fragrance they use in this store

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

27- I can smell their fresh products

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

Section 6 Sound Questions

28- I like the music playing in the store

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

29- Music that plays in-store is important to me

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

30- pleasant music creates a favourable atmosphere

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

31- Music is an important factor that influences my shopping experience in-store

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

32- Loud music in-store annoying me

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

33- I like loud music in-store as it creates a pleasant in-store experience

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

Section 7 Customer satisfaction Questions

34- I am very satisfied with the service provided by this store

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

35- I am very satisfied with the brands they provide

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

36- the service and products provide by this store are very satisfactory

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

37- I made the right decision when I decided to start going to this store

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

38- I am addicted somehow to this store

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

39- Overall, my feeling toward this store is excellent

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

Section 8 Purchase Intention Questions

40- If I'm going to purchase a product, I would consider buying from this store

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

41- The probability of me considering to buy from this store is high

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

42- I will recommend this store to someone who seeks my advice

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

43- I will consider this store as my first choice to shopping

Strongly Disagree ☐ Disagree ☐ Somewhat disagree ☐ Natural ☐ Somewhat Agree ☐ Agree ☐ Strongly Agree ☐

Appendix 2

Plagiarism Report

Appendix 3

Ethical Committee Approval

YAKIN DOĞU ÜNİVERSİTESİ

BİLİMSEL ARAŞTIRMALAR ETİK KURULU

22.09.2020

Dear Adnan Omar Adnan Alsalihi

Your application titled "**The impact of Sensory Marketing on Consumer Purchase Intention in Retail Stores in Iraq, Erbil**" with the application number YDÜ/SB/2020/728 has been evaluated by the Scientific Research Ethics Committee and granted approval. You can start your research on the condition that you will abide by the information provided in your application form.

Assoc. Prof. Dr. Direnç Kanol

Rapporteur of the Scientific Research Ethics Committee

Note:If you need to provide an official letter to an institution with the signature of the Head of NEU Scientific Research Ethics Committee, please apply to the secretariat of the ethics committee by showing this document.