Innovative Multi-Channel Shopping Experience Design Guidelines for a Society That is Aging

by

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Abstract

The emergence of economic globalization has brought many opportunities and challenges to the retail industry. The improvement of people's living standards has increased enormous demands toward consumption. To draw the consumer's attention, the retailers use various science and technologies to improve customer's shopping efficiency and experience.

The retail industry is in the stage of rapid changes and developments. There is still a long way to go. Simultaneously, the aging population is growing, and their demands expand, bringing new consumption power to the market. Depending on the different age ranges, the older generation's physiological characteristic and needs are different. The people who are younger than sixty years old are more accepting of the modern shopping method, and others are more familiar with the brick-and-motor store. The older adults make up a large proportion of society, but this consumption group is often neglected. Many retailers in the market have not considered incorporating the shopping service with the senior citizen's needs. Brick-and-motor stores are the main retail channel for older generations, while online shopping channels with less time and place limitations are widely used nowadays. The combination of multichannel retail and the diversified use of shopping methods can bring more convenient service and business opportunities for older consumers and retailers.

Therefore, this thesis studies the needs and shopping habits of shoppers ages sixty and over and tries to provide retailers with suggestions on designing suitable shopping experiences for older customers—combining emerging and traditional shopping channels to meet the consumption

needs of the population who are aging in the changeable living environment. This research expects to help retailers and designers understand the physiological and psychological characteristics of older customers. It provides them with in-store and online shopping design recommendations and an approach to creating a pleasant multi-channel shopping experience for the older shopping group.

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Table of Contents

List of Figures

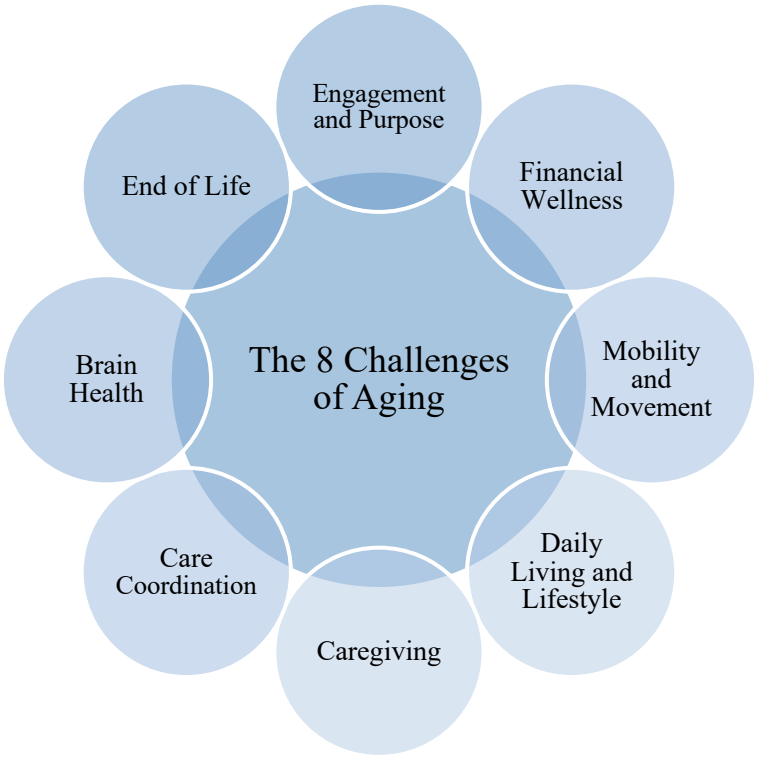
Chapter 1 Introduction

1.1 Problem Statement

The World Health Organization reported that from 2015 to 2050, the proportion of the global population over 60 years old would nearly double from 12% to 22%. The rising population in these generations has brought about new changes and challenges (Figure 1.1). In order to face the demographic shift challenges, building supportive environments for people is essential and demanded (WHO, 2017).

Figure 1.1

The 8 Challenges of Aging



Note: Adapted from Fike, 2018.

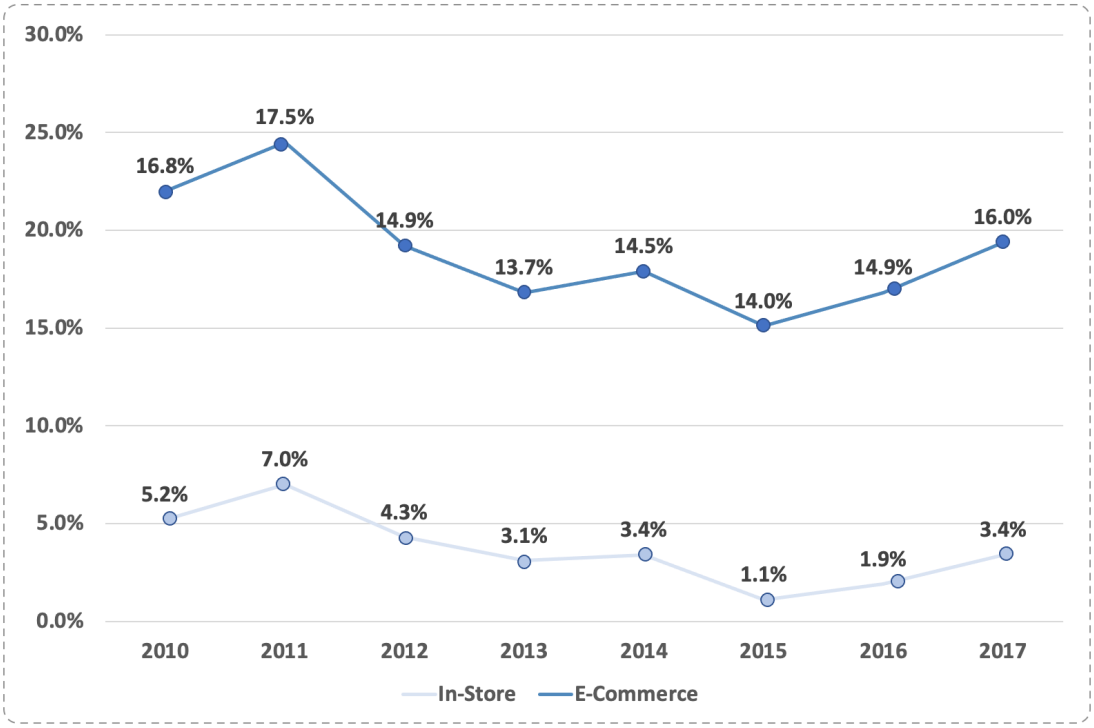
Shopping as an indispensable activity in daily life involves people with independent

consumption abilities of all ages. As customers increasingly participate in the retail process, retailers have begun to change the way they sell, just like the first true self-service grocery store Piggly Wiggly (Piggly Wiggly, 2011). Customers were able to examine products by themselves instead of making requests at the counter. Retailers are beginning to realize the importance of customers and how the shopping experience changes the rules. Therefore, to win the competition, retailers need to provide corresponding services based on the target customers' relevant characteristics.

In recent years, with the rapid development of technology and the Internet, the retail industry has expanded to online platforms and grown gradually (Figure 1.2).

Figure 1.2

America E-Commerce vs In-store Sales Growth Rates During 2010 to 2017

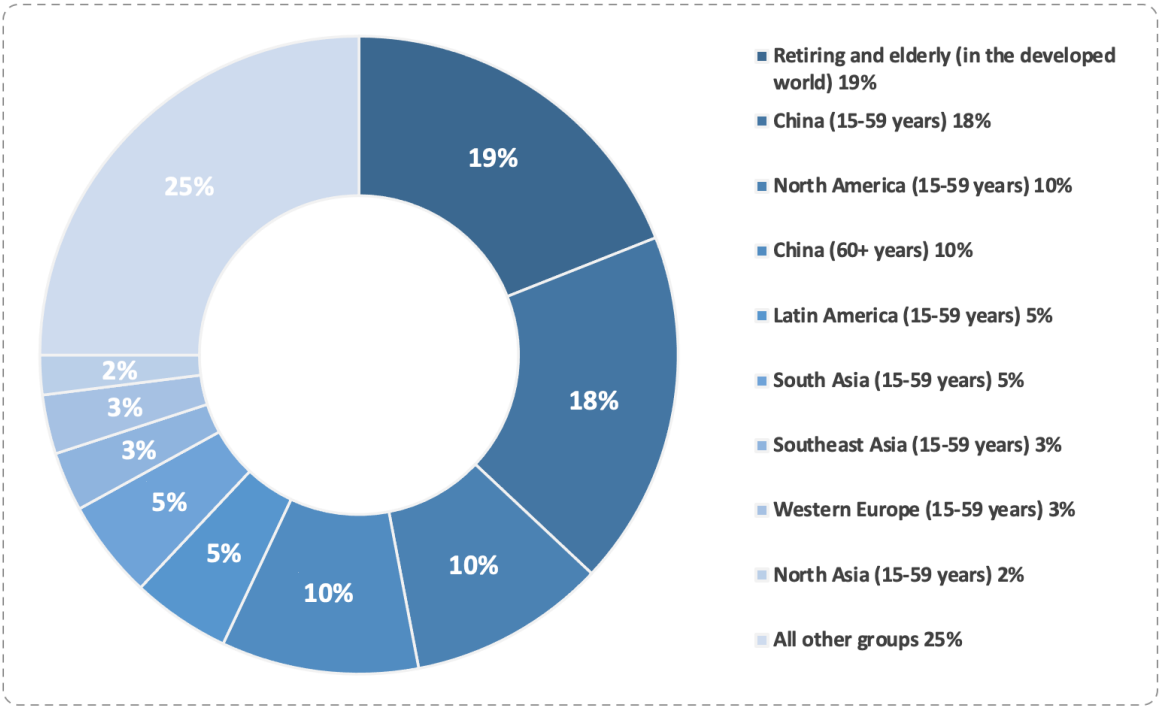


Note. Adapted from Levy, S., CBRE research, 2018.

As a retail giant, Amazon is continuously applying and experimenting with new technologies. Amazon leads the world's most influential online shopping system; it started as an online bookseller, and stretched online categories in all directions. To test the brick-and-mortar retail, Amazon has also released new stores such as Amazon go, Amazon 4-star, and Amazon pop-up stores (Amazon, 2021). However, in this Internet-based business, the majority of customers are young people, while senior citizens are the minority (Zickuhr, 2010). Although the increase in market demand and consumption capacity has brought market prospects, for retailers and consumer companies, the middle-aged and senior customers that over 60 are not always a priority (McKinsey Company, 2016). McKinsey's research showed 29% of global urban consumption growth was generated by older citizens in 2015 (Figure 1.3). They also pointed out that in developed countries, the population over 60 years old will account for about 51% of urban consumption growth, equivalent to more than $4 trillion in the next 15 years. The changes in consumption growth need attention from retailers.

Figure 1.3

The Share of Global Urban Consumption Growth in 2015

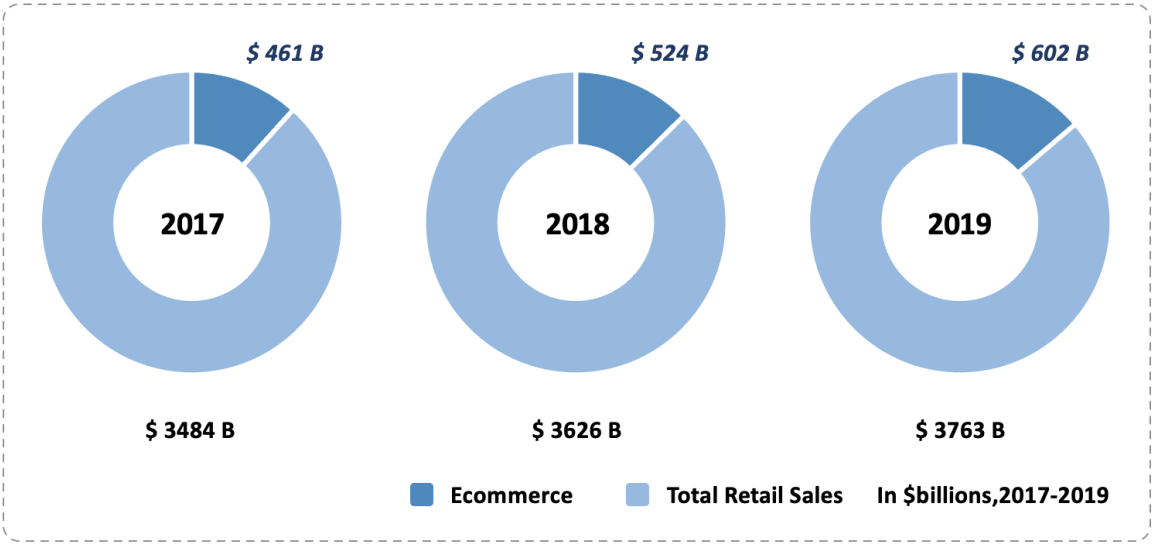


Note. Adapted from McKinsey Company, 2016.

The diversification of retail channels is a development trend in recent years. Retailers began to connect stores to online businesses. The physical stores are still the market's irreplaceable leading power (Figure 1.4) and need to update by better understanding their customers' needs and desires as well as innovate the in-store shopping experience (Miller, 2019).

Figure 1.4

U.S. Ecommerce and Total Retail Sales, 2017-2019



Note. Adapted from Digital Commerce 360 analysis of U.S. Department of Commerce data, 2019.

For the population over 60 years old, most of them are away from a busy work and intense life rhythm. Therefore, they will be more willing to experience products and participate in social activities in a retail environment. At the same time, the middle-aged and senior customers adapt to new technologies more slowly than young people (Czaja et al., 2006). Even though these seniors want to try a new type of shopping experience, they still have difficulty participating because of a lack of sufficient guidance and adaptability to new technologies. For most of the senior citizens, physical retail stores are their first choice for shopping.

However, the COVID-19 pandemic in 2020-21 has fundamentally changed the world so that people are living differently, buying differently, and thinking differently (Accenture, 2020). In

particular, senior citizens who are in a high-risk health group need to be more careful. The home quarantine restricted going out and brought inconvenience to the purchase of daily necessities. Moreover, online purchases without location restriction and other pickup systems featured as time-saving methods have become many people's choices. The COVID-19 outbreak requires retailers to explore the diversification of multichannel services.

Therefore, the shopping experience design of retail for older customers is a part that needs to be supplemented and developed. Simultaneously, judging from the trend of aging development, for the mid-fifties who are about to enter the aging stage, their acceptance of new things is faster than most seniors over eighty. Most groups in the mid-fifties have mastered and are proficient in the use of electronic products for online shopping. For retailers and designers, in addition to optimizing brick-and-motor stores, online shopping needs to be further optimized according to the needs of different age levels. Doing so would let these the middle-aged and senior customers fully enjoy convenient experiences and shopping fun.

Improving shopping design at all levels of aging can enable retailers to expand their customers and enhance the competitiveness and brand advantages of retail brands.

1.2 Need for Study

Providing a considerate shopping experience for the senior citizen is beneficial. First, it can make up for the physical and sensory limitations of older generations. They can complete daily shopping by themselves effectively. The feeling of independence contributes to the healthy

development of mental health (WHO, 2017). Also, relying on caregivers or other forms of elderly service assistance can be costly. In the long term, establishing a retail shopping experience suitable for the older customers can become part of the social infrastructure, thereby affecting social participation and integration (Cheng et al., 2019).

U.S. Federal Reserve Chairman Ben Bernanke (2006) said: "In coming decades, many forces will shape our economy and our society, but, in all likelihood no single factor will have as pervasive an effect as the aging of our population" (para. 1). Longevity is destined to become the world's largest industry, so this consumer group deserves more attention from marketers (Irving et al., 2018).

As a part of business, retail stores serve as the interface between the company and its customers (Balasubramanian et al., 2002). With the development of technology, the retail industry has evolved from retail stores to online stores, and shopping methods will be multi-channel (Berg & Knights, 2019). Although the growth of in-store retail has slowed down (Figure 1.2) and online stores have taken over some of the market, the number of in-store retail tightly related to people's lives has remained stable (Levy, 2018). Retailers have begun to reconsider in-store design to improve retail efficiency. As the elderly market expands, improved services can help retailers attract more potential customers, increase sales, and expand brand influence.

Many retailers are trying advanced technologies such as internet platforms, new interaction technologies, and data analysis to increase their retail advantages. Anderson and Perrin (2017) noted that "Although seniors consistently have lower rates of technology adoption than the general public, this group is more digitally connected than ever" (p. 5). Middle age and senior aging

population are not averse to using the Internet and willing to accept the Internet's convenience. It's necessary to build a suitable and comprehensive shopping experience according to the customers' needs and market development trends. It is essential to find innovative approaches to help retail designers and retailers know about older customers and integrate a multi shopping channel to build an appropriate shopping experience.

1.3 Objectives of Study

This paper's research mainly starts with older adults' physical and psychological characteristics, combined with shopping habits and the development of modern lifestyles. It establishes a guideline for designers and retailers to build a good shopping experience for older customers.

- This article's research mainly focuses on understanding the various needs and characteristics of the middle and senior population over the age of 60 and sorts out the general development and changes in the retail industry.
- The study will include learning about the existing retail store and extract design strategies in existing shopping experience design solutions.
- The goal of this thesis is to have a full understanding of senior user behaviors and abstract their core needs, combining the needs with the retail store's features.
- In the end, this thesis will provide an approach to help retailers design their innovational retail channels suitably for seniors and provide a guideline to improve current stores based on their resources and target users.

1.4 Definition of Terms

Crystallized intelligence: Crystallized intelligence was first articulated as based on psychometric theory, where general intelligence is categorized into two: fluid intelligence and crystallized intelligence (John & Raymond, 1966), and where crystallized intelligence is defined as the collection of life experiences—the accumulation of skills, abilities, and knowledge that may improve with age (Lezak et al., 2012).

Digital immigrants: The term "digital immigration" is when those born in the digital world only start to use digital devices during their adulthood. Thus, digital immigrants have some difficulty in learning to use digital media (Prensky, 2001).

Digital natives: The term "digital native" first appeared in literature in the late 1990s (Prensky, 2001; Tapscott, 1998). Digital Native Americans were born in the digital era and who are familiar with the use of digital technology since, for most of their lives, they are surrounded by digital communication technology (Gallardo-Echenique et al., 2015).

Emotionalization: In this study, the term "emotionalization" refers to a process that accommodates or addresses the emotional feelings of older customers so as to elicit or evoke positive emotions (Bursack, 2020).

Fluid intelligence: Fluid intelligence is another part of the psychometric theory. It refers to solving new problems in reasoning, and is associated with many essential skills such as understanding, problem-solving, and learning (John & Raymond, 1966).

Multi-channel retail: Multi-channel retail is interacting with potential customers through different channels. For example, the two main shopping channels for consumers are brick-and-

mortar retail channels and online channels. These are supplemented by other retail channels such as telephone ordering, mail orders, interactive television, and catalog ordering (Johnson, 2020).

Personalization: Personalization is about customizing the store experience based on the preferences or requirements of an individual or a specific market. This is a process that is deployed to increase customer engagement (Meyer, 2020).

Reflectiveness: The reflective design theory comes from Norman's (2007) emotional design theory. The term "reflectiveness" is a process of showing the meaning of things, self-image, and message delivery.

Retailtainment: The term "retailtainment" is coined from a combination of the words "retail" and "entertainment" in McKinsey's (2016) and Meyer's (2020) retail summary.

Self-actualization: In the book *A Theory of Human Motivation* (1943), Maslow categorized the motivational needs of humans into physiological, safety, love and belonging, esteem, and self-actualization. The term "self-actualization" is defined as achieving one's full potentials.

User experience design: User Experience Design (UX) is a process that supports user behavior (Eyal, 2014). This is a design approach that provides usability, usefulness, and desirability in user interaction with products or services (Schmidt & Etches, 2014).

1.5 Assumptions of Study

This research is based on the following assumptions:

(1) The world's population over 65 years is increasing. The old population proportion is higher than that of newborn babies, which means that middle and senior population over the age

of 65 have increased gradually. Simultaneously, the medical system and economic development have played a critical role in extending the human life span. Therefore, creating an age-friendly environment is crucial to the long-term development of society.

(2) As the market develops, the retail industry changes rapidly. The update speed of brick-and-motor stores cannot keep up with the advancement of technology. But for the elderly, who have more time and the ability to live independently, local stores are an important place for them to spend time and realize social interaction. Multichannel retail can bring convenience, and the data interconnection and analysis can grasp the needs of older adults and help them make better shopping choices.

(3) A systematical experience design approach can help retailers and designers find a suitable user experience for the target user, which allows the store to provide a better service.

(4) New technologies related to this field will be widely used in brick-and-motor stores and online stores in the near future.

(5) The primary research on this topic is based on secondary sources like books, papers, journals, Websites, and cases about some related companies and firms. It is assumed that the relevant information and positive results are true, and the interview research conducted in this research is not biased.

1.6 Scope and Limitations

The approach is to help retailers and designers provide an in-store shopping experience for older customers based on their store features and current technical support, while simultaneously

realizing the synchronization of multichannel shopping.

The goal is to help the retailer expand the market and improve shopping experience, combining the user's needs with their products efficiently and uniquely. The study will cover how to improve the store shopping experience for older customers, and help stores to find the user potential based on user differences and how to improve the senior customer's interaction in the store environment, thus synchronizing the shopping preferences in multichannel and giving recommendations for improving current experiences.

The study only focuses on the customer, which is directly related to users. Furthermore, the design approach improves the creation, but the applications of it rely on the retail store's infrastructures, technical and financial support. The final prototype testing is limited to the ideation design.

1.7 Procedures and Methodology

This research is based on existing shopping experience design, combined with existing information and the older shopper specific needs to form a more systematic shopping experience design plan. Therefore, designers need to understand the following knowledge and methods to better construct the framework when carrying out a specific design.

- Utilize existing user research on older consumer behavior, motivation, cultural and lifestyle variables, needs, and human factors.
- Understand the relevant retail history and the existing retail store shopping experience, and be familiar with its current development status and senior shoppers' needs.

- Study the factors and the design principles of retail experience.
- Research the current experience design applied in the store and the development trends in future stores.
- Examine accessibility/ atmosphere/ environment of the stores.
- Develop a guideline to help the retailer to design suitable store experiences.
- Develop an approach to help store retailers to improve the customer's interaction in the store environment.
- Examine the guideline through analyzing a store case and applying the approach on one part of the experience process.
- Evaluate the effectiveness of the approach.

1.8 Anticipated Outcomes

This study's anticipated outcome is to develop an approach to help designers create a shopping experience that can meet the requirement of seniors to create an age-friendly retail environment. The study also helps retailers understand the senior citizen market and abstract the users' core needs, combining the needs with retail products efficiently and uniquely. Moreover, the guideline can help the retailer design suitable store experiences for seniors and improve senior customer interaction when shopping in the multichannel to expand user market and brand influence.

Chapter 2 Literature Review

2.1 Aging

All countries in the world, whether developed or developing, are facing the problem of an aging population. The definitions of old age are not entirely similar in different countries and organizations. The United Nations determines the age above 65 years old is the senior population, and this age reference is also recognized by the United States and the United Kingdom (United Nations, 2019). Besides, there are many ways to subdivide the ages of the senior citizen. For example, The World Health Organization (WHO) redefined age stages: 66 to 79 years old as middle-aged, 80 to 99 years old as elderly or senior, and over 100 years old as long-lived elderly (Nowicka, 2006). Dziechciaż, and Filip (2014) mentioned in their research that 60-75 years as early old age, 75-90 years as mature old age, and 90-120 years as longevity.

On the whole, 60 or 65 years old is most recognized as the start of the description of an 'aging population'. Based on practical considerations, this work will use the recognized age in the United States, 65, as the definition of the start of middle age and senior aging population demographic.

2.1.1 The process of aging

The aging of the population is a structural feature (Wang et al., 2014) shown in the social population's development process. The primary manifestation is a low birth rate, stable mortality, and a large-scale proportion of older adults.

United Nations (2015) estimated that the global population of 65 years or older would rise from 901 million in 2015 to 1.4 billion in 2030 and reach 2.1 billion by 2050. In 2015, the number

of people over 65 accounted for about one-eighth of the global population. By 2030, it is expected that the elderly will account for one-sixth of the worldwide population.

The *Madrid International Plan of Action on Aging*, adopted during the Second World Assembly on Aging in 2002, analyzes explicitly in detail all aspects of the lives of older persons and sets up corresponding solutions, including health care, pensions, public services, and skills training, etc. The practical implementation of those policies can enable the country to maintain its sustainable development.

The concept of active aging began to appear in the 1990s—the WHO sees active aging in terms of the health, independence, and productivity of older people. It is a process of optimizing health, participation, and safety opportunities to improve the quality of life as people age. The goals are extending healthy life expectancy and quality of life for all older people including those who are frail, disabled, and dependent (WHO, 2002). Active aging encourages older adults to realize their potential and participate in society (Foster & Walker, 2015)

The global population is facing a gradually accelerated aging situation, which comes with numerous challenges and opportunities. The WHO *Brasilia Declaration on Aging* (1996) pointed out that healthy older persons are a resource for their families, communities, and the economy. The aging society also brings design opportunities for integration and innovation. Whether for the government, business, or families, should actively face and find solutions to this challenge (Wang et al., 2014). For the retail industry, the markets and services can extend to the older customer through user research and suitable design.

Developing and designing services need to fulfill the demands of the user. Therefore,

designers, whether designing retail services or equipping supporting facilities, should understand their target customer needs and let the retail system serve consumers better. Shoppers get a superior user experience, and retailers can consequently realize higher revenue during operational procedures.

Howard and Sheth (1969) established the buyer behavior theory within the last century. Kotler (1965) and Solomon (1983) also laid the foundation for the study of buyer behavior. The factors affecting consumer behavior can be divided into three aspects:1) culture and society, 2) demographic characteristics, and 3) psychological factors. Demographic characteristics, such as age, occupation, life stage, and financial status, will affect lifestyle and psychological and social factors. The psychological factors that influence consumer behavior include motivation, perception, learning, persuasiveness, and attitude.

With the trend of globalization, retailers and designers need to consider the needs of domestic shopping groups and consider the different shopping habits brought by cultural differences in various regions. Cultural diversity makes people have different shopping needs in different areas.

For older shoppers, their physical and psychological factors change as aging has increased this age group's needs, and retailers and designers need to look for the right answers.

2.1.2 Physical characteristics of the aging population

As people age, their physical function and abilities change, which includes a steady reduction in physical strength, body balance, and the five senses.

2.1.2.1 Nervous system

Nervous systems control the body's organs, mobility, senses, thoughts, and memories. Aging makes the human body go through natural changes. The nerve cells are slower than early age when transmitting signals and communications from the brain (Amarya et al., 2018).

The deterioration of nerves can affect reflexes or sensation and lead to worse problems like dementia and severe memory loss. Alzheimer's disease and Parkinson's disease are neurodegenerative diseases related to aging (Esopenko & Levine, 2015). These diseases also cause memory loss, personality changes, apathy, mood swings, and distrust of others, which can lead to an overall imbalance (Das et al., 2012; Mayeux & Stern, 2012).

In the article "Mental Health of Older Adults", the WHO mentioned that ignoring older people's mental health problems can result in isolation, loneliness, or psychological distress. Active and healthy aging can be a way to improve the mental health of older adults. Societies have the power to meet older populations' specific needs, including developing age-friendly services and creating conditions and environments that support well-being and allow people to lead a healthy life (WHO, 2017).

2.1.2.2 Cognitive ability

We can often notice cognitive change accompanying aging. In terms of culture, lifestyle, education, physical, social conditions, and requirements for success in life, early life experiences affect cognitive development (Kapoor & Banerjee, 1989). Crystallized and fluid intelligence are two concepts used to describe patterns of cognitive change over a lifetime. Crystallized

intelligence is the collection of life experiences—the accumulation of skills, abilities, and knowledge that may improve with age (Lezak et al., 2012). On the contrary, fluid intelligence involves the ability to solve problems and reason about things independent of previously existing knowledge (Kievit et al., 2016). Cognitive ability related to fluid intelligence declines gradually during late adulthood.

In the article "Normal Cognitive Aging", authors Harada et al. (2013) divided cognitive ability into specific cognitive domains such as processing speed, attention, memory, language, visuospatial abilities, and executive functioning/reasoning.

They summarized the neurocognitive changes when people age, shown in Figure 2.1.1.

Figure 2.1.1

Summary of Neurocognitive Changes with Age

	Crystallized vs. Fluid	**Declines with age?**
Processing speed	Fluid	Yes
Attention	Fluid	Simple tasks- no Complex tasks- yes
Memory	Fluid	Mixed
Language	Crystallized > Fluid	In general- no Visual confrontation naming, verbal fluency- yes
Visuospatial	Mixed	Simple tasks- no Complex tasks- yes
Executive Function	Fluid	Mixed

Note. Sources from Harada, Natelson, & Triebel, 2013.

Active cognitive lifestyle studies indicated that engaging in certain cognitive leisure activities

prevent age-associated cognitive decline and dementia (Marioni et al., 2011). Activities associated with high cognitive function among older adults can be summarized into intellectually engaging activities, physical activities, and social engagement (Harada et al., 2013).

2.1.2.3 Perception system

Sensory ability and sensory-perceptual systems gradually decline due to aging or pathological reasons (Wang et al., 2014). Age-related differences in sensory and perceptual experience also occur in vision, hearing, taste, smell (Schieber et al., 1991) and touch. As sensory functions slowly decrease, perceptual aids are necessary. Mastering the information of degenerative changes in various perceptions can better understand and help the older users and carry out related designs.

Vision. The age-related declines in visual abilities vary among individuals, and most people after 50 appear to have presbyopia (Kędziora-Kornatowska, 2007). Compared with the young, older people are dissatisfied with their visual capabilities regarding the visual perception of the shape, size, depth, dynamic vision, and visual processing speed. These changes mainly occur in central processing system and eye components, affecting daily activities such as reading, balance, and driving (Salvi et al., 2006).

In the article "Optimizing Sensation and Perception in Older Adults", Schieber et al. (1991) listed nine vision abilities including light and dark adaptation, acuity, contrast sensitivity, stereopsis, color discrimination, eye movements, motion sensitivity, visual search, night vision, and glare sensitivity. They also identified four ways to compensate for age-related loss of visual function, such as increasing illumination, controlling glare, enhancing contrast, and using proper

text size and style.

Hearing. The common phenomena in auditory function are hearing loss and disorders of speech recognition. Hearing loss mainly misses the high pitch, challenging people to distinguish consonants in the language (Khullar & Babbar, 2011). Degenerative changes in hearing affect older adult language and comprehension skills, making communication more difficult. To improve auditory functions, using personal hearing aids, or assistive listening devices are considered to be the right intervention strategies (Schieber et al., 1991).

Taste. Age-related changes in the sense of taste are a common degeneration for older people (Imoscopi et al., 2012). The salivary glands are affected by aging, and the volume and quality of saliva diminish. All the changes combined make eating less enjoyable than before (Boyce & Shone, 2006). Studies show that the physiological results in a decline in the density of the taste acuity, and a decline in papillae result in a drop of gustatory function. Toffanello et al. (2013) indicated that changes in taste density associated with aging might have different effects on taste function in different tongue regions. Boyce and Shone (2006) also proposed that chewing problems related to loss of teeth and the use of dentures also interfere with taste and lead to a decrease in saliva production. However, since most older adults seem to avoid the taste decline affecting their lives, people may consider other sensory and non-sensory factors to make up for the deficiency (Schieber et al., 1991).

Smell. Similar to changes in taste, the sensitivity of smell also decreases as people age (Doty et al., 1984). Williams (2009) said that when people are over 50 years old, their sense of smell will be impaired, and after 80 years old, their sense of smell will be reduced by nearly 50%. The

decreased sense of smell can lead to a reduction in life quality, including reduced pleasure in eating, resulting in weight loss and digestibility (Gaines, 2010).

Schiffman and Zercakis (2002) pointed out that people think that the incidence of taste disorders caused by age is far less than the loss of smell. Therefore, changes in the olfactory perception system will reduce people's perception and interest in food more than changes in the taste perception system (Sinding et al., 2014).

Touch. The sense of touch declines due to age-related skin changes and reduced blood circulation to touch receptors or the brain and spinal cord (Amarya et al., 2018). The number of tactile sensations on the skin of people over 60 years of age significantly decreases. Compared with the young, the skin of older people needs more stimulation to register the feeling. The sensation of temperature and pain in people who are aging is relatively slow, and these sensations in some skin areas are almost entirely lost (Wang et al., 2014). Studies have shown that the muscle spindle and mechanoreceptor functions' function decrease with age, further interfering with balance (Carpenter et al., 2006).

When a lack of significant stimulus in the perception system occurs, it is possible to increase residual sensation through techniques that increase the capacity of the older adult to respond meaningfully (Schieber et al., 1991).

2.1.2.4 Skeletal system

Normal aging is characterized by a decrease in bone and muscle mass and an increase in obesity (Villa-Forte, 2014). Decreased muscle mass and reduced muscle strength can easily lead

to fractures, weakness, and even reduce the quality of life and the risk of losing independence. These changes in the musculoskeletal system reflect the human aging process and the consequences of reduced physical activity. The strength of skeletal muscles (the ability to generate force) decreases with age (Faulkner et al., 2007), depending on genetics, diet and environmental factors, and lifestyle choices.

The decrease in cells' ability to produce protein will also reduce the total amount of muscle fibers. The size of muscle cells, fibers and tissues is lessened, making bones vulnerable to friction damage. This entire process increases the fragility of cells and damages the integrity of cells. Simultaneously, age-related changes in the nervous system exacerbate physiological changes in muscles (Fell & Williams, 2008). Due to reduced nerve activity and conduction, the efficiency of muscle activity declines, causing a slower response to the nerves system and affecting older adults' reactions to things.

On the other hand, muscle remodeling ability changes with age. While muscle increases, the total water content in tissue decreases as people age. At the same time, the basal metabolic rate and the slowing of metabolism, which is part of the physiological aging process, can cause muscle changes. This causes the protein to be replaced by soft tissue, reducing muscle efficiency.

The deterioration of age-related muscle strength and balance control mechanisms is inseparable from the decline in functional work performance (Bottaro et al., 2007; Melzer et al., 2010; Wang, et al., 2002).

In addition to the unavoidable changes in body functions, daily routines will also affect the body's changes. Nevertheless, human activity capacity is not entirely determined by physiological

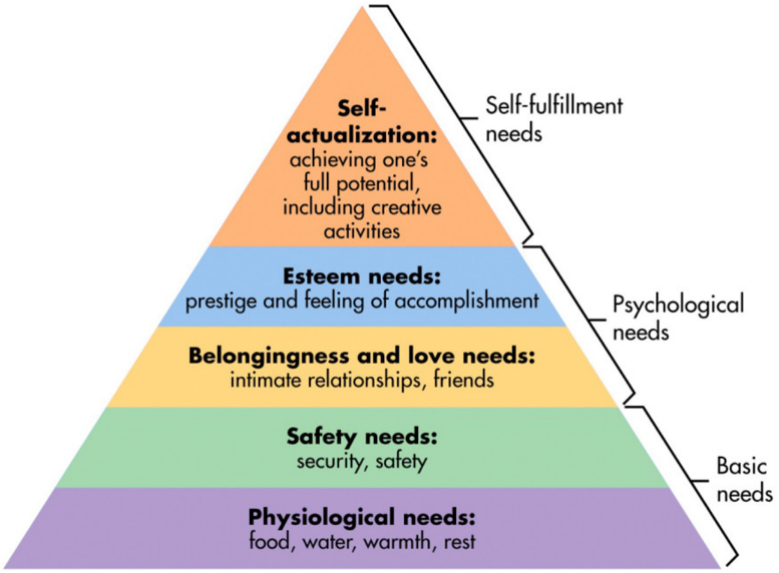
functions. Some older adults can positively transform unfavorable factors into favorable factors with positive emotions, strong willpower, life pursuit, and making use of their potential to enrich their lives.

2.1.3 Psychological characteristics of the aging population

In the book *A Theory of Human Motivation* (1943), Maslow defined motivational needs in psychology as physiological, safety, love and belonging, esteem, and self-actualization (Figure 2.1.2). "People are motivated by the desire to achieve or maintain the various conditions upon which these basic satisfactions rest and by certain more intellectual desires" (Maslow, 1943, p. 394). Satisfying psychological needs, and self-fulfillment needs can impact happiness, and self-satisfaction.

Figure 2.1.2

Maslow's Hierarchy of Needs



Note. Source from Maslow's Hierarchy of Needs, by McLeod, 2020.

With life changes such as physical aging, retirement, and children departing, the older adults' mental state also changes. Psychosocial aging is primarily determined by how a person prepares for aging and takes effect over time (Trafiałek, 2006). Accepting aging will build a certain sense of happiness and satisfaction.

Dziechciaż and Filip (2014) introduced the most five common psychological attitudes of the middle age and senior population:

(1) Constructive attitude-----characterized by accepting old age, internal integration, and harmonious interaction with others.

(2) Dependence attitude-----characterized by dependence and negative emotions.

(3) Defensive posture-----describes people who need help anytime and refuse to accept help from others.

(4) Hostile attitude towards the world-----occurs among those who are enterprising, skeptical, and dissatisfied with contact others, thus socially isolated from the world.

(5) Hostile attitude towards oneself-----refers to those who self-criticize and do not believe that they can influence their lives.

Trafiałek (2006) said that older adults often show self-centered, conservative, and bossy tendencies. Generally speaking, their mentality often shows loneliness, anxiety, low self-esteem, negativity, depression, and other characteristics (Zhang, 2012).

Loneliness. After retirement, the older adults' social life circle begins shrinking, and their children are not always around. Also, older people have more free time than before, so they start to feel lonely and suddenly don't know how to enrich their leisure life (Wang et al., 2014). Some

older people seldom interact with relatives and friends due to their personalities or illness; therefore, their range of activities is naturally reduced. The lack of contact with the outside world makes their ability to communicate with others weakened, and the feelings of loneliness naturally become stronger.

Anxiety. Due to the decline of physical capacities, older adults face many difficulties, such as suffering frequent illnesses, and entangling with chronic diseases. With their peers' departure, they aware of the approaching death, which creates anxiety. At the same time, the new impacts of society environmental change, rapid economic development, and advanced technologies will also bring mental discomfort and stress to the aging (González et al., 2012)

Inferiority. When the older adult's abilities begin to decline, they will gradually lose their ability to perform labor and earning capacity. The loss of these capacities and medical expenses will place a burden on their families and societies. This psychological feeling leads to lower self-esteem in middle agers and seniors. Deterioration of physical functions makes older people unable to take care of themselves and require care from others. This will bring a deep psychological gap to some older adults with strong self-esteem, thereby exacerbating the inferiority complex.

Negative. When older adults retire, they tend to lose their passion, pursuit, and dreams. Most of the time, their children are not around, and their social circles are getting smaller, leading to loneliness and less interest in many things. There are less people who can communicate with them in life, so it's harder for them to seek help constructively. If they feel bored in life or no longer have a sense of purpose, they will feel negative. This emotion is even complicated when followed by age-related changes that affect their independence, daily life, and functioning (Bursack, 2020).

If society does not provide practical support to this demographic, it can lead to depression and negative emotions.

The aging process has brought psychological and physical changes to the middle age and senior shopping groups. Therefore, the retail designer also needs to provide a suitable shopping design and experience for older adults. Given the natural and psychological changes associated with aging, older shoppers will inevitably have specific needs (Oeser et al., 2019).

2.1.4 Socio-economic status of older people; and their shopping needs

The population of older people is rapidly growing in recent years. It is estimated the number of people over 65 in the United States will reach 70 million in 2030 (United States Census Bureau, 2014). Therefore, marketers should pay attention to the expanding middle age and senior demographic.

This group has more disposable income and buying power than other generations (Eastman & Lyer, 2004). According to the article "The Center of Attention", people who are middle aged and seniors have approximately twice their children's discretionary income. Americans over 65 who control $7 trillion in wealth own 70 percent of US households'net worth (Polyak, 2000). Based on The Federal Reserve's *Survey of Consumer Finances*, the median net worth of American families reached $97,300, and the mean net worth reached $692,100 in 2016. People in the age range of 65-74 and 75 or more reached $224.1 thousands median net worth, and $1.07 million mean net worth (Board of Governors of the Federal Reserve System, 2017).

Additionally, most newly retired seniors can look forward to better health and a more active

lifestyle than previous retirees due to medical advances (The Economist, 2002). Today, many people want to have a more colorful retirement life; therefore, they may learn new skills, participate in learning activities, and further their education (Gardyn, 2000). With these economic changes, middle agers and seniors are a vital and rapidly growing consumer base for the retail and internet sectors (Trocchia & Janda, 2000).

The shopping needs of older consumers are affected by many factors. Kotler (1997) have pointed out that middle age and senior consumer's consumption habits are impacted by geographic, demographic, psychographic, and behavioral factors.

Sudbury and Simcock (2009) constructed an internal driver of the British older consumer market segmentation model, which uses many criteria, including cognitive age and various consumer behavior variables (Figure 2.1.3). This model is not limited to specific products and needs; it can also be used in general consumer markets. The authors named the segments as follows: solitary skeptics, bargain-hunting belongers, self-assured sociables, positive pioneers, and cautious comfortables. These distinctive consumer groups have different attitudes and concepts for shopping. The key to the fundamental consumption for these older consumers is the difference in cognitive age. For example, positive pioneers are the youngest in terms of time and cognitive age. They are usually between 46 to 56 years old. No one in this group thinks they are old, so they are more willing to accept the Internet. Their attitude toward consumption is also positive.

The bargain-hunting belongers are the oldest group. They use TV more for shopping and have a high degree of price awareness and a positive attitude.

Figure 2.1.3

Older Consumer Market Segmentation Model

Segment	Solitary Skeptics	Bargain-Hunting Belongers	Self-Assured Sociables	Positive Pioneers	Cautious Comfortables
Chronological and cognitive age	Aged around 66 years but most feel considerably younger	The oldest, with a chronological age of 70 and a cognitive age of 61	Much younger cognitively than their 59 years	The youngest for both actual and cognitive age, with an average age of 56 and 46 years, respectively	Aged on average 58 and cognitive 48, most feel middle-aged
Media usage	The heaviest consumers of print media but the use of radio and the internet is relatively low	Heavy consumers of television, radio and print media but has the lowest internet usage	Highest users of radio and moderate users of the internet but consumption of print media is lowest	Best reached through magazines and the internet	Heaviest users of the internet but low in respect of other media channels
Attitudes toward marketing and consumerism	Negative towards marketing and consumerism	Moderate in terms of materialism and boldness in the market	Cautious consumers who are low in market expertise	Relatively materialistic, optimistic about marketing and consumerism	Not attracted by materialism or nostalgia
Age-based promotions price consciousness and credit attitudes	Attracted to senior discounts but no credit	Highly price-conscious and the most positive towards senior discounts	Highly price-conscious, cynical towards credit and strongly against senior discounts	Positive towards credit, and are not particularly price-conscious although they are still unsure about senior discounts	Positive towards credit but uncertain about senior discounts and not price-conscious
Nostalgia	Most nostalgic	Moderate on nostalgia	High on nostalgia	Moderate on nostalgia	Display the lowest levels of nostalgia

Note. Adapted from Sudbury and Simcock, 2009

This framework divides the groups based on consumers' actual age and their cognitive age (more about their age regarding how they feel and act). An interesting finding in this framework

is that the two most skeptical of marketing and consumerism are solitary skeptics and self-assured sociable. However, they are also the most nostalgic group. When retailers and designers provide products and related services for these groups, they need to pay special attention to the products and sales of these market segments in order to persuade these captious buyers because it is easy for them to think that new products are inferior to the good old days (Sudbury & Simcock, 2009).

In addition to internal drivers, external drivers will also affect the shopping impulse of older middle aged and senior consumers. Choudhury and Karahanna (2008) summarized the external influencing factors of online shopping, such as information acquisition effectiveness, convenience, trust, concentration, and other dimensions of relative advantages, such as price, service quality, and empathy. Angell et al. (2012) identified that environmental elements in grocery stores (such as appropriate signage, user-friendly layout and pleasant atmosphere) are perceived by older customers to be valuable attributes and impact their store choice. However, there is a lack of research that focuses on understanding how those elements influence older shoppers' behavior during the buying experience.

There are still many companies that are not marketing correctly to middle aged and senior consumers. They may not realize the importance of this market segment or how to appeal to them. It is not easy to divide the market into multiple sub-markets, which requires considering fundamental principles (Moschis, 2003).

2.2 Retail Store development

Retail is the sale of goods or commodities to customers to make a profit. Retail markets have existed since ancient times; retail goods were displayed in simple marketplaces on market days. By the 17th century, permanent shops with more regular trading hours were beginning to replace marketplaces as the main retail channel (Cox & Dannehl, 2007). In the 18th and 19th centuries, Mom-and-pop stores expanded in the United States and provided general merchandise for daily life. Mom-and-pop is a term used to describe a small, family-owned, or independent business. These businesses benefit from local consumers who desire to support their communities and promote regional economic growth (Bloomenthal, 2019). Meyer (2020) noted that the mom-and-pop stores can also appeal to customers' desire for personalization and a fun boutique experience that incorporates human connection (para. 18).

In 1916, Tennessee businessman Clarence Saunders revolutionized grocery shopping by opening America's first true self-service grocery store Piggly Wiggly in Memphis (Piggly Wiggly, 2011). Frank Woolworth, the owner of Woolworth store, also had the revolutionary concept that allowed customers to examine what they wanted to buy without the help of a sale clerk (Schwab, 2018). Shoppers previously made requests to the store owner at the counter (Figure 2.2.1) and self-service fundamentally changed retail as customers became more involved in the process (Figure 2.2.2).

Figure 2.2.1

Country Store

Note. Source from Lee, R., 1939.

Figure 2.2.2

Piggly Wiggly Store 1916

Note. Source from an article “Shop like it’s 1916” about Piggly Wiggly Store, *2016*

In the late 19th and early 20th centuries, manufacturing and industry brought new jobs and new living standards. Department stores began popping up such as Macy's, Bloomingdales, and Sears in cities like New York City and Chicago. The department stores sold merchandise and provided demonstrations, lectures, and entertainment events to attract customers (Meyer, 2020).

As the founder of Selfridges department store, Harry Gordon Selfridge inspired department stores to reach a higher level. He promoted the perception of shopping for pleasure rather than necessity and caused shopping to become an activity that appealed to every sense (Gere & Sparrow, 1981). He used advertising and gimmicks to draw customers' attention and made merchandise more accessible (Rabon, 2015). Selfridge made the department store a destination with rest areas and recreation areas such as restaurants and roof gardens where people could meet and stay. He also created the phrase "The Customer Is Always Right" (Glancey, 2015, p.1).

The concept of modern malls began in the 20th century as central locations where shops are connected in one location with communal facilities. The mall was envisioned as a cultural and social center where people could come together for shopping and join various activities (Meyer, 2020). In 1960, more than 4,500 malls accounted for 14% of all retail sales in the US (Chepkemoi, 2017).

Victor David Gruen was an architect best known as a pioneer in shopping malls in the United States. Gruen considered appealing window displays, and that the lively atmosphere could help turn shopping malls into spaces where consumers felt comfortable staying and spending time and money (Trufelman, 2015). While people enjoyed malls for social activities, entertainment, window shopping, and browsing stores, there was a renewed interest in returning to the one-stop-shop.

The birth of big-box stores can be traced back to the 1960s. Big-box refers to large retail stores that serve bigger populations and offer greater product variety at a lower price and bigger scale. These efficient and overall indoor stores are more focused on self-service and are attractive to consumers looking for convenient and standard fare service (Meyer, 2019). In recent decades, retailers have sounded a consistent theme: bigger is better. Small mom-and-pop stores are increasingly pressured out of business by ever-larger superstores (Metters et al., 2000).

For example, Wal-Mart company is one of the leading retailers worldwide offering various products under grocery, health and wellness, entertainment, hardlines, apparel, and home categories. It implements multiple strategies such as everyday low prices (EDLP) and everyday low cost (EDLC) to offer products at low prices. The company operates a network of owned and leased stores globally. It also retails its merchandise online through various e-commerce websites (Berg & Roberts, 2012). According to research from Econometrica, Wal-Mart's accelerated development led to 40-to 50-percent of smaller stores to face bankruptcy or reduce operation scale from the late 1980s to the late 1990s (Jia, 2008).

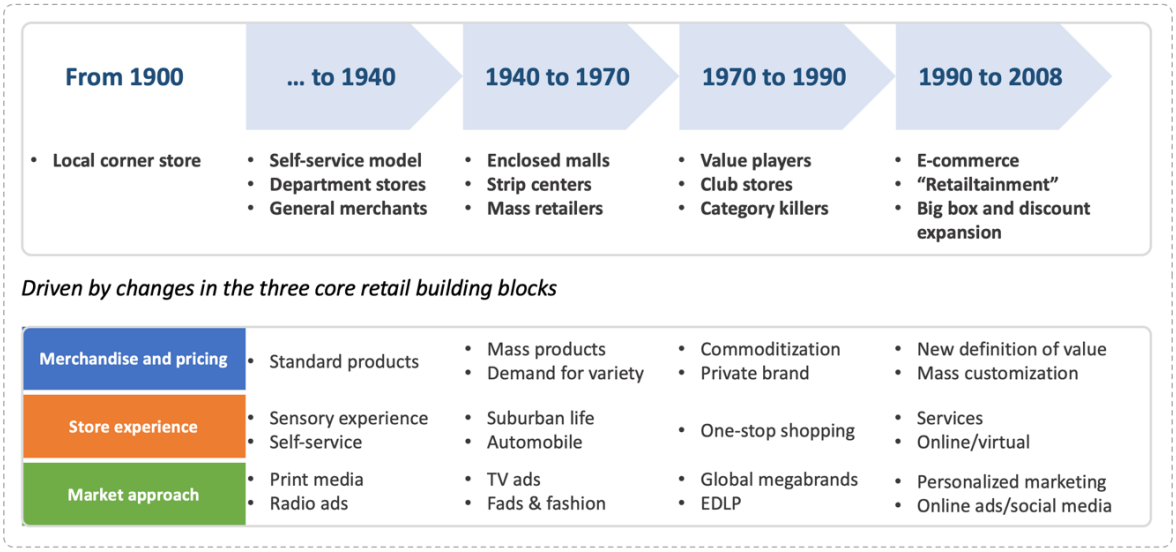
Electronic commerce became possible after the internet opened to the public in 1991. Ecommerce is the buying and selling of products or services via the internet. As one of the first e-commerce sites in the US, Amazon was established as a book seller and sold its first book in 1995 (Miva, 2011). Thousands of businesses have followed, and e-commerce sales have grown from 5.8% of the retail market share in the United States in 2013 to nearly 16.1% in 2020 (Statista, 2021).

McKinsey & Company (2016) summarized the significant trends in US retailing history. The

study listed three core retail building blocks, including merchandise and pricing, store experience, and marketing approach (Figure 2.2.3).

Figure 2.2.3

Major Trends and Enablers Have Driven New Eras Within US Retailing



Note: Adapted from Vaticano, M., 2016.

MuleSoft (2021), the world's leading integration platform which provides exceptional business agility to companies, listed five emerging retail industry trends:

(1) Invest in Omnichannel Retail Strategies,

(2) Provide a Personalized Retail Experience,

(3) Attend to the Growing Culture of Immediacy,

(4) Embrace the Digital Mobile Wallet,

(5) Expand into Emerging Markets and Create New Channels. (p. 1)

HubSpot is a platform that provides tools to build marketing, sales, and customer service.

Their article “5 Retail Trends That Will Transform The Industry” summarized the development tendency. In this article Chi (2019) noted that five retail trends are:

(1) Brands will sell experiences at their stores, not just products.

(2) The Internet of Things will make shopping easier, cheaper, and more convenient.

(3) Consumers will message brands’ Facebook bots more to vet and purchase their products.

(4) Brands will leverage cognitive computing to provide better, faster customer service.

(5) Brands will use augmented reality more to market their products. (p. 1)

In the last decade, customers cared more about the retailing experience than they did in the past, and they interacted with the retailer across multiple channels. According to the Statista survey (Figure 2.2.4) in 2019, the retail channels used to purchase products vary in different product categories. The physical stores were the mainstream retail channel, and online sales were more than 10% (Walker Sands, 2019).

Figure 2.2.4

Channels Used to Purchase Products According to Internet Users in The United States as of March 2019, by Category

	Brand website	Retail website	Third-party marketplace	Physical store
Books	11%	8%	42%	34%
Clothing and apparel	24%	35%	33%	65%
Consumer packaged goods	5%	10%	18%	76%
Food/grocery	5%	9%	14%	83%
Furniture	6%	11%	13%	34%
Household goods	5%	15%	21%	62%
Luxury goods	10%	9%	13%	25%
Office supplies	6%	11%	21%	51%
Pet supplies	7%	10%	19%	50%
Sporting goods	10%	10%	16%	35%
Tools and home improvement	6%	10%	16%	50%
Health and beauty	12%	16%	25%	69%

Note: Source from Walker Sands, 2019

2.2.1 Impacts of COVID-19 Pandemic

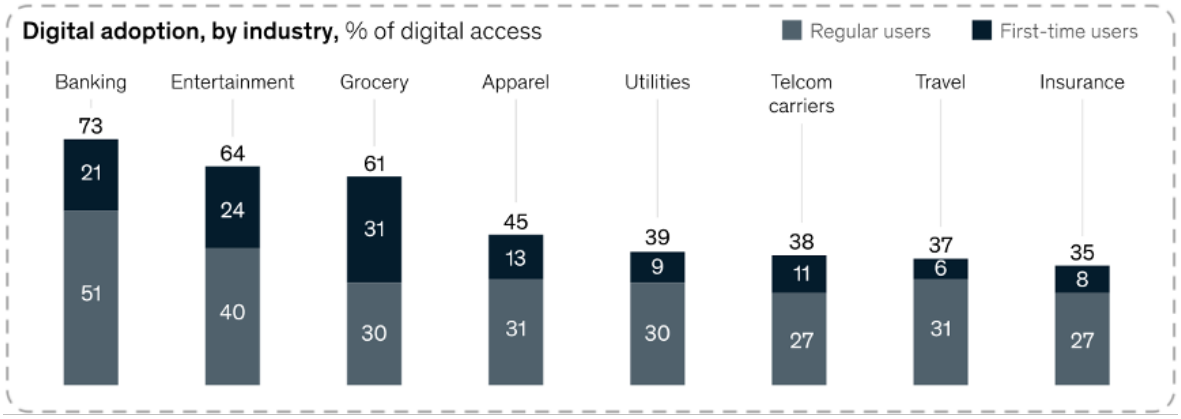
Since 2020, the COVID-19 pandemic has affected people's lives in many ways—the impact influences public health, living conditions, and daily activities. Consumers are also changing how they shop. The Accenture (2020) COVID-19 consumer research report summarized four trends that include:

(1) Consumers are shopping mindfully and consciously; (2) They care about health and safety; (3) The love of local such as supporting local business; (4) Shopping efficiently (p. 13).

Based on McKinsey's (2020) COVID-19 US digital sentiment survey (Figure 2.2.5), US consumers embraced digital services during the pandemic. The most noteworthy growth in digital services is in grocery shopping with the largest new user base. Accenture (2020) COVID-19 consumer surveys conducted in twenty countries across five continents show the convenience of ecommerce attracts many infrequent online shopping users (Figure 2.2.6), and the number continues to rise. Accenture (2020) also listed the proportion of consumers who have diversified and increased usage of customer service channels and their expectation towards keeping multichannel services (Figure 2.2.7). Hence, retailers need to provide a complete customer experience across different channels (Jayashree & Raman, 2014).

Figure 2.2.5

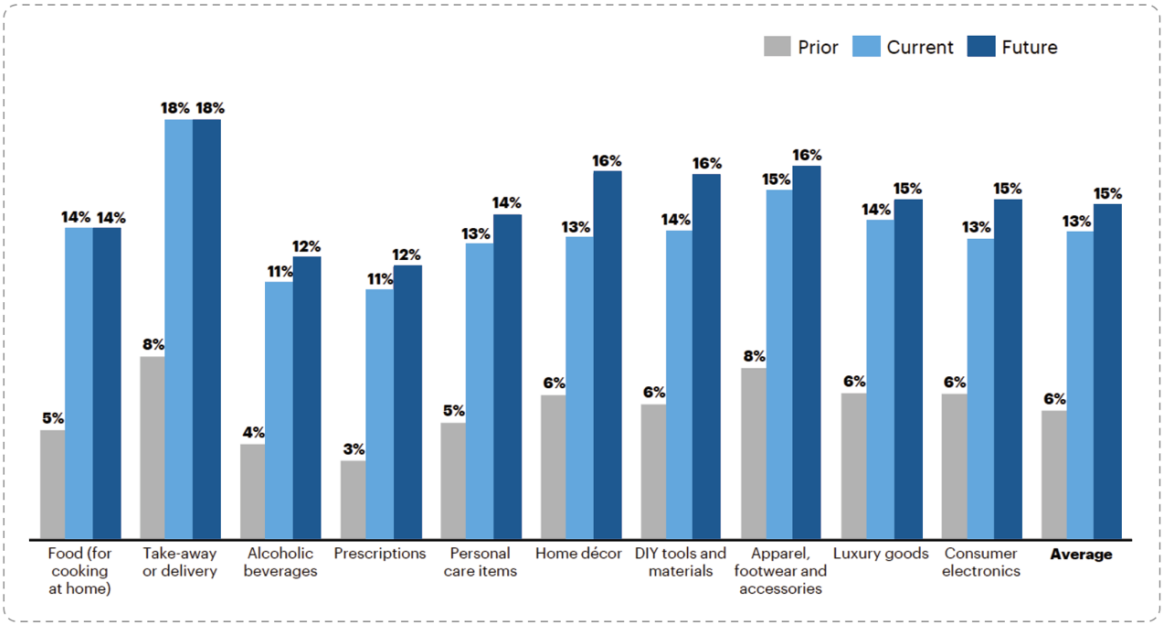
Digital Adoption by Industry



Note: Source from McKinsey COVID-19 US digital sentiment survey, 2020.

Figure 2.2.6

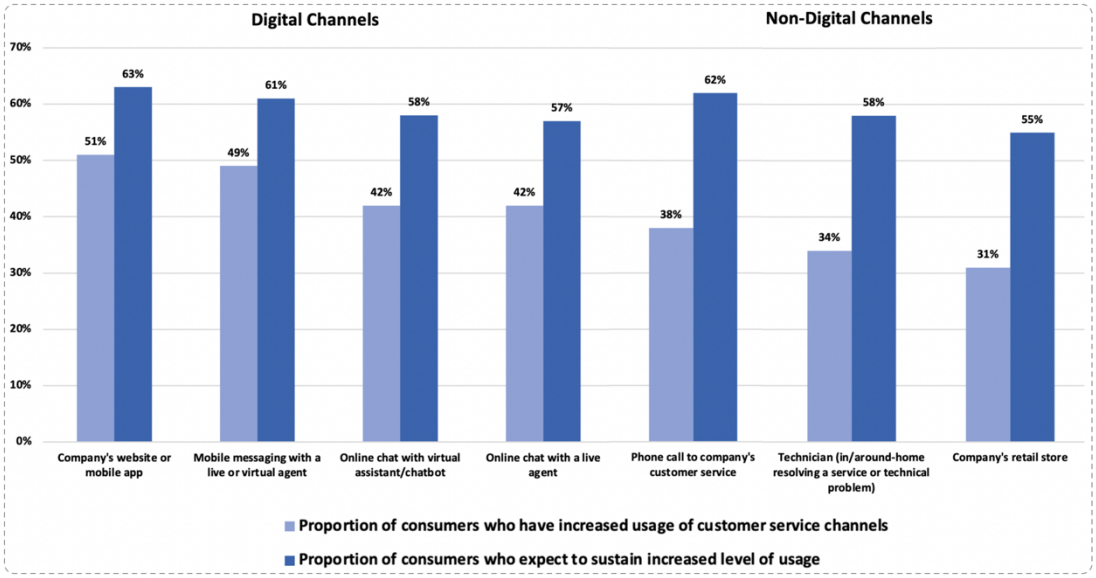
Proportion of Purchases Made Online by Infrequent Ecommerce Users



Note: Source from Accenture COVID-19 Consumer Research, 2020.

Figure 2.2.7

Proportion of Consumers Who Have Increased Usage of Customer Service Channels During The COVID-19 Outbreak



Note: Source from Accenture COVID-19 Consumer Research, 2020.

2.3 Retail Design

With the development of the retail industry, the retail channels and the customer's shopping habits are changing. The typical change is retail businesses moving from brick-and-mortar to online shopping platforms. The integration of the different retail channels has become known as multi-channel retailing.

2.3.1 Brick-and-mortar Retail Channel

Brick-and-mortar retail channel refers to a physical retail business that sells merchandise and provides customer experience face to face (Murphy, 2020). Lumen Retail Management Learning (LRML, n.d.) defined six types of retailers which include department stores, category specialist, specialty stores, full line discount stores, drug stores and off-price stores. LRML explained the difference between retailers:

> Department stores sell wide range of product categories. Category specialists sell products of a certain category, specialty stores are much more product specific. Full line discount stores provide name-brand products at a lower cost. Drug stores have depth assortment of health products. Off-price retailers sell off-season inventory at cheap prices. (p. 1)

Lesonsky (2015), a columnist for small business trends, summarized most benefits of the physical store. The uniqueness of shopping inside the store is customers can have a sensory experience. Stores are enjoyable places to socialize and entertain, and face-to-face shopping creates a personal touch, which helps to build loyalty and relationships. In-store browsing encourages impulse purchases. When it comes to payment and quality, physical stores seem more

secure than online stores.

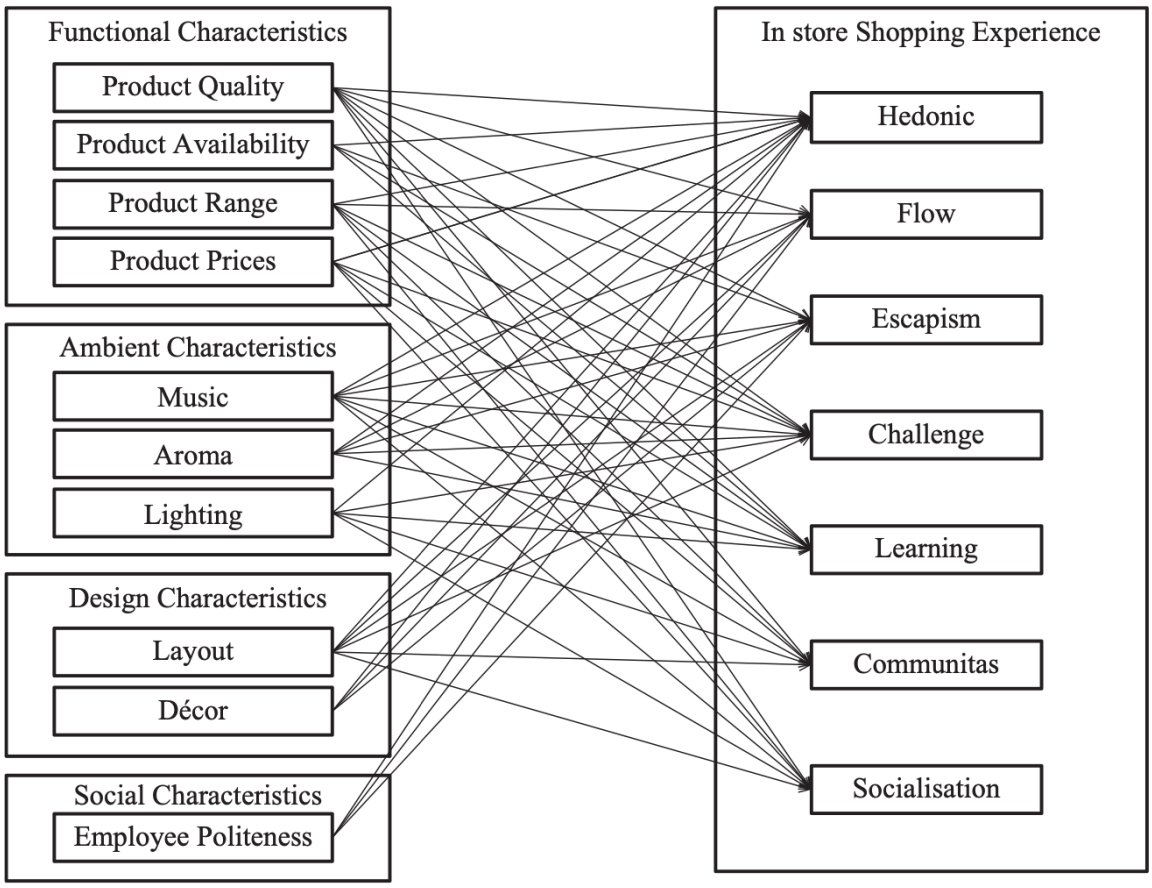
Older consumers are more familiar with the traditional brick-and-mortar stores where they can examine products and see the demonstration of the merchandise or service (Intersperience Research, 2016). Shopping is one of the necessary activities for older customers, and they need to enjoy the shopping experience regarding the aging process (Dodge, 1962; Gregor et al., 2002).

Gardyn (2000) mentioned that older adults enter retirement age with more free time than before, and they are willing to participate in activities to enrich their life. Therefore, shopping as their routine alongside getting necessities can also bring a relaxed and joyful experience. Related research also showed that older adults consider shopping as an excellent chance to socialize, and expect personal attention and special services (Harries et al., 1995; Lesakova, 2016; Myers & Lumbers, 2008). In the process of aging, older customer's physical and psychological demands gradually occur (Ford et al., 2016). The physical and emotional needs may affect or influence their experience during the shopping process.

Triantafillidou et al. (2017) studied the effects of retail store characteristics on in-store leisure shopping experience and summarized four factors which include functional characteristics, ambient characteristics, design characteristics and social characteristics (Figure 2.3.1) that affect purchase intention. Researchers Wu et al. (2014) indicated the store layout design and atmosphere bring emotional arousal and influence attitude toward the brick-and-mortar or online store, which will result in consumer shopping intention.

Figure 2.3.1

The Effects of Retail Store Characteristics on In-Store Leisure Shopping Experience

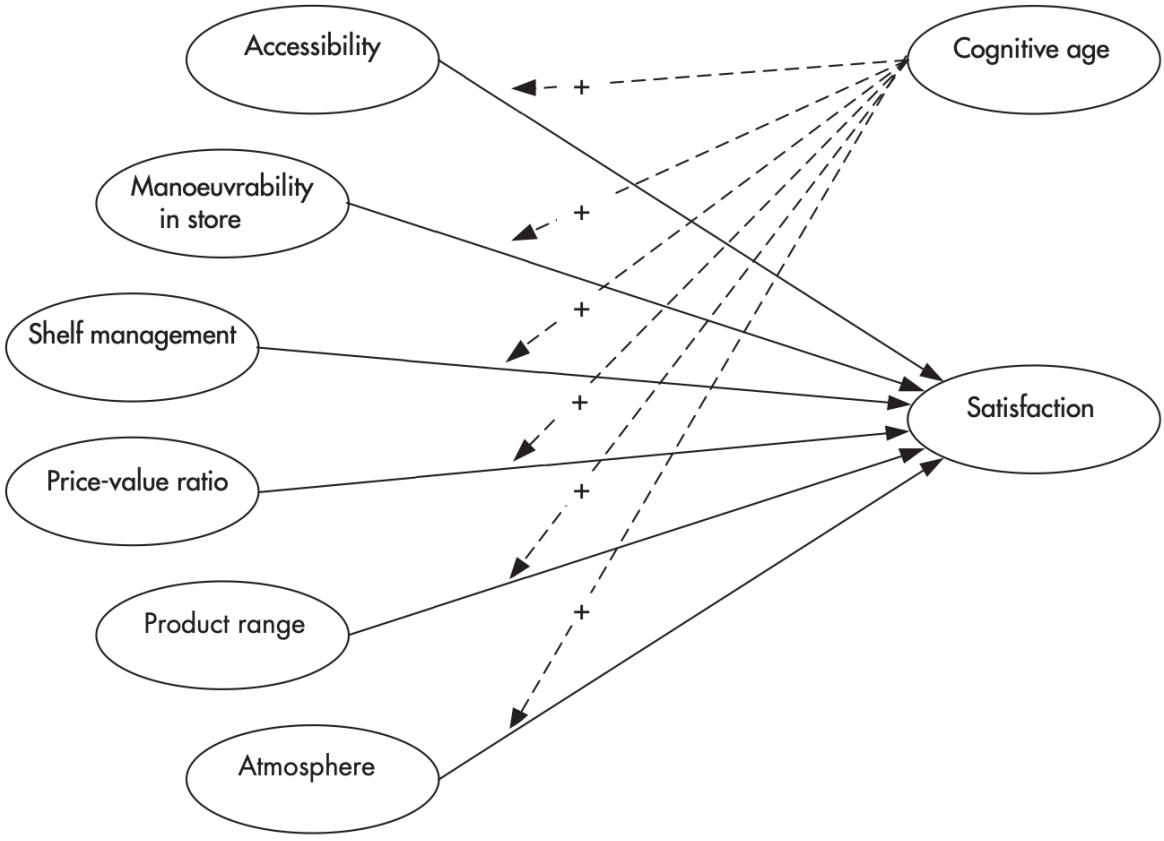


Note. Source from Triantafillidou, Siomkos and Papafilippaki, 2017.

Teller et al. (2013) studied the older customers' cognitive age and the effect of various store attributes on satisfaction. The store attributes include accessibility, maneuverability in store, shelf management, price-value ratio, product range and atmosphere (Figure 2.3.2). Lesakova (2016) also mentioned store accessibility, the in-store environment, and product-related factors are crucial factors for older customers satisfaction that influence older consumers' shopping experience and attitude toward the store evaluation.

Figure 2.3.2

Store Attributes That Influence Older Shoppers' Satisfaction

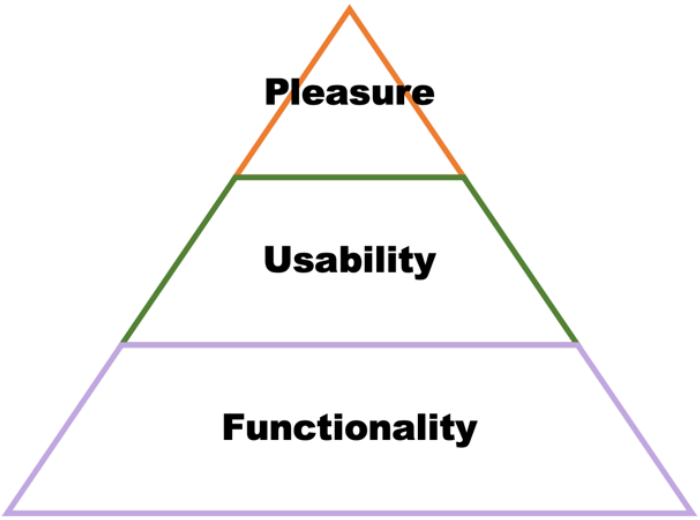


Note. Source from Teller, Gittenberger, and Schnedlitz, 2013.

If the retail stores that target the senior citizen market cannot meet consumers' needs, it may bring unpleasant experiences and dissatisfaction (Gregor et al., 2002; Lesakova, 2016). Jordan (2002) built on Maslow's hierarchy of human needs to summarize the hierarchy of consumer needs (Figure 2.3.3). He developed three levels of needs to create a pleasurable product or service. The first level is functionality that the design needs to the fulfill the user's needs. The second level is usability that requires the product or service be easy to use. The third level is pleasure, which means creating an emotional connection.

Figure 2.3.3

Jordan's (2002) Hierarchy of Consumer Needs



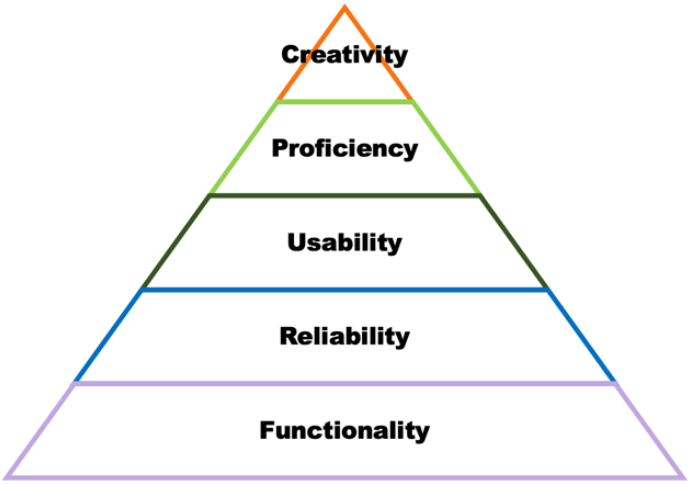
Note. Adapted from Jordan, 2002.

Lidwell et al. (2010) defined the hierarchy of needs for design (Figure 2.3.4), adapted from Maslow's hierarchy of needs. They addressed that:

> In order for a design to be successful, it must meet people's basic needs before it can attempt to satisfy higher-level needs. The hierarchy of needs principle specifies that a design must serve the low-level needs before the higher-level needs. (p. 124)

Figure 2.3.4

Lidwell et al.'s (2010) Hierarchy of Needs



Note. Adapted from Lidwell, Holden, Elam, Butler, 2010.

As Lidwell et al. (2010) explained,

> Reliability needs have to do with establishing stable and consistent performance, … proficiency needs have to do with empowering people to do things better than they could previously, … creativity is interacting with the design in innovative ways, and achieve loyalty among users. (p. 124)

A good user experience depends on user satisfaction. Based on the analysis of three hierarchy of needs and the characteristics of middle age and senior population, the needs of the older consumers while shopping in stores can be preliminarily divided into three levels.

Level 1: Basic needs – store facilities able to satisfy older customer's physiological needs and safety needs (Functionality).

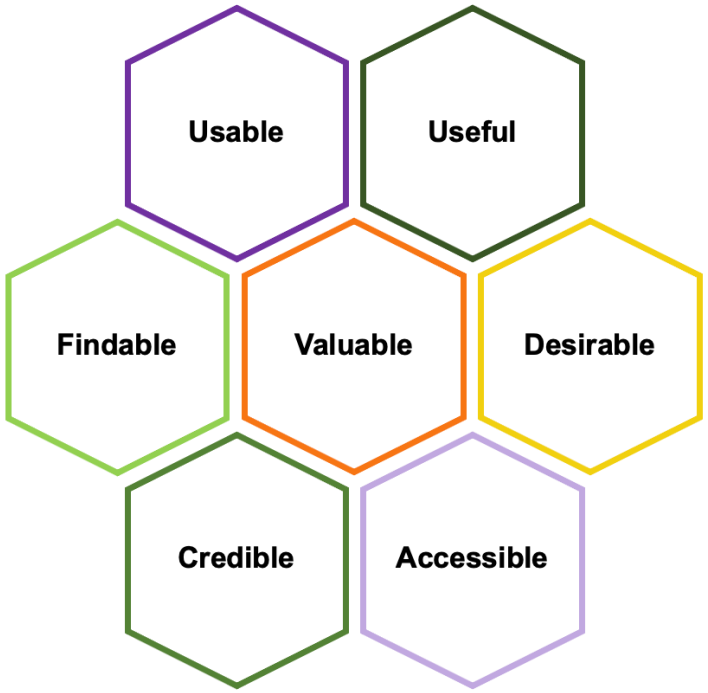
Level 2: Efficient needs – shopping process able to be efficient and reliable (Efficiency).

Level 3: Inner needs – shopping experience able to bring pleasure and create inner contentment (Pleasure).

This analysis also corresponds to the User Experience Honeycomb created by Peter Morville (2004). Morville, a pioneer in user experience design, outlined the seven key factors influencing user experience (Figure 2.3.5).

Figure 2.3.5

Morville's (2004) User Experience Honeycomb



Note: Adapted from Morville, 2004.

At the Basic needs level, user experience requires satisfying the accessible and usable facets to reach the efficient level, which then creates a useful, findable, and credible user experience. A valuable and desirable experience brings inner satisfaction.

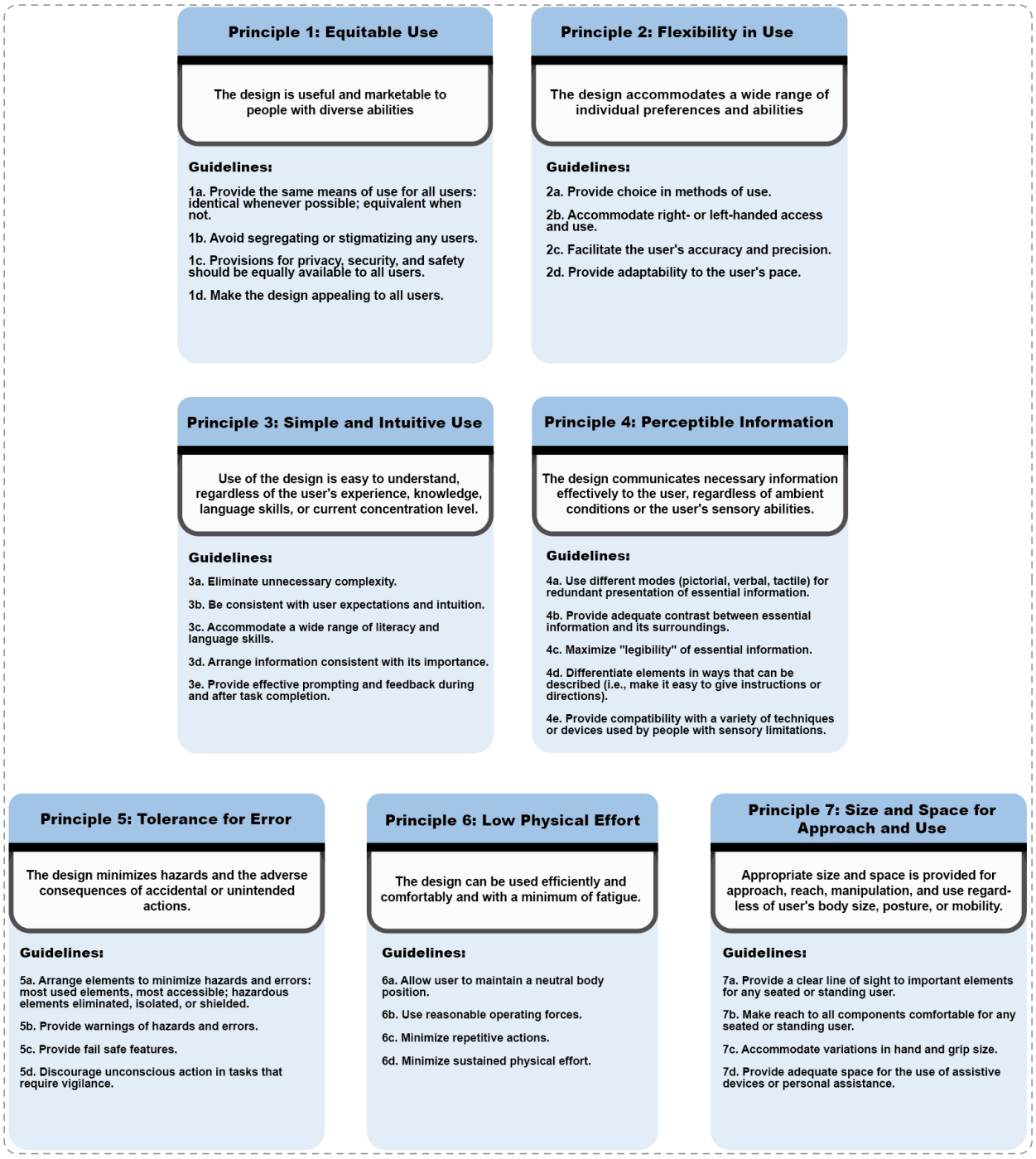
In the book *Store Design and Visual Merchandising,* authors Ebster and Garaus (2015)

mentioned two shopping reasons: utilitarian reason (shop for necessity) and hedonic reason (shop for pleasure). Hedonic shopping has six types: adventure shopping, social shopping, gratification shopping, idea shopping, role shopping, and value shopping. Shoppers look for exciting stimuli that increase immersive and engaging experiences during adventure shopping. Social shoppers consider shopping as a social activity. Gratification shopping is an excellent opportunity to relax and treat themselves to something special. Idea shoppers enjoy browsing, and they can learn more information or get inspiration from the newest market trends. Role shopping refers to buying gifts for others on holidays or personal occasions. Value shoppers enjoy bargain hunting and discount discovery, as well as feel a sense of achievement when they get a great deal (Ebster & Garaus, 2015).

In retail store design, designers or retailers often consider universal design methods that satisfy most people's needs no matter ages, gender, ethnicity, ability, or disability in the retail environment. The universal design methods (Figure 2.3.6) include seven principles: Equitable use, flexibility in use, simple and intuitive use, perceptible information, tolerance for error, low physical effort, size, and space for approach and use (The Center for Universal Design, 1997).

Figure 2.3.6

Universal Design Seven Principles



Note. Adopted from Universal Design, The Center for Universal Design, 1997.

The inclusive design concept is similar to universal design also widely applied in retail design. The British Standards Institute (2005) defined inclusive design as: "The design of mainstream products or services that are accessible to, and usable by, as many people as reasonably possible ... without the need for special adaptation or specialized design" (p. 1). The inclusive designer notices one product or service for all is not always working. A series of products could respond to more user groups. Moreover, products or services with clear target users can be focused on specific functions, increasing usability to improve the user experience for a wide-scale population (University of Cambridge, 2017).

Retailers targeted at the older generation who want to create a friendly store environment for the aging society require consideration of older customer's needs. In order to create an enjoyable shopping experience, designers need to identify their design objectives, such as the retail brand, retail environment, and retail process, and improve or innovate the shopping experience based on their target consumer's demand (Pennington, 2016).

Store layout influences customers' shopping behavior, shopping process, and navigations. Mehrabian and Russell (1974) classified customer behaviors in the retail environment as "approach" such as move towards, stay in, explore or "avoidance behavior" feeling dissatisfaction, boredom, desire to leave.

Customers navigate and interact with merchandise based on store layout (Botsali, 2007). Grid layout, loop layout, free-flow layout, and forced-path layout are typical layout types. The grid layout utilizes space and maximizes merchandise storage. Stores with loop layouts have a clear path to follow. The free-flow layout provides opportunities to create unique attraction, and flexible

arrangement. A forced-path layout leads the customer to shop in a specified way (Ebster & Garaus, 2015; Velasquez, n.d.). One store may have multiple layouts at the same time (Bostali, 2007; Ebster & Garaus, 2015).

The store divides different areas according to the shopping process and actual specifications. Most small shops set up entrances, window appearances, checkout counters, and commodity display areas based on the store layout. Larger retail stores may add a parking lot, service center, resting area, and additional multi-functional areas based on their requirement.

Designers who want to improve current shopping processes for senior citizens can start examining existing facilities inside the store area according to the first level needs (physiological needs and safety needs) of older customers. For examples, senior citizen parking spots, motorized shopping carts near the store entrance, and aisles compatible with the size of accessibility tools like walkers make it easier for mobility challenges (Sloane, 1997). Setting a resting area for older customers to take a break and installing grab rails in the fitting room to help them deal with skeletal system changes like balance control can improve the shopping experience for the middle age and senior groups, too. Designers can also check the 2010 ADA standards for accessible design regulations, and accessible features in retail establishments on the ADA website.

Physical stores have an advantage in building store atmosphere primarily through the sensory connection between customers, products, and brands. According to Kendu (2021), “Sensory marketing has gained significant popularity over the past few years due to its ability to provide a point of difference among stores” (p. 1). Starbucks is a good example that engages the five senses to create a pleasurable store atmosphere. Starbucks has a strong brand image and interior design

based on local culture to catch people's first sight (Figure 2.3.7). Coffee smells and unlimited personalized drinks bring enjoyment in aroma and taste. The communication between barista and customer and the sound of a coffee machine in the background reinforces the core value of Starbucks being a coffee expert. The furniture, upholstery, and packages (Figure 2.3.8) are aimed at heightening the experience of touch (Srivastava, 2015).

Figure 2.3.7

Starbucks in Kad Farang, Chiang Mai, Thailand

Note. Source from Tanitnon, P., 2015.

Figure 2.3.8

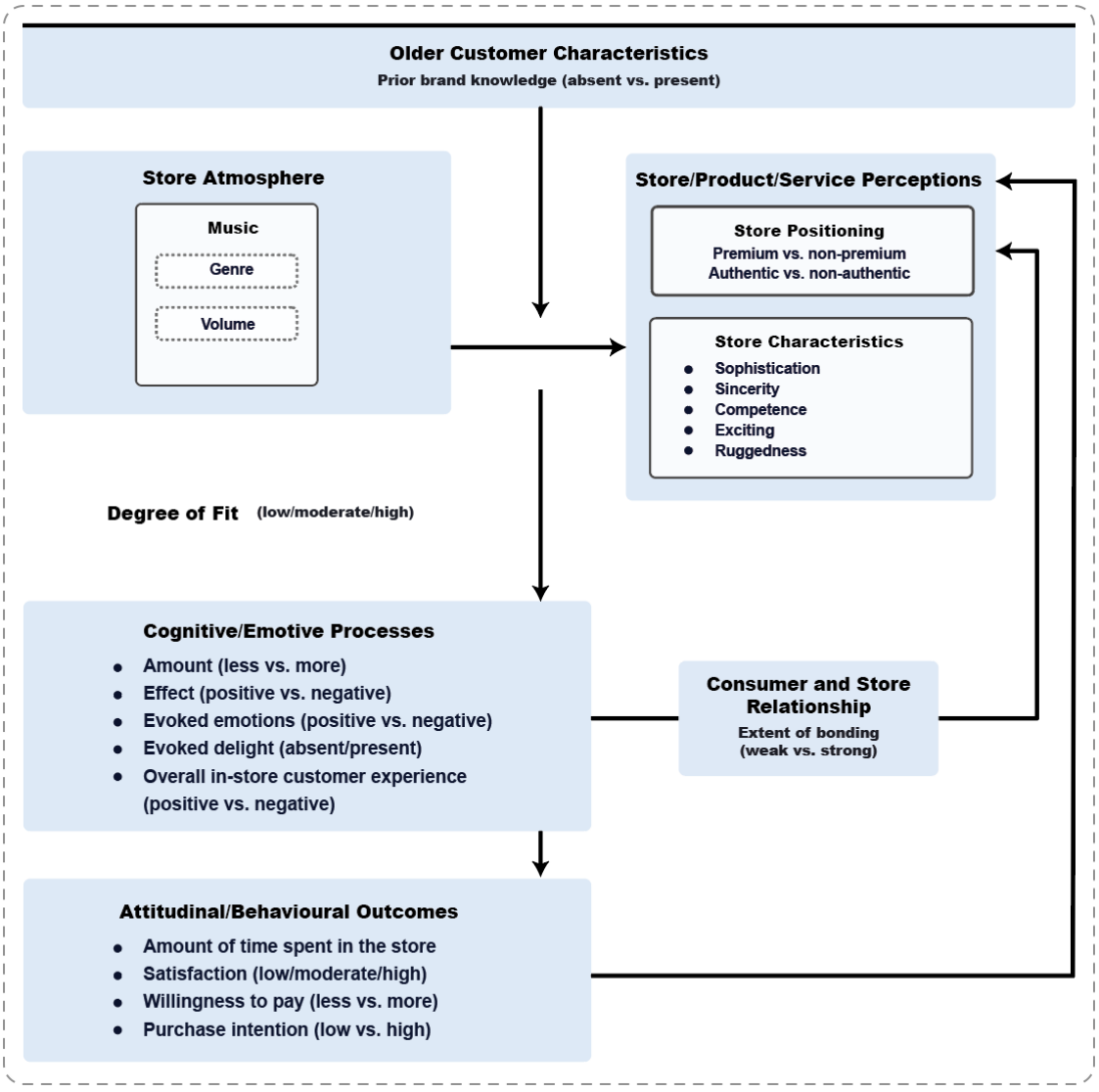
Starbucks Reusable Collectible Holiday Cup

Note: Source from Tyko, K.,2020.

Sensory stimuli influence the store atmosphere. Beverland et al. (2006) studied the effect of in-store music (auditory stimuli) and consumer and brand relationships (figure 2.3.9). The store characteristics determine store atmosphere, and the stimulus in-store atmosphere influences the customer experience.

Figure 2.3.9

The Effect of In-Store Auditory, Store/Product Perceptions, and Consumer Relationships



Note. Adapted from Beverland et al., *Journal of Business Research*, 2006.

The changes in middle age and senior's perception ability, such as vision, hearing, taste, smell, and touch, are apparent (Gere & Sparrow, 1981). Perception abilities influence older customer's overall store experience (Kendu, 2021). Starbucks offers Aira, a smartphone app that remotely connects people with visual disabilities to visual interpreters, creating an accessible experience for in-store purchase (Conradson, 2021). Ikea lsrael (2019) developed a mirror for better viewing the contents of high cabinets (Figure 2.3.10). Wardrobe lift mechanical structures are other examples that help customer to see and reach high items with minimal strength (Figure 2.3.11). In Nike's House of Innovation Paris, a kid's pod (Figure 2.3.12), a game station, uses the body as a controller to play the game. Customers can try out the shoes while interacting with the game (Random Studio, 2020).

Figure 2.3.10

Insider Three Grips Mirror from Ikea

Note. Source from Ikea Israel, 2019.

Figure 2.3.11

Wardrobe Lift

Note. Wardrobe lift benefits people who have difficulty using the vertical space. Source from the Kore Design Group, 2019.

Figure 2.3.12

The Kid's Pod Game Station in Nike, Paris

Note. The interactive game station creates a full-angle play area. Players can explore the game or team up with others. Source from Random Studio, 2020.

Sublimotion, a restaurant located in Ibiza, is known for a mind-blowing multisensory experience. The Veebrant travel publication (2019) described, “Chef Paco Roncero combines food, art, and illusionism into a novel, revolutionary concept that ventures far beyond the palate” (para. 2). Designers and specialists work together to build a theatrical gastronomic show surrounding by immersive audio/visual experiences and unique cuisine (Figure 2.3.13).

Figure 2.3.13

Sublimotion Restaurant

Note. Source from Meeroona, 2019.

Designers need to be aware of the psychological needs of the senior citizen. Aeon Mall is a popular shopping mall for the older generation in Kasai, Japan. In 2013, Aeon Mall modified the store to adapt to senior citizen’s routines and rhythms based on its super-aging society and compact living space. The mall offers various products for older customers, but shopping is not the only reason they come here. The mall also provides community activities such as a 180m indoor walking course, recreation spaces (Figure 2.3.14), workshops, exercise classes, and even children’s playrooms for family fun. Older customers enjoy the service and spend an average of three hours participating in different activities and socializing (Genki Kaki, n.d.).

Figure 2.3.14

Aeon Mall in Kasai, Japan

Note. Senior citizens can exercise inside the store. Source from CNA Insider, 2017.

Discovering consumers' psychological and emotional needs can create a strong bond in innovative experience design (Garrett, 2011). Vigorous and enjoyable activities bring a positive attitude toward life. Designers also need to consider senior citizen's negative attitudes and how to avoid that. Figure 2.3.15 and Figure 2.3.16 are restroom designs for people who need assistance. Figure 2.3.15 is visually related to a clinic or hospital, where people get special treatment. In Figure 2.3.16, the bathroom uses accessories and vivid color blends for the interior environment and brings positive feelings.

Figure 2.3.15

Accessible Bathrooms

Note. Source from Peskett, J., 2019.

Figure 2.3.16

Accessible Bathroom Ideas

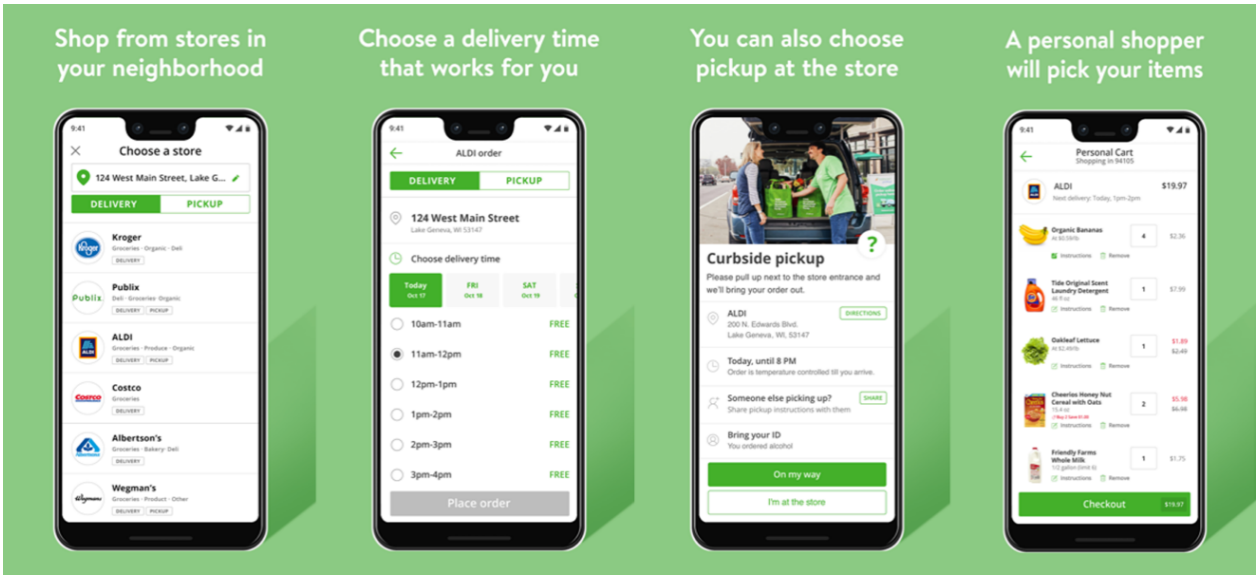
Note. The barrier-free system provides maximum flexibility for walkers. Source from HEWI, 2021.

Rental payments and operating costs bring a lot of pressure on the physical retail industry. Compared to the physical store, and online stores have lower costs, lower prices, efficient delivery, and time flexibility. With the rise of the online shopping business, customers have more choices and comparisons when selecting products. Retailers are starting to think about the future of brick-and-mortar business, which can also benefit from having an online store. With the effects of the COVID-19 pandemic, many brick-and-mortar retailers have started to combine online retail channels with their current business. According to Investopedia financial writer Murphy (2020): "It is increasingly common for brick-and-mortar businesses to also have an online presence in an attempt to reap the benefits of each particular business model" (para. 10).

For example, local grocery stores allow customers to order groceries online and pick them up in the parking lot or curbside or have them delivered to their address. Instacart (Figure 2.3.17) and Shipt provide shopping services that local stores can join, and customers can select items through the associated App. The shopper will select products for customers and provide same-day delivery or curbside pickup. Uber Eats is a food delivery service that offers small restaurants a platform to take online orders. Customers can browse the restaurant menu and order food. The delivery partner will pick up the food and deliver it to the customer (Uber Eats, 2021). The increasing combination of online and physical retail business has improved the efficiency and convenience for customers. There are new terms such as click and mortars and bricks and clicks to describe hybrid business models (Murphy, 2020).

Figure 2.3.17

Instacart App Interface



Note. Interfaces show how customers choose stores and order groceries from Instacart App. Source from Google Play Apps, 2021.

In summary, when designing an in-store retail experience for the middle age and senior populations, designers need to think about the design objects and consider the needs of the older customers, such as basic needs (physiological needs and safety needs), efficiency needs (efficient and reliable shopping needs) and inner needs (psychological and emotional needs). To satisfy the basic need, the designer must consider the accessibility and usability in the shopping process. To reach efficiency requirements, the designers need to provide an efficient shopping experience and consider the advantages of different business models and retail channels. Multisensory experiences and fun activities can create unique innovations in a store environment. In the end, a valuable and desirable experience brings inner satisfaction and emotional connection.

2.3.2 The Online Retail Channel

The online retail channel is selling goods or services through the Internet. Online shopping websites provide the user interface operating systems including information display, visual display, website navigation, checkout system, delivery, and customer service.

Cognitive age, a nonchronological age variable, is considered an alternative to chronological age in older consumer behavior research. Senior citizens who perceive themselves with younger cognitive ages are more acceptable to shopping online than those with older cognitive age with nostalgia (Barak & Schiffman, 1981).

Digital natives refer to people born in the digital era who are familiar with using digital technology. In contrast, digital immigrants refer to people who started to use the digital device during adult life. In 2012, Wang, Myers, and Sundaram mentioned, digital immigrants are not always willing to accepting new technology due to lack of experience or having some difficulty while using the latest technology. Older consumers, as digital immigrants, often are in the process of accepting and learning the e-commerce. The changes in senior citizen's cognitive abilities (processing speed, attention, memory, language, visuospatial, and executive function), perception abilities (vision and hearing), and psychological attitude affect their online shopping experience. Therefore, the design and optimization of online shopping platforms for the older customer's needs are necessary.

The advantages of online shopping include five categories: efficiency of information acquisition, convenience, trust, focus, and others (price, service quality, and empathy). Convenience and trust consistently affected the acceptance of online retail channels (Choudhury

& Karahanna, 2008; Gefen et al., 2003). Gefen et al. (2003) noted that online shopping with delivery systems saves time cost and offers efficiency and convenience for customers who find it inconvenient to visit brick-and-mortar stores. Consumers can easily find various products and know further information by searching keywords on the online shopping platform.

Mallapragada et al. (2016) have reviewed the browsing and purchasing process during online shopping while considering the influence of product characteristics (hedonic and utilitarian) and website characteristics (scope and functionality). They reported that "Extant evidence points to a crucial role of product characteristics in determining shopping behavior … product characteristics will interact with the website's characteristics in determining shopping outcomes" (p. 23).

In the online shopping process, users are usually frustrated with complex website pages, unclear website navigation, missing product information, and insecure payment methods. Yan and Du (2016) listed factors that influence customer satisfaction include: "Corporate image, website security, product value, service value …, same as traditional shopping, the customer pays great attention to the value of the product and the perception of service in the shopping process" (p. 5). Irantaj and Huseynov (2018) research showed website design, information quality, website usability, order fulfillment, security, and privacy build up customer satisfaction. And the website usability includes five elements: "Convenience, information architecture and navigation, findability and accessibility, site speed, and also ordering/payment process" (p. 22).

Rita et al. (2019) studied e-service quality and customer behavior in online shopping (Figure 2.3.18) and noted:

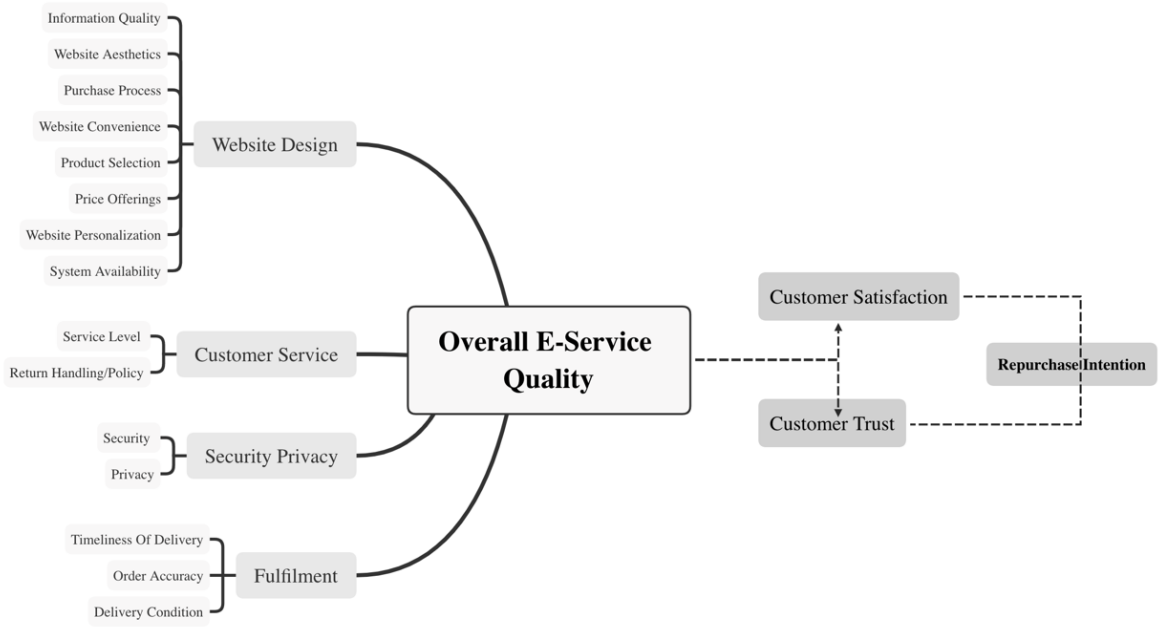
To provide superior service quality, companies should provide an excellent website design

that consists of sufficient information, visually appealing content, easy to make payments, easy to read text, offer some discounts and/or promotions, and quick loading capacity. Beyond that, companies must ensure the timeliness of delivery and ensure the customers' data security and privacy. (p. 12)

They pointed out the website design (information quality, website aesthetics, purchase process, website convenience, product selection, price offerings, website personalization, and system availability), customer service (service level and return handling/policy), security privacy (security and privacy), and fulfilment (timeliness of delivery, order accuracy, and delivery condition) influence customer satisfaction.

Figure 2.3.18

Overall E-Service Quality Conceptual Model



Note. Adapted from Rita, Oliveira and Farisa, 2019.

Hasan (2016) also gave suggestions to improve consumers' online shopping experience. The designers need to understand the factors that stimulate consumers' positive and pleasant emotions and the factors that cause negative emotions and reactions and ultimately impede consumers' online shopping behavior. For example, older people initially show anxiety and stress while using computer-related technology, but after gaining experience and perceived self-efficacy, they show a less negative attitude (Van De Watering, 2005). Therefore, designers need to assure the factors that can affect consumer satisfaction and improve consumers' shopping desire.

When designing a satisfying online shopping experience for senior citizens, the designers need to consider the customer satisfaction factors and the needs of older consumer. Based on listing consideration, older customers' online shopping satisfaction will be influenced by website accessibility, visual aesthetics, website navigation, sufficient information, shopping process, customer service, security privacy, and fulfillment.

Website accessibility:

With the normal aging process in visual, physical or cognitive impairments, older users are more likely to experience difficulties when using websites. Designing universal access in web-applications for the senior citizen is necessary (Johnson & Kent, 2007).

Kurniawan and Zaphiris (2015), based on user research, developed web design guidelines for older people that include 11 distinct categories (Figure 2.3.19).

Figure 2.3.19

Web Design Guidelines for Older People

Target Design	1. Provide larger targets 2. There should be clear confirmation of target capture, which should be visible to older adults who should not be expected to detect small changes 3. Older adult should not be expected to double click
Use of Graphics	1. Graphics should be relevant and not for decoration. No animation should be present 2. Images should have alt tags 3. Icons should be simple and meaningful
Navigation	1. Extra and bolder navigation cues should be provided 2. Clear navigation should be provided 3. Provide location of the current page 4. Avoid pull down menus 5. Do not use a deep hierarchy and group information into meaningful categories
Browser Window Features	1. Avoid scroll bars 2. Provide only one open window e.g., pop-up/ animated advertisements or multiple overlapping windows should be avoided 3. Page should remain the same each time it is revisited
Content Layout Design	1. Language should be simple and clear 2. Avoid irrelevant information on the screen 3. Important information should be highlighted 4. Information should be concentrated mainly in the center 5. Screen layout, navigation and terminology used should be simple, clear and consistent 6. Information should not be duplicated in the same page
Links	1. There should be differentiation between visited and unvisited links 2. Links should be clearly named and no link with the same name should go to a different page 3. Links should be in a bulleted list and not tightly clustered
User Cognitive Design	1. Provide ample time to read information 2. Reduce the demand on working memory by supporting recognition rather than recall and provide fewer choices to the user 3. Include multilingual facility for non-English speakers
Use of Color and Background	1. Colors should be used conservatively 2. Background screens should not be pure white or change rapidly in brightness between screens. Also, a high contrast between the foreground and background should exist, for example, colored text on colored backgrounds should be avoided. 3. Content should not all be in color alone (color here is denoted by all colors other than black and white)

Text Design	1. Avoid moving text 2. Text should be left justified and text lines should be short in length 3. There should be spacing between the lines 4. Main body of the text should be in sentence case and not all capital letters 5. Text should have clear large headings 6. Use san serif type font i.e., Helvetica, Arial of 12-14 point size. Avoid other fancy font types. 7. Enable users to change font size as some users have worse sight than others do. 8. Provide a printer-friendly version.
Search Engine	1. Search engines should cater for spelling errors
User Feedback and Support	1. Provide a site map 2. An online help tutorial should be provided 3. Support user control and freedom 4. Error messages should be simple and easy to follow

Note. Adapted from Kurniawan & Zaphiris, 2005.

The World Wide Web Consortium(W3C) created The Web Accessibility Initiative (WAI, 2020) to provide comprehensive guidelines and make web content accessible to people with disabilities. Designers also can check the universal usability web design guidelines for senior citizens through the researcher Zhao (2001), who gave design advice on color, font, navigation mechanisms, sound, content, layout and style.

Visual design:

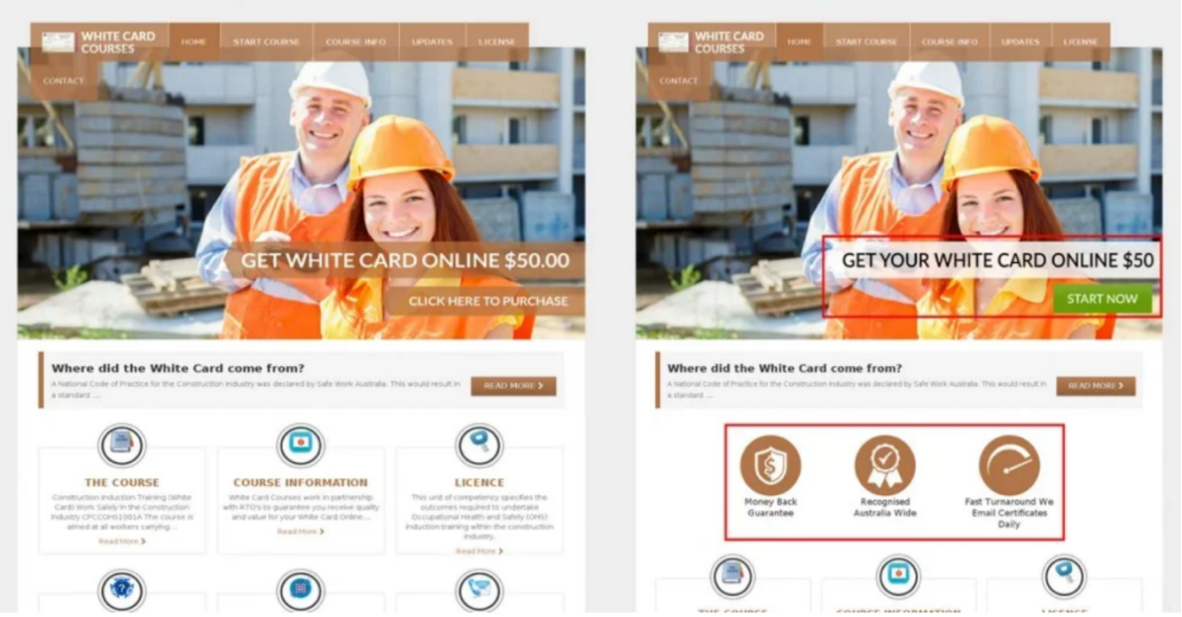
The appealing and professional websites reflect the quality of the business. The Spritz Web Solutions (2012) mentioned: “An attractive site is far more likely to generate a positive impression and keep visitors on your site once they arrive” (para. 3).

Whether for consumers or designers, website visual design is the soul of online shopping. The book *Design Interface* described visual design as the art of manipulating user attention. The most influential aspects are page layout, screens, dialog boxes, visual hierarchy, visual flow, and focus

points (Tidwell, 2010). Patrick Cox (2011) pointed out dominance and subordination relationship is essential in creating emphasis in website design. In summary, designers need to identify the dominant elements that can capture the user's attention. The subordinate elements of the visual design will support users to better use the website or understand the main content. According to Patrick, designers can create emphasis through elements proportion (scale), contrast (color, shape, and size), and physical relationship (isolation, proximity, similarity, and continuance). Another similar concept is the CRAP principles that use contrast, repetition, alignment, and proximity to create visual appeal (Williams, 2015). Figure 2.3.20 shows an example using vision emphasis. After modification of the page, the website visits increased by 32% (VWO Company, 2021).

Figure 2.3.20

Website Design Page Redesign



Note. Source from VWO.com, 2021.

According to the book *UI is Communicating* (McKay, 2013), visual design elements include

layout, typography, icons, and glyphs, affordances, graphics, color, animations and transitions. “Visual design element should be justified by what it communicates …, many visual design decisions that initially appear subjective, emotional, arbitrary, and aesthetic are actually objective, rational, coordinated, and principled” (p. 9).

Hasan (2016) mentioned the impact of visual design on online shopping website:

> Visual design of a shopping website affects various enablers of online buying behavior such as perceived ease of use, perceived usefulness, perceived enjoyment, and ultimate acceptance of online shopping …, the visual appeal of a shopping website is significant because it boosts users’ excitement and emotional appeal and leads to more satisfying engagement with the site. (p. 226)

The website visual also needs to integrate with the brand identity, adopt visual hierarchy, use quality content (photos, video, and easily identify icons), keep the simplicity, and be responsive (Lee, 2021; Shokurova, 2020)

When designing older customer-friendly e-commerce websites, designers need to pay attention to the website accessibility and the visual design that effectively attracts users’ attention and increases shopping intention. It is valuable for designers to sort out design elements, focus on key information, and maintain the visual hierarchy during the design process. E-shopping websites also need to keep consistency with brand identity.

Website navigation:

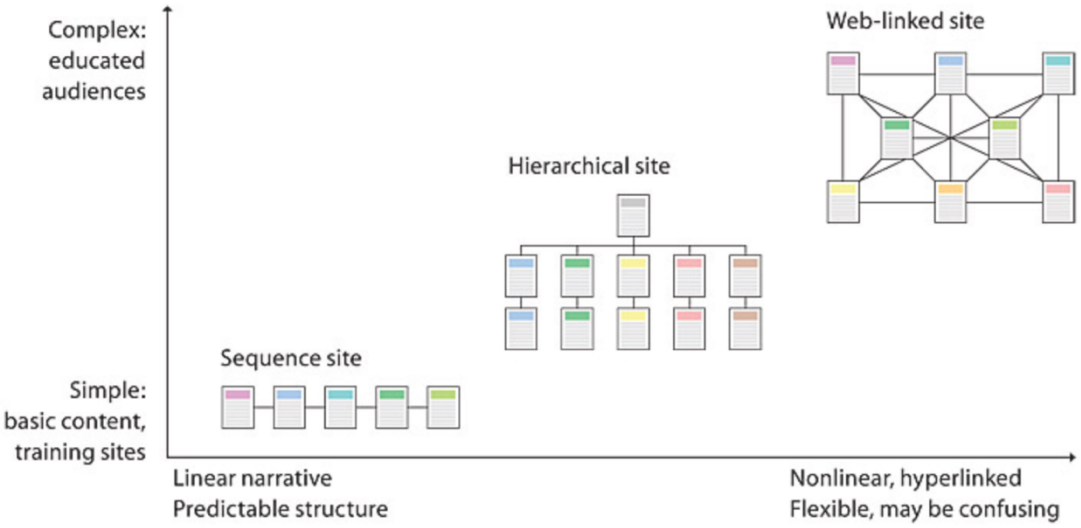
According to the Statista survey, more than 2.14 billion people worldwide will purchase goods and services online by 2021 (Coppola, 2021). Though online e-commerce continues to make

progress, many users give up purchase decisions because of complicated website navigation (Lorenzo et al., 2007). Therefore, to improve user experience, designers need to utilize the website elements that affect the conversions in e-commerce.

The website navigation design is based on the overall layout and framework of the web page. The authors of *Web Style Guide*, Horton and Lynch (2016) summarized three basic site structures: sequence site, hierarchical site, and web-linked site (Figure 2.3.21). The linear websites present a clear and consistent structure for the user to navigate the website.

Figure 2.3.21

The Summary of Three Website Structure Types



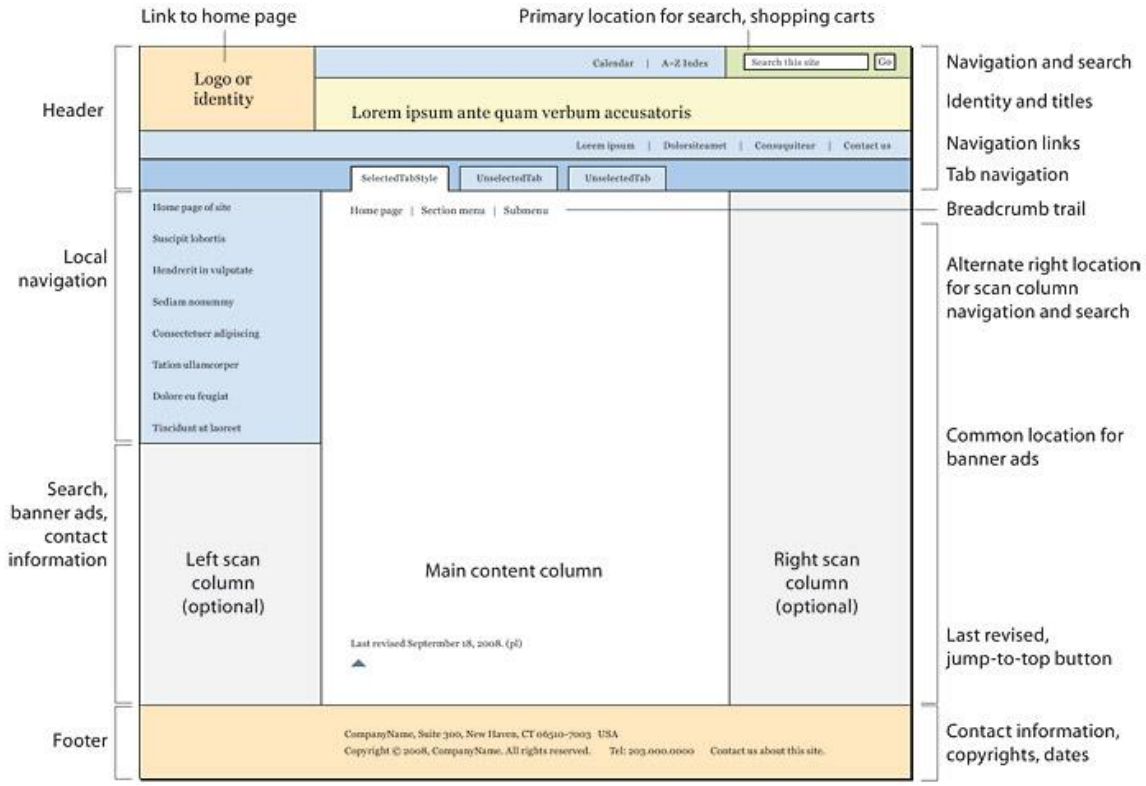
Note. Web page structures source from Horton & Lynch, 2016.

The shopping website navigation enables consumers to find products they want quickly. Not all website pages share the same layout, but they still contain similar basic mechanisms, structures, and main elements. Figure 2.3.22 is a typical systematic web page design. Page headers, home link, search box, checkout carts (shopping website), and scan columns (search filter) are the main

ways to navigate the website (Horton & Lynch, 2016).

Figure 2.3.22

A Canonical Page Design and Major Page Elements



Note. Web page elements source from Horton & Lynch, 2016.

Linear structure and hyperlinked e-commerce websites also efficiently support customers and achieve their goals (Vrechopoulos et al., 2004). Designers need to make corresponding adjustments with suitable webpage layout and structure according to the needs of older consumers and the product's characteristics.

Sufficient information

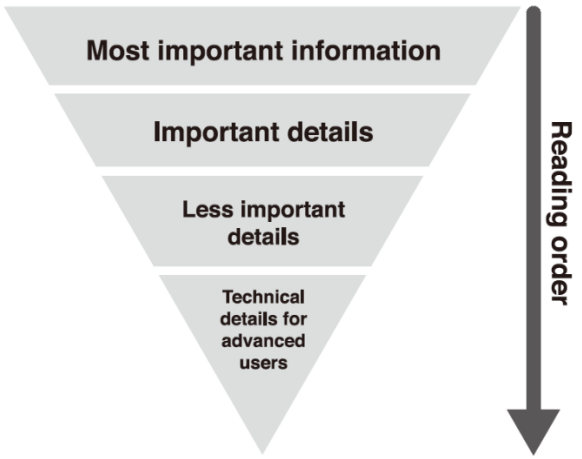
In addition to the visual design, the commodity information displayed on shopping websites also influences consumer buying decisions. Sufficient information refers to the accuracy and

quality of the products or services information displayed on the online shopping website. Accurate and complete information in online retail websites can build trust with customers (Ashraf et al., 2019).

The Spritz Web Solutions (2012) pointed out that quality photography, meaningful graphics, text that is easily read, good use of color and simplicity can display the website information clearly and keep user's attention. McKay (2013), based on online user's reading order, developed an inverted pyramid about website information display that allows users to conduct fast browsing once they have the information they need (Figure 2.3.23).

Figure 2.3.23

McKay's Inverted Pyramid Presentation Style



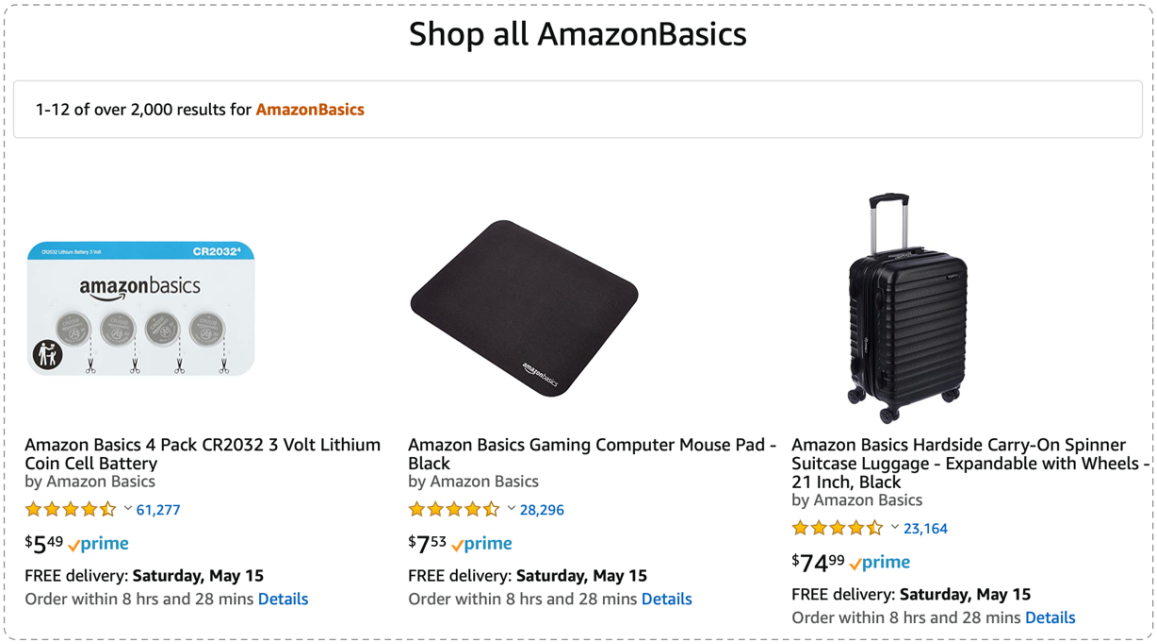
Note. Source form UI is Communication written by McKay, 2013.

According to McKay's inverted pyramid presentation style (Figure 2.3.23), the customer browses the most important information and looks for more details when they are interested. Figure 2.3.24 is an example of Amazon display product information. Customers can have a quick view

of the product name, reviews, price, and delivery date. They can find more details by clicking the link.

Figure 2.3.24

Amazon Shopping Website

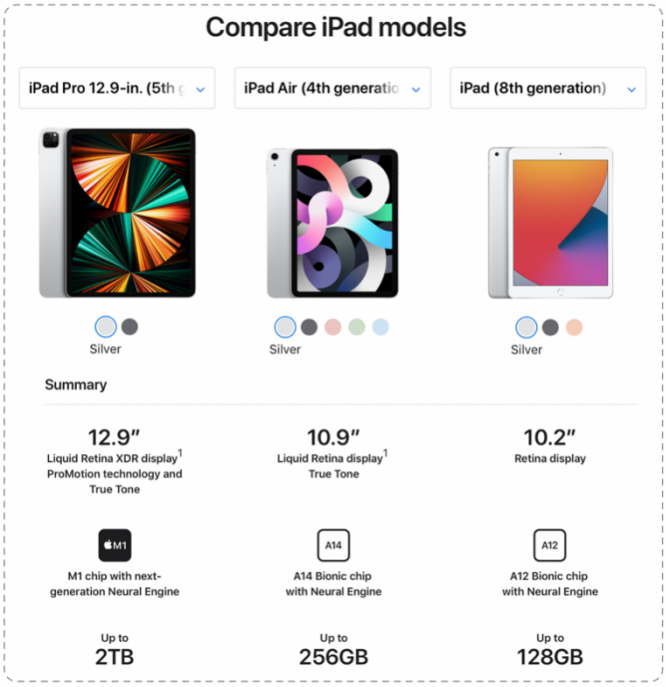


Note. Source form Amazon, 2021

The features of the product or service influence information display. For example, electronic products have more specs to show customers. Electronic online retail platforms display detailed product information. Some online retailers compare competitive products for customers, such as Apple has set product comparisons in their interface and lists key information for shoppers (Figure 2.3.25). Cosmetics products use artistic images to show product effects that draw customer's attention. Shoppers are hesitant about the size when buying clothing online. A few websites consider that customers find it inconvenient to measure their size, so they use users' daily clothes and body size as a reference to help them make decisions.

Figure 2.3.25

Apple Product Comparison Website Interface



Note. Source from Apple, 2021.

Sufficient information assists users in browsing shopping websites, making decisions using customer reading orders and presenting the key features of products or services.

Shopping process

The shopping process is an interaction between users and web pages, including browsing, making decisions, placing orders, payment, delivery and after-sales service. Every step is communication between the page and the user. McKay (2013) proposed that the web interface should be effective in communication. The intuitive user interface has an appropriate combination of eight characteristics: discoverability, understandability, affordance, predictability, efficiency, responsiveness, forgiveness, and explorability (Figure 2.3.26).

Figure 2.3.26

McKay's (2013) Intuitive User Interface (UI) Design Elements

Discoverability	Users can easily find the starting point when and where they need it.
Understandability	Users can make informed decisions quickly and confidently. Users don't need to experiment or get decision-making assistance.
Affordance	The UI has visual attributes that indicate how to interact. Users don't have to experiment or figure out how to interact.
Predictability	Functionally, the UI can provide the expected results without any surprises or confusion. It has a natural appearance. The user does not need to experiment or draw conclusions on the results of the interaction.
Efficiency	The UI allows users to perform operations with minimal effort. The inefficient and awkward interactions do not feel intuitive.
Responsive	The UI gives clear, immediate feedback to indicate that the action is happening. When the user is done, the UI makes it clear whether the action was successful or unsuccessful, providing specific details when needed.
Forgiveness	If users make a mistake, either the right thing happens anyway or they can fix or undo the action with ease. Users make small mistakes all the time, so UIs that punish for such mistakes do not feel intuitive.
Explorability	Users can browse the interface without worrying about making mistakes or getting lost.

Note. Adapted from UI is Communication written by McKay, 2013.

Some senior citizens are not familiar with online shopping processes. It is critical for shopping websites to provide help and guidance to older consumers through an appropriate combination of listing design elements, such as showing the current process, giving instructions during each step, and using simple and easy-to-understand operations to improve fault tolerance.

Customer service

Customer service refers to service, return handing, and return policy (Rita et.al, 2019). The in-store purchase has the benefit of a store staff that helps customers during the purchasing process. In an online business, sometimes customers can complete the entire purchase process independently without the support team's help (McLean & Wilson, 2016). Through online customer service, customers can consult the product details with a professional assistant. Online businesses often consider synchronized web resources, such as live chat services, online help desks, and social networking sites (Turel & Connelly, 2013). Telephone and email inquiries are also effective ways for customers to get in touch with the retail store.

Security privacy

There is preliminary evidence that when information about privacy policies is provided in search engines, online shoppers are looking for more privacy-friendly websites (Gideon et al., 2006). Survey data shows that online consumers care for their personal information and are willing to pay a premium for privacy to keep their information safe (Malhotra et al, 2004). Online business websites should pay attention to protect their users' privacy.

Fulfillment.

Delivering the product to the customer is an important step. After the buyer purchases on the

website, the retailer needs to provide delivery information, check order accuracy and delivery condition to keep the customer updated.

Improving website accessibility, visual aesthetics, website navigation, sufficient information, shopping process, customer service, security privacy, and fulfillment can build satisfied online shopping for older consumers. With the rapid growth of online retail stores, many online shops have started to step into physical stores to show brand image and experiences of their products. Amazon, one of the biggest online retailers, began to open different physical store types as a business extension in recent years (Figure 2.3.27). Pop-up stores, which are temporary set up stores with low cost and large customer flow, are favored by small online retail brands to show merchandise and give customers an immersive try before the buying experience. Multi-channel selling is becoming more common.

Figure 2.3.27

Amazon Physical Stores

Note. Source from Amazon, 2021.

2.3.3 Other Retail Channels

The book *Trends in U.S. Retailing* mentioned retailers targeting the older generation focus on improving the convenience and quality of the shopping experience and emphasizing wellness offerings (Weitz & Whitfield, 2006). In-store shopping and online shopping are the two main shopping channels for consumers, supplemented by other retail channels such as telephone ordering, mail orders, interactive television, catalog ordering.

Tyler Tate (2012) used cross-channel blueprint to plan user tasks across multiple channels (Figure 2.3.28). In this blueprint, designers need to identify user's tasks and sort out priorities according to different channel's features.

Figure 2.3.28

Tate's (2012) Cross-Channel Blueprint

	Lookup	Explore	Compare	Organize	Purchase
Print Catalog	**Low priority** Table of contents Index	**High priority** Immersive photography	**Low priority** Flip pages back/forth	**N/A** Flip pages back/forth	**High priority** Order by phone Order by mail Order online
Website	**High priority** Search box	**High priority** Browse by category	**High priority** Table view of selected items	**High priority** Favorites Wish list / gift registry	**High priority** Standard checkout Expedited checkout Order by phone
Tablet App	**High priority** Search box Voice input	**High priority** Catalog-like browsing experience	**Medium priority** Table view of selected items	**Medium priority** Favorites Wish lists	**High priority** Expedited checkout Standard checkout
Mobile App	**High priority** Search box Voice input Barcode scanner	**Medium priority** Browse by category	**N/A** Impractical due to screen size	**Low priority** Add items to favorites and wish list, but limited ability to edit	**High priority** Expedited checkout
Physical Store	**High priority** Clear signage Store map Helpful staff	**High priority** Wander the aisles	**Medium priority** Compare side by side Ask staff	**Low priority** Gift registry / wish list	**High priority** Attendant-assisted Self-checkout Scan-as-you-go
Shared Assets	**Product taxonomy** All channels powered by a single set of categories		**Compare engine** Web & tablet powered by one component	**Universal Favs** Favorites list shared by web, tablet, mobile	**Checkout workflow** Universal checkout process for web, tablet, and mobile

Note. Source from Tyler Tate, 2012. A tool for planning user tasks across multiple channels.

2.4 User experience design

User experience design (UX) provides usability, usefulness, and desirability in user interaction with products or services (Schmidt & Etches, 2014). Researchers Kujala et al. (2011) have noted, "The goal of user experience design is to improve customer satisfaction and loyalty through the utility, ease of use, and pleasure provided in the interaction with a product" (p. 473). A positive experience needs to satisfy the user's psychological needs and motivations. With the help of connecting user emotions and increasing brand loyalty, user experience design can help show various products in the market (Saucken et al., 2013).

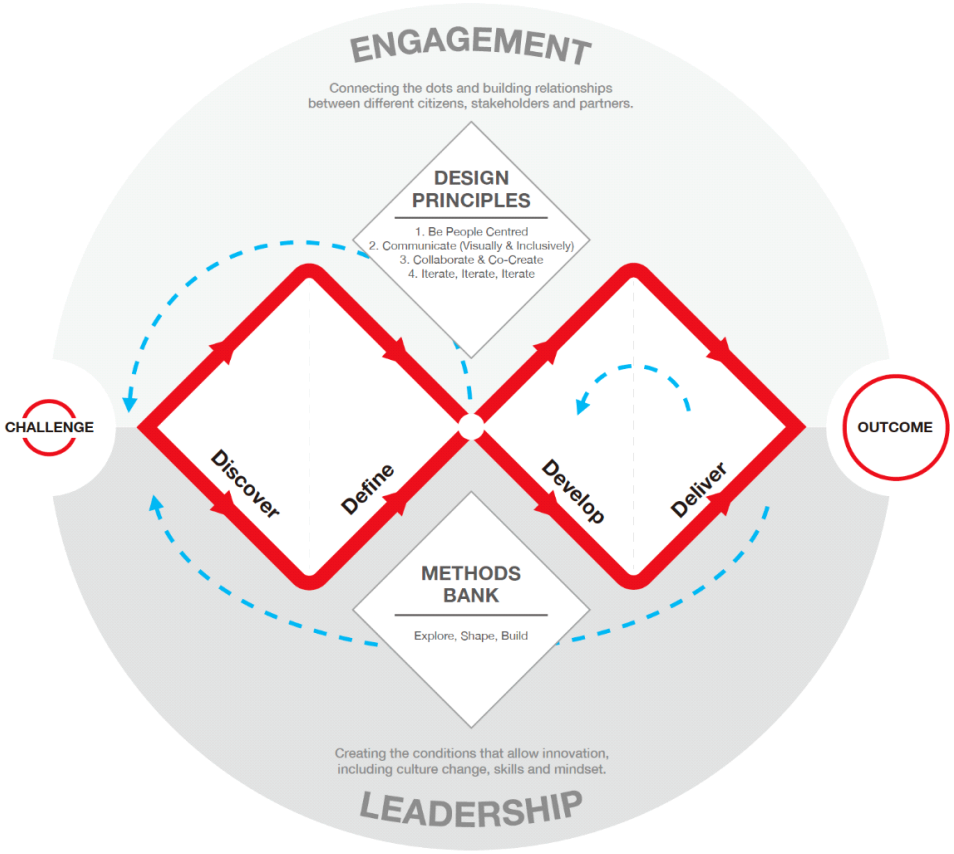
Polaine et al. (2013) summarized experience into the following categories: (1) User experience (interactions with technologies); (2) Customer experience (experiences with retail brands); (3) Service provider experience; (4) Human experience (the emotional effect of services). This article focuses on customer experience. Retailers and designers need to focus on building connections between the retail brand and their customers.

Design process

Double Diamond, created by British Design Council, is a design framework that provides a structure for the design process. It has four phases: discover, define, develop, and deliver. Double Diamond is revamped or reframed to different versions to identify and solve design challenges (Drew, 2019). In 2019 the Design Council published a new model named Framework for Innovation based on the original Double Diamond model (Figure 2.4.1).

Figure 2.4.1

Design Council's Framework for Innovation (2019)



Note. Source from Design Council website, 2019.

In the words of Design Council (2019), "The two diamonds represent a process of exploring an issue more widely or deeply (divergent thinking) and then taking focused action (convergent thinking.)" (p. 1).

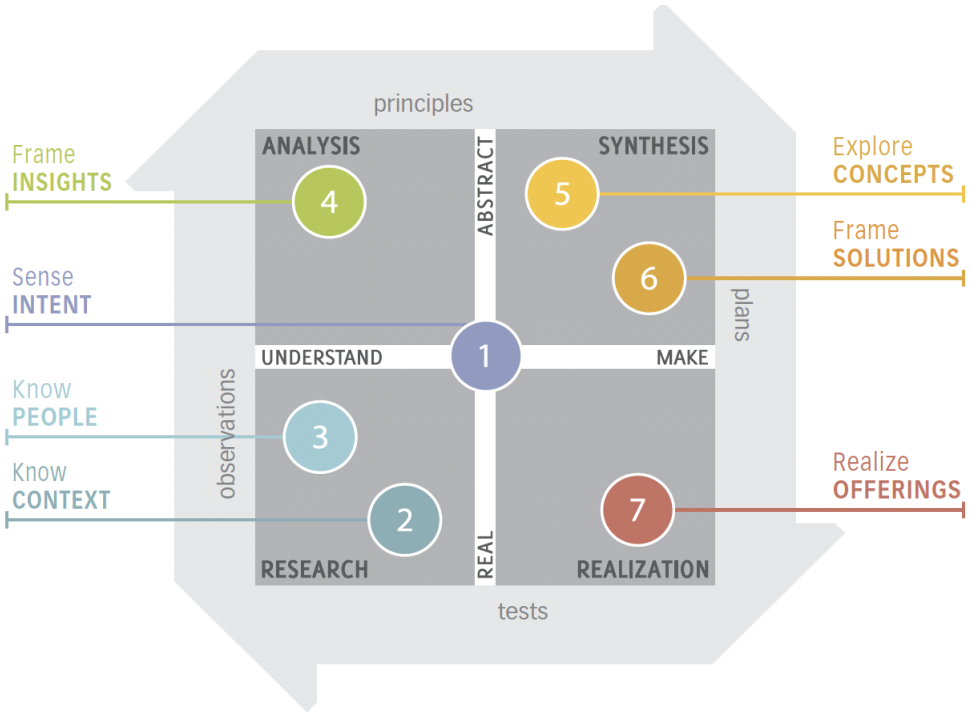
Design is a nonlinear and iterative process. This framework mentions four design principles: (1) Put people first; (2) Communicate visually and inclusively; (3) Collaborate and co-create; (4) Incrementally iterate. Design Council further expanded that the designers are able to use this

design framework to explore (challenges, needs, and opportunities), shape (prototypes, insights, and visions), and build (ideas, plans, and expertise).

In the book *101 Design Methods: A Structured Approach,* author Kumar (2012) introduced an innovation design model (Figure 2.4.2). The design method has four quadrants including research, analysis, synthesis, and realization. There are seven distinct modes of activity for design innovation: sense intent, know context, know people, frame insights, explore concepts, frame solutions, and realize offerings. This design process also is nonlinear and iterative for idea exploration and development.

Figure 2.4.2

Kumar's Innovation Design Model (2012)



Note. Source from 101 design methods written by Vijay Kumar, 2012.

Based on analyzing design processes, the first step of creating an innovative experience is to research the design content and target users to discover design opportunities. After gathering information designers need to identify potential challenges and frame design insights. The essential part is to develop the concept and generate design solutions. The last step is to deliver the outcome. A more detailed design process will be detailed in Chapter 3.

Research

Research design content is to understand the current perceived state. Pennington (2016) pointed out designers can know about their design object by collecting information such as company location, mission, vision, values, brand positioning, and overall strategic plan statement. The designer also needs to check their target user's data, customer strategy, customer interaction, and business processes at this stage.

User research helps designers understand people and extract valuable insights. Observation, interviews, focus groups, field visit, and ethnographic research methods are popular approaches to help learn target users. Vijay Kumar (2013) suggested five steps to conduct user research which include:

- Planning research: Deciding on research objectives, target users, fieldwork protocols, budgets, and timeframes.
- Observing people: Recruiting participants, doing fieldwork, documenting people, their activities, and interactions with objects and environment.
- Asking people: Conducting surveys, discussing findings with users, and gathering feedback and validation

- Engaging people: Having users participate in activities, conversations, and interactions with researchers
- Organizing finding: Collecting observations and research data, tagging with keywords, and identifying gaps in research (p. 11)

During user research the designers need to build empathy, immerse themselves in user's daily life, listen openly, study user's five factors (physical, cognitive, social, cultural, and emotional factors), and look for problems and needs (Kumar, 2013; Weinschenk, 2011).

In the book *Design for How People Think*, author John Whalen (2019) mentioned the six cognitive processes: vision/attention, wayfinding, memory, language, decision making, and emotion influence user experience. He suggested designers think about their customer's six minds in the design process.

Vision/Attention What is attracting your customers' attention? What are the words, images, and objects they are looking for?

Wayfinding How are customers representing where they are (whether in the physical world, an app, or virtual space?) How do they believe they can interact with and navigate in this space?

Memory What are the past experiences customers are using to frame and understand what they are experiencing? What are mental models/ stereotypes that are forming their expectations about how things should work and what happens next?

Language What are the words your customers are using? What do those words, and their associated meanings according to the customers, say about their level of expertise (thereby suggesting how they might want to be engaged by you?)

Decision Making What is the problem your customers think they need to solve? How does that differ from the actual problem? How do they think they can get to the solution? What subproblems do they need solve and what decisions do they need to make along the way?

Emotion What are your customers' deep-seated goals, desires, and fears? How are those affecting their decisions, and what they are looking to achieve? How might that affect what will appeal to them? (p. 61)

After gathering information, the designers need to move to the next step, sort out helpful information, identify problems, and get design insights.

Problem Identify and Frame Design Insights

Based on research results, designers can visualize research findings and look for insights. Mapping experience can systematically analyze the customer interactions during an experience process from the customer's viewpoint. A moment of truth or pain point in customer experience will drive design insights (Pennington, 2016).

In the book *Mapping Experience*, author Kalbach (2016) introduced five types of diagrams to analyze the experience process, which include customer journey map, experience map, service blueprint, mental model diagrams, and spatial maps (Figure 2.4.3).

Figure 2.4.3

Different Ways to Diagram User Experience

DIAGRAM TYPE	STORY	INTERACTION	INDIVIDUAL	ORGANIZATION
Customer journey map	Chronological	Touchpoints	Actions, thoughts, feelings, pain points, etc.	Roles and departments involved in creating an experience
Experience map	Chronological	Touchpoints	Actions, thoughts, feelings, pain points, etc.	Physical and social artifacts in a system; opportunities
Service blueprints	Chronological	Line of interaction	Actions, physical evidence	Backstage actors and processes
Mental model diagrams	Hierarchical	Center line	Tasks, feelings, philosophies	Support-products and services available
Spatial maps	Spatial	Midpoint with arrows	Actions, needs, information flow	Data systems, departments

Note. Source from Mapping Experience, Kalbach, 2016.

When mapping experience, Kalbach (2016) emphasized that designers need to follow seven principles:

(1) Holism (focus human behavior), (2) Multiplicity (multiple facets of information), (3) Interaction (expose touchpoints), (4) Visualization (a graphical overview), (5) Self Evidence (simplicity), (6) Relevance (relevant to the organization), (7) Validity (grounded in investigation). (p. 12)

Designers can start to frame design insights with the guide of the user's hierarchy of needs and experience design principles.

Ideation Process

In the article "Service Design for Experience-Centric Services", the authors Zomerdijk and Voss (2010) pointed out six design principles to improve customer experiences and better engage

their customers. The design principles include the following:

(1) Design from the perspective of the customer journey and its associated touchpoints.

(2) Conduct sensory design.

(3) Require front-line employees to engage with customers.

(4) Pay attention to the dramatic structure of events.

(5) Manage the presence of fellow customers.

(6) Closely couple backstage employees and frontstage experiences. (p. 79)

They addressed that the customer journey and touchpoints are helpful to design perspectives for improving customer experiences, which involves paying attention to pre and post purchase experiences; physical aspects of the customer; emotional aspects of the journey. Schmitt (2010) introduced customer experience management (CEM), which is an implementation tool that designers or companies can use to have creative insight and increase customer value. He suggested the five steps of the CEM framework:

Step 1: Analyzing the experiential world of the customer

Step 2: Building the experiential platform

Step 3: Designing the brand experience

Step 4: Structuring the customer interface

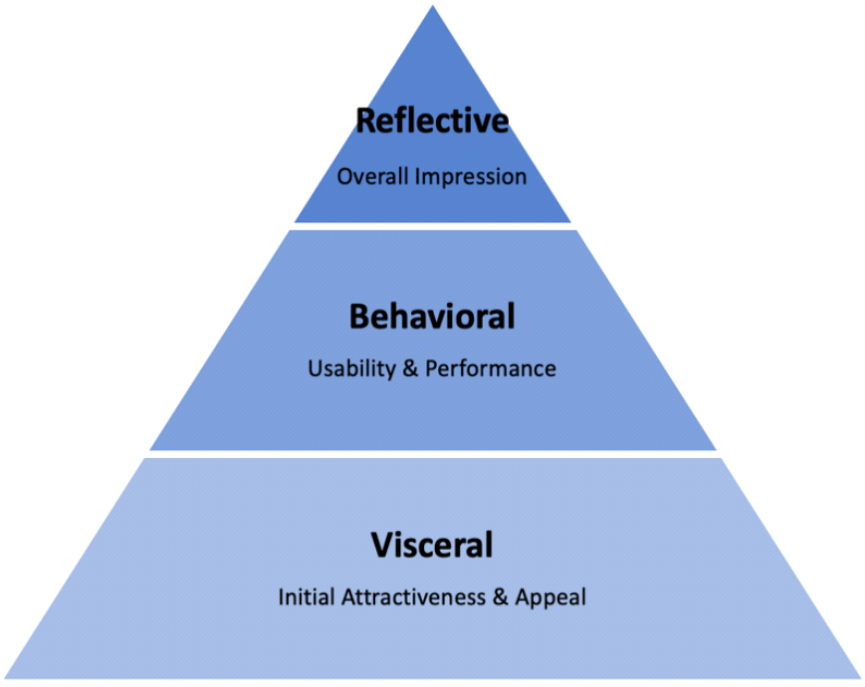
Step 5: Engaging in continuous innovation (p. 17)

In summary, designers can sort out the current user experience and improve it based on user's needs and interaction feedback. They could focus on establishing friendly interaction from the physical and emotional aspects while building brand experience.

Donald Norman (2007) introduced the emotional design concept based on human psychology that the emotional system is tightly coupled with behavior. The purpose of emotional design is to create a positive user experience that meets the three levels of the user's emotional responses: visceral, behavioral, and reflective (Figure 2.4.4). Visceral design focuses on initial reactions such as natural instincts to appearance. Behavioral design is all about function, understandability, usability, and physical feel. Reflective design includes the meaning of things, self-image, and message delivery.

Figure 2.4.4

Norman's (2007) Three Levels of Emotional Design



Note. Adapted from the book Emotional Design written by Donald Norman, 2007.

In the ideation process, designers need to understand target users, identify opportunities by

examining current user experience, specifying user's diverse needs, and integrate with related design principles.

Design Delivery

After the design ideation process, designers need to evaluate and showing concepts. Customer satisfaction factors and SERVQUAL service measuring methods are great tools both for measuring and optimizing final outcomes. Parasuraman et al. (1988) emphasized SERVQUAL service measuring methods have five key dimensions:

- Tangibles: Physical facilities, equipment, and appearance of personnel
- Reliability: Ability to perform the promised service dependably and accurately
- Responsiveness: Willingness to help customers, provide prompt service
- Assurance: Knowledge and courtesy of employees and their ability to inspire trust and confidence
- Empathy: Caring, individualized attention the firm provides its customers (p. 23)

Designers can use concept descriptions, narratives of proposed solutions, concept scenarios, persona, target user profile, refining sketches, visualized diagrams, and prototypes to propose and communicate solutions.

2.5 Conclusion

In conclusion, the Chapter 2 literature review studies the characteristics of the middle age and senior populations, retail development, retail store design, and experience design. As a result, designers can understand and consider the age-related deteriorations and needs when designing for

the aging population. In addition, the study of retail development and store experience factors in brick-and-mortar stores and online stores helps designers know the existing implements and designs that integrate the needs of older customers to improve the shopping experience. Finally, the literature review also mentions design theories and principles on store experience design that help designers get design inspiration.

This article will, based on the literature reviews, propose a design guideline for designing a store experience suitable for older customers in the next chapter and develop a list of recommendations to help designers improve the current shopping experience.

Chapter 3 Guideline Development

3.1 Introduction

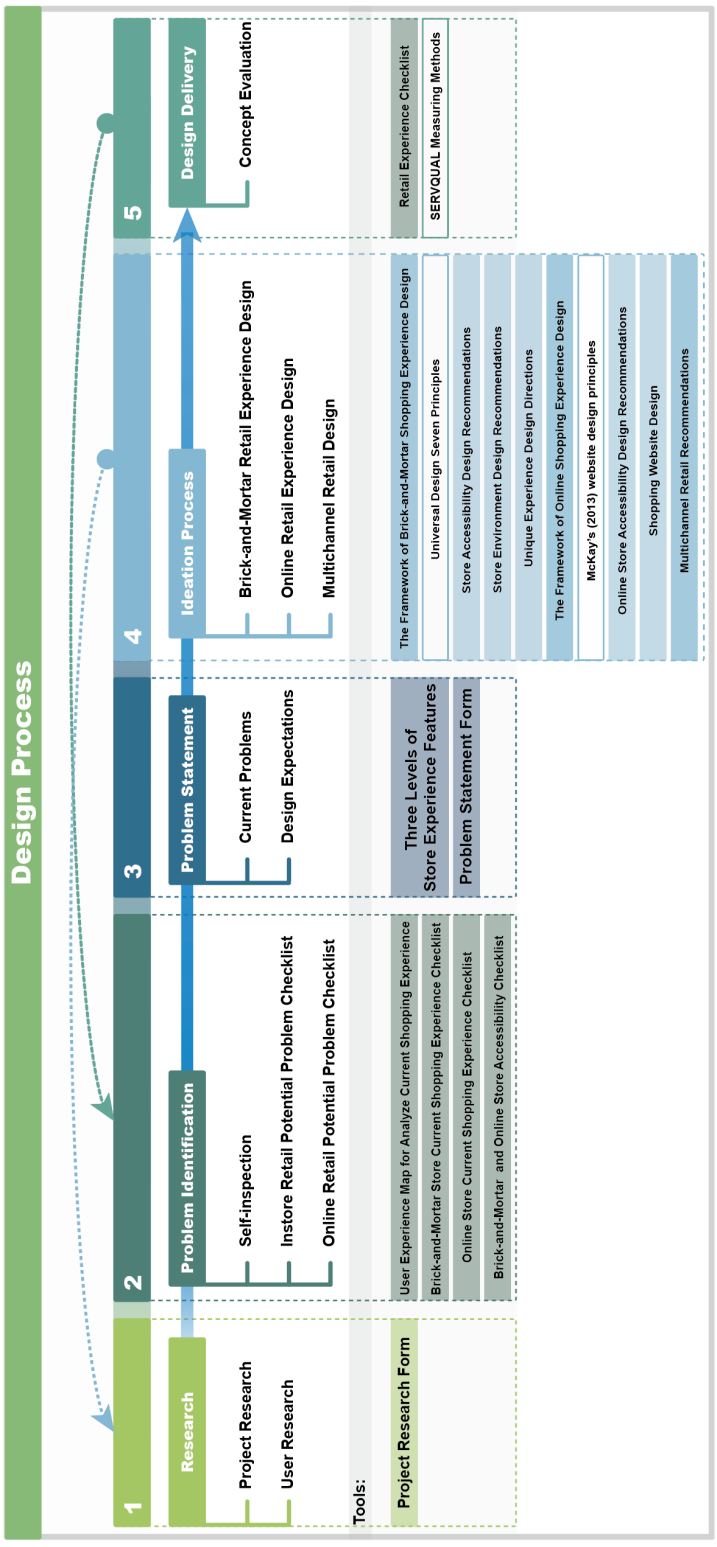
The purpose of the design guidelines is to assist designers in designing a shopping experience for the aging society. The guideline includes design research, opportunities discovery, ideation, and evaluation. The design ideation process to create good store experiences for older customers mainly focuses on giving design recommendations in three directions: brick-and-mortar stores, online retail stores, and multichannel retail. This chapter also provides diagrams and checklists to be used as additional tools to the given recommendations.

3.2 Store Experience Design Guideline Considering Older Customers

Based on Design Council's framework for innovation (2019) and Kumar's innovation design model (2012), the store experience design process is divided into five steps: research, problem identification, problem statement, ideation process, and design delivery. Figure 3.1 shows the store experience design process, and Figure 3.2 gives the detailed design process flow for the store experience.

Figure 3.1

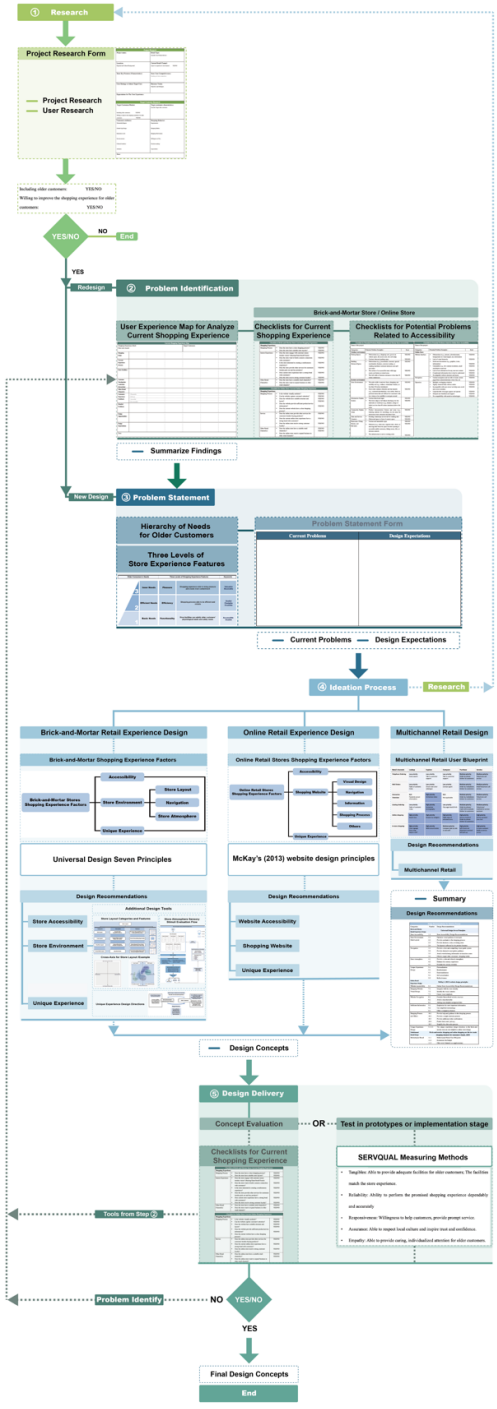
Store Experience Design Process Overview



The first step is to research the design project and target users to discover design opportunities. In the second step, designers need to identify potential challenges and frame design insights according to the problem checklists or self-inspection. After gathering research information, and potential problems, designers, need to give design statements and expectations. The uniqueness of this design approach is the fourth step store experience ideation process to develop the concept and generate design solutions. Brick-and-mortar and online retail stores are the leading retail channels. This chapter considers giving three directions to lead ideation to ensure older customers have an enjoyable multichannel shopping experience, including recommendations on instore experience design, online shopping website design, and multichannel retail design. Designers can base their ideas on design objects or goals to select directions to follow. The last step, design delivery, provides designers a concept evaluation tool to evaluate the concept outcome.

Figure 3.2

Store Experience Design Process Flow



Note. A full-size copy of this figure is available in Appendix 1, along with all of the forms included within this overview.

3.2.1 Research

Research is the first step. Pennington (2016) and Kumar (2013) pointed out that the research on experience design has two directions: content research and user research. In Section 2.1.1 The Process of Aging, the factors affecting consumer behavior are listed to include culture and society, demographic characteristics, and psychological factors (Kotler, 1965; Solomon, 1983). In addition, the section 2.3 Retail Design mentions the store characteristics and products/service features that influence the customer shopping experience (Beverland et al. 2006; Mallapragada et al., 2016). Then, based on these theories, the author provides research directions in the form of project research.

The project research form aims to discover design opportunities in the details of the project design, the store characteristics, the target users, and the consumer behavior.

Designers can follow the project research form (Figure 3.2) to collect related information. During the research, designers need to build empathy, immerse themselves in the user's daily life, listen openly, and look for problems and needs (Kumar, 2013; Weinschenk, 2011). Two key questions can help designers proceed to the next step: Does the store have older customers? Does the store want to improve the shopping experience for older customers?

During project research, the types of retail channels affect the designers in choosing the direction and recommendation for their design. Cultural diversity makes people have different shopping needs in different areas. Designers need to consider the different shopping habits brought by cultural differences in various regions (Kotler, 1965; Solomon, 1983). When it comes to physical stores, designers should understand and respect the regional cultural background. The

further design of a store, e.g., the layout, atmosphere, and web page vision, is influenced by the characteristics, core competencies, strategies, and business vision of this store. By collecting user information, designers can learn user characteristics and spot potential market demands. As pointed out in the design process, in the fourth step of design divergence, designers can return to the step of research to carry out further research.

Figure 3.3

Project Research Form

Project Research	
Project name:	Retail Type: Describe Your Product/Service
Location: Regional and Cultural Background:	Current Retail Channel: Expect to expand new retail channel: YES/NO
Store Key Features (Characteristics):	Store Core Competitiveness: Standing out from competitors
Core Strategy to Attract Target User:	Business Vision: Objectives and Strategies
Expectations for The User Experience:	
Target Customer Research	
Target Customers/Market: Including older customers: YES/NO Willing to improve the shopping experience for older customers: YES/NO	Target customers characteristics: Describe Target older customers
Customers attributes: Nationality/Region: Gender/Age Range: Education Level: Socioeconomic: Cultural Aesthetic: Attitudes:	Shopping Behavior: Requirements: Shopping Habits: Shopping Motivations: Willingness to Pay: Decision-making: Expectations:
Note:	

Note. Designers can fill the form according to the information they collect. A full-size copy of this form is available in Appendix 2.

3.2.2 Problem Identification

When tasked to design a shopping experience for older customers, designers need to identify potential challenges and frame design insights. Customer journey maps and experience maps are used as tools to help analyze the experience process and to help organizations examine current customer experiences and opportunities and provide designs that reflect customer actions, thoughts, feelings, and pain points. In this context, Kalbach (2016) provides seven principles for mapping experience to include 1) holism (focus on human behavior), 2) multiplicity (multiple facets of information), 3) interaction (expose touchpoints), 4) visualization (a graphical overview), 5) self-evidence (simplicity), 6) relevance (relevant to the organization), and 7) validity (grounded in the investigation). These principles have been incorporated to make the recommended User Experience Map shown in Figure 3.3. This will allow designers to analyze the overall shopping experience. The customer touchpoints in this map can assist them in summarizing detailed problems and in finding design insights that can help designers proceed to the next step. A problem checklist is also provided to help designers who are tasked to improve the existing shopping experience identify potential problems in brick-and-mortar and online retail stores' current experience. If designers need to design a new retail experience, they can move to the next step.

Figure 3.4

User Experience Map for Analyzing Current Shopping Experience

Current Shopping Experience Map						
Shopping Experience Brief: Main retail channel:				Target Customers:		
Shopping Steps:						
Current Experience Process:						
Store Facilities:						
Customer Touchpoints: (Activity& Interaction)						
Other Retail Channel(s)						
Customers Experience Feedback:	3 Pleasurable					
	2 Efficient					
	1 Accessible					
	0 No Accessible					
Detailed Problems:						
Design Opportunities:						
Design Expectations:						
Note:						

Note. Designers can follow the left column to fill out the experience map. A full-size copy of this Experience Map is available in Appendix 3.

Separate checklists are provided for brick-and-mortar and online retail experiences. Each checklist consists of two parts – one for the overall retail experience and one for accessibility. Accessibility is a critical factor in older consumer's decision-making (Lesakova, 2016; Szmigin & Carrigan,2001). In addition, the maintenance of availability is an essential part of the store to ensure a pleasant experience for older customers (U.S. Department of Justice, 2009; 2010). The

Brick-and-mortar store accessibility checklist is based on accessible features in retail establishments on the ADA website. The online store accessibility checklist is synthesized from The Web Accessibility Initiative in The World Wide Web Consortium (WAI, 2020).

If a designer is considering a brick-and-mortar design, Figure 3.5 provides the checklist of overall retail experience and Figure 3.6 addresses accessibility. For online retail designs, Figure 3.7 provides the checklist of overall retail experience and Figure 3.8 addresses accessibility.

Figure 3.5

Brick-and-Mortar Store Current Shopping Experience Checklist

Checklist of Brick-and-Mortar Store Current Shopping Experience		
Shopping Experience		
Shopping Process	◆ Does the store have a clear shopping process? ◆ Does the store have suitable store layouts?	YES/NO YES/NO
Instore Experience	◆ Does the store engage with customer senses besides vision? (Hearing/Taste/Smell/Touch) ◆ Does the store want to build a sensory connection with customers? ◆ Is the store interested in creating a multisensory experience? ◆ Does the store provide other services for customers besides pick out and buy products? ◆ Does current store experience have a strong bond with customers? ◆ Does the store receive strong customer loyalty?	YES/NO YES/NO YES/NO YES/NO YES/NO YES/NO
Other Retail Channel(s)	◆ Does the store have a suitable retail channel(s)? ◆ Does the store want to expand business in other retail channels?	YES/NO YES/NO

Figure 3.6

Brick-and-Mortar Store Accessibility Checklist

Checklist for Potential Problems Related to Brick-and-Mortar Store Accessibility		
Name of the project:		
Categories:	Potential Problem Examples：	Exist
Outdoor environment		
Parking Spaces	◆ Obstructions (e.g., shopping carts, grave) on vehicle space, the access aisle, the curb ramp ◆ Unclear/ obscured parking signs	YES/NO YES/NO
Building Entrance/Egress	◆ Obstructions (e.g., promotional, seasonal, special merchandise displays, customer seating, or vending machines) surround entrances and spill into aisles ◆ The surface of an accessible route with large cracks and broken or raised areas ◆ The full width of business entrances is less than 36 inches (minimum)	YES/NO YES/NO YES/NO
In-store environment		
Store Environment	◆ The aisle width is narrower than a shopping cart, mobility aid (e.g., walkers, wheelchair wheels), or less than 36 inches (minimum) ◆ Store route contains obstacles and trip hazards (e.g., scattered merchandises, wire cables, block or protrude items) that are difficult for customers with low vision or low mobility to navigate around	YES/NO YES/NO
Information Display System	◆ Unclear directional signs ◆ The lower edges of all objects that hang over the sidewalks or walkways (e.g., banners, strings of lights) are less than 80 inches (minimum)above the route	YES/NO YES/NO
Commodity Display Areas	◆ Product demonstration fixtures and areas (e.g., listening stations for recordings, try-out areas for electronics) have obstacles that block floor	YES/NO
Sales and Service Counters	◆ Existing countertops are too tall for walking aids ◆ Obstructed space in front of counter space	YES/NO YES/NO
Restrooms, Fitting Rooms, and Elevators	◆ Unclear and unreadable signs ◆ Obstacles (e.g., trash cans, cigarette urns, chairs, or shelving) that block the space for door opening in accessible public restrooms, fitting rooms, lifts, or elevator controls ◆ The infrastructure is not in working order	YES/NO YES/NO YES/NO

Note. The checklist is based on the ADA guideline, 2009, 2010.

Figure 3.7

Online Store Current Shopping Experience Checklist

Checklist for Online Store Current Online Shopping Experience		
Shopping Experience		
Shopping Process	◆ Is the website visually aesthetic? ◆ Can the website capture customer's attention? ◆ Does the website have suitable structure and layout? ◆ Does the website provide sufficient product/service information? ◆ Does the current website have a clear shopping process?	YES/NO YES/NO YES/NO YES/NO YES/NO
Service	◆ Does the online store provide other services for customers besides buying products? ◆ Does the current online store experience have a strong bond with customers? ◆ Does the online store receive strong customer loyalty?	YES/NO YES/NO YES/NO
Other Retail Channel(s)	◆ Does the online store have a suitable retail channel(s)? ◆ Does the online store want to expand business in other retail channels?	YES/NO YES/NO

Figure 3.8

Online Store Accessibility Checklist

Checklist for Potential Problems related to Online Store Accessibility		
Name of the project:		
Categories	Potential Problem Examples：	Exist
Online Store		
Website Interface	◆ Obstructions (e.g., pictures, advertisements, background) on visual targets, key information	YES/NO
	◆ Lack of visual hierarchy	YES/NO
	◆ Irrelevant decorations (e.g., graphics, icons, information)	YES/NO
	◆ Unreadable (e.g., low contrast resolution, small size)/hard to read text	YES/NO
	◆ Lack of text alternatives for any non-text content	YES/NO
	◆ Complicated information that is hard to understand	YES/NO
	◆ No adaptable website structure and layout	YES/NO
Navigation	◆ Unclear navigation and not able to locate current pages/find content/determine where they are	YES/NO
Operation	◆ Multiple overlapping windows	YES/NO
	◆ Tightly clustered links with no orders	YES/NO
	◆ Incompatible with user errors/ not help users avoid and correct mistakes	YES/NO
	◆ Unpredictable web pages appear and operate	YES/NO
	◆ Delayed user feedback and support	YES/NO
	◆ No compatibility with assistive technologies	YES/NO

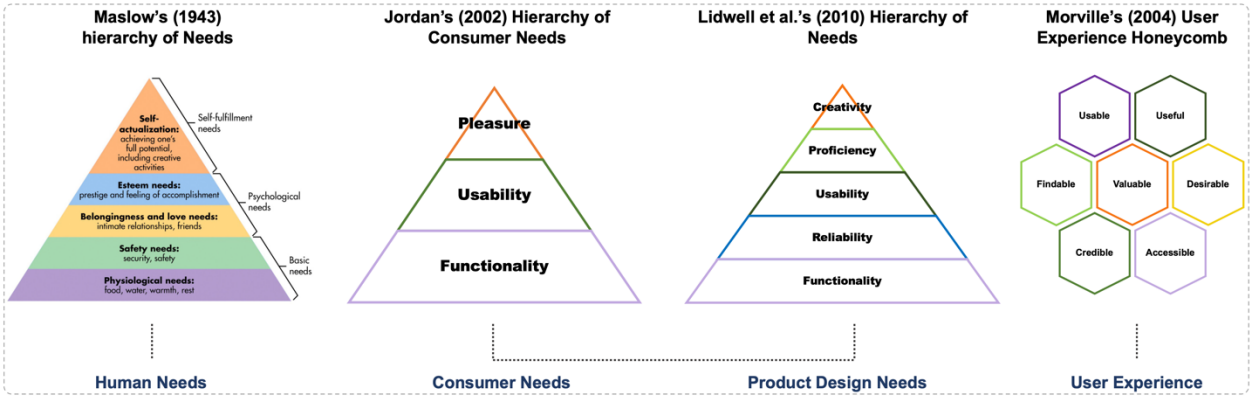
Note. The checklist is synthesized from The Web Accessibility Initiative, 2020.

3.2.3 Problem Statement

After the research and problem identification process, designers need to summarize the detected problems and design expectations. Chapter 2 introduced Maslow's Hierarchy of Human Needs (1943), Jordan's Hierarchy of Consumer Needs (2002), Lidwell et al.'s Hierarchy of Product Design Needs (2010), and Morville's (2004) User Experience Honeycomb (User Experience Factors). Figure 3.9 shows the comparison of different hierarchies of needs.

Figure 3.9

Comparison of Different Hierarchies of Need



Note. Similar colors represent the same kind of needs.

Based on these theories, the author developed a version of the hierarchy of needs that focuses on the store experience design of older customers. This is shown in Figure 3.10, which includes the needs of older consumers and three levels of features that influence the store experience of older customers.

Figure 3.10

Three Levels of Store Experience Features

Note. Includes hierarchy of needs for older customers and three levels of features that influence customers shopping experience

The first level of needs of older customers includes basic needs that the store facilities provide to satisfy the physiological and safety needs of older customers. This considers the fact that, during the aging process, older customers have more physical demands (Ford et al., 2016). In addition, designers need to be aware of age-related deterioration such as the decline of sensory-perceptual systems and changes in the muscular-skeletal system that affects muscle strength, balance control, and mobility (Bottaro et al., 2007; Melzer et al., 2010; Schieber et al., 1991; Teller et al., 2013; Wang et al., 2002).

In the second level, the author summarized user experience factors such as useful, finable, and credible features into efficiency. These efficient needs include the need of older customers for

efficient and reliable shopping processes.

Finally, the third level shows the inner needs, where the shopping experience brings pleasure and creates inner contentment. This level focuses on the hedonic shopping reasons of older customers (Ebster & Garaus, 2015), as well as their psychological and self-fulfillment needs that affect their happiness and self-satisfaction (Maslow, 1943).

When designers provide design expectations, they can also consider this hierarchy of needs for older customer's shopping experience and the three levels of store experience features in Figure 3.10. As a result, designers can summarize current problems and design expectations in a problem statement form (Figure 3.11).

Figure 3.11

Problem Statement

Current Problems	Design Expectations

3.2.4 Ideation Process

The design ideation process essentially focuses on giving design recommendations for three potential directions: brick-and-mortar stores, online retail stores, and multichannel retail. Then, designers can choose suitable design recommendations according to previous conclusions.

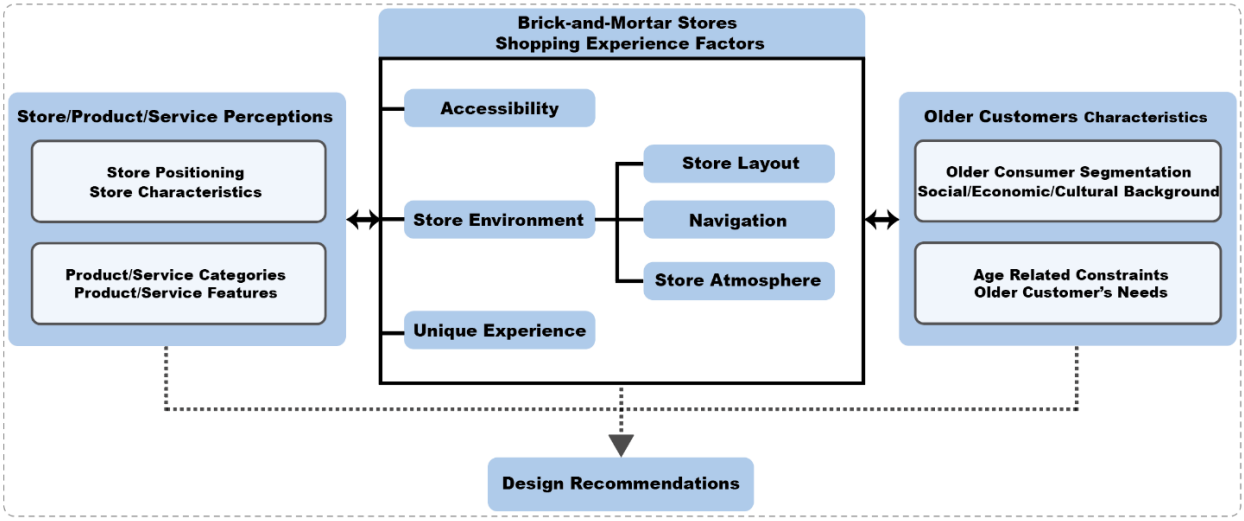
3.2.4.1 Brick-and-Mortar Retail Experience Design

Chapter 2 of this paper analyzes the retail store characteristics in relation to in-store leisure shopping experience (Triantafillidou et al., 2017), the factors that influence customer shopping intentions (Wu et al., 2014; Lesakova, 2016), and the store attributes that influence the satisfaction of older customers (Teller et al., 2013). In summary, for brick-and-mortar stores, which is the current dominant retail channel for older consumers, there are three factors that influence the shopping experience of older customers: accessibility, store environment, and unique experience.

The accessibility and environment factors affect the store's functionality and efficiency. Moreover, a unique experience can improve customer's enjoyment. Therefore, the design recommendations are built on the three levels of shopping experience features plus the older customer's characteristics. Figure 3.12 helps designers more intuitively understand the framework of brick-and-mortar shopping experience design.

Figure 3.12

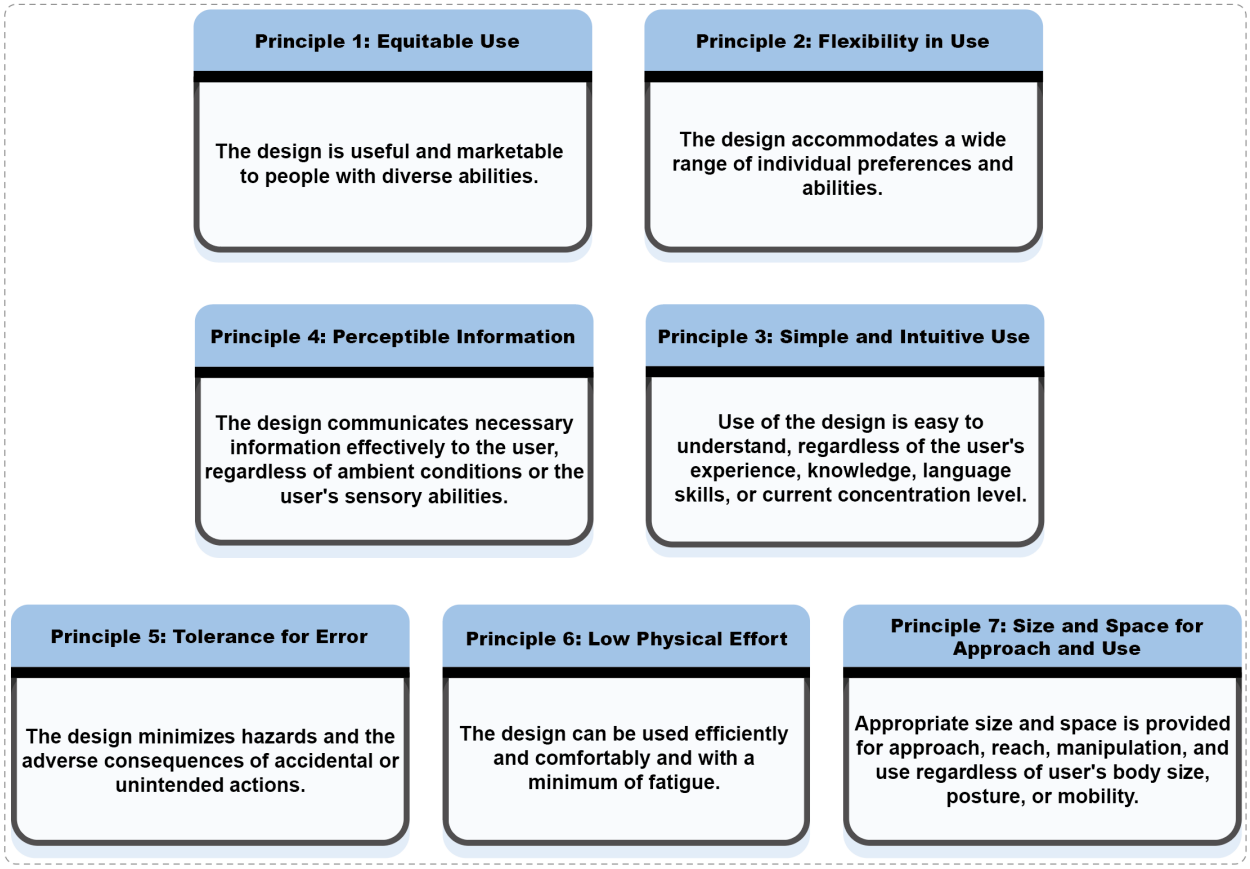
The Framework of Brick-and-Mortar Shopping Experience Design



At the same time, designers can also utilize the Universal Design Seven Principles (Figure 3.13) as a comprehensive design guide when designing brick-and-mortar retail facilities for older customers. In the process, universal design principles are considered when aiming to provide a qualified shopping experience for older customers.

Figure 3.13

Universal Design Seven Principles



Note. Source from North Carolina State University, The Center for Universal Design, 1997.

Based on these principles, the following design recommendations include the design of store accessibility, store environment, and unique experience. After filling out the problem statement form, designers will see clear design directions. For instance, they can use problem statement and design expectations to find specific design recommendations in this step of ideation. Finally, in the process of designing a new retail experience, designers can read through the design recommendations.

Store Accessibility

Designing store accessibility factors for older customers is all about addressing physical aging challenges that may cause reduction of the five senses, physical strength, and body balance (Fike, 2018; Bottaro et al., 2007; Melzer et al., 2010; Wang, et al., 2002). Following a study of older customers, the seven universal design principles and the ADA Guidelines (U.S. Department of Justice, 2009; 2010), this paper shows in Figure 3.14 a set of design recommendations for maintaining store accessibility. Based on the problems found when using the Store Accessibility Checklist, designers can make effective modifications in a store's design. In addition, if building a new store, designers can always check the 2010 ADA standards for accessible design regulations and accessible features in retail establishments on the ADA website.

Design Recommendations:

(1.1) Store accessibility design recommendations are shown in Figure 3.14

Figure 3.14

Store Accessibility Design Recommendations

Brick-and-Mortar Store Accessibility Design Recommendations	
Categories:	Design Recommendations:
Outdoor environment	
Parking Spaces	◆ Remove obstacles from accessible parking spaces ◆ Provide proper signage (Angell et al., 2012)
Building Entrance/Egress	◆ Keep the accessible route from the parking area to the store's entrance clear of obstacles that block or narrow the route ◆ Well-maintained signage at the main entrance to direct people to the accessible entrance ◆ Makes entry/exit possible for the customer who uses a mobility device (a minimum of 36 inches of clear space) (Sloane, 1997) ◆ Ensure that accessible exits - including accessible emergency exits - are maintained at all times

In-store environment	
Store Environment	◆ Arrange seasonal merchandise, baskets of impulse items, and extra clothes racks so that they do not block or protrude into the accessible route through the store ◆ Remove obstacles and trip hazards (Das et al., 2012) ◆ Aisles require a minimum width of 36 inches ◆ Ensure sale clerks are prepared to assist customers (Triantafillidou et al., 2017)
Information Display System	◆ Plan all routes so that any hanging or mounted displays, wall-mounted shelving, lighting, or decorations provide required head clearance and cane detection for customers who are blind or have low vision ◆ Large signs with contrasting colors and block types are also helpful for people with limited vision, including older customers (Salvi et al., 2006; Schieber et al., 1991) ◆ Visual characters shall be 40 inches minimum above the finish floor or ground
Commodity Display Areas	◆ Place heavy items on lower shelves and light items on higher shelves (Carpenter et al., 2006; Faulkner et al., 2007; Teller et al., 2013). ◆ Make sure customers can move comfortably within the establishment and try out or try on the merchandise.
Sales and Service Counters	◆ Staff the accessible sales counters and checkout aisles during all business hours (Triantafillidou et al., 2017) ◆ Provide lower counter spaces. Accessible counters can be no taller than 36 inches from the floor to the top of the counter ◆ These areas must have the aisles clear
Restrooms, Fitting Rooms, and Elevators	◆ Maintenance of accessible restrooms and fitting rooms, and lifts and elevators are essential for the shopping experience ◆ Accessible public restrooms, toilet stalls, and fitting rooms and make sure they are available to customers with disabilities during business hours (Buttaro et al., 2007; Melzer et al., 2010; Wang, et al., 2002)

Store Environment Design

This article divides the factors that influence the older customer's shopping experience in the store environment into store layout, navigation, and store atmosphere.

Store Layout:

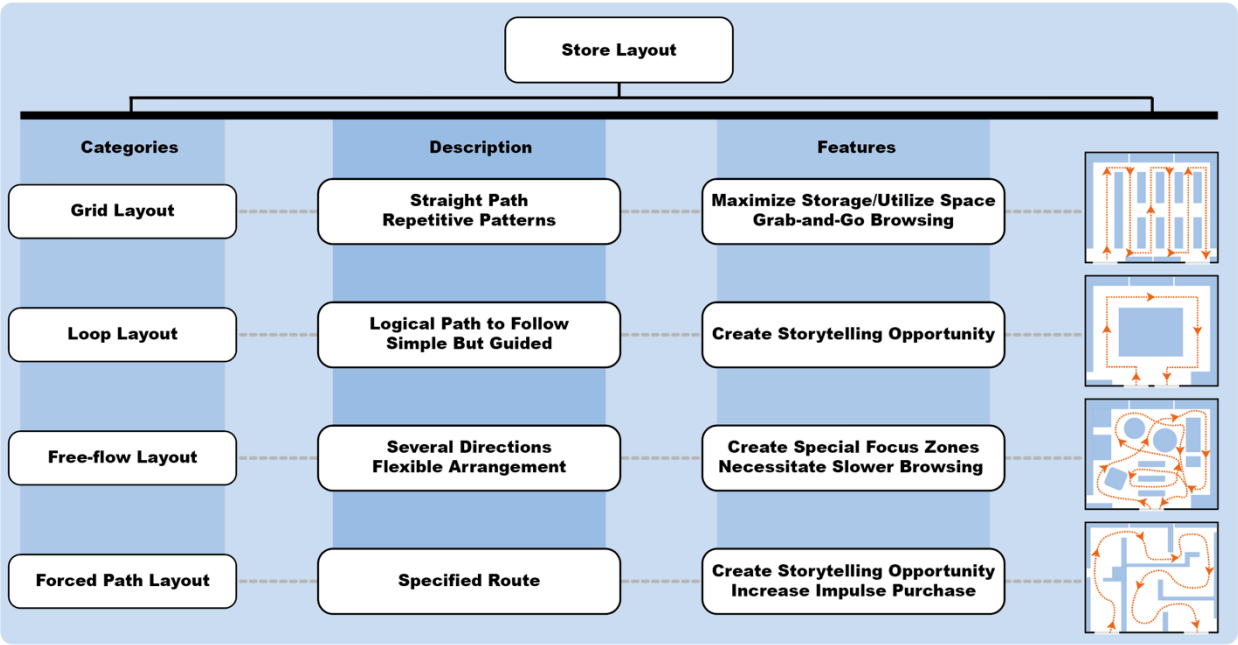
The physical layout of a store can influence the shopping behavior of customers (e.g., navigation/approaching/avoidance behaviors) in the retail environment (Bostali, 2007; Mehrabian

and Russell, 1974). Designers often use the grid layout, loop layout, free-flow layout, and forced-path layouts as typical design options. For instance, the grid layout utilizes space and maximizes merchandise storage while stores with loop layouts have a clear path to follow. On the other hand, a free-flow layout provides opportunities to create unique attractions and flexible arrangements, while a forced-path layout leads the customer to shop in specified ways (Ebster & Garaus, 2015; Velasquez, n.d.).

Based on studies on store layout characteristics by Ebster & Garaus (2015) and Velasquez (n.d.), this article summarizes store layouts into categories and their features in Figure 3.15. The following layout features and design recommendations can help store designers make optimal design decisions.

Figure 3.15

Store Layout Categories and Features



Design Recommendations:

(2.1) Optimize visual guidance to navigate

- Since it can be easy to get lost around the shelf in a grid layout or loop route in loop layout, designers can optimize visual guidance (Salvi et al., 2006; Schieber et al., 1991) for older customers to navigate (e.g., recognizable visual elements: signs, colors, floor materials).

(2.2) Provide assistants in the shopping process

- To offer better, faster customer service, stores can provide sales people to assist older customers in the shopping process (Chi, 2019), especially in the counter areas where older customers cannot try and test the product all by themselves (e.g., multifunctional products, new electronic products).

(2.3) Provide shortcuts, exits, or resting areas

- If the store has a large area to walk around, designers should consider older customer's mobility challenges and provide shortcuts, exits, or resting areas for older customers (Faulker et al., 2007; Sloane, 1997; The Center for Universal Design, 1997).

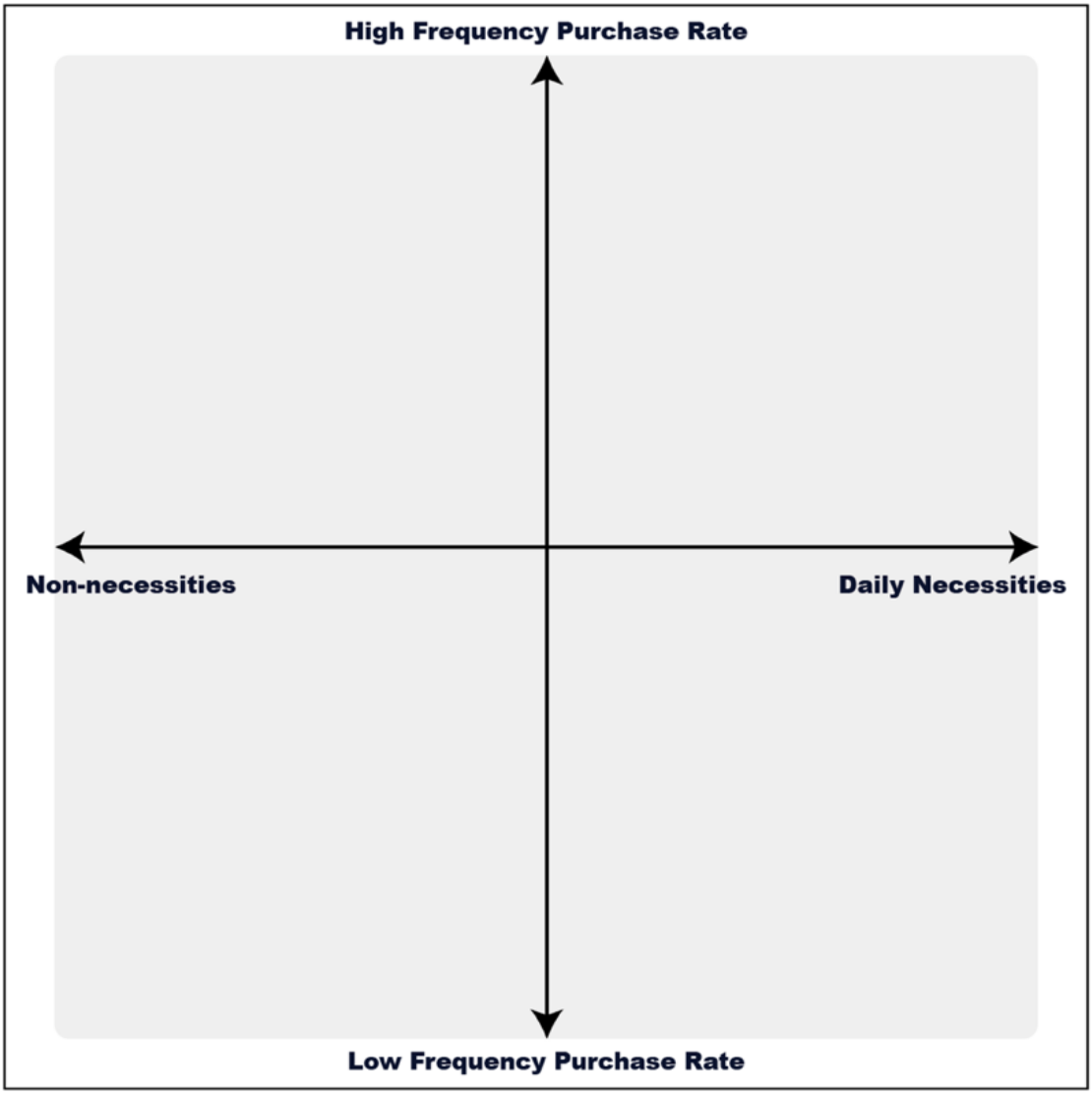
(2.4) The layout is affected by the product features

- One of the critical points is that the layout is affected by the products sold in the store (Bostali, 2007; Ebster & Garaus, 2015). Therefore, designers can identify the products/service the store is selling, and position map them into Figure 3.16, which has four opposite words, and then use store layout features (Figure 3.15) and example cross-axis (Figure 3.17) as references to know which layout is more suitable for the

products/services.

Figure 3.16

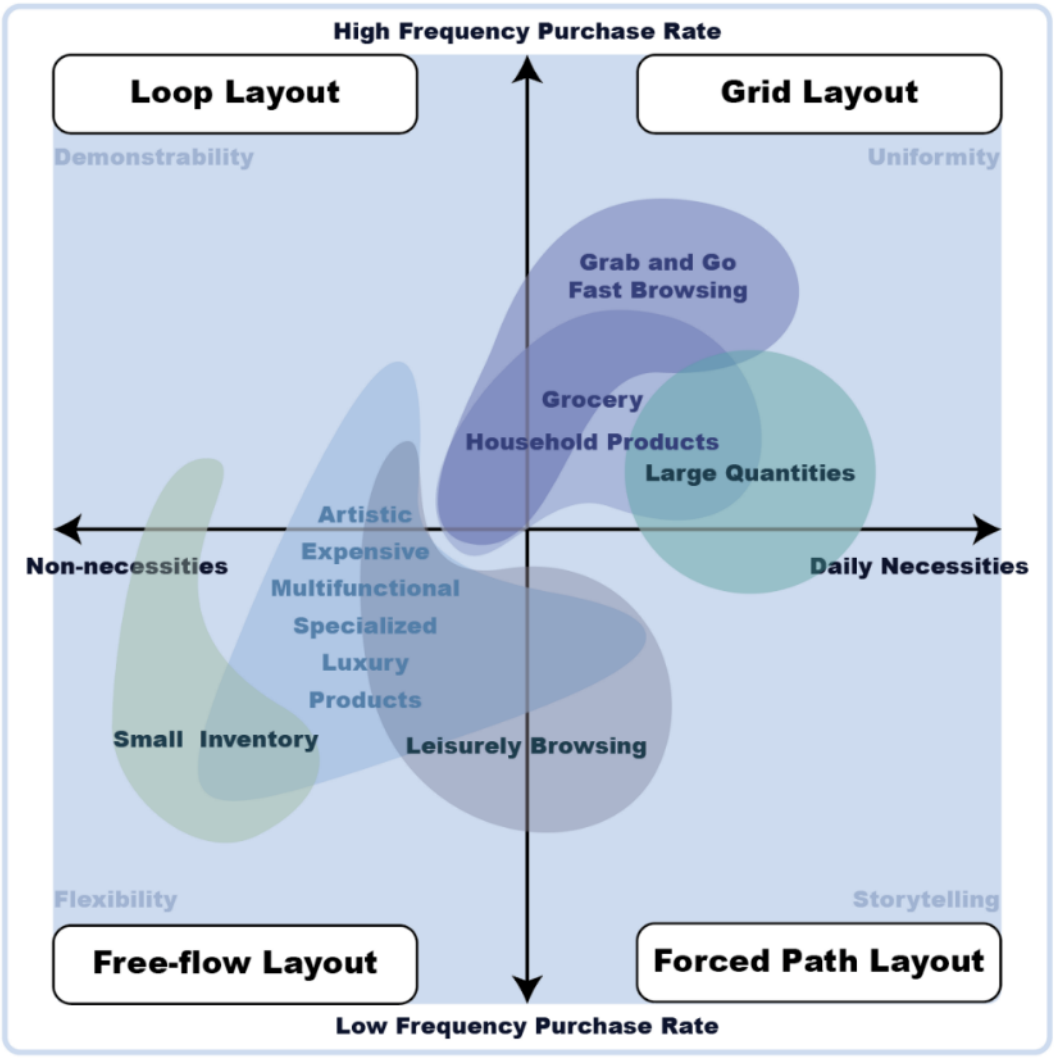
Cross-Axis of Products/Services Features



Note. Designers can put the products/services on a spectrum of axes to determine store layout.

Figure 3.17

Cross-Axis for Store Layout Example



Note. Designers can use this as a reference to know which layout is more suitable for the products/services.

Navigation:

In the article "Normal Cognitive Aging", authors Harada et al. (2013) divided cognitive ability into specific cognitive domains such as processing speed, attention, memory, language,

visuospatial abilities, and executive functioning/reasoning. Changes in cognitive ability such as the information process system of the senior population affect the perception of navigation in the store. Besides providing clear layouts, designers can help the older customers navigate the store through the following recommendations.

Design Recommendations:

(3.1) Provide a clear and compelling visual guide system

- Designers need to provide a clear and compelling visual guide system with visible fonts and prioritized information (Schieber et al., 1991).

(3.2) Provide alternative navigation guidance

- In addition to visual guidance, store districts can be distinguished by diverse sensory stimulation (Ebster & Garaus, 2015; Schieber et al., 1991) such as setting decorative landmarks, or using different environmental sounds or different smells.

(3.3) Avoid overwhelming information in transition zones

- Store entrances and center intersections as transition zones should avoid overwhelming information (Ebster & Garaus, 2015; McKay, 2013) and products. They should give older customers enough time to identify the current location and destinations (The Center for Universal Design, 1997).

(3.4) Observe target audience's (older consumers) shopping habits

- Different older consumer market segmentations have behavior variables (Sudbury & Simcock, 2009). Designers can observe the shopping habits (daily behavior) of target older consumers and provide shopping directions. For example, stores place products

that consumers like on the right because customers prefer to walk counterclockwise. Older customers avoid walking on stairs, ramps, and narrow aisles. So, products that target senior citizens should not be placed around these areas.

Store Atmosphere:

The store atmosphere is built upon the demonstration of store product or services features which influences customer satisfaction and enhances purchase rate (Kendu, 2021; Wu et al., 2014). Senses are communication bridges between customers and the store (Srivastava, 2015). Designers need to make sure the older customers can experience the intended store atmosphere.

Design Recommendations:

(4.1) Provide a calm and relaxed atmosphere

- Provide a calm and relaxed atmosphere for the older customers to reduce intensely rushed feelings in the store (e.g., avoiding loud and fast music, dazzling lights, moving lights, pungent odors).

(4.2) Enhance the sensory experience

- The changes in middle ager's and senior's perception ability, such as vision, hearing, taste, smell, and touch, are apparent (Gere & Sparrow, 1981). Perception abilities influence older customer's overall store experience (Kendu, 2021). Designers can enhance the sensory experience for older customers from visual, olfactory, gustatory, auditory, or haptic stimuli or apply a multisensory experience.

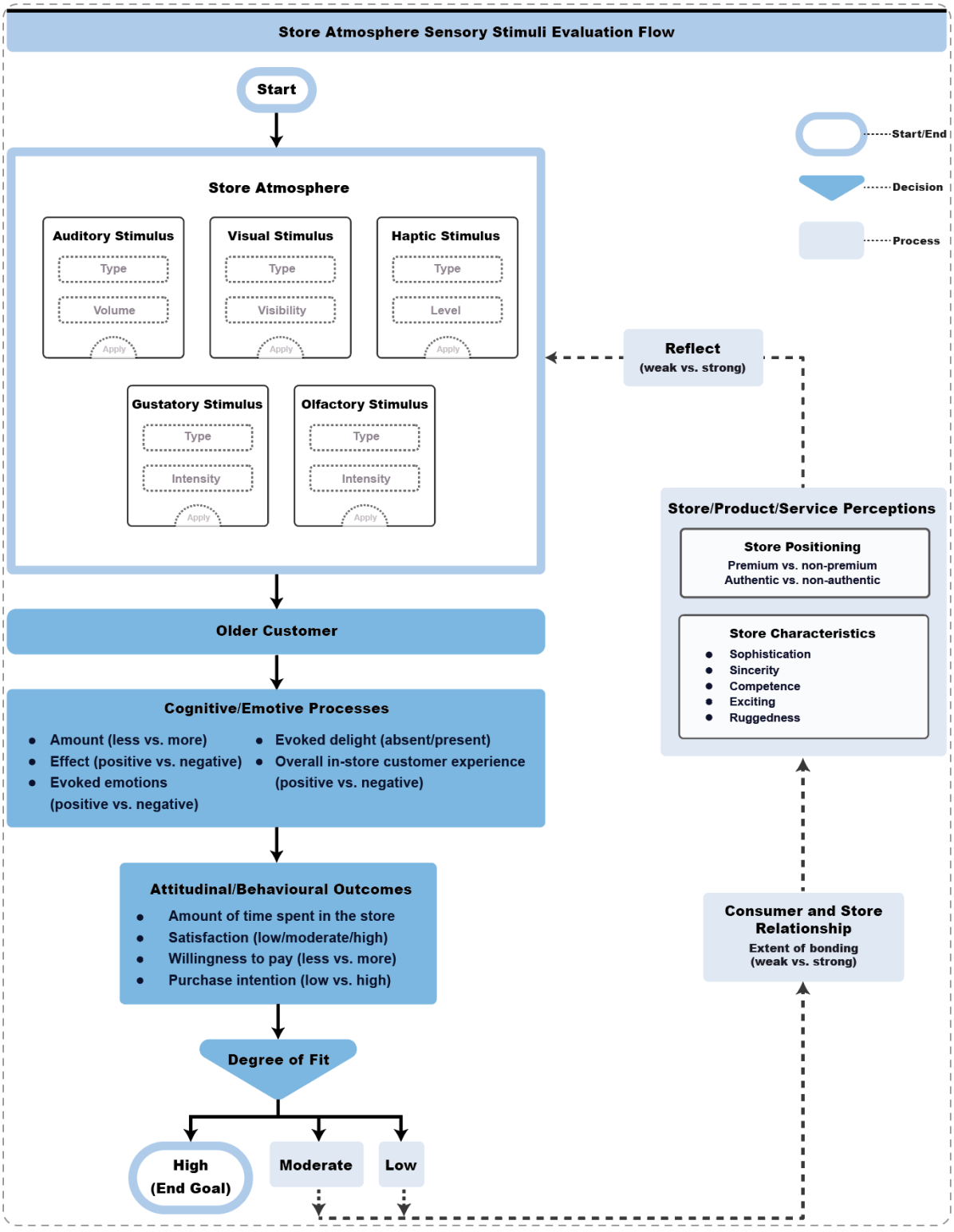
(4.3) Evaluate the sensory stimulus

- Designers can evaluate the sensory stimulus through the evaluation flow in Figure

3.18. From the 2006 study by Beverland et al. on the effect of in-store auditory stimuli, consumer, and brand relationships, the author provides a store atmosphere sensory stimuli evaluation flow. Using this flow, store designers can examine the sensory stimulus in the store that they can control.

Figure 3.18

Store Atmosphere Sensory Stimuli Evaluation Flow



In the evaluation flow chart (Figure 3.18), designers can put single sensory stimuli or multisensory stimuli in the Store Atmosphere box on the chart and collect customer feedback.

During the early stages of concept ideation, designers can integrate the store perceptions in the evaluation flow. Also, they can empathize with putting themselves in the shoes of the older users to see whether stimuli are beneficial to the store atmosphere or not. Within the design phase, designers can present concepts to the older user group and collect feedback with visualized pictures or simple simulations of the design concepts. If sufficient conditions are available for prototype testing, designers can reference the older customer research directions listed in figure 3.18 to set questionnaires or interviews and collect feedback.

If the stimuli/stimulus receives a high level of positive feedback to the store experience, then the change is kept. In contrast, if the stimuli/stimulus has a medium to low level of customer feedback, the designer considers store and customer relationship as well as store/product/service perceptions, and makes adaptations to the stimuli/stimulus.

Unique Experience Design

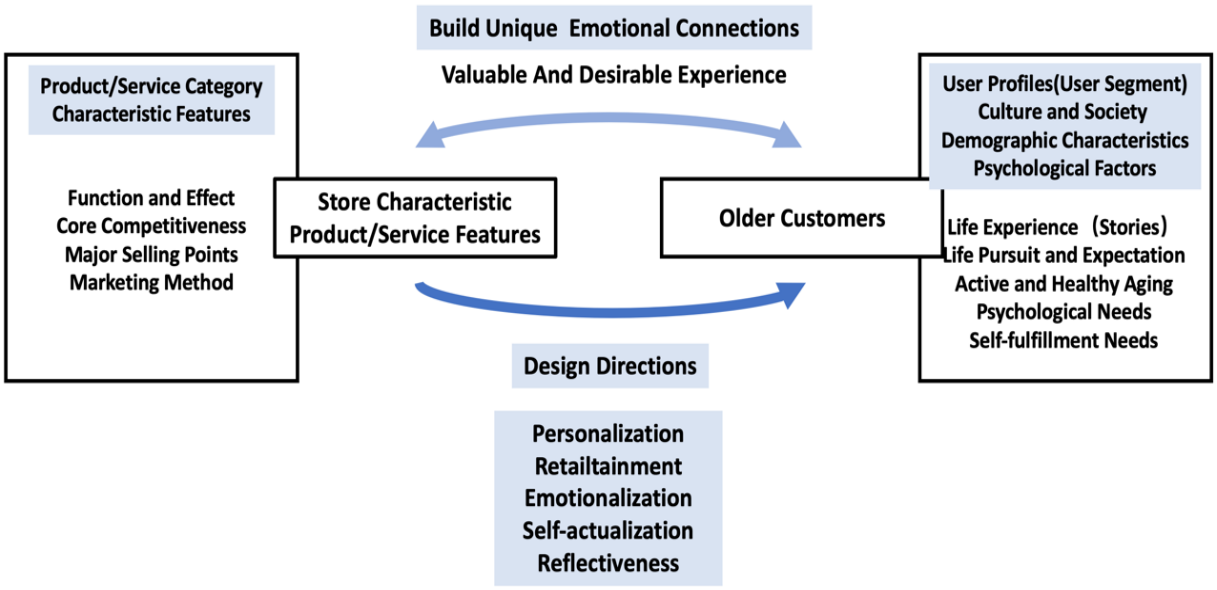
In previous studies on the aging population, older consumer's market segmentation, shopping needs, and emotional demands were analyzed. According to Maslow (1943), satisfying psychological needs, and self-fulfillment needs can impact happiness, and satisfaction. The older customer's hierarchy of needs (Figure 3.9) also address the inner needs are in the third level and a shopping experience care for inner needs is able to bring pleasure and create inner contentment.

Building emotional connection with users is an effective way to build up user loyalty (Hasan, 2016). Designers can carry out their work based on the characteristics of both stores and users and strengthen emotional connection with users based on their psychological needs, so as to create a unique experience for users. A unique experience aims to build emotional connections with older customers and create a valuable and desirable experience to improve customer's enjoyment.

The design guideline gives five design directions for designers to design a unique experience. The overall relationship of older customers, store and design directions is in Figure 3.19. To provide a unique experience, designers need to have empathy which enables them to create a user profile for their target users, including user segmentation, user characteristics and cultural background. Designers can collect the target users' experiences and stories related to the products sold in the store, as well as the older customers' demands and insights of life.

Figure 3.19

Unique Experience Design Directions



Note. When building connections with customers, designers may need further user research and a deeper understanding of customers' inner needs. Designers can consider the research direction from the figure above.

Design Recommendations:

(5.1) Personalization

- Meyer (2020) researched retail history and noted that personalization appeals to customers' desires. MuleSoft (2021) mentioned providing a personalized retail experience is an emerging trend. Personalization is about customizing the store experience based on the preferences or requirements of an individual or specific market to increase customer engagement.

(5.2) Retailtainment

- Retailtainment is the combination of retail and entertainment that comes from McKinsey's (2016) and Meyer (2020) retail summary. Customer shop for hedonic reasons, and there are six types of hedonic shopping, including adventure shopping, social shopping, gratification shopping, idea shopping, role shopping, and value shopping details (Ebster & Garaus, 2015).
- Designers can create a unique and entertaining store experience based on older customer desires for exciting adventures, social interaction, relaxation, fashion, new trends, and discount prices.

(5.3) Emotionalization

- Emotionalization aims to accommodate/care for older customers' emotional feelings and evoke/inspire positive emotions or accommodate emotions.
- Designers can consider the psychological attitudes of the senior population, which include constructive attitude, dependence attitude, defensive posture, and hostile attitude (Dziechciaż & Filip, 2014). Furthermore, designers can use experience design to avoid or reduce negative emotions like loneliness, anxiety, low self-esteem, negativity, and depression (Bursack, 2020; Trafiałek, 2006; Zhang, 2012)—more detailed explanations about the psychological characteristics of the aging population are in section 2.1.3.

(5.4) Self-actualization

- Maslow (1943) provided the concept of self-actualization. Designers can, through this direction, find older customer's self-fulfillment needs and create inner

contentment. In addition, designers can encourage self-actualization and active aging by giving a chance to cultivate skills, abilities, or creativity during the shopping experience (Foster & Walker, 2015; WHO, 2001)

(5.5) Reflectiveness

- The reflective design theory comes from Norman's (2007) emotional design theory. The purpose of emotional design is to create a positive user experience that meets the three levels of the user's emotional responses: visceral, behavioral, and reflective. Visceral design focuses on initial reactions such as natural instincts to appearance. Behavioral design is all about function, understandability, usability, and physical feel. Reflective design includes the meaning of things, self-image, and message delivery.
- A unique store experience with reflective design delivers a message or reflects customer self-image and evokes a sense of acceptance and contentment.

This is the end of brick-and-mortar retail experience design. The next part is online shopping experience design recommendations.

3.2.4.2 Online Retail Experience Design

In a study on e-service quality and customer behavior in online shopping, Rita et al. (2019) pointed out how website design, customer service, security and privacy, and fulfillment (timeliness of delivery, order accuracy, and delivery condition) influence customer satisfaction. Other research also showed similar concepts related to website design such as information quality, website usability, order fulfillment, security, and privacy to provide customer satisfaction (Irantaj &

Huseynov, 2018; Yan & Du, 2016).

Based on listing considerations, the online shopping satisfaction of older customers can be influenced by website accessibility, the shopping website (website visual design, navigation, information, shopping process, and others), and a website's unique experience (Figure 3.20).

To create an intuitive user interface for older customers, website designers can follow McKay's (2013) website design principles. These principles can guide the design of the online retail user experience. Similar to brick-and-mortar retail experience design, this article provides design recommendations for each factor (Figure 3.21).

Figure 3.20

The Framework of Online Shopping Experience Design

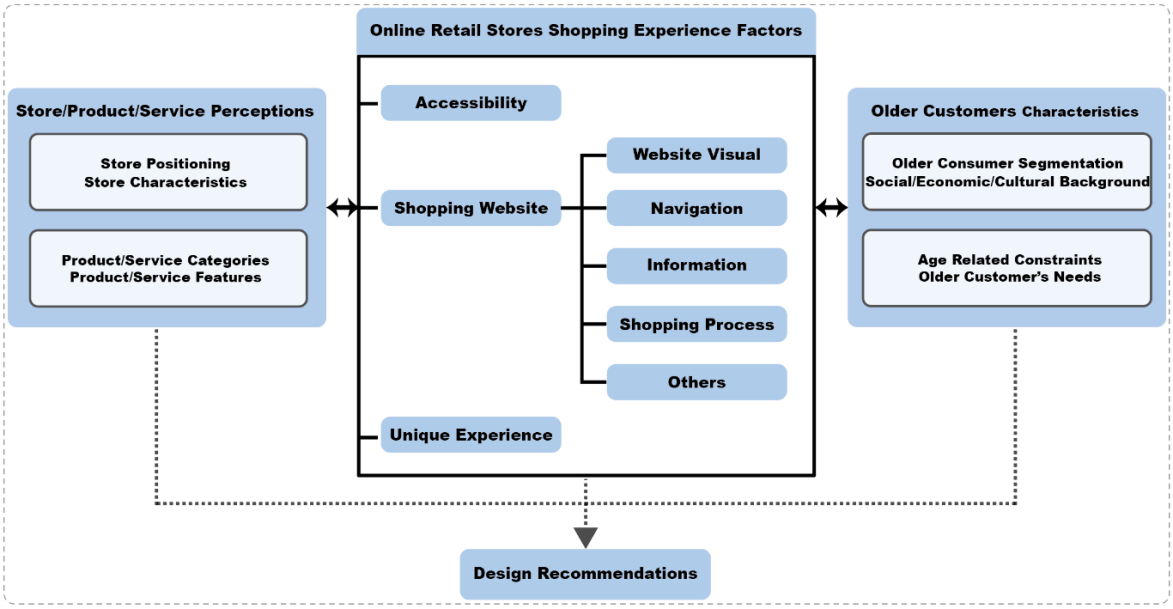
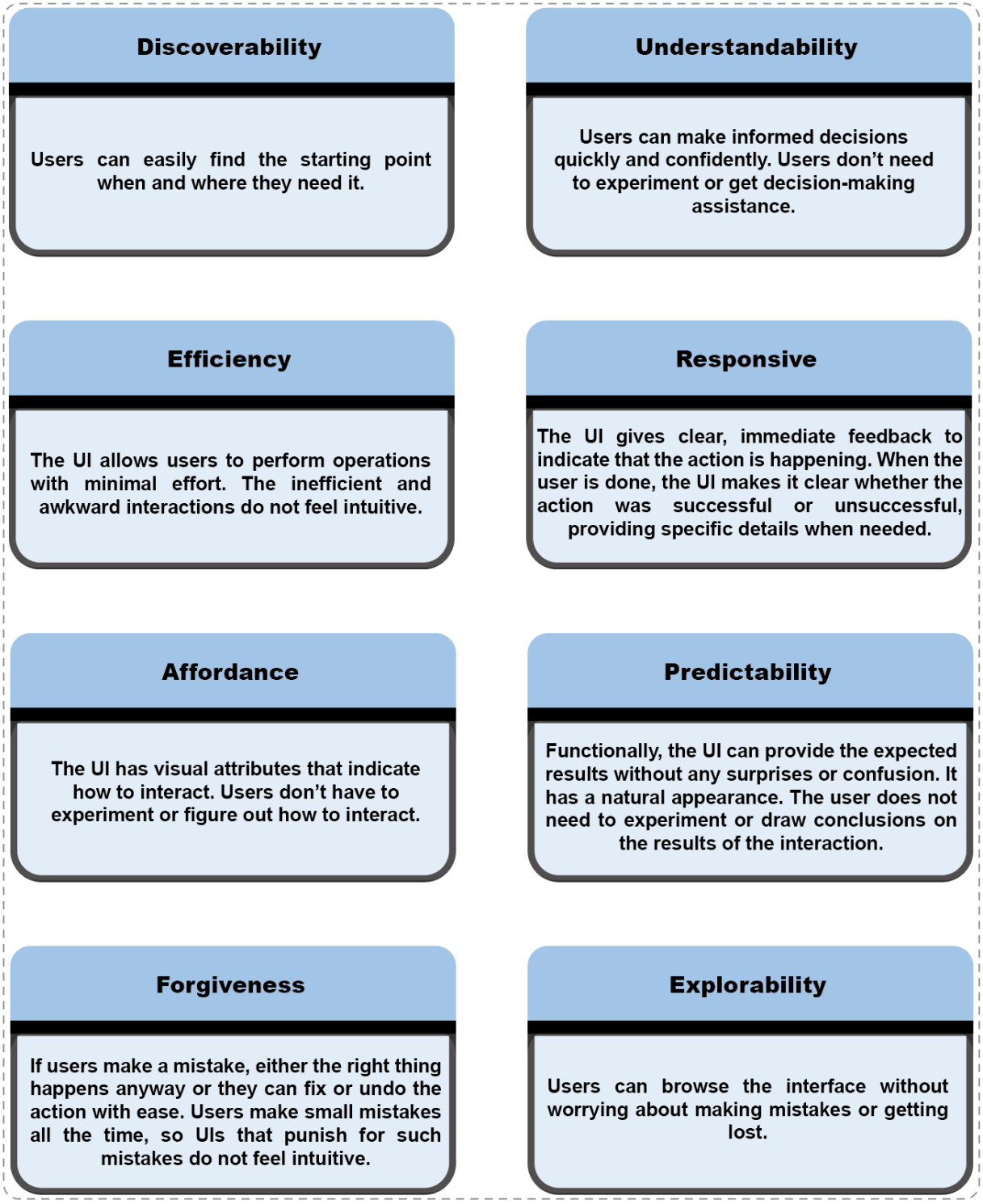


Figure 3.21

McKay's (2013) website design principles



Note. Adapted from McKay's (2013) intuitive user interface (UI) design.

Website Accessibility

According to McKay's (2013) website user interface design principles, the Web Accessibility Initiative (WAI, 2020) from World Wide Web Consortium (W3C), Web Design Guidelines for Older People (Kurniawan & Zaphiris, 2015), and the study of older customers, this article synthesizes the following design recommendations about maintaining website accessibility (Figure 3.22).

Design Recommendations:

(6.1) Online store accessibility design recommendations are shown in Figure 3.22

Figure 3.22

Online Store Accessibility Design Recommendations

Online Store Accessibility Design Recommendations	
Categories	Design Recommendations:
Online Store	
Website Interface	◆ Avoid irrelevant information/graphics on the screen. Important information should be highlighted ◆ Screen layout, navigation, language, and terminology used should be simple, clear, and consistent ◆ Icons should be simple and meaningful ◆ Make text content readable and understandable ◆ Information should be concentrated mainly in the center ◆ Information should not be duplicated on the same page ◆ Choose complementary colors ◆ Maximize the contrast between foreground and background colors ◆ Background screens should not change rapidly in brightness between screens ◆ Choose fonts by legibility and avoid moving text ◆ The text should have large clear headings and spacing between the lines ◆ Use san serif type font (i.e., Helvetica, Arial of 12-point size at least ◆ Enable users to change the font size as some users have worse sight than others do ◆ Provide a printer-friendly version ◆ Always provide text equivalent to auditory and visual content

	◆ Provide text alternatives for any non-text content to be changed into other forms people need, such as large print, braille, speech, symbols, or simpler language
Navigation	◆ Avoid a very deep hierarchy ◆ Clear navigation and location of the current page should be provided ◆ Provide information about the general layout of a site ◆ Provide ways (i.e., page titled, link purpose, section headings) to help users navigate, find content, and determine where they are
Operation	◆ Make web pages appear and operate in predictable ways ◆ Provide only one open window; pop-up/ animated advertisements or multiple overlapping windows should be avoided ◆ The page should remain the same each time it is revisited ◆ Avoid pull-down menus and scroll bars ◆ There should be clear confirmation of click targets and additional cues ◆ Provide larger graphics and click targets that are easy to click on (no moving target) ◆ There should be a differentiation between visited and unvisited links ◆ Links should be clearly named, and no link with the same name should go to a different page ◆ Links should be in a bulleted list and not tightly clustered ◆ Provide users enough time to read and use content ◆ Reduce the demand on working memory by supporting recognition rather than recall and provide fewer choices to the user ◆ Include multilingual facility for non-English speakers ◆ Search engines should cater to spelling errors ◆ Help users avoid and correct mistakes (i.e., error identification, error suggestion, error prevention, instructions) ◆ Provide easy to use online aiding and support documentation like tutorials ◆ Maximize compatibility with current and future user agents, including assistive technologies

Shopping Website Design

Shopping website design includes visual design, navigation design, information design, shopping process design, and others. Many older consumers are in the process of accepting and learning the e-commerce. The changes in senior citizen's cognitive abilities (processing speed, attention, memory, language, visuospatial, and executive function), perception abilities (vision and

hearing), and psychological attitude toward online retail affect their online shopping experience (Wang, 2012). Therefore, the design and optimization of online shopping platforms for the older customer's needs are necessary. The purpose of the recommendations is to help designers accommodate older customer's needs.

Visual Design

Visual design elements are justified by what they communicate (McKay, 2013). It awakens users' excitement and emotional appeal and leads to more satisfying engagement (Hasan, 2016). The visual design in a retail home page aims to leave an impression on consumers and make them want to use the website. The visual emphasis on a website's page draws the customers' attention to click on the link (Cox, 2011; Williams, 2015).

Design Recommendations:

(7.1) Integrate with the store identity

- Designers need to know that retail websites are not only for showing product/service but also integrate with the store identity and reflect the quality of the business (Lee, 2021; Shokurova, 2020).

(7.2) Identify the visual contents

- Designers need to identify the dominant visual content of the retail website (e.g., advertisement/exclusive deals/new product/store information/theme/features) on the home page to capture the older customer's attention and excitement (The Spritz Web Solutions, 2012). Then, the subordinate elements of the visual design will support users to use the website (e.g., product category link/search bar/navigation

tab/shopping cart/account link) or understand the main content (e.g., quick links to product or service's details: shop now/learn more/apply now) (Horton & Lynch, 2016).

(7.3) Create visual emphasis

- Patrick Cox (2011) pointed out dominance and subordination relationship is essential in creating emphasis on website design. Designers can implement visual emphasis and create visual appeal for the older customer in three directions：proportion (scale), contrast (color, shape, and size), and physical relationship (isolation, proximity, alignment，similarity, and continuance) (VWO, 2021; Williams, 2015).

Website Navigation

The website navigation design is based on the overall layout and framework of the web page. According to the Web Style Guide (2016), there are three website structures: sequence site, hierarchical site, and web-linked site. Sequence site is a simple linear structure, but it is not suitable for retail websites with multiple categories and sub-pages. A web-linked site is a flexible structure with multiple hyperlinks, but unorganized web-linked pages can cause confusion and uncertainty. The hierarchical website structure is clear and easy to follow (Horton & Lynch, 2016).

Design Recommendations:

(8.1) Consider hierarchical website structure

- When designing a retail website for older customers, designers should consider hierarchical website structure as a priority that shows diverse content and makes the shopping process clear and predictable.

(8.2) Avoid a deep hierarchy

- Designers need to avoid a deep hierarchy (e.g., sub-links more than 3-4 levels), which causes older customer confusion (Kurniawan & Zaphiris, 2015).

(8.3) Adding more helpful navigation links

- Designers consider adding more helpful navigation links in retail websites for older customers, including site-wide navigation (navigation links/tab navigation), current page navigation (product search filter), home page link, and error-tolerant search box (keyword search) (Horton & Lynch, 2016).

Sufficient Information

The commodity information on shopping websites influences consumer buying decisions. Sufficient information refers to the accuracy and quality of the products or services information displayed on the online shopping website. Accurate and complete information in online retail websites can build trust with customers (Ashraf et al., 2019). According to McKay's (2013) website user reading order, customers browse the most essential information and look for more details when they are interested.

Design Recommendations:

(9.1) Emphasize the most important information

- When designing merchandise display pages, the designer can emphasize the most important information (e.g., quality photography， product name, price, key features) to draw customers' attention and accompany it with important details that customers care about, such as reviews, functions, and delivery time. Customers will look for

more product details by clicking the link when they are interested (McKay, 2013).

(9.2) Use simplified terminology

- For new products or multifunctional products with features that older customers are unfamiliar with, the designer can use less technical and more simplified terminology to describe the features (Kurniawan & Zaphiris, 2005; McKay, 2013).

(9.3) Offer a comparison feature

- If retail websites offer a variety of similar products, designers can offer a comparison feature for older customers to see key similarities and differences.

Shopping Process and Others

The shopping process is an interaction between users and web pages, including browsing, making decisions, placing orders, checkout, delivery, and after-sales service. (Mallapragada et al., 2016). Designers also need to pay attention to customer service which refers to service, return handing, and return policy (Rita et.al, 2019) and protecting their users' privacy (Malhotra et al, 2004).

Design Recommendations:

(10.1) Provide help and guidance in shopping process

- Older consumers, as digital immigrants, started to use digital devices during adult life. Many are in the process of accepting and learning the online shopping (Wang et al., 2012). Designers can provide help and guidance to older consumers such as video tutorials, visual instructions during each step, visual indications to lead the shopping process (e.g., contrast color/size), live chat service with a store assistant, and

frequently asked questions page links.

(10.2) Provide a simple checkout process

- Designers can provide a simple, linear, and easy-to-follow checkout process and help older customers correct/avoid typing errors (e.g., error identification, error suggestion) (Kurniawan & Zaphiris, 2015).

(10.3) Provide additional order confirmation

- Provide additional options (e.g., text message, phone call) to confirm or update order/delivery information options (Irantaj & Huseynov, 2018).

(10.4) Protect their users' privacy

- Online business websites should pay attention to protect their users' privacy (user information protection/payment security) (Gideon et al., 2006; Malhotra et al, 2004).

(10.5) Simplify the after-sales process

- Simplify the after-sales process and provide live chat /phone customer service for product or service cancellation, return handing, refund, and consultation (McKay, 2013).

Unique Experience Design

The unique experience design directions in the brick-and-mortar store are also helpful in online store design (Figure 3.19). Online shopping platforms have no time and space limitations. They offer efficiency and convenience for customers who find it inconvenient to visit brick-and-mortar stores (Gefen et al., 2003). Compared to brick-and-mortar stores, online shopping has a lack of sensory experience, and customers can't try the merchandise instantly (Intersperience

Research, 2016). Designers need to recognize the limitation of online platforms and use the advantages.

This is the end of online retail experience design recommendations. The next section discusses design recommendations for multichannel retail.

3.2.4.3 Multichannel Retail Recommendations

In-store shopping and online shopping are the two main shopping channels for consumers (Sands, 2019), supplemented by other retail channels such as telephone ordering, mail orders, interactive television, catalog ordering (Tate, 2012). In Chapter 2, this article analyzes the retail history and current retail channels. McKinsey (2016) summarized retail history that print catalog, and television advertisements as the market approach. MuleSoft (2021) and Chi (2019) noted that retail stores expanding into multi-channels is an unstoppable retail industry trend. Tyler Tate's (2012) introduced cross-channel blueprint, a tool for planning user tasks across multiple channels. As a result, this article synthesizes a new multichannel retail user blueprint for older customers in Figure 3.23. This blueprint is to give designers information about the features of each shopping step in different retail channels. Thus, designers can base on the priority to choose the intergradation of multichannel retail.

Design Recommendations:

(11.1) Multichannel retail user blueprint is shown in Figure 3.23

Figure 3.23

Multichannel Retail User Blueprint

Retail channels	Lookup	Explore	Compare	Purchase	Service
Telephone Ordering	**Low priority** Voice search	**Low priority** Talk to customer support	**Low priority** Talk to customer support	**Medium priority** Order by phone Deliver to customers	**Medium priority** Telephone call service
Mail Orders	**Low priority** Table of contents Index	**Low priority** Check mail order catalogue	**Low priority** Contact agent	**Medium priority** Order by mail/phone Deliver to customers	**Medium priority** Mail/Telephone call service
Interactive Television	**N/A** Passively accept information	**High priority** Immersive video	**N/A** Not applicable	**Medium priority** Order by mail/phone Deliver to customers	**Medium priority** Telephone call service
Catalog Ordering	**Low priority** Table of contents Index	**High priority** Immersive photography	**Low priority** Flip pages back/forth	**Medium priority** Order by phone/ mail/ online website Deliver to customers	**Medium priority** Telephone/ mail/online service assistant
Online shopping	**High priority** Search box	**High priority** Browse by category	**High priority** Table view of selected items	**High priority** Online checkout Order by phone Deliver to customers	**High priority** Online assistant Live chat
In-store shopping	**High priority** Clear signage Store map Helpful staff	**High priority** Walk around aisles	**Medium priority** Compare side by side or ask staff	**High priority** Self-check out Attendant-assisted Self-pick up	**High priority** In-store assistant Walk-in service center

Note. Designers can check the priority in the shopping process when select retail channels.

(11.2) Economize the budget

- When brick-and-mortar stores want to explore the online retail business, designers can consider opening an online business in a retail platform (e.g., Amazon, Etsy), which can economize the budget over running a website.
- When online stores want to expand business in brick-and-mortar stores, designers can think about low-cost stores like pop-up stores or experience stores with less rent and inventory pressures.

(11.3) Other retail channels as supplementary

- Other retail channels can be added as supplementary: local stores that serve residents can add phone orders; catalogs are still delightful for older customers.

3.2.4.4 Summary of Design Recommendations

Figure 3.24 is a summary of the previous design recommendations for each segment of the shopping experience for older consumers.

Figure 3.24

Design Recommendations for Ideation Process

Design Recommendations for Ideation Process		
Categories:	Number	Design Recommendation:
3.2.4.1 Brick-and-Mortar Retail Experience Design	**Universal Design Seven Principles**	
Store Accessibility	1.1	Store accessibility design recommendations
Store Environment Store Layout	2.1	Optimize visual guidance to navigate
	2.2	Provide assistants in the shopping process
	2.3	Provide shortcuts, exits, or resting areas
	2.4	The layout is affected by the product features
Navigation	3.1	Provide a clear and compelling visual guide system
	3.2	Provide alternative navigation guidance
	3.3	Avoid overwhelming information in transition zones
	3.4	Observe target audience's (older consumer) shopping habits
Store Atmosphere	4.1	Provide a calm and relaxed atmosphere
	4.2	Enhance the sensory experience
	4.3	Evaluate the sensory stimulus
Unique Experience Design	5.1	Personalization
	5.2	Retailtainment
	5.3	Emotionalization
	5.4	Self-actualization
	5.5	Reflectiveness

3.2.4.2 Online Retail Experience Design	**McKay's (2013) website design principles**	
Website Accessibility	6.1	Online store accessibility design recommendations
Shopping Website Visual Design	7.1	Integrate with the store identity
	7.2	Identify the visual contents
	7.3	Create visual emphasis
Website Navigation	8.1	Consider hierarchical website structure
	8.2	Avoid a deep hierarchy
	8.3	Adding more helpful navigation links
Sufficient Information	9.1	Emphasize the most important information
	9.2	Use simplified terminology
	9.3	Offer a comparison feature
Shopping Process and Others	10.1	Provide help and guidance in the shopping process
	10.2	Provide a simple checkout process
	10.3	Provide additional order confirmation
	10.4	Protect their users' privacy
	10.5	Simplify the after-sales process
Unique Experience Design	5.1-5.5	The unique experience design directions in the brick-and-mortar store are also helpful in online store design
3.2.4.3 Multichannel Retail Design	**Brick-and-mortar shopping and online shopping are the two main shopping channels for consumers (Sands, 2019)**	
Multichannel Retail	11.1	Multichannel retail user blueprint
	11.2	Economize the budget
	11.3	Other retail channels as supplementary

3.2.5 Design Delivery

The last step of the design process is to evaluate the design concepts. Experience design is a comprehensive design that includes many factors. After going through the ideation process, designers sometimes get lost in the details. Before designers give final design concepts, they can always go back to the overall retail experience checklist (Figure 3.5 & Figure 3.7) in Section 3.2.2. If the design concepts can be tested in prototypes or implemented in a final design, designers can use Parasuraman, Zeithaml, and Berry's (1988) SERVQUAL service measuring methods to

evaluate the experience design. The author compiles SERVQUAL service measuring methods for testing older customer shopping experience design during the prototype or implementation stage:

- Tangibles: Can provide adequate facilities for older customers; The facilities match the store experience.
- Reliability: Can perform the promised shopping experience dependably and accurately.
- Responsiveness: Can help customers and provide prompt service.
- Assurance: Can respect local culture and inspire trust and confidence.
- Empathy: Can provide caring, individualized attention for older customers.

Chapter 4 Design Application

This chapter demonstrates a specific application of shopping experience design based on the design guidelines. This design project is based on an existing store; it aims to redesign the store experience specifically for older customers. The design will undergo the design process and apply the necessary design tools and recommendations.

4.1 Introduction

Before delving into the design, some background information must be considered. The redesign project involves Footaction, a shoe store located in Auburn Mall, selling athletic footwear, clothing, and accessories.

Footaction, a subsidiary of Footstar holding company, began expanding during the 1990s. Encyclopedia.com (n.d.) mentioned the company's perspectives as follows: "we deliver footwear fashion, quality and value to people in all walks of life, every day" (p. 8). In 1997, Footaction advertised products with an informational catalog and sponsored sports events to receive national television advertisements. Nowadays, it runs brick-and-mortar stores and an e-commerce site ("Footstar, Incorporated", n.d.).

Auburn is a college town in Alabama that has a strong sports culture. Census records indicate that, as of 2019, the town's estimated population was 66,259, and individuals 65 years old and above made up 8.1% of such population (U.S. Census Bureau, 2019).

Based on field research, Footaction's store (Figure 4.1) located in Auburn Mall has a space area of 47ft by 64ft. The store sells various types of sports shoes for all ages, including small-sized

shoes for children above two years old. It targets young people who love sneakers and residents and need sports shoes and sportswear. Older customers are not its major customer group; nevertheless, they are welcome to shop in the store.

Figure 4.1

Footaction Store and Floor Plan

In Auburn Mall, there are four competing stores. Belk, a department store recognized by older customers, sells casual shoes that are not for exercise purposes. Footlocker and Journeys sell fashionable footwear and target younger customers. Shoe Dept Encore sells casual and basic sports shoes.

Footaction has three advantages in the middle and senior age market:

1. It can satisfy multiple shopping needs. Its products on sale have varying price ranges and are suitable for customers who enjoy fashion styles, including sports, versatile shoes, and

comfortable casual wear.

2. It is situated on the main mall hallway next to Ole Times, a popular restaurant among local families. The restaurant's waiting area is next to Footaction's entrance. Such a location provides good middle-aged and senior customer flow.
3. Its perspectives and potential market support designers toward improving shopping experience for local older customers.

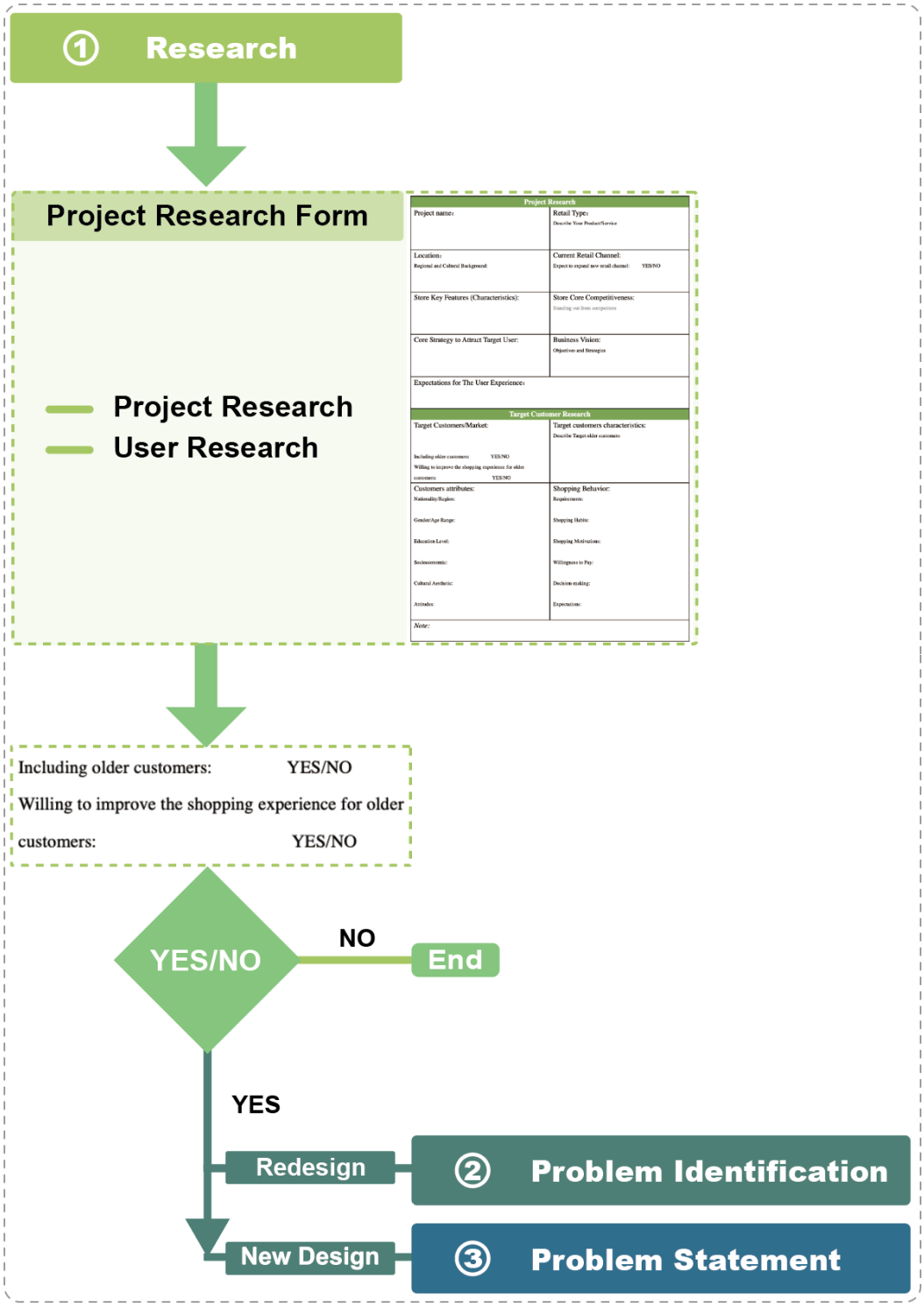
4.2 Design Process

Research

Following the background research about the store Footaction, the designer follows the design guidelines in Chapter 3 to improve current shopping experience for older customers. Using the Store Experience Design Process Flow shown in Figure 3.2 of the guideline, with the first steps shown here in Figure 4.2, the first step is to conduct research. Details of the research outcomes are shown in the project research form, as presented in Figure 4.3.

Figure 4.2

Step 1 Research Process



Note: See a full-size version of this image in Appendix 1.

Figure 4.3

Footaction Store Project Research Form

Project Research	
Project name： *Footaction Sports Shoes Local Store*	Retail Type： Describe Your Product/Service *Sell sports shoes and clothes*
Location： Regional and Cultural Background: *Located in Auburn Mall at the center of a small town, a university town with a sports culture*	Current Retail Channel: Expect to expand new retail channel: YES/NO *Brick and mortar store and online website store*
Store Key Features (Characteristics): *Fashion/ sneakers culture/ sells different types of sports shoes and sportswear/ varied price ranges*	Store Core Competitiveness: Standing out from competitors *High-quality product/ fashion interior/ next to mall restaurants waiting area*
Core Strategy to Attract Target Users: *Various styles of sports shoes and fashion sneakers*	Business Vision: *The Company's purpose is to inspire and empower youth culture worldwide by fueling a shared passion for self-expression and creating unrivaled experiences at the heart of the global sneaker community.*
Expectations for User Experience： *Elevate the customer experience/ invest for long-term growth/ drive productivity/ satisfy our customers every time*	
Target Customer Research	
Target Customers/Market: *Young people who love sneakers/ Residents who need sports shoes and sportswear* Including older customers: YES/NO Willing to improve the shopping experience for older customers: YES/NO	Target customers' characteristics: Describe target older customers *Enjoy fashion style/ like sports (exercise, hiking, workout)/looking for comfortable clothes/ versatile shoes/ everyday casual wear.* *Older customers are not the company's major customer groups. Nevertheless, they are welcome to shop in the store.*
Customers' attributes: Nationality/Region: *Auburn, AL* Gender/Age Range: *All age ranges* Education Level:	Shopping Behavior: Requirements: *Sneakers/ shoes for sports or daily exercise/ everyday casual wear* Shopping Habits: *Shop around the mall and browse the stores/ Pick up*

Unknown (College town-have students and professors) Socioeconomic: *Unknown* Cultural Aesthetic: *Diverse* Attitudes: *Positive*	*order in-store* Shopping Motivations: *Need the products/ shopping as entertainment/social activities (fun things to do with family and friends)* Willingness to Pay: *Browsing > Purchase* Decision-making: *Unknown* Expectations: *Get the product they want/ good price/ good experience*

In the early research phase, the designer identified the local Footaction store which has a strong sneakers culture background and sells many types of sports shoes and sportswear in various price ranges. Their customers may enjoy fashion style, like sports (exercise, hiking, workout). Or they look for comfortable clothes, versatile shoes, and everyday casual wear.

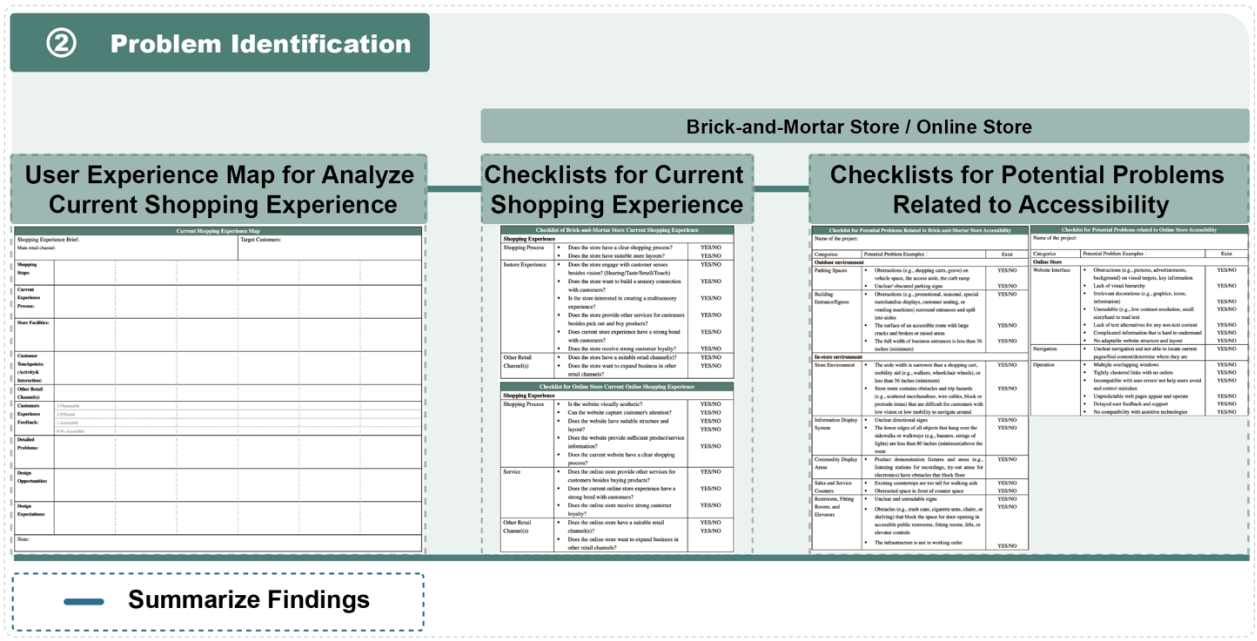
Footaction in Auburn, AL is an example of a store that has both a physical and online presence, as well as potential for increasing its customer base of middle age and older adults. However, the design brief and implementation described here was completed by the designer/author without input or feedback from the store management or customers to propose design concepts that can improve the shopping experience for their older customers to the Footaction store.

This is a redesign project and will follow that section of the guideline. The next step is problem identification (Figure 4.4).

Problem Identification

Figure 4.4

Step 2 Problem Identification Process



Note: See a full-size version of this image in Appendix 1.

This design project uses an experience map and a problem checklist. After examining the current shopping experience, the designer fills in the user experience map (Figure 4.5).

Figure 4.5

User Experience Map for Analyzing Current Shopping Experience

Current Shopping Experience Map						
Shopping Experience Brief: *Footaction Sports Shoes Auburn Local Store* Main retail channel: *Brick-and-mortal store and online store*				Target Customers: *Young people who love sneakers/ Local residents who need sports shoes and sports wear*		
Shopping Steps:	***1. Enter The Store***	***2. Start Browsing***	***3. Look for Product***	***4. Try and Test***	***5. Purchase***	***6. After Purchase***
Current Experience Process:	*See the product display from the windows /* *Enter the store*	*Customers can walk around the store and check out the products*	*Customers check the clothing shelves themselves/* *Sales will help customers look for right size*	*Customers can sit on the chairs and look in the mirrors when try the shoes*	*Pay in front of the cashier desk*	*Return in store*
Store Facilities:	*Main entrance /* *Emergency exit for the building/* *Products display tools (tables/ clothing models)*	*Product display shelfs and tables* *Chairs / Mirrors*	*Product display shelves on the walls / Portable shelves*	*Chairs and Mirrors*	*Checkout counter / Cashier desk*	*Checkout counter*
Customer Touchpoints: (Activity& Interaction)	*See the product display from outside*	*Walk around the store / mainly walk around the shelf (on three side of walls)*	*Look for the product they want/* *Sales staffs help customer to find products*	*Try out the products to see whether is suitable or not* *Feel the materials*	*Customer can see the fashion accessories around the checkout area*	*Communicate with store sales*
Other Retail Channel(s)	*Online website (App)* *Open the website*	*Browsing products on the website, same price as store*	*Use search box or search filter*	*Choose product based on their sizes*	*Online checkout system* *Wait for delivery or local pick up*	*Ship back or return in store*
Customers Experience Feedback:	3 Pleasurable 2 Efficient 1 Accessible 0 No Accessible					
Detailed Problems:	*The products on the display tables are inconspicuous and unattractive*	*Don't have visual focus, main products are display on the wall* *No extra product information (details only on the product's tag)*	*Sales can help search for product sizes, but they didn't give many dressing tips or suggestions*	*Don't have a fitting room* *Customers can only try the sizes* *Only provide small Mirrors on the ground for shoes*	*Customer will think about: "Is this a good price? Is online website cheaper than store? Do I get a discount?"*	*Customers need to keep the receipts, and come back to store*
Design Opportunities:	*Advertise new features of the product/show store (brand) features*	*Based on product feature showing customers more product key features / more product information*	*Display matching product (clothing; shoes; accessories)* *Give some fashion matching suggestions*	*Provide an opportunity to test out the products (more than try size)*	*Same price as store website /* *Better experience than online retail website*	*Connect online account with instore membership*
Design Expectations:	*Attract customers*	*Lead customers to walk around the store (not only around the shelves)*	*Increase purchase rate /* *Distinguish from other stores*	*Show product features /* *Increase purchase rate*	*Simple, safe, and convenient*	*Fast, simple, convenient* *Customers will return next time*
Note:						

Note: See the full-size version in Appendix 4

In Figure 4.5, the findings are listed in rows specifying the problems, design opportunities, and design expectations. In this case, useful information includes the following:

- Advertise new product features and present various store (brand) features to attract older customers.
- Customers need to perceive more key product features. The store currently does not have

a visual focus and no extra product information (i.e., the details are presented only on the product's tag).

- Salespersons should be able to provide help in searching for product sizes, and also provide dressing tips and suggestions (which they currently do not). Related products (e.g., clothing, shoes, accessories) should be displayed and salespeople should provide some fashion matching suggestions.
- Provide opportunities to test out the products more than merely trying sizes.
- Connect the local store with its online website and enhance in-store experience.

Based on the designer's evaluation of the brick-and-mortar store's current shopping experience checklist (Figure 4.6), store layout, sensory experience (store atmosphere), and store-and-customer connection must improve.

Figure 4.6

Brick-and-Mortar Store Current Shopping Experience Checklist

Checklist of Brick-and-Mortar Store Current Shopping Experience		
Shopping Experience		
Shopping Process	◆ Does the store have a clear shopping process? ◆ Does the store have suitable store layouts?	YES/NO YES/NO
Instore Experience	◆ Does the store engage with customer senses besides vision? (Hearing/Taste/Smell/Touch) ◆ Does the store want to build a sensory connection with customers? ◆ Is the store interested in creating a multisensory experience? ◆ Does the store provide other services for customers besides pick out and buy products? ◆ Does current store experience have a strong bond with customers? ◆ Does the store receive strong customer loyalty?	YES/NO YES/NO YES/NO YES/NO YES/NO YES/NO
Other Retail Channel(s)	◆ Does the store have a suitable retail channel(s)? ◆ Does the store want to expand business in other retail channels?	YES/NO YES/NO

Following the designer's evaluation for online shopping experience, the checklist (Figure 4.7) indicates that Footaction's website must have its visual design improved to capture customers' attention and enhance shopping experience.

Figure 4.7

Online Store Current Shopping Experience Checklist

Checklist for Online Store Current Online Shopping Experience		
Shopping Experience		
Shopping Process	◆ Is the website visually aesthetic?	YES/NO
	◆ Can the website capture customer's attention?	YES/NO
	◆ Does the website have suitable structure and layout?	YES/NO
	◆ Does the website provide sufficient product/service information?	YES/NO
	◆ Does the current website have a clear shopping process?	YES/NO
Service	◆ Does the online store provide other services for customers besides buying products?	YES/NO
	◆ Does the current online store experience have a strong bond with customers?	YES/NO
	◆ Does the online store receive strong customer loyalty?	YES/NO
Other Retail Channel(s)	◆ Does the online store have a suitable retail channel(s)?	YES/NO
	◆ Does the online store want to expand business in other retail channels?	YES/NO

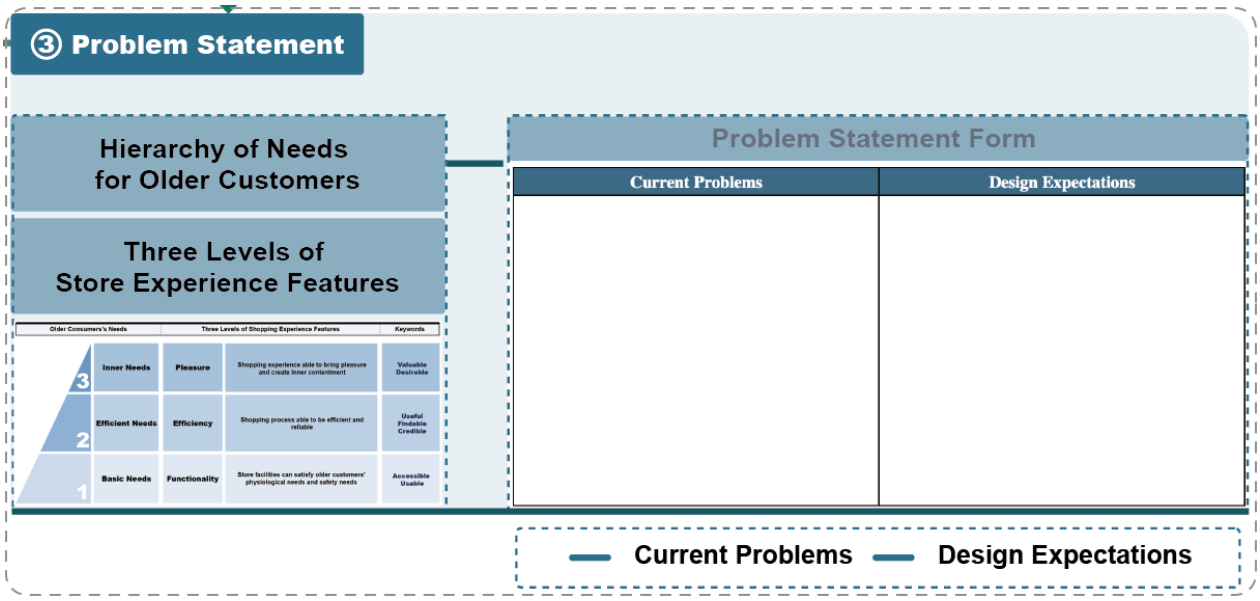
The designer also reviews the above checklists for potential problems related to accessibility. This reveals that the project does not have brick-and-mortar store accessibility problems, and Footaction's website does not pose difficulties in accessibility.

Following the research and problem identification process, designers must summarize the detected problems and determine design expectations in step 3 (Figure 4.8).

Problem Statement

Figure 4.8

Step 3 Problem Statement Process



The hierarchy of needs for the shopping experience of older customers and the three levels of store experience features was considered and the designer then summarized the current problems and design expectations in a problem statement form (Figure 4.9).

Figure 4.9

Problem Statement for Footaction Project

Current Problems	Design Expectations
Brick-and-Mortar Store: • *The products on the display tables are inconspicuous and unattractive.* • *The store does not have visual focuses, and its primary products are displayed on walls. In addition, it has unsuitable layouts for product display.* • *The store does not provide additional product*	*1.1 Improve store layout design to create visual focus.* *1.2 Advertise new product features and show store (brand) features to attract older customers.* *1.3 Based on product features, show customers more product key features or product information.* *1.4 Display related products (e.g., clothing, shoes, accessories) and provide some fashion matching suggestions.*

information (i.e., product details are displayed only on the tag). • *Customers can only try the available sizes. Only small mirrors are provided on the ground for trying shoes.* • *Inadequate sensory experience.* • *Salespersons can help search for product sizes, but they do not provide that many dressing tips or suggestions.* • *The store does not establish strong connections with older customers.* **Online Website:** • *The website does not capture customers' attention; the advertisements are dispersed, the information display is not well-organized, and the homepage is too long.* • *The website does not have a clear shopping process.*	*1.5 Engage with older customers' sensory experience.* *1.6 Provide opportunities to test out the products more than merely trying sizes.* *1.7 Establish connections with customers to increase their engagement or loyalty while bringing pleasure.* *1.8 Connect the local store with its online website and enhance in-store experience.* *1.9 Improve the website's visual design to capture older customers' attention.* *1.10 Improve the website's shopping process.*

This provided the designer with some design directions to discover during the ideation process.

For the brick-and-mortar store: How can Footaction improve its store layout design? How can it attract older customers? How can it engage with older customers through sensory experience? How can it establish connections with older customers to increase their engagement?

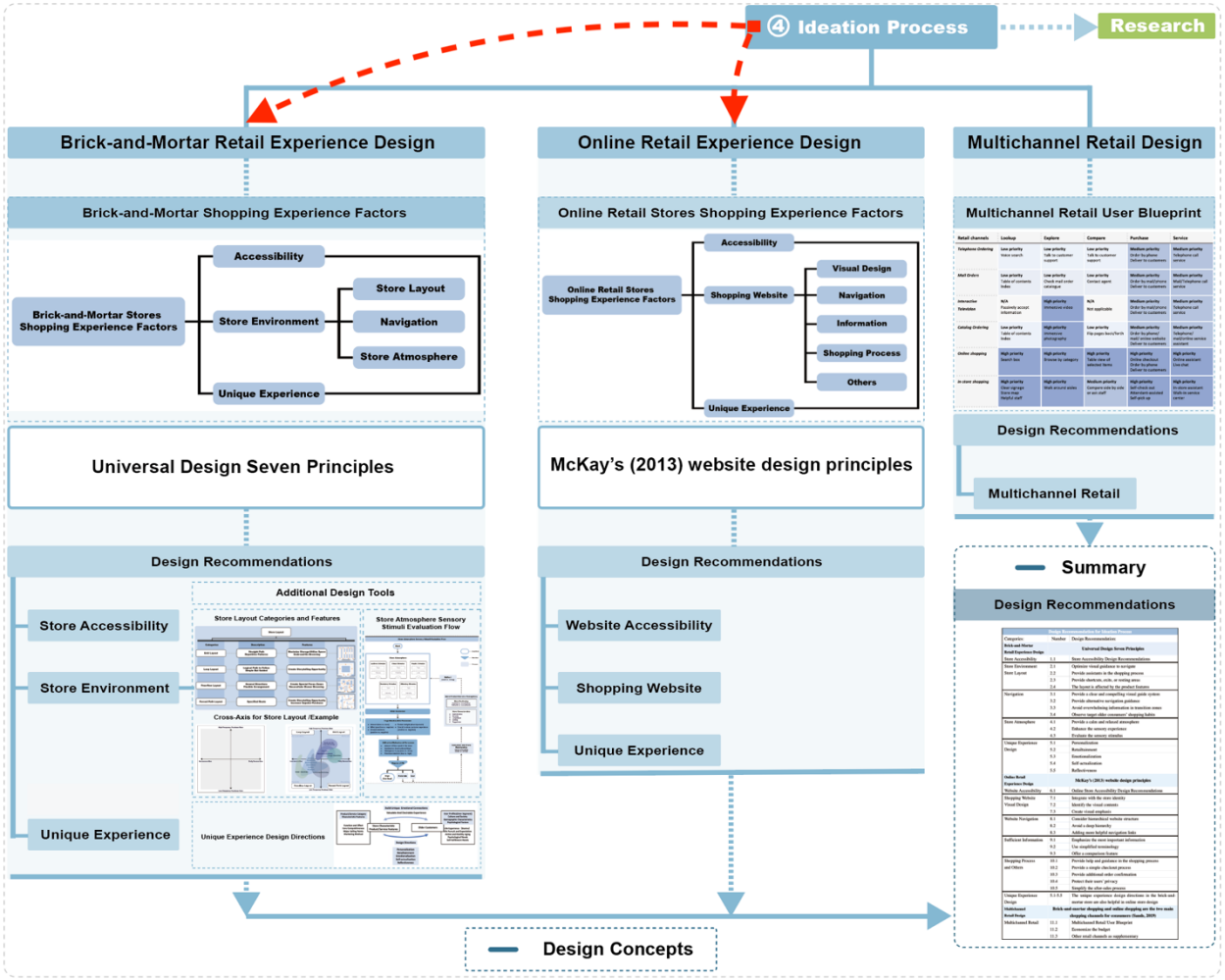
For the shopping website: How can Footaction improve its visual design to capture older customers' attention? How can it improve its shopping process for older customers?

The next step is the ideation process, in which the designer looked for design ideas from the design recommendations (Figure 4.10).

Ideation Process

Figure 4.10

Step 4 Ideation Process



Note: See full-size version of this image in Appendix 1

Firstly, the designer began with brick-and-mortar retail experience in the left column. Based on the problem statement form, the designer paid attention to store environment and unique experience designs.

This redesign project follows the Universal Design Seven Principles (1997), a comprehensive

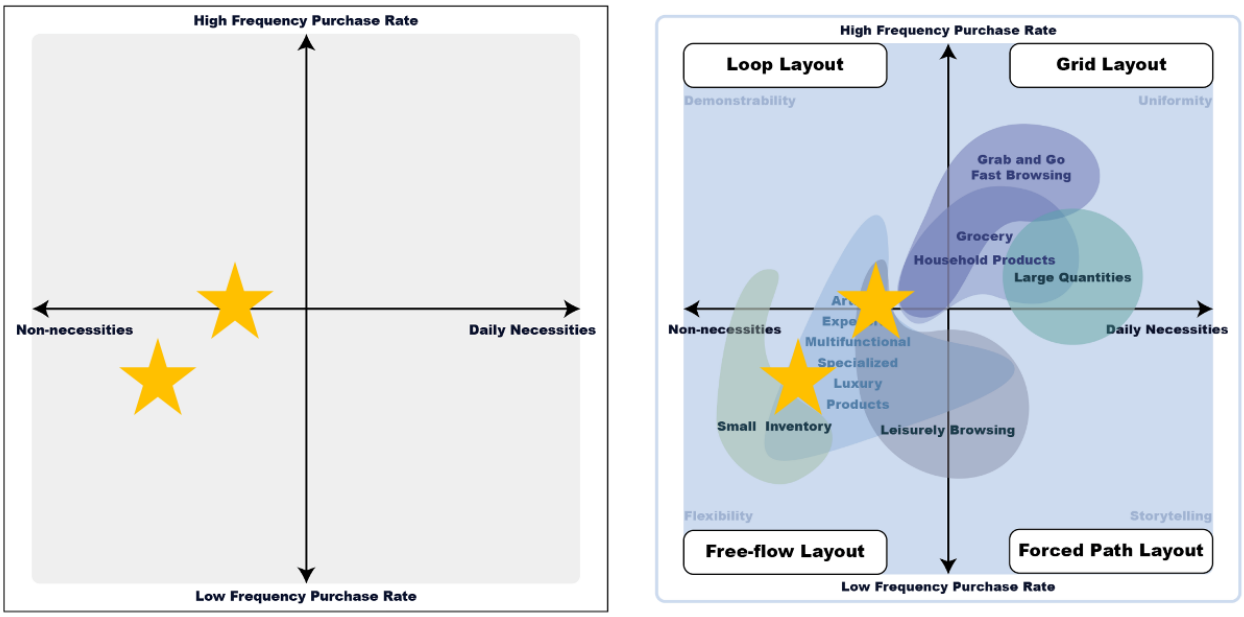
design guide for brick-and-mortar retail for older customers. Following the reminder of principle 6 (Low Physical Effort), the designer suggested improvements for the product display shelves such that older customers can easily pick up merchandise from higher shelves instead of relying on store assistants every time.

Store Layout

In the in-store layout design, the designer applied the following Design Recommendations for Ideation Process from the guideline (refer to Figure 3.24): (2.1) Optimize visual guidance to navigate and (2.4) The layout is affected by the product features. The designer applied visual elements and a clear layout path to lead older customers to walk around the store. Based on the store layout categories and the cross-axis of product features, the designer identified that the suitable store layouts are loop layout and free-flow layout (Figure 4.11).

Figure 4.11

Cross-Axis of Footaction's Product Features



Note. The stars symbolize sports shoes and fashionable sneakers.

In this concept, the designer planned to utilize a combination of loop and free-flow layouts. In the center, the free-flow layout can create special focus zones to depict the latest products and events and capture older customers' attention.

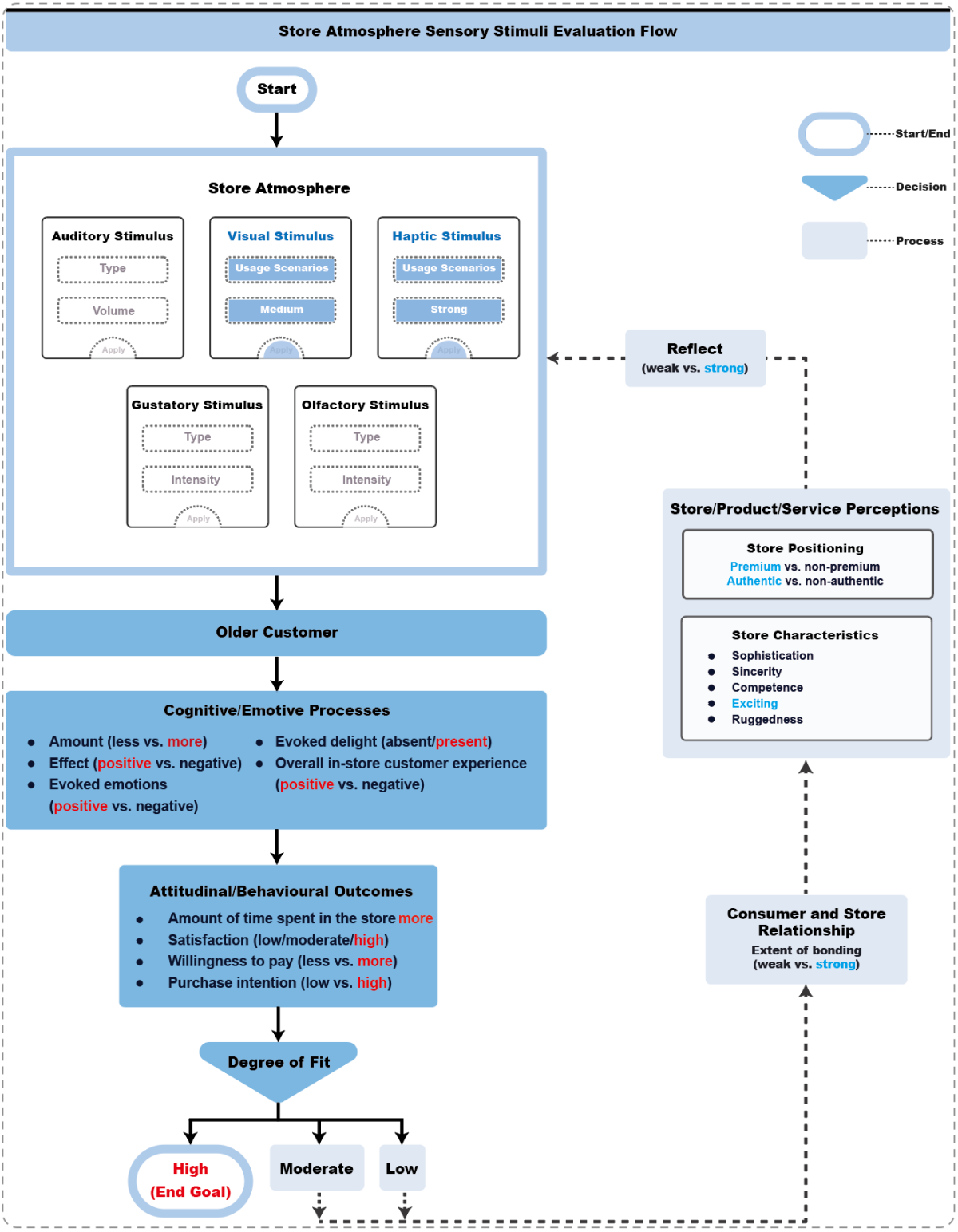
Store Atmosphere

Based on the problem statement for this Footaction project, the designer's intent was to build a sensory experience for older customers. The designer also considered providing opportunities to test out the products that are more than merely trying sizes. The designer applied the design recommendation (refer to Figure 3.24): (4.2) Enhance the sensory experience, and integrates the types of sportswear (aiming for daily exercise/ playing basketball/ running) with various usage scenarios (e.g., public lawn/ play court/ running track). Various materials were applied to enhance

haptic and visual stimuli. Therefore, when older customers test out the shoes, they can feel their performance. Visual stimuli match with store perceptions, including sporty and exciting feelings. The designer evaluated sensory stimulation with the help of the guide for store atmosphere sensory stimuli evaluation flow (Figure 4.12). For the designer's perspective, the haptic and visual stimuli of imitating usage scenarios provided positive feedback to store the experience.

Figure 4.12

Store Atmosphere Sensory Stimuli Evaluation Flow



Store's Unique Experience Design

The design intent was to establish connections with older customers and increase their engagement. The goal of building a unique experience is meant to provide opportunities to develop emotional connections with older customers and provide a valuable and desirable experience to elevate their enjoyment.

To realize this goal, the designer noted that the Footaction store aims to inspire sneaker culture. The historical development of sneakers is part of this culture, as retro fashion styles are still popular and loved by the young. Considering that Footaction sells some retro-style sneakers and that older customers tend to be nostalgic, the designer decided to follow the design recommendations (5.3) Emotionalization and (5.5) Reflectiveness. 5.3 aims to care for older customers' feelings and inspire their positive emotions. Meanwhile, a unique store experience through 5.5 delivers a message, reflects customer self-image, and evokes a sense of acceptance and contentment.

The designer wished to evoke older customers' nostalgia and inspire them to share their retro fashion styles. Retro trend sharing activities allow these customers and their family members to share their old photos in the Footaction store or website. This activity was aimed not only to share cultures among generations and encourage older customers to recall their good old days, but also to promote the sales of retro-style sneakers. Thus, in the Footaction store, the designer recommended to set up an area to sell retro-inspired sneakers, mainly to honor sneaker history culture and to provide opportunities for older customers to share their stories.

Online Website Design

In online retail experience research, the project designer observed that Footaction must

reorganize the website layout in visual design and make the shopping process more clear for older customers.

Visual Design

The Footaction website is consistent with McKay's website design principles. Utilizing the guideline's visual design recommendation (refer to Figure 3.24): (7.1) Integrate with the store identity, the designer used blue color, the theme color of the store, in the web design to unify the store identity. The current website has many advertisements vertically lined-up in the homepages, which causes a long page to read and navigate. The project designer referenced guideline recommendations (7.2) Identify the visual contents, and (7.3) Create visual emphasis to redesign the web pages. Based on these recommendations, the designer refined the layout of the elements and used visual emphasis (the changes in the physical relationship) to capture the older customer's attention. Images of the redesigned website are shown later in this implementation.

Website Navigation

Based on the guideline's navigation recommendation (8.3) Adding more helpful navigation links, the designer incorporated visual clues at the bottom of the webpage to help older customers use the website. The designer also modified the search filter in order for older customers to choose their desired products conveniently. Figure 4.24 Shows how these visual clues are valuable to older customers.

Shopping Process and Others

This redesign project also acquired ideas from the guideline shopping process design recommendation (10.1) to provide help and visual instructions during the shopping process.

In addition, the design fulfills design expectation 1.8 to connect the local store with its online website. The website design was combined with the brick-and-mortar store's retro trend sharing activities, allowing older customers and their family members to share their old photos on Footaction's website. This activity aims to share cultures among generations, encourage older customers to recall their good old days, and promote the sales of retro-style sneakers. The applied design recommendations are indicated with red checkmarks in Figure 4.13.

Figure 4.13

Applied Design Recommendations Summary

Design Recommendations for Ideation Process			
Categories:		Number	Design Recommendation:
3.2.4.1 Brick-and-Mortar Retail Experience Design	✓		**Universal Design Seven Principles**
Store Accessibility		1.1	Store accessibility design recommendations
Store Environment Store Layout	✓	2.1	Optimize visual guidance to navigate
		2.2	Provide assistants in the shopping process
		2.3	Provide shortcuts, exits, or resting areas
	✓	2.4	The layout is affected by the product features
Navigation		3.1	Provide a clear and compelling visual guide system
		3.2	Provide alternative navigation guidance
		3.3	Avoid overwhelming information in transition zones
		3.4	Observe target audience's (older consumer) shopping habits
Store Atmosphere		4.1	Provide a calm and relaxed atmosphere
	✓	4.2	Enhance the sensory experience
	✓	4.3	Evaluate the sensory stimulus
Unique Experience Design		5.1	Personalization
		5.2	Retailtainment
	✓	5.3	Emotionalization
		5.4	Self-actualization
	✓	5.5	Reflectiveness
3.2.4.2 Online Retail Experience Design			**McKay's (2013) website design principles**
Website Accessibility		6.1	Online store accessibility design recommendations

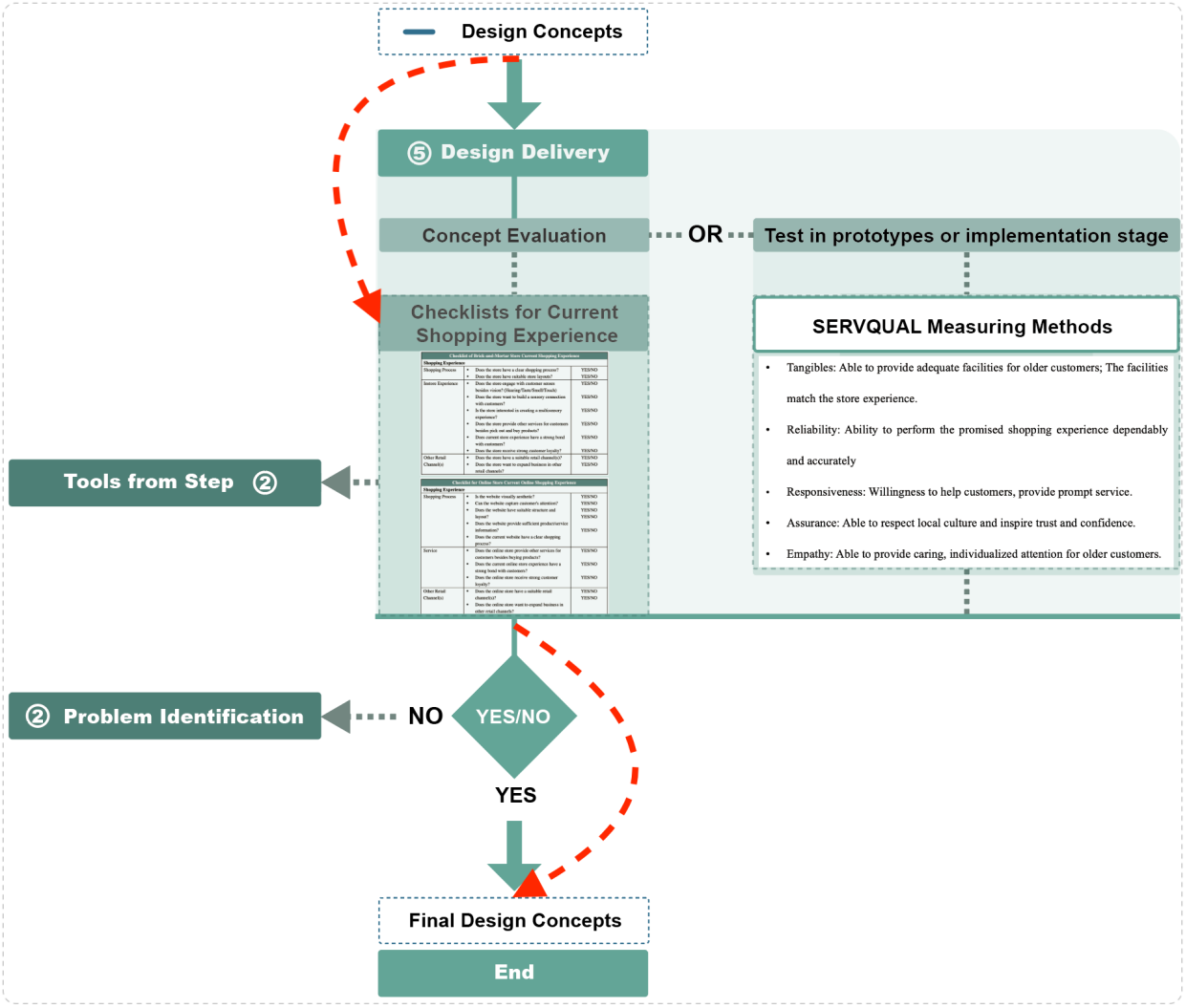
Shopping Website Visual Design	✓	7.1	Integrate with the store identity
	✓	7.2	Identify the visual contents
	✓	7.3	Create visual emphasis
Website Navigation		8.1	Consider hierarchical website structure
		8.2	Avoid a deep hierarchy
	✓	8.3	Adding more helpful navigation links
Sufficient Information		9.1	Emphasize the most important information
		9.2	Use simplified terminology
		9.3	Offer a comparison feature
Shopping Process and Others	✓	10.1	Provide help and guidance in the shopping process
		10.2	Provide a simple checkout process
		10.3	Provide additional order confirmation
		10.4	Protect their users' privacy
		10.5	Simplify the after-sales process
Unique Experience Design		5.1-5.5	The unique experience design directions in the brick-and-mortar store are also helpful in online store design
3.2.4.3 Multichannel Retail Design	**Brick-and-mortar shopping and online shopping are the two main shopping channels for consumers (Sands, 2019)**		
Multichannel Retail		11.1	Multichannel retail user blueprint
		11.2	Economize the budget
		11.3	Other retail channels as supplementary

Design Delivery

Figure 4.14 shows the design delivery process. After developing the design concepts, the designer sought to evaluate the design ideas by applying the current shopping experience checklists from step 2 of the guideline (refer to Figure 3.5 and Figure 3.7) to examine the design concepts (Figure 4.15).

Figure 4.14

Design Delivery Process



Note: The SERVQUAL Measuring Methods are detailed in Section 3.2.5 Design Delivery

Based on the design concepts, the designer filled in the evaluation form in Figure 4.15 and Figure 4.16. From the designer's perspective, the results show the design concepts help improve older customers' brick-and-mortar and online website shopping experiences. Firstly, the prioritized store layout and sensory experience design enhance store environment. Secondly, retro

trend activities help establish connections with older customers. Finally, the website design concepts enhance the website's visual design and shopping process.

Figure 4.15

Current Shopping Experience Checklists for Concept Evaluation A

Checklist of Brick-and-Mortar Store Current Shopping Experience		
Shopping Experience		
Shopping Process	◆ Does the store have a clear shopping process? ◆ Does the store have suitable store layouts?	YES/NO YES/NO
Instore Experience	◆ Does the store engage with customer senses besides vision? (Hearing/Taste/Smell/Touch) ◆ Does the store want to build a sensory connection with customers? ◆ Is the store interested in creating a multisensory experience? ◆ Does the store provide other services for customers besides pick out and buy products? ◆ Does current store experience have a strong bond with customers? ◆ Does the store receive strong customer loyalty?	YES/NO YES/NO YES/NO YES/NO YES/NO YES/NO
Other Retail Channel(s)	◆ Does the store have a suitable retail channel(s)? ◆ Does the store want to expand business in other retail channels?	YES/NO YES/NO

Figure 4.16

Current Shopping Experience Checklists for Concept Evaluation B

Checklist for Online Store Current Online Shopping Experience		
Shopping Experience		
Shopping Process	◆ Is the website visually aesthetic? ◆ Can the website capture customer's attention? ◆ Does the website have suitable structure and layout? ◆ Does the website provide sufficient product/service information? ◆ Does the current website have a clear shopping process?	YES/NO YES/NO YES/NO YES/NO YES/NO
Service	◆ Does the online store provide other services for customers besides buying products? ◆ Does the current online store experience have a strong bond with customers? ◆ Does the online store receive strong customer loyalty?	YES/NO YES/NO YES/NO
Other Retail Channel(s)	◆ Does the online store have a suitable retail channel(s)? ◆ Does the online store want to expand business in other retail channels?	YES/NO YES/NO

4.3 The Footaction Design Final Delivery

Brick-and-Mortar Store Design

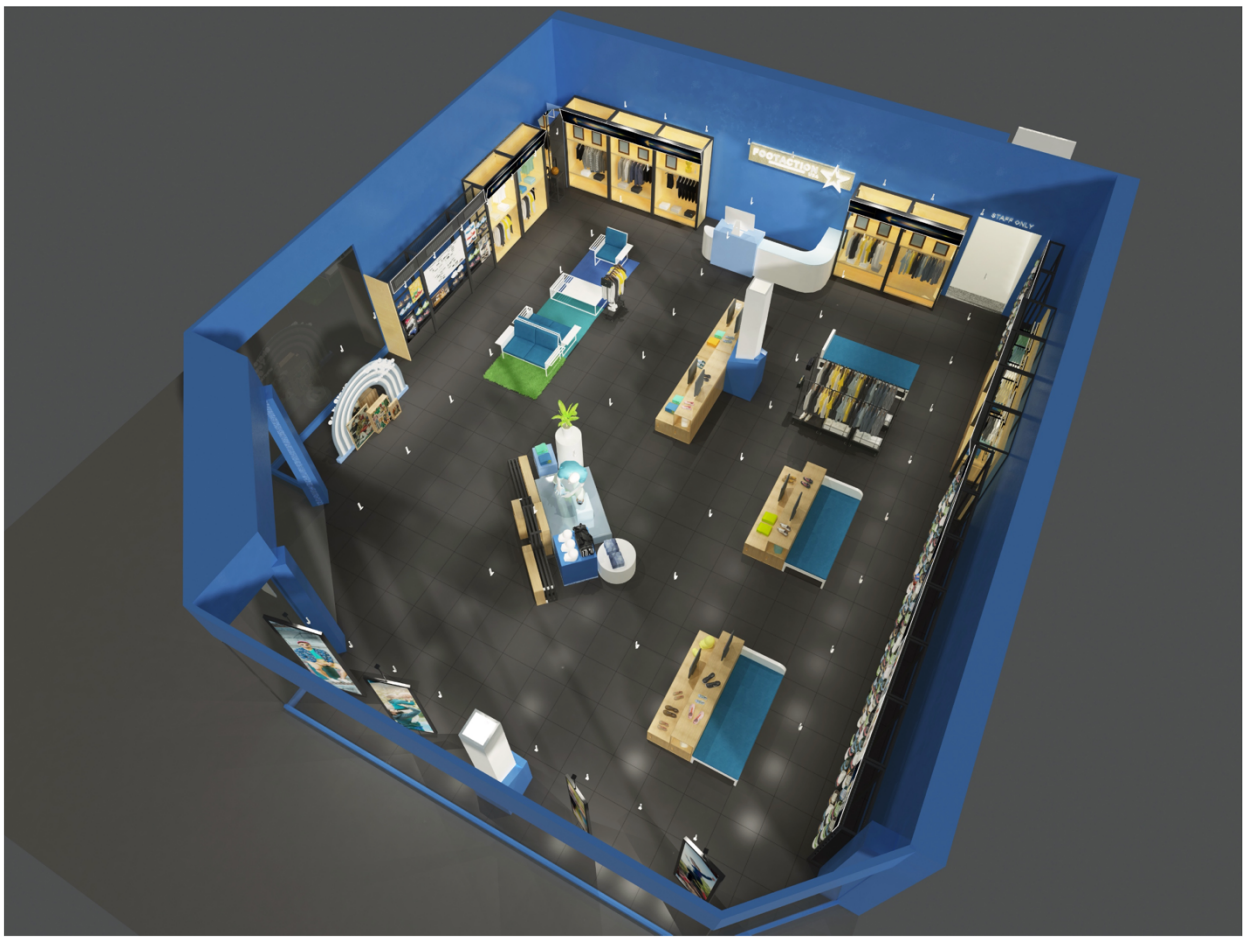
Based on the cross-axis analysis of Footaction's product features, the new store design incorporates a combination of loop and free-flow layouts (Figure 4.17). Additionally, the designer rearranged the product display tables and provided clear paths to lead older customers to walk around the store.

In the store center, the designer created visual focus zones to demonstrate the latest products

and capture customers' attention (Figure 4.18) from the outside loop path. On the right window area, the designer used banners to depict the store features, including product usage scenarios and consumer diversity (Figure 4.19). The right side is designed for retro trend sharing activities; on that side, the customers can see shared old photos through the windows.

Figure 4.17

Footaction Store's Top View



Note. Applied guideline design recommendations: (2.1) Optimize visual guidance to navigate; (2.4) The layout is affected by the product features.

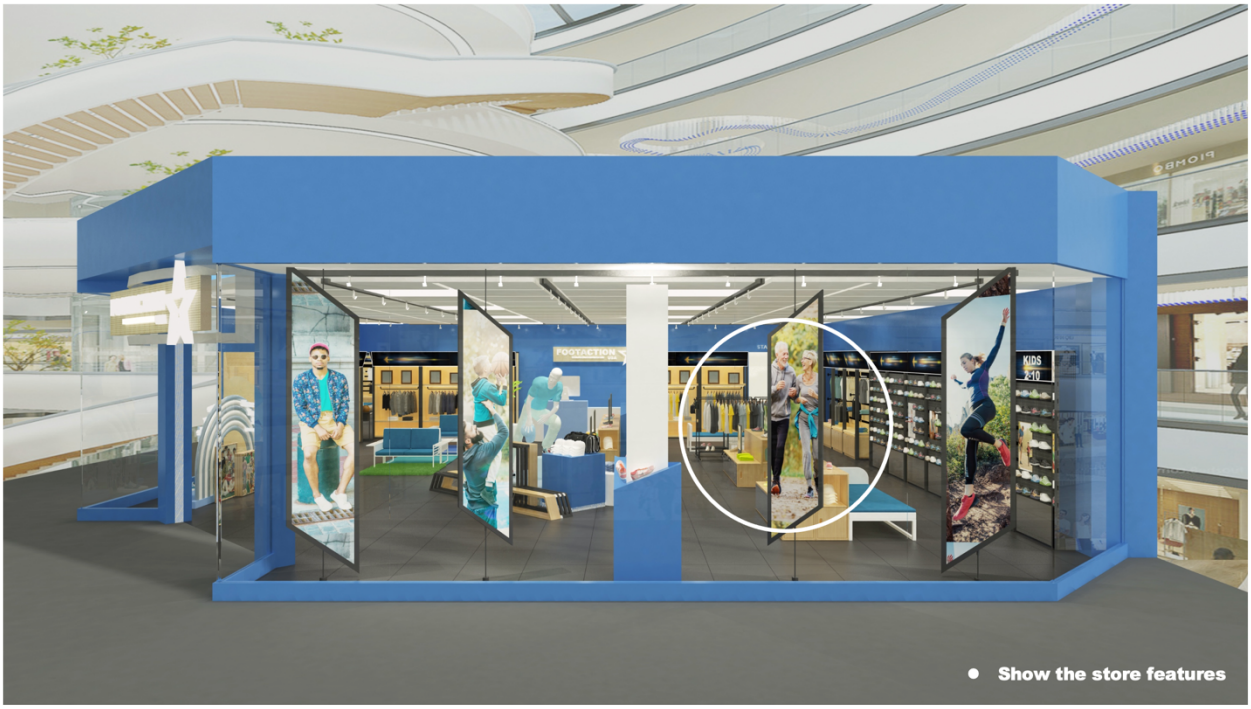
Figure 4.18

Footaction Store's Front View

Note. Meets design expectation (1.1) Improve store layout design to create visual focus.

Figure 4.19

Footaction Store's Side View



Note. Meet design expectation:1.2 Show store (brand) features to attract older customers.

Based on Universal Design Principles 6 (refer to Chapter 3 Figure 3.13): Low Physical Effort, the designer intends to make the shopping process efficient and comfortable. Thus, inside the store, the designer chose two-layer tables for product display and adjustable shelves for older customers to pick up the products easily. The design also provides a space for advertising the product features and presenting related products (Figure 4.20).

Figure 4.20

Footaction Store's Right Side

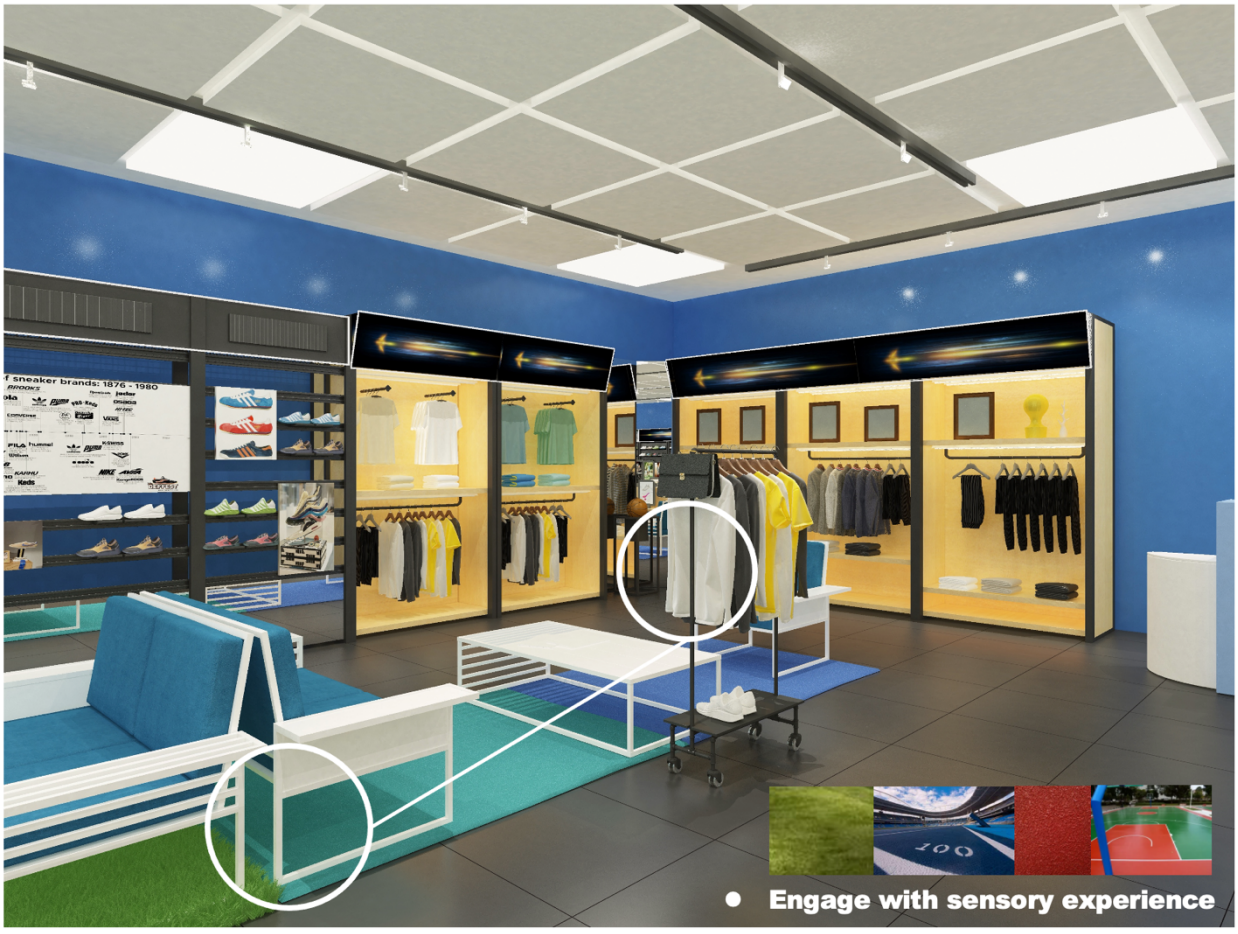
Note. Meets design expectations (1.3) Based on product features, show customers more product key features or product information, and (1.4) Display related products (e.g., clothing, shoes, accessories) and provide some fashion matching suggestions.

In the left store area, the layout provides a place for the store's salespeople to communicate with the customers and discuss fashion matching suggestions. Additionally, the designer has enhanced sensory experience by building small usage scenarios in which older customers can test out the products and feel their performance. Such usage scenarios match with the store's sporty

and exciting feelings.

Figure 4.21

Footaction Store's Left Side A



Note. Meets design expectations (1.4) Display related products (e.g., clothing, shoes, accessories) and provide some fashion matching suggestions, (1.5) Engage with older customers' sensory experience, and (1.6) Provide opportunities to test out the products more than merely trying sizes.

The left area also includes retro trend sharing activities that allow older customers or their family members to share their old photos in the Footaction store. These activities aim to encourage more middle-aged and senior customers' engagement and promote the sales of retro-style sneakers.

Figure 4.22

Footaction Store's Left Side B

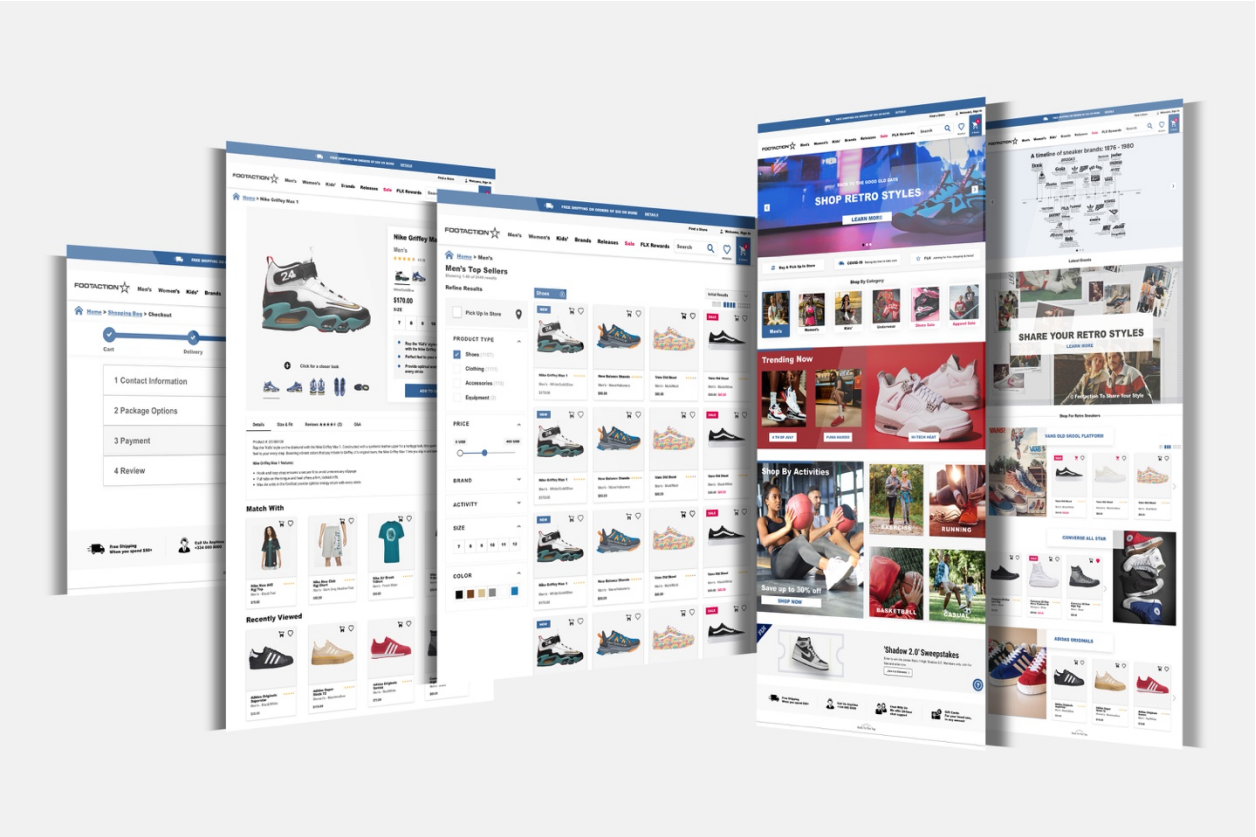
Note. Applies design recommendations (5.3) Emotionalization and (5.5) Reflectiveness. Meets design expectation (1.7) Establish connections with customers to increase their engagement/loyalty.

Online Website Design

Footaction's proposed online shopping website is focused on visual design, navigation design, and shopping process design.

Figure 4.23

Footaction's Proposed Online Shopping Website Overview



The website applies the same theme color as the store to integrate with the store identity. The design details are in Figures 4.24, 4.25, 4.26, and 4.27. At the end of each design description, the designer lists the applied design recommendation number. In Footaction's online shopping homepage, the designer has reorganized the website advertisement and product category. Thus, when older customers open the website, they can see the latest products or events. However, the designer tries to keep the page consistent while avoiding a long homepage. Based on the navigation recommendation of (8.3), the designer includes a navigation link at the bottom of the page to help older customers in navigating back to the top of the webpage.

Figure 4.24

Footaction's Online Shopping Website - Homepage

Figure 4.25

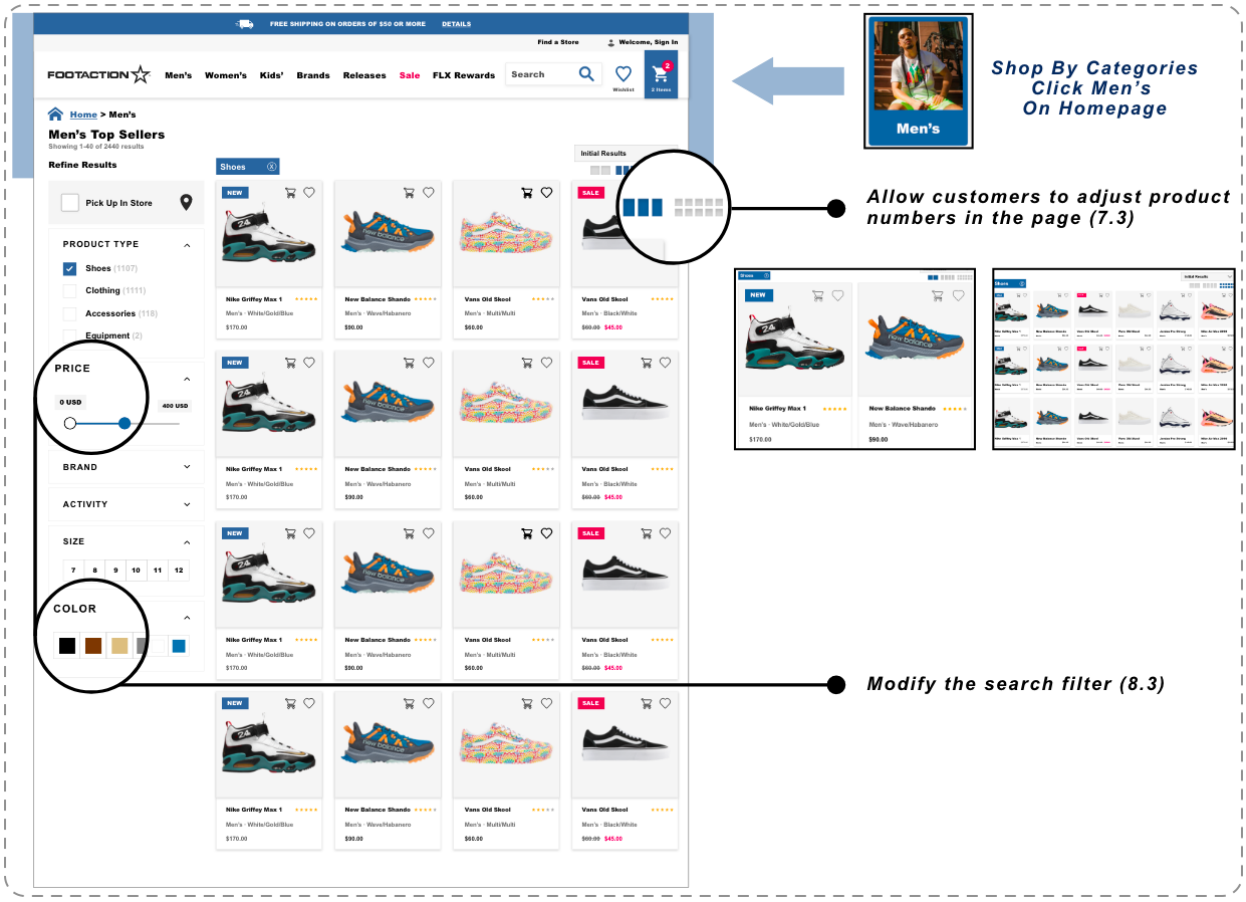
Footaction's Online Shopping Website - Retro Styles Page

Note. Meets design expectation 1.8 Connect the local store with its online website.

Based on recommendation (7.3) Create visual emphasis, this design allows older customers to adjust the proportions of the displayed products.

Figure 4.26

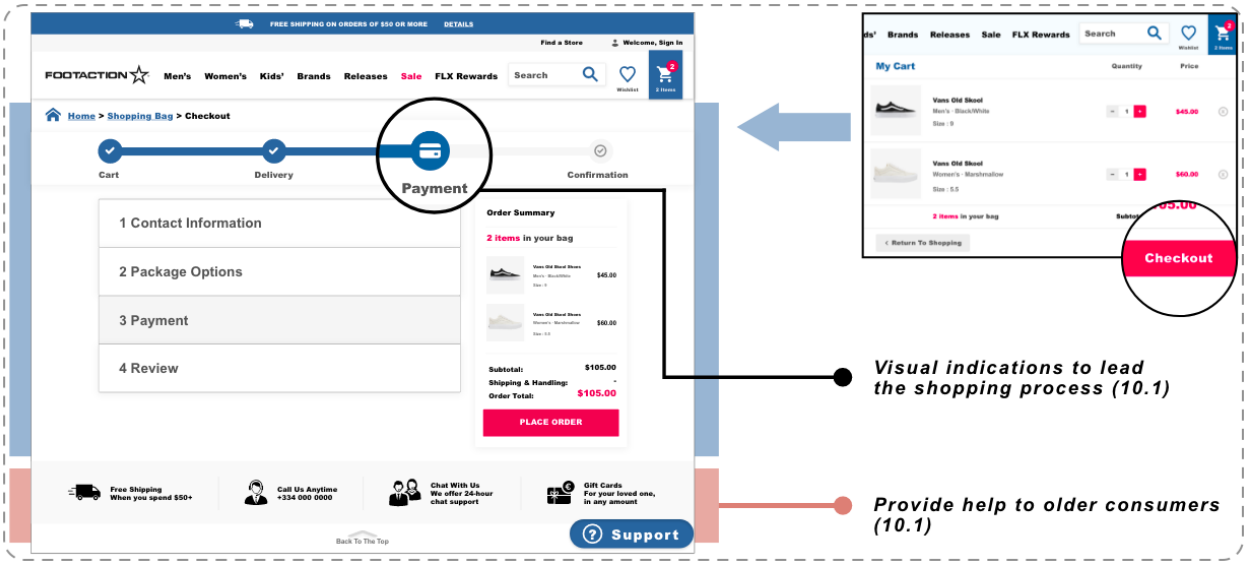
Footaction's Online Shopping Website - Products Page



Note. Based on recommendation (refer to Figure 3.24*)*: (8.3) Adding more helpful navigation links, the design modifies the search filter to help older customers to navigate the webpages (Figure 4.26).

Figure 4.27

Footaction's Online Shopping Website - Checkout Page



Note: Visual indications in each shopping step lead older customers to go through the shopping process seamlessly. Based on recommendation (refer to Figure 3.24): (10.1) Provide help and guidance in the shopping process.

Chapter 5 Conclusion

The aging population has been growing with their demands expanding, thus bringing new consumption power to the retail market. This study provides various innovative multichannel shopping experience design guidelines for designing for the aging society.

This study analyses the characteristics, socioeconomic status, and shopping requirements of the middle-aged and senior population. It also conducts an in-depth analysis of retail development and various retail channels. Finally, it compiles design guidelines by examining the aging population, retail design, and experience design methods.

The design guidelines aim to assist designers in designing a conducive shopping experience for the aging population, including design research, opportunities discovery, ideation, and evaluation. The ideation process primarily focuses on providing design recommendations in three directions: brick-and-mortar stores, online retail stores, and multichannel retail. It also provides diagrams and checklists as additional tools to the said recommendations.

Designers can download the store experience design guidelines and the design tools in Google Drive: https://drive.google.com/drive/folders/1pYpBKsLDncsVE6wQVv7PbF-zwpqakbRs?usp=sharing

This study involves a redesign project to demonstrate the application of shopping experience design guidelines. The results illustrate that these guidelines can help designers understand older customers and establish an age-friendly shopping experience.

The author considers multichannel shopping experience design guidelines as valuable tools for divergent thinking and concept generation. These guidelines provide designers with design frameworks and directions on retail experience, enabling clear thinking.

The design guidelines are fundamentally focused on older customers' interactions with the store and experience design, which are only a component of a comprehensive retail service system. With the development of retail-based technology, the retail industry may change and generate more convenient retail channels in the future. Accordingly, the author of this study believes that the guidelines can be valuable in further exploring retail service design and establish new retail channels in the future.

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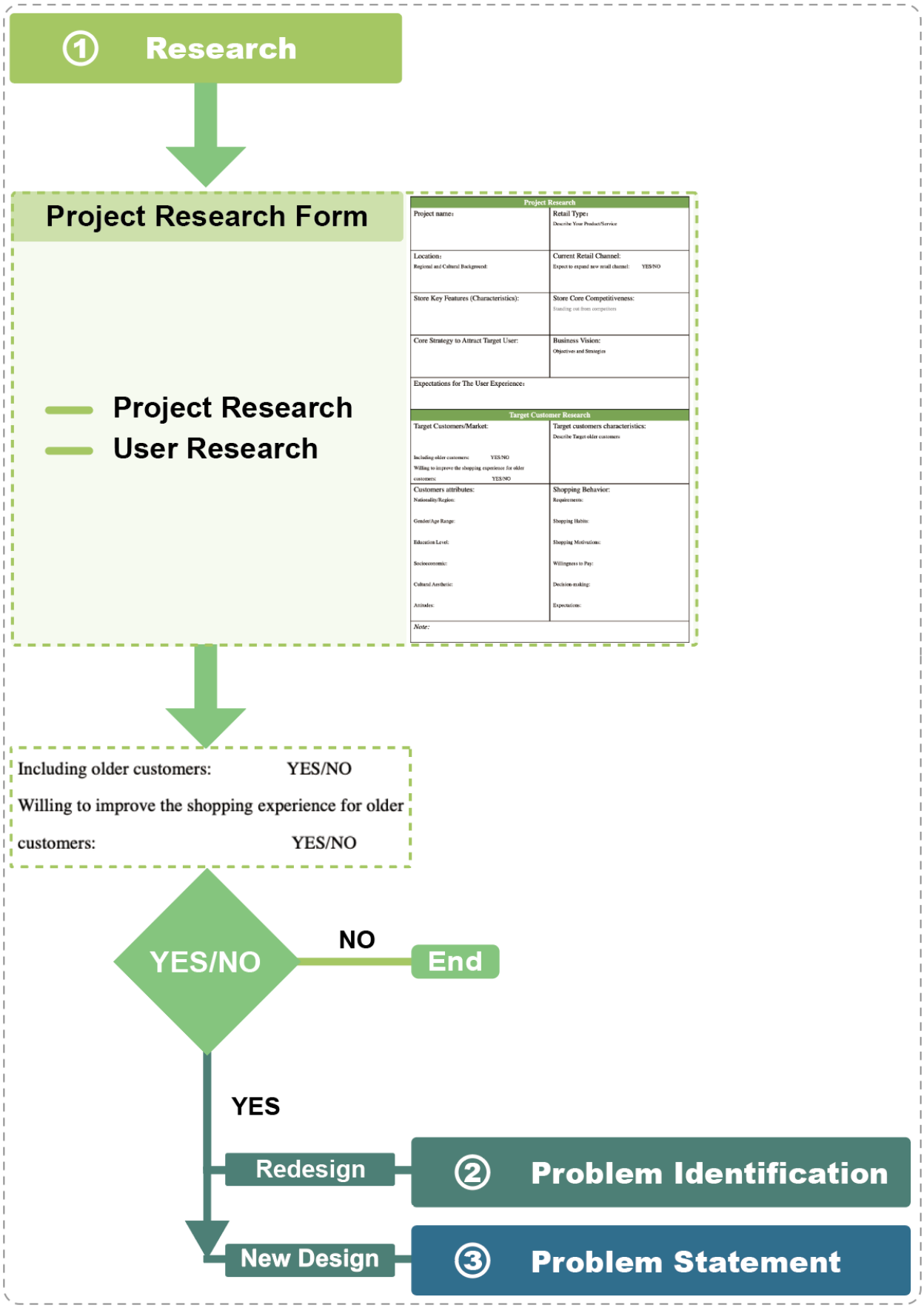
Appendix 1: Store Experience Design Process Flow Details



② Problem Identification

Brick-and-Mortar Store / Online Store

User Experience Map for Analyze Current Shopping Experience

Current Shopping Experience Map								
Shopping Experience Brief: Main retail channel:						Target Customers:		
Shopping Steps:								
Current Experience Process:								
Store Facilities:								
Customer Touchpoints: (Activity & Interaction)								
Other Retail Channel(s)								
Customers Experience Feedback:	3 Pleasurable 2 Efficient 1 Accessible 0 No Accessible							
Detailed Problems:								
Design Opportunities:								
Design Expectations:								
Note:								

Checklists for Current Shopping Experience

Checklist of Brick-and-Mortar Store Current Shopping Experience		
Shopping Experience		
Shopping Process	• Does the store have a clear shopping process? • Does the store have suitable store layouts?	YES/NO YES/NO
Instore Experience	• Does the store engage with customer senses besides vision? (Hearing/Taste/Smell/Touch) • Does the store want to build a sensory connection with customers? • Is the store interested in creating a multisensory experience? • Does the store provide other services for customers besides pick out and buy products? • Does current store experience have a strong bond with customers? • Does the store receive strong customer loyalty?	YES/NO YES/NO YES/NO YES/NO YES/NO YES/NO
Other Retail Channel(s)	• Does the store have a suitable retail channel(s)? • Does the store want to expand business in other retail channels?	YES/NO YES/NO

Checklist for Online Store Current Online Shopping Experience		
Shopping Experience		
Shopping Process	• Is the website visually aesthetic? • Can the website capture customer's attention? • Does the website have suitable structure and layout? • Does the website provide sufficient product/service information? • Does the current website have a clear shopping process?	YES/NO YES/NO YES/NO YES/NO YES/NO
Service	• Does the online store provide other services for customers besides buying products? • Does the current online store experience have a strong bond with customers? • Does the online store receive strong customer loyalty?	YES/NO YES/NO YES/NO
Other Retail Channel(s)	• Does the online store have a suitable retail channel(s)? • Does the online store want to expand business in other retail channels?	YES/NO YES/NO

Checklists for Potential Problems Related to Accessibility

Checklist for Potential Problems Related to Brick-and-Mortar Store Accessibility		
Name of the project:		
Categories:	Potential Problem Examples：	Exist
Outdoor environment		
Parking Spaces	• Obstructions (e.g., shopping carts, grave) on vehicle space, the access aisle, the curb ramp • Unclear/ obscured parking signs	YES/NO YES/NO
Building Entrance/Egress	• Obstructions (e.g., promotional, seasonal, special merchandise displays, customer seating, or vending machines) surround entrances and spill into aisles • The surface of an accessible route with large cracks and broken or raised areas • The full width of business entrances is less than 36 inches (minimum)	YES/NO YES/NO YES/NO
In-store environment		
Store Environment	• The aisle width is narrower than a shopping cart, mobility aid (e.g., walkers, wheelchair wheels), or less than 36 inches (minimum) • Store route contains obstacles and trip hazards (e.g., scattered merchandises, wire cables, block or protrude items) that are difficult for customers with low vision or low mobility to navigate around	YES/NO YES/NO
Information Display System	• Unclear directional signs • The lower edges of all objects that hang over the sidewalks or walkways (e.g., banners, strings of lights) are less than 80 inches (minimum)above the route	YES/NO YES/NO
Commodity Display Areas	• Product demonstration fixtures and areas (e.g., listening stations for recordings, try-out areas for electronics) have obstacles that block floor	YES/NO
Sales and Service Counters	• Existing countertops are too tall for walking aids • Obstructed space in front of counter space	YES/NO YES/NO
Restrooms, Fitting Rooms, and Elevators	• Unclear and unreadable signs • Obstacles (e.g., trash cans, cigarette urns, chairs, or shelving) that block the space for door opening in accessible public restrooms, fitting rooms, lifts, or elevator controls • The infrastructure is not in working order	YES/NO YES/NO YES/NO

Checklist for Potential Problems related to Online Store Accessibility		
Name of the project:		
Categories	Potential Problem Examples：	Exist
Online Store		
Website Interface	• Obstructions (e.g., pictures, advertisements, background) on visual targets, key information • Lack of visual hierarchy • Irrelevant decorations (e.g., graphics, icons, information) • Unreadable (e.g., low contrast resolution, small size)/hard to read text • Lack of text alternatives for any non-text content • Complicated information that is hard to understand • No adaptable website structure and layout	YES/NO YES/NO YES/NO YES/NO YES/NO YES/NO YES/NO
Navigation	• Unclear navigation and not able to locate current pages/find content/determine where they are	YES/NO
Operation	• Multiple overlapping windows • Tightly clustered links with no orders • Incompatible with user errors/ not help users avoid and correct mistakes • Unpredictable web pages appear and operate • Delayed user feedback and support • No compatibility with assistive technologies	YES/NO YES/NO YES/NO YES/NO YES/NO YES/NO

Summarize Findings

③ Problem Statement

Hierarchy of Needs for Older Customers

Three Levels of Store Experience Features

Older Consumers's Needs		Three Levels of Shopping Experience Features		Keywords
3	Inner Needs	Pleasure	Shopping experience able to bring pleasure and create inner contentment	Valuable Desirable
2	Efficient Needs	Efficiency	Shopping process able to be efficient and reliable	Useful Findable Credible
1	Basic Needs	Functionality	Store facilities can satisfy older customers' physiological needs and safety needs	Accessible Usable

Problem Statement Form

Current Problems	Design Expectations

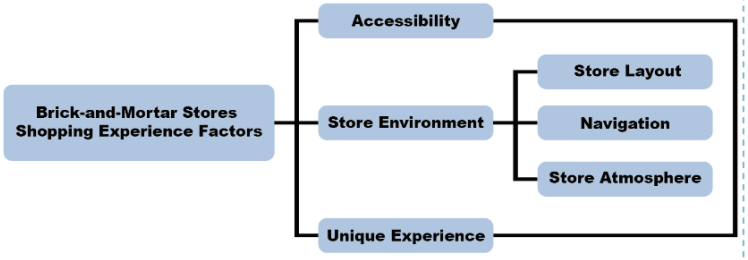
Current Problems — **Design Expectations**

④ Ideation Process

Research

Brick-and-Mortar Retail Experience Design

Brick-and-Mortar Shopping Experience Factors



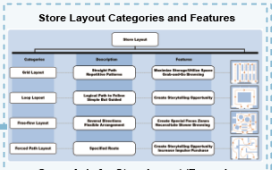
Universal Design Seven Principles

Design Recommendations

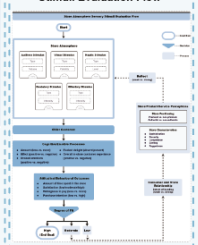
- Store Accessibility
- Store Environment
- Unique Experience

Additional Design Tools

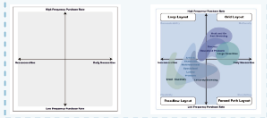
Store Layout Categories and Features



Store Atmosphere Sensory Stimuli Evaluation Flow



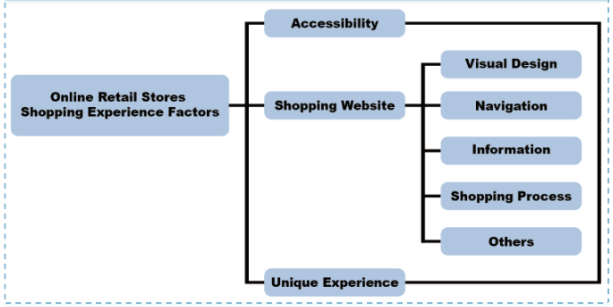
Cross-Axis for Store Layout /Example



Unique Experience Design Directions

Online Retail Experience Design

Online Retail Stores Shopping Experience Factors



McKay's (2013) website design principles

Design Recommendations

- Website Accessibility
- Shopping Website
- Unique Experience

Multichannel Retail Design

Multichannel Retail User Blueprint

Retail channels	Lookup	Explore	Compare	Purchase	Service
Telephone Ordering	Low priority Voice search	Low priority Talk to customer support	Low priority Talk to customer support	Medium priority Order by phone Deliver to customers	Medium priority Telephone call service
Mail Orders	Low priority Table of contents Index	Low priority Check mail order catalogue	Low priority Contact agent	Medium priority Order by mail/phone Deliver to customers	Medium priority Mail/Telephone call service
Interactive Television	N/A Passively accept information	High priority Immersive video	N/A Not applicable	Medium priority Order by mail/phone Deliver to customers	Medium priority Telephone call service
Catalog Ordering	Low priority Table of contents Index	High priority Immersive photography	Low priority Flip pages back/forth	Medium priority Order by phone/ mail/ online website Deliver to customers	Medium priority Telephone/ mail/online service assistant
Online shopping	High priority Search box	High priority Browse by category	High priority Table view of selected items	High priority Online checkout Order by phone Deliver to customers	High priority Online assistant Live chat
In-store shopping	High priority Clear signage Store map Helpful staff	High priority Walk around aisles	Medium priority Compare side by side or ask staff	High priority Self-check out Attendant-assisted Self-pick up	High priority In-store assistant Walk-in service center

Design Recommendations

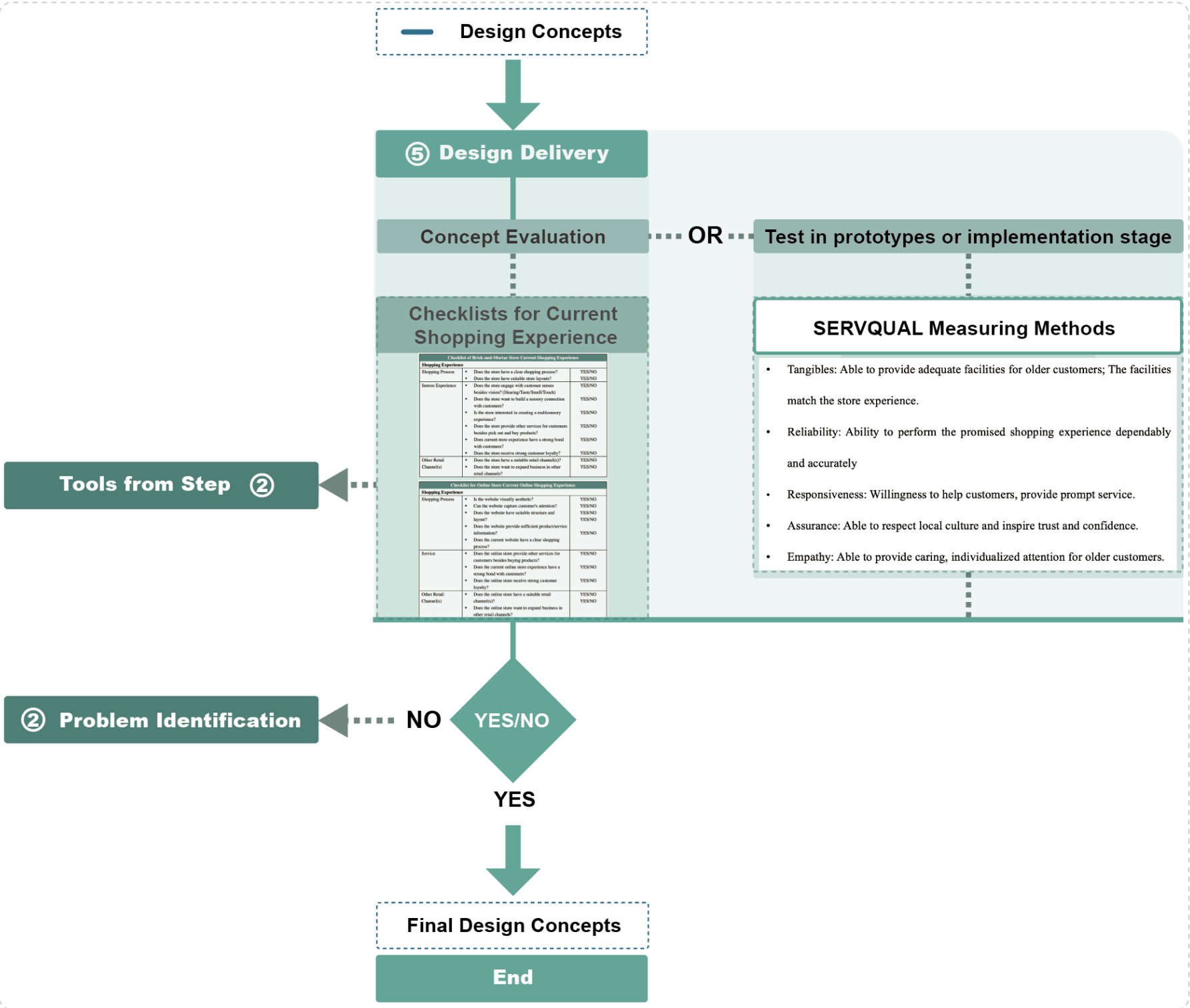
Multichannel Retail

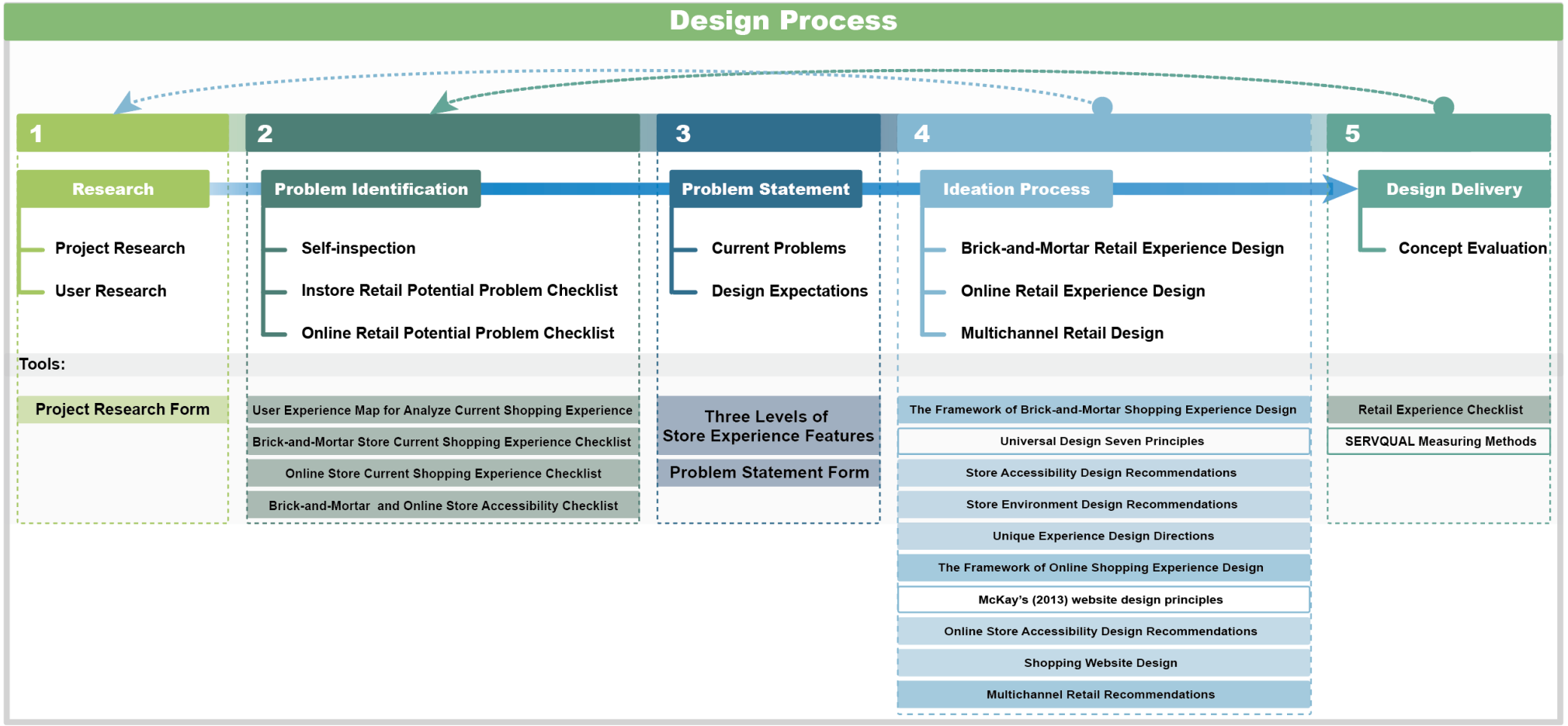
Summary

Design Recommendations

Design Recommendation for Ideation Process		
Categories:	Number	Design Recommendation:
Brick-and-Mortar Retail Experience Design		Universal Design Seven Principles
Store Accessibility	1.1	Store Accessibility Design Recommendations
Store Environment	2.1	Optimize visual guidance to navigate
Store Layout	2.2	Provide assistants in the shopping process
	2.3	Provide shortcuts, exits, or resting areas
	2.4	The layout is affected by the product features
Navigation	3.1	Provide a clear and compelling visual guide system
	3.2	Provide alternative navigation guidance
	3.3	Avoid overwhelming information in transition zones
	3.4	Observe target older consumers' shopping habits
Store Atmosphere	4.1	Provide a calm and relaxed atmosphere
	4.2	Enhance the sensory experience
	4.3	Evaluate the sensory stimulus
Unique Experience Design	5.1	Personalization
	5.2	Retailtainment
	5.3	Emotionalization
	5.4	Self-actualization
	5.5	Reflectiveness
Online Retail Experience Design		McKay's (2013) website design principles
Website Accessibility	6.1	Online Store Accessibility Design Recommendations
Shopping Website	7.1	Integrate with the store identity
Visual Design	7.2	Identify the visual contents
	7.3	Create visual emphasis
Website Navigation	8.1	Consider hierarchical website structure
	8.2	Avoid a deep hierarchy
	8.3	Adding more helpful navigation links
Sufficient Information	9.1	Emphasize the most important information
	9.2	Use simplified terminology
	9.3	Offer a comparison feature
Shopping Process and Others	10.1	Provide help and guidance in the shopping process
	10.2	Provide a simple checkout process
	10.3	Provide additional order confirmation
	10.4	Protect their users' privacy
	10.5	Simplify the after-sales process
Unique Experience Design	5.1-5.5	The unique experience design directions in the brick-and-mortar store are also helpful in online store design
Multichannel Retail Design		Brick-and-mortar shopping and online shopping are the two main shopping channels for consumers (Sands, 2019)
Multichannel Retail	11.1	Multichannel Retail User Blueprint
	11.2	Economize the budget
	11.3	Other retail channels as supplementary

Design Concepts


Design Concepts
⑤ Design Delivery
Concept Evaluation
OR
Test in prototypes or implementation stage
Checklists for Current Shopping Experience
SERVQUAL Measuring Methods
Tangibles: Able to provide adequate facilities for older customers; The facilities match the store experience.
Reliability: Ability to perform the promised shopping experience dependably and accurately
Responsiveness: Willingness to help customers, provide prompt service.
Assurance: Able to respect local culture and inspire trust and confidence.
Empathy: Able to provide caring, individualized attention for older customers.
Tools from Step ②
② Problem Identification
NO
YES/NO
YES
Final Design Concepts
End


Design Process
1
Research
Project Research
User Research
2
Problem Identification
Self-inspection
Instore Retail Potential Problem Checklist
Online Retail Potential Problem Checklist
3
Problem Statement
Current Problems
Design Expectations
4
Ideation Process
Brick-and-Mortar Retail Experience Design
Online Retail Experience Design
Multichannel Retail Design
5
Design Delivery
Concept Evaluation
Tools:
Project Research Form
User Experience Map for Analyze Current Shopping Experience
Brick-and-Mortar Store Current Shopping Experience Checklist
Online Store Current Shopping Experience Checklist
Brick-and-Mortar and Online Store Accessibility Checklist
Three Levels of Store Experience Features
Problem Statement Form
The Framework of Brick-and-Mortar Shopping Experience Design
Universal Design Seven Principles
Store Accessibility Design Recommendations
Store Environment Design Recommendations
Unique Experience Design Directions
The Framework of Online Shopping Experience Design
McKay's (2013) website design principles
Online Store Accessibility Design Recommendations
Shopping Website Design
Multichannel Retail Recommendations
Retail Experience Checklist
SERVQUAL Measuring Methods

Appendix 2: Project Research Form

Project Research	
Project name： 	Retail Type： Describe Your Product/Service
Location： Regional and Cultural Background:	Current Retail Channel: Expect to expand new retail channel: YES/NO
Store Key Features (Characteristics):	Store Core Competitiveness: Standing out from competitors
Core Strategy to Attract Target User:	Business Vision: Objectives and Strategies
Expectations for The User Experience：	
Target Customer Research	
Target Customers/Market: Including older customers: YES/NO Willing to improve the shopping experience for older customers: YES/NO	Target customers characteristics: Describe Target older customers
Customers attributes: Nationality/Region: Gender/Age Range: Education Level: Socioeconomic: Cultural Aesthetic: Attitudes:	Shopping Behavior: Requirements: Shopping Habits: Shopping Motivations: Willingness to Pay: Decision-making: Expectations:
Note:	

Appendix 3: User Experience Map for Analyzing Current Shopping Experience

Current Shopping Experience Map						
Shopping Experience Brief: Main retail channel:				Target Customers:		
Shopping Steps:						
Current Experience Process:						
Store Facilities:						
Customer Touchpoints: (Activity& Interaction)						
Other Retail Channel(s)						
Customers Experience Feedback:	3 Pleasurable					
	2 Efficient					
	1 Accessible					
	0 No Accessible					
Detailed Problems:						
Design Opportunities:						
Design Expectations:						
Note:						

Current Shopping Experience Map

Shopping Experience Brief: *Footaction Sports Shoes Auburn Local Store*

Main retail channel: *Brick-and-mortal store and online store*

Target Customers:

Young people who love sneakers/ Local residents who need sports shoes and sports wear

Shopping Steps:	***1. Enter The Store***	***2. Start Browsing***	***3. Look for Product***	***4. Try and Test***	***5. Purchase***	***6. After Purchase***
Current Experience Process:	*See the product display from the windows / Enter the store*	*Customers can walk around the store and check out the products*	*Customers check the clothing shelves themselves/ Sales will help customers look for right size*	*Customers can sit on the chairs and see the mirrors when try the shoes*	*Pay in front the cashier desk*	*Return in store*
Store Facilities:	*Main entrance / Emergency exit for the building/ Products display tools (tables/ clothing models)*	*Product display shelfs and tables Chairs / Mirrors*	*Product display shelves on the walls / Portable shelves*	*Chairs and Mirrors*	*Checkout counter / Cashier desk*	*Checkout counter*
Customer Touchpoints: (Activity& Interaction)	*See the product display from outside*	*Walk around the store / mainly walk around the shelf (on three side of walls)*	*Look for the product they want/ Sales staffs help customer to find products*	*Try out the products to see whether is suitable or not Feel the materials*	*Customer can see the fashion accessories around the checkout area*	*Communicate with store sales*
Other Retail Channel(s)	*Online website (App) Open the website*	*Browsing products on the website, same price as store*	*Use search box or search filter*	*Choose product based on their sizes*	*Online checkout system Wait for delivery or local pick up*	*Ship back or return in store*
Customers Experience Feedback:	3 Pleasurable 2 Efficient 1 Accessible 0 No Accessible					
Detailed Problems:	*The displayed product on display tables is inconspicuous and unattractive*	*Don't have visual focus, main products are display on the wall No extra product information (details only on the product's tag)*	*Sales can help search for product sizes, but they didn't give many dressing tips or suggestions*	*Don't have a fitting room Customers can only try the sizes Only provide small Mirrors on the ground for shoes*	*Customer will think about: "Is this a good price? Is online website cheaper than store? Do I get a discount?"*	*Customers need to keep the receipts, and come back to store*
Design Opportunities:	*Advertise new features of the product/show store (brand) features*	*Based on product feature showing customers more product key features / more product information*	*Display matching product (clothing; shoes; accessories) Give some fashion matching suggestions*	*Provide an opportunity to test out the products (more than try size)*	*Same price as store website / Better experience than online retail website*	*Connect online account with instore membership*
Design Expectations:	*Attract customers*	*Lead customers to walk around the store (not only around the shelves)*	*Increase purchase rate / Distinguish from other stores*	*Show product features / Increase purchase rate*	*Simple, safe, and convenient*	*Fast, simple, convenient Customers will return next time*

Note:

Appendix 4: User Experience Map for Analyzing Footaction Shopping Experience

Appendix 5: Checklists

Potential Problems Checklist for Brick-and-mortar Store Accessible Features		
Name of the project:		
Categories:	Potential Problem Examples:	Exist
Outdoor environment		
Parking Spaces	◆ Obstructions (e.g., shopping carts, grave) on vehicle space, the access aisle, the curb ramp ◆ Unclear/ obscured parking signs	YES/NO YES/NO
Building Entrance/Egress	◆ Obstructions (e.g., promotional, seasonal, special merchandise displays, customer seating, or vending machines) surround entrances and spill into aisles ◆ The surface of accessible route with large cracks and broken or raised areas ◆ The full width of business entrances is less than 36 inches (minimum)	YES/NO YES/NO YES/NO
In-store environment		
Store Environment	◆ The aisle width is narrower than a shopping cart, mobility aid (e.g., walkers, wheelchair wheels) or less than 36 inches (minimum) ◆ Store route contains obstacles and trip hazards (e.g., scattered merchandises, wire cables, block or protrude items) that difficult for customers with low vision or low mobility to navigate around	YES/NO YES/NO
Information Display System	◆ Unclear directional signs ◆ The lower edges of all objects that hang over the sidewalks or walkways (e.g., banners, strings of lights) are less than 80 inches (minimum)above the route	YES/NO YES/NO
Commodity Display Areas	◆ Product demonstration fixtures and areas (e.g., listening stations for recordings, try-out areas for electronics) have obstacles that block floor	YES/NO
Sales and Service Counters	◆ Existing countertops are too tall for walking aid ◆ Obstructed space in front of counter space	YES/NO YES/NO
Restrooms, Fitting Rooms, and Elevators	◆ Unclear and unreadable signs ◆ Obstacles (e.g., trash cans, cigarette urns, chairs, or shelving) that block the space for door opening in accessible public restrooms, fitting rooms, lifts or elevator controls ◆ The infrastructures are not in working order	YES/NO YES/NO YES/NO

Checklist of Brick-and-Mortar Store Current Shopping Experience		
Shopping Experience		
Shopping Process	◆ Does the store have a clear shopping process? ◆ Does the store have suitable store layouts?	YES/NO YES/NO
Instore Experience	◆ Does the store engage with customer senses besides vision? (Hearing/Taste/Smell/Touch) ◆ Does the store want to build a sensory connection with customers? ◆ Is the store interested in creating a multisensory experience? ◆ Does the store provide other services for customers besides pick out and buy products? ◆ Does current store experience have a strong bond with customers? ◆ Does the store receive strong customer loyalty?	YES/NO YES/NO YES/NO YES/NO YES/NO YES/NO
Other Retail Channel(s)	◆ Does the store have a suitable retail channel(s)? ◆ Does the store want to expand business in other retail channels?	YES/NO YES/NO

Checklist for Potential Problems Related to Online Store Accessibility		
Name of the project:		
Categories	Potential Problem Examples：	Exist
Online Store		
Website Interface	◆ Obstructions (e.g., pictures, advertisements, background) on visual targets, key information	YES/NO
	◆ Lack of visual hierarchy	YES/NO
	◆ Irrelevant decorations (e.g., graphics, icons, information)	YES/NO
	◆ Unreadable (e.g., low contrast resolution, small size)/hard to read text	YES/NO
	◆ Lack of text alternatives for any non-text content	YES/NO
	◆ Complicated information that is hard to understand	YES/NO
	◆ No adaptable website structure and layout	YES/NO
Navigation	◆ Unclear navigation and not able to locate current pages/find content/determine where they are	YES/NO
Operation	◆ Multiple overlapping windows	YES/NO
	◆ Tightly clustered links with no orders	YES/NO
	◆ Incompatible with user errors/ not help users avoid and correct mistakes	YES/NO
	◆ Unpredictable web pages appear and operate	YES/NO
	◆ Delayed user feedback and support	YES/NO
	◆ No compatibility with assistive technologies	YES/NO

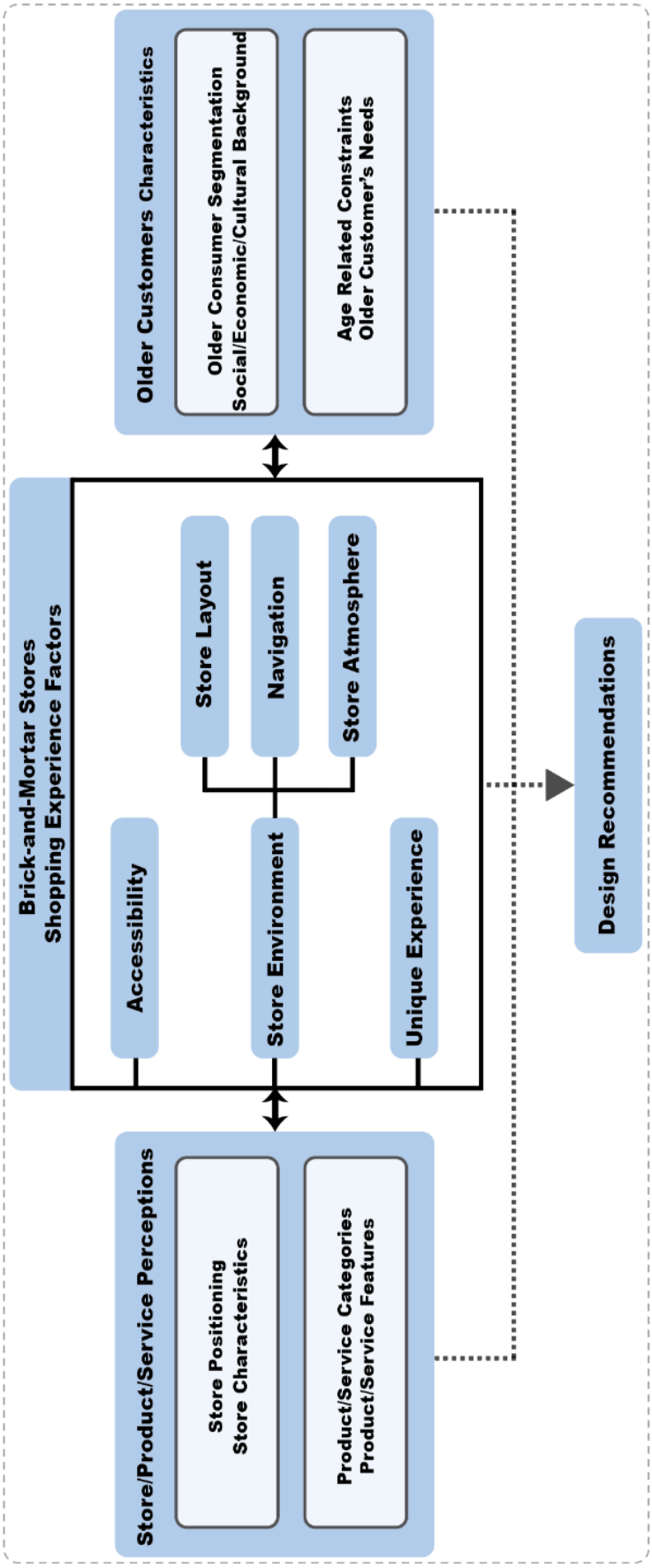
Checklist for Online Store Current Online Shopping Experience		
Shopping Experience		
Shopping Process	◆ Is the website visually aesthetic?	YES/NO
	◆ Can the website capture customer's attention?	YES/NO
	◆ Does the website have suitable structure and layout?	YES/NO
	◆ Does the website provide sufficient product/service information?	YES/NO
	◆ Does the current website have a clear shopping process?	YES/NO
Service	◆ Does the online store provide other services for customers besides buying products?	YES/NO
	◆ Does the current online store experience have a strong bond with customers?	YES/NO
	◆ Does the online store receive strong customer loyalty?	YES/NO
Other Retail Channel(s)	◆ Does the online store have a suitable retail channel(s)?	YES/NO
	◆ Does the online store want to expand business in other retail channels?	YES/NO

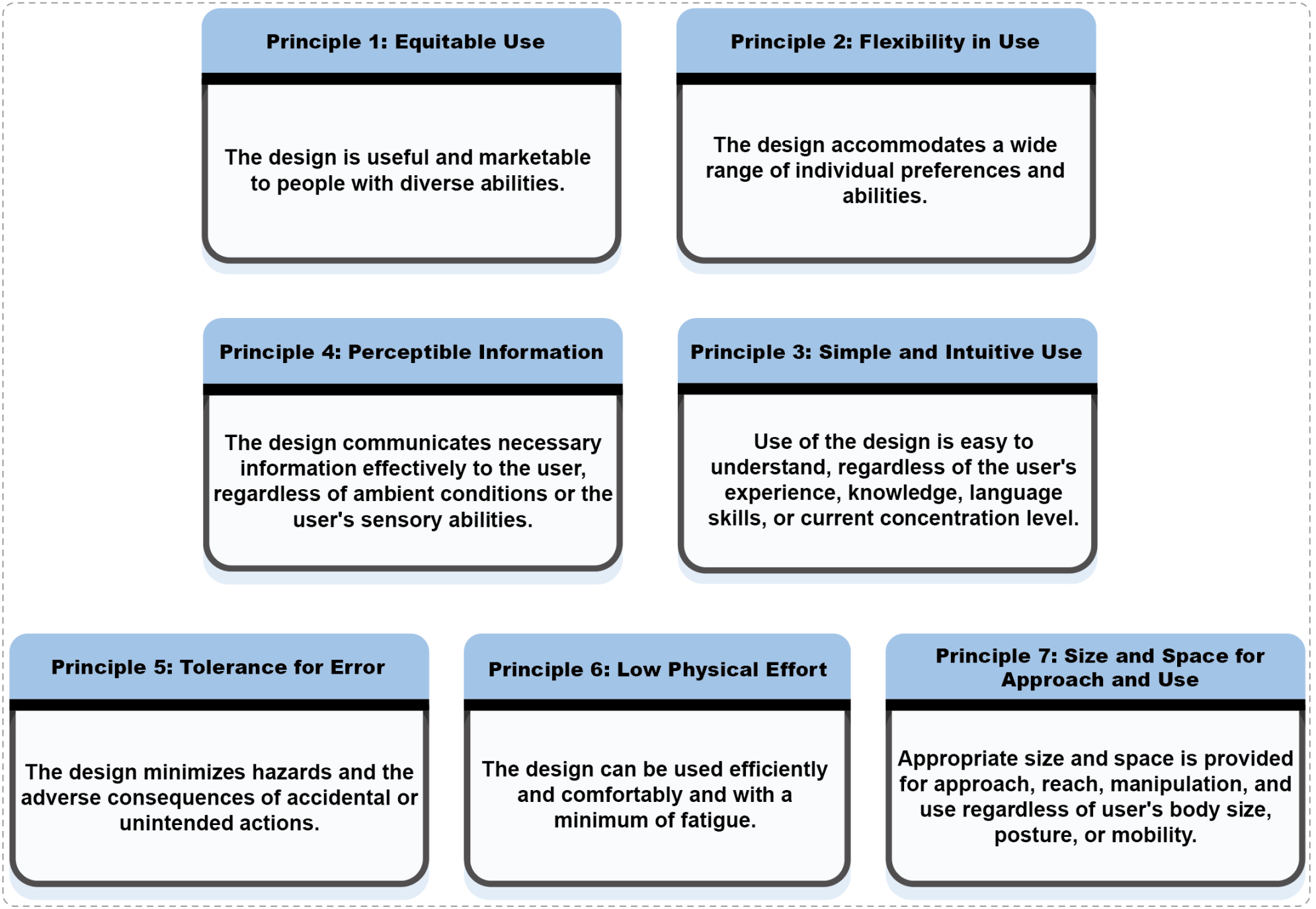
Appendix 6: Problem Statement

Current Problems	Design Expectations

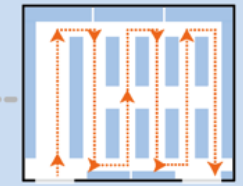
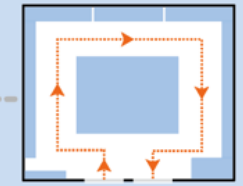
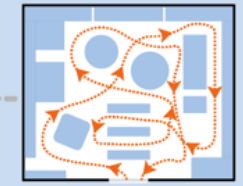
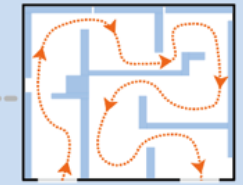
Older Consumers's Needs		Three Levels of Shopping Experience Features		Keywords
3	**Inner Needs**	**Pleasure**	Shopping experience able to bring pleasure and create inner contentment	**Valuable Desirable**
2	**Efficient Needs**	**Efficiency**	Shopping process able to be efficient and reliable	**Useful Findable Credible**
1	**Basic Needs**	**Functionality**	Store facilities can satisfy older customers' physiological needs and safety needs	**Accessible Usable**

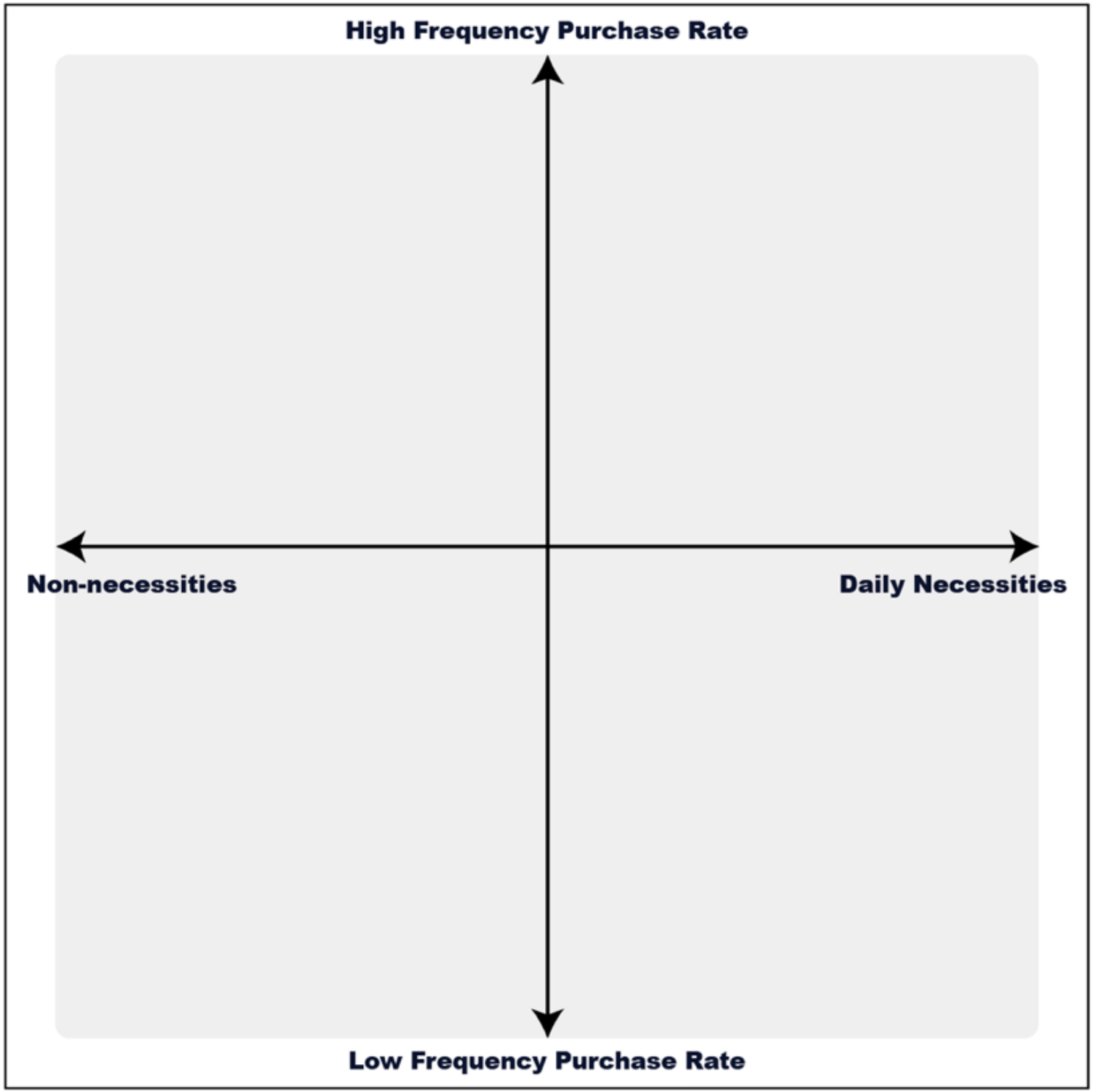
Appendix 7: Brick-and-Mortar Store Shopping Experience Design

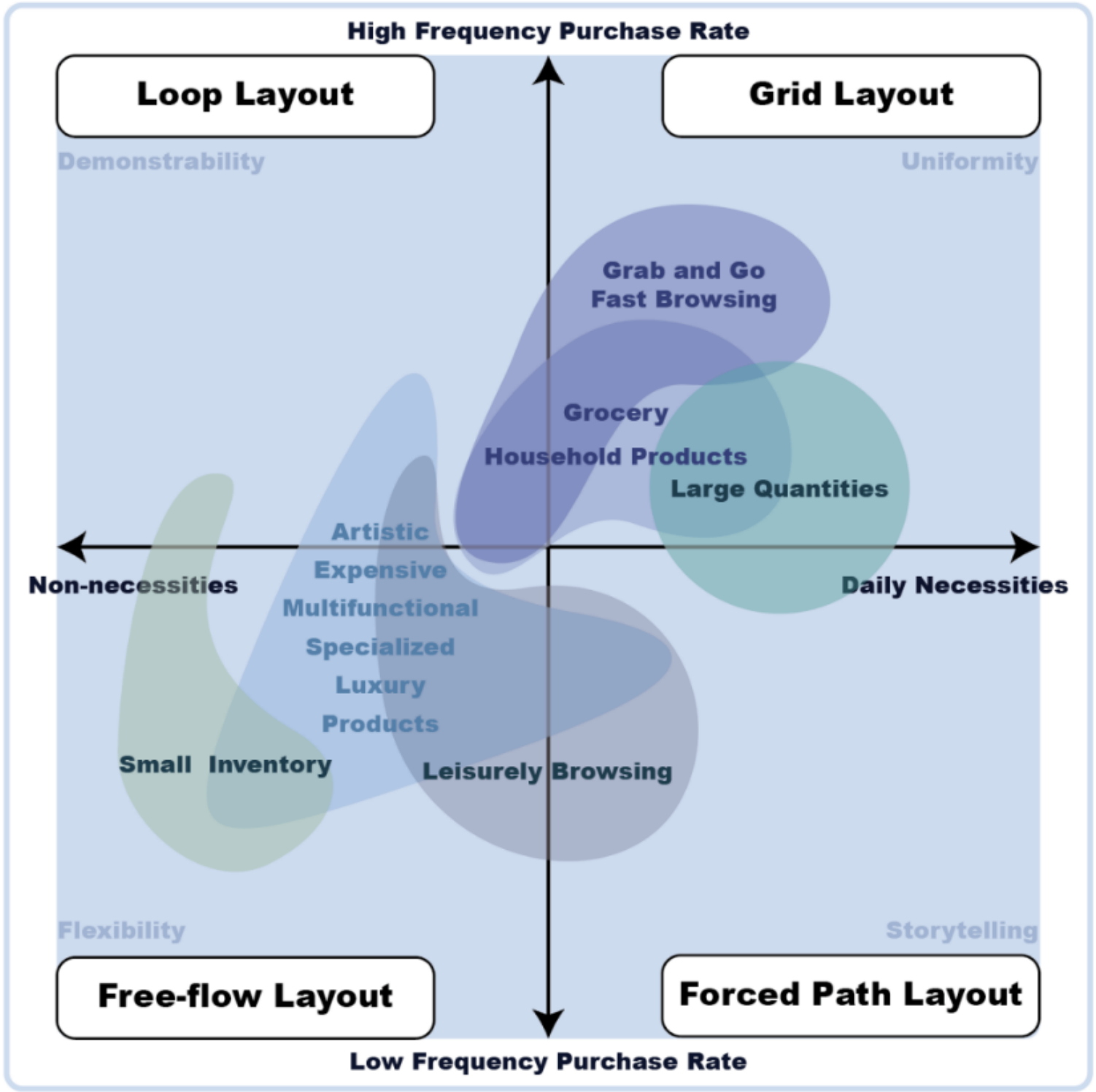


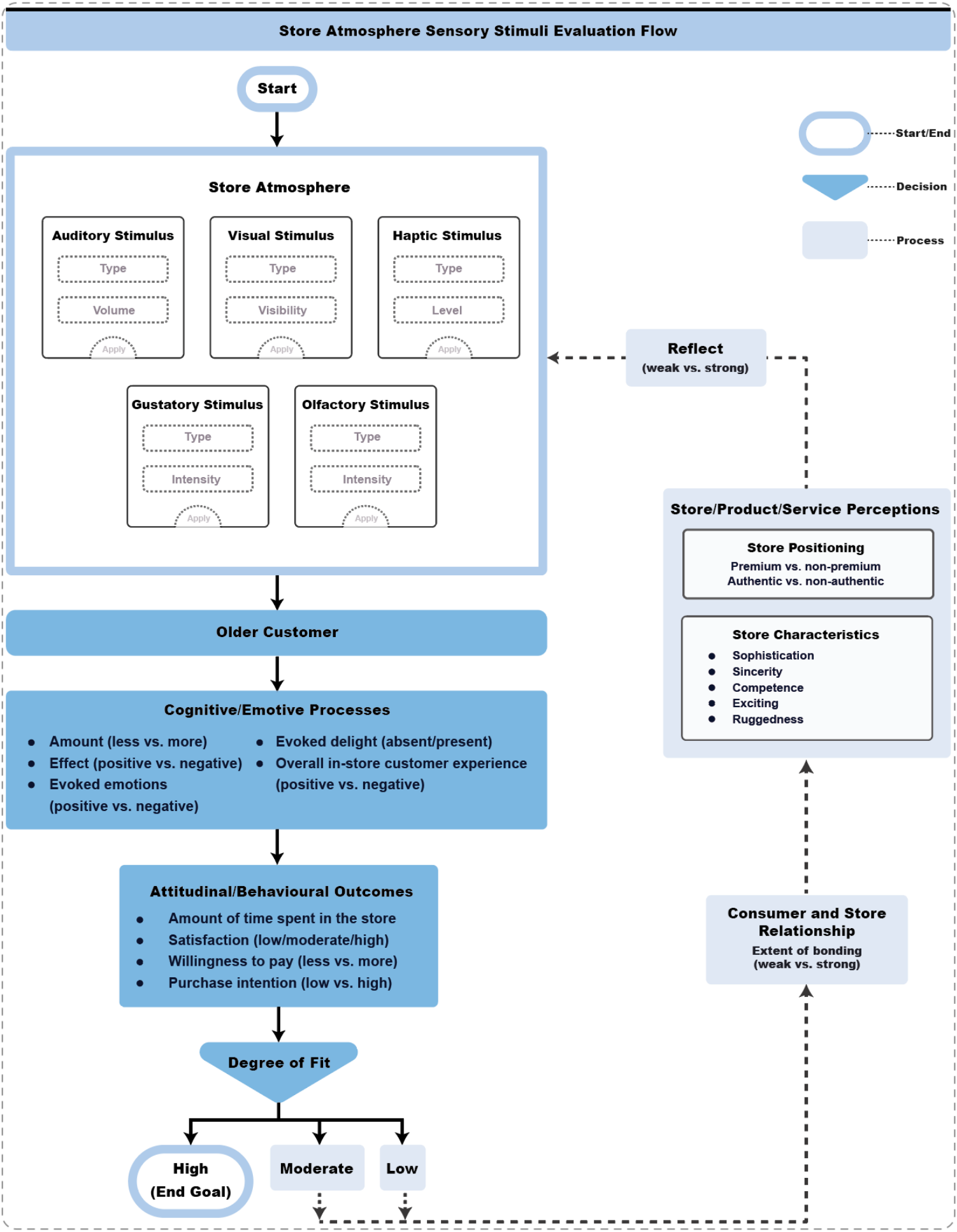

Principle 1: Equitable Use
The design is useful and marketable to people with diverse abilities.
Principle 2: Flexibility in Use
The design accommodates a wide range of individual preferences and abilities.
Principle 4: Perceptible Information
The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.
Principle 3: Simple and Intuitive Use
Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.
Principle 5: Tolerance for Error
The design minimizes hazards and the adverse consequences of accidental or unintended actions.
Principle 6: Low Physical Effort
The design can be used efficiently and comfortably and with a minimum of fatigue.
Principle 7: Size and Space for Approach and Use
Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.

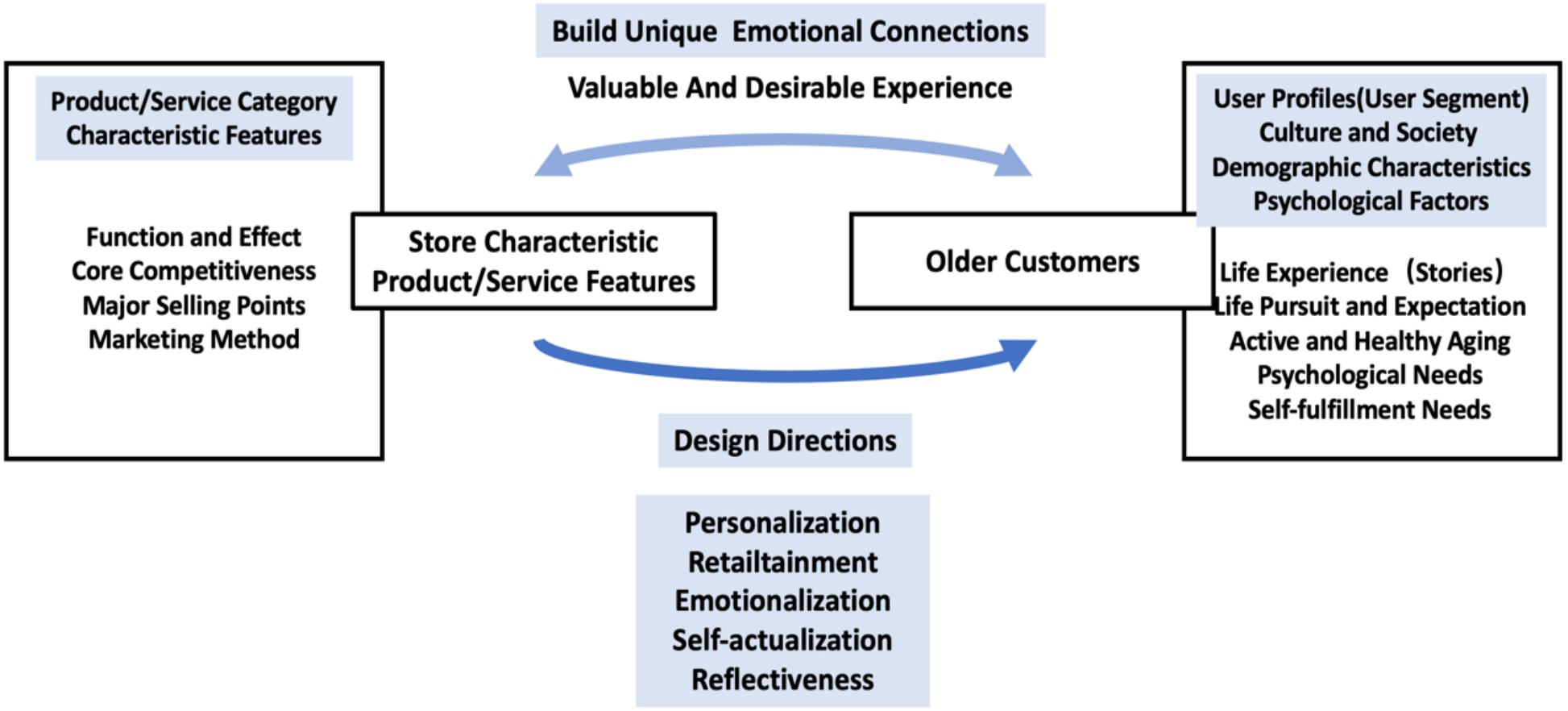
Store Layout

Categories	Description	Features	
Grid Layout	Straight Path Repetitive Patterns	Maximize Storage/Utilize Space Grab-and-Go Browsing	
Loop Layout	Logical Path to Follow Simple But Guided	Create Storytelling Opportunity	
Free-flow Layout	Several Directions Flexible Arrangement	Create Special Focus Zones Necessitate Slower Browsing	
Forced Path Layout	Specified Route	Create Storytelling Opportunity Increase Impulse Purchase	

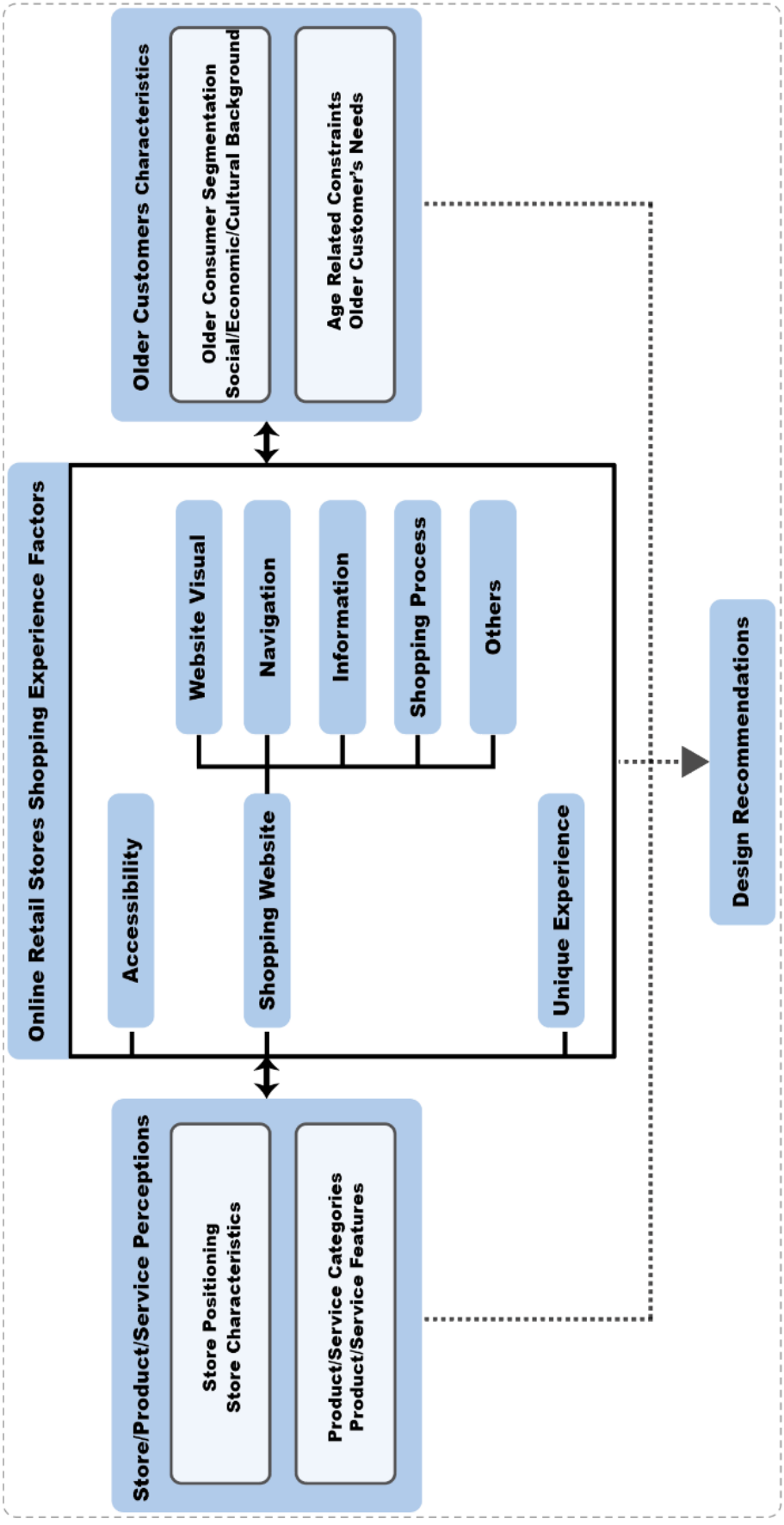

High Frequency Purchase Rate
Non-necessities
Daily Necessities
Low Frequency Purchase Rate


High Frequency Purchase Rate
Loop Layout
Grid Layout
Demonstrability
Uniformity
Grab and Go
Fast Browsing
Grocery
Household Products
Large Quantities
Artistic
Expensive
Multifunctional
Specialized
Luxury
Products
Non-necessities
Daily Necessities
Small Inventory
Leisurely Browsing
Flexibility
Storytelling
Free-flow Layout
Forced Path Layout
Low Frequency Purchase Rate


Store Atmosphere Sensory Stimuli Evaluation Flow
Start
Start/End
Decision
Process
Store Atmosphere
Auditory Stimulus
Type
Volume
Apply
Visual Stimulus
Type
Visibility
Apply
Haptic Stimulus
Type
Level
Apply
Gustatory Stimulus
Type
Intensity
Apply
Olfactory Stimulus
Type
Intensity
Apply
Reflect
(weak vs. strong)
Store/Product/Service Perceptions
Store Positioning
Premium vs. non-premium
Authentic vs. non-authentic
Store Characteristics
Sophistication
Sincerity
Competence
Exciting
Ruggedness
Older Customer
Cognitive/Emotive Processes
Amount (less vs. more)
Effect (positive vs. negative)
Evoked emotions (positive vs. negative)
Evoked delight (absent/present)
Overall in-store customer experience (positive vs. negative)
Attitudinal/Behavioural Outcomes
Amount of time spent in the store
Satisfaction (low/moderate/high)
Willingness to pay (less vs. more)
Purchase intention (low vs. high)
Consumer and Store Relationship
Extent of bonding
(weak vs. strong)
Degree of Fit
High
(End Goal)
Moderate
Low


Build Unique Emotional Connections
Valuable And Desirable Experience
Product/Service Category
Characteristic Features
Function and Effect
Core Competitiveness
Major Selling Points
Marketing Method
Store Characteristic
Product/Service Features
Older Customers
User Profiles(User Segment)
Culture and Society
Demographic Characteristics
Psychological Factors
Life Experience (Stories)
Life Pursuit and Expectation
Active and Healthy Aging
Psychological Needs
Self-fulfillment Needs
Design Directions
Personalization
Retailtainment
Emotionalization
Self-actualization
Reflectiveness

Appendix 8: Online Shopping Experience Design



Discoverability

Users can easily find the starting point when and where they need it.

Understandability

Users can make informed decisions quickly and confidently. Users don't need to experiment or get decision-making assistance.

Efficiency

The UI allows users to perform operations with minimal effort. The inefficient and awkward interactions do not feel intuitive.

Responsive

The UI gives clear, immediate feedback to indicate that the action is happening. When the user is done, the UI makes it clear whether the action was successful or unsuccessful, providing specific details when needed.

Affordance

The UI has visual attributes that indicate how to interact. Users don't have to experiment or figure out how to interact.

Predictability

Functionally, the UI can provide the expected results without any surprises or confusion. It has a natural appearance. The user does not need to experiment or draw conclusions on the results of the interaction.

Forgiveness

If users make a mistake, either the right thing happens anyway or they can fix or undo the action with ease. Users make small mistakes all the time, so UIs that punish for such mistakes do not feel intuitive.

Explorability

Users can browse the interface without worrying about making mistakes or getting lost.

Retail channels	Lookup	Explore	Compare	Purchase	Service
Telephone Ordering	**Low priority** Voice search	**Low priority** Talk to customer support	**Low priority** Talk to customer support	**Medium priority** Order by phone Deliver to customers	**Medium priority** Telephone call service
Mail Orders	**Low priority** Table of contents Index	**Low priority** Check mail order catalogue	**Low priority** Contact agent	**Medium priority** Order by mail/phone Deliver to customers	**Medium priority** Mail/Telephone call service
Interactive Television	**N/A** Passively accept information	**High priority** Immersive video	**N/A** Not applicable	**Medium priority** Order by mail/phone Deliver to customers	**Medium priority** Telephone call service
Catalog Ordering	**Low priority** Table of contents Index	**High priority** Immersive photography	**Low priority** Flip pages back/forth	**Medium priority** Order by phone/ mail/ online website Deliver to customers	**Medium priority** Telephone/ mail/online service assistant
Online shopping	**High priority** Search box	**High priority** Browse by category	**High priority** Table view of selected items	**High priority** Online checkout Order by phone Deliver to customers	**High priority** Online assistant Live chat
In-store shopping	**High priority** Clear signage Store map Helpful staff	**High priority** Walk around aisles	**Medium priority** Compare side by side or ask staff	**High priority** Self-check out Attendant-assisted Self-pick up	**High priority** In-store assistant Walk-in service center

Appendix 9: Multichannel Retail User Blueprint

Appendix 10: Design Recommendations for Ideation Process

Design Recommendations for Ideation Process		
Categories:	Number	Design Recommendation:
3.2.4.1 Brick-and-Mortar Retail Experience Design	**Universal Design Seven Principles**	
Store Accessibility	1.1	Store accessibility design recommendations
Store Environment Store Layout	2.1	Optimize visual guidance to navigate
	2.2	Provide assistants in the shopping process
	2.3	Provide shortcuts, exits, or resting areas
	2.4	The layout is affected by the product features
Navigation	3.1	Provide a clear and compelling visual guide system
	3.2	Provide alternative navigation guidance
	3.3	Avoid overwhelming information in transition zones
	3.4	Observe target audience's (older consumer) shopping habits
Store Atmosphere	4.1	Provide a calm and relaxed atmosphere
	4.2	Enhance the sensory experience
	4.3	Evaluate the sensory stimulus
Unique Experience Design	5.1	Personalization
	5.2	Retailtainment
	5.3	Emotionalization
	5.4	Self-actualization
	5.5	Reflectiveness
3.2.4.2 Online Retail Experience Design	**McKay's (2013) website design principles**	
Website Accessibility	6.1	Online store accessibility design recommendations
Shopping Website Visual Design	7.1	Integrate with the store identity
	7.2	Identify the visual contents
	7.3	Create visual emphasis
Website Navigation	8.1	Consider hierarchical website structure
	8.2	Avoid a deep hierarchy
	8.3	Adding more helpful navigation links
Sufficient Information	9.1	Emphasize the most important information
	9.2	Use simplified terminology
	9.3	Offer a comparison feature
Shopping Process and Others	10.1	Provide help and guidance in the shopping process
	10.2	Provide a simple checkout process
	10.3	Provide additional order confirmation

	10.4	Protect their users' privacy
	10.5	Simplify the after-sales process
Unique Experience Design	5.1-5.5	The unique experience design directions in the brick-and-mortar store are also helpful in online store design
3.2.4.3 Multichannel Retail Design	**Brick-and-mortar shopping and online shopping are the two main shopping channels for consumers (Sands, 2019)**	
Multichannel Retail	11.1	Multichannel retail user blueprint
	11.2	Economize the budget
	11.3	Other retail channels as supplementary