Practical Design of Store Attributes for Traditional Retailer in Thailand with Conjoint Analysis

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A Thesis Submitted in Fulfillment of the Requirements for the Degree of

Doctor of Philosophy in Management

Prince of Songkla University

2017

Thesis Title	Practical Design of Store Attributes for Traditional Retailer in Thailand with Conjoint Analysis
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ชื่อวิทยานิพนธ์ การออกแบบเชิงปฏิบัติของคุณลักษณะร้านค้าปลีกแบบดั้งเดิมในประเทศไทยด้วยการวิเคราะห์คอนจอยท์
ผู้เขียน นาย สานิตย์ ศรีชูเกียรติ
สาขาวิชา ปรัชญาดุษฎีบัณฑิต สาขาวิชาการจัดการ
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บทคัดย่อ

การศึกษาครั้งนี้ได้ประสมประสานความรู้ทางสายงานวิจัยสภาพแวดล้อมเข้ากับสายงานวิจัยของร้านค้าปลีกขนาดย่อม เมื่อเปรียบเทียบงานวิจัยทางด้านสภาพแวดล้อมที่ผ่านมา งานวิจัยนี้มุ่งศึกษาความสำคัญเชิงเปรียบเทียบขององค์ประกอบสภาพแวดล้อมภายในร้านค้าปลีกผ่านกระบวนการตัดสินใจของลูกค้าด้วยวิธีการวิเคราะห์คอนจอยท์ การออกแบบการวิจัยภายใต้เทคนิคคอนจอยท์ถูกยอมรับว่ามีความเสมือนจริงและใกล้เคียงกับสถานการณ์การตัดสินใจซื้อที่เกิดขึ้นจริงของผู้บริโภค การวิเคราะห์ดังกล่าวจะช่วยให้ทราบถึงค่าอรรถประโยชน์ของสภาพแวดล้อมในแต่ละองค์ประกอบ ซึ่งนำไปสู่การหาคำตอบ อาทิเช่น ปัจจัยสภาพแวดล้อมที่สำคัญที่ผู้บริโภคใช้ในการตัดสินใจเลือกใช้บริการ รูปแบบสภาพแวดล้อมที่ดีที่สุดภายในร้าน และการประเมินมูลค่าสภาพแวดล้อมโดยการรวมตัวแปรราคาเข้าสู่การศึกษาครั้งนี้ด้วย องค์ประกอบสภาพแวดล้อมที่ถูกนำมาศึกษาในงานวิจัยประกอบด้วยองค์ประกอบด้านบรรยากาศแสงและเสียงเพลง องค์ประกอบด้านการออกแบบของสินค้าบนชั้นวาง และองค์ประกอบด้านสังคมเกี่ยวกับปฏิสัมพันธ์ของผู้ขายระหว่างการบริการ ตัวแปรสภาพแวดล้อมและราคาจะถูกจัดกระทำในรูปแบบการทดลอง และจะถูกผสมรวมกันออกมาเป็นตัวแบบที่แตกต่างกันทั้งหมด 18 แบบในโมเดลสามมิติซึ่งเคลื่อนไหวได้ในคอมพิวเตอร์ ผู้บริโภคจำนวน 241 คน ถูกสุ่มจากห้างสรรพสินค้า ตลาดเปิดท้าย และตามครัวเรือน ในพื้นที่อำเภอหาดใหญ่ โดยผู้บริโภคแต่ละท่านจะต้องประเมินตัวแบบในประเด็นความตั้งใจในการเข้าใช้บริการทั้งหมด 18 แบบ ผลการวิจัยพบว่าปฏิสัมพันธ์ของผู้ขายมีความสำคัญมากเมื่อเปรียบเทียบกับสภาพแวดล้อมด้านอื่นๆ โดยเฉพาะคุณลักษณะที่ส่งเสริมความสัมพันธ์ต่อลูกค้า ตัวแบบที่ดีที่สุดของร้านชำขนาดย่อม คือสินค้ามีความหลากหลายถูกจัดอย่างเป็นระเบียบเต็มหน้าชั้นวางสินค้า ผู้ขายหรือเจ้าของร้านมีคุณลักษณะที่เอื้อต่อการสร้างความสัมพันธ์และมีคุณลักษณะเชิงปฏิภาณในการแก้ปัญหาให้กับลูกค้า สำหรับด้านบรรยากาศแสงและเสียงเพลงพบว่ามีความสำคัญน้อยมาก ซึ่งร้านค้าสามารถใช้แสงโทนขาวประกอบเพลงขับร้อง หรือแสงโทนส้มประกอบเพลงบรรเลงก็ได้

Thesis Title Practical Design of Store Attributes for Traditional Retailer in Thailand with Conjoint Analysis

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Major Program Doctor of Philosophy in Management

Academic Year 2016

ABSTRACT

This study integrates two fields of research in which the environmental body of knowledge is incorporated into the small retailer research. In contrast to the traditional survey and classical experiment methods executed by most environmental studies, individual consumers' decision making processes, which are claimed to be more relevant to the real buying situation, are investigated with reference to the importance of store environment. Conjoint analysis of this decision making practice helps to clarify the most salient attributes of the store environment that consumers use for making patronage decisions. Additionally, this approach is also capable of clarifying the utility of environmental attributes, and is used to establish the best combination of store environment attributes, as well as their tangible value (i.e., monetary value) by including price in the investigation. The environmental variables were shaped by certain evidence based environmental constructs: 1) ambient cues in terms of lighting and music; 2) design cues in terms of assortment structure; and 3) social cues in terms of storeowner characteristics. All environmental and price attributes were orthogonally combined and manipulated into 18 scenarios of 3D integrative simulations. All of these scenarios simulated on a laptop were subsequently shown to individual consumers for evaluations using a questionnaire. 241 consumers were surveyed at a department store, a community market and households in Hatyai city. The findings identify that the social environment (storeowner characteristics) is the most salient environmental attribute. In particular, the relationship-based characteristics and behavior performed by the small family grocery storeowner are highly important for consumers' decisions about store patronage. Such local stores are advised to purvey a large organized assortment with great relationship-based and intellectual-based service given by the storeowner, regardless of the stores' type of ambience (lighting and music).

ACKNOWLEDGEMENT

I would first like to express my sincere appreciation to my supervisor Assistant Professor Dr. Teerasak Jindabot for his great contribution to my Ph.D study. His tireless sacrifices, enthusiastic encouragement, and immense knowledge helped me throughout the entire course of research and writing of this dissertation. I would also like to thank my thesis committee members: Assistant Professor Dr. Randall Shannon, and Dr. Sunantha Hamthanont, for their insightful comments and useful supplementary resources as relevant literature. My sincere thanks are also extended to Professor Julie Baker at Texas Christian University, who kindly supplied her original paper, which is important to my study.

I would also like to pass this sincere gratitude to the Office of Higher Education Commission, Thaksin University and Prince of Songkla University Graduate School, who offered the scholarship that, facilitated the whole operational process of my study. Without their supports, this study would not have been possible.

My special thanks also go to all the academic staffs, faculty staffs and all of my friends, who assisted me in every detail of the research.

Last but not least, I wish to thank my parents, mother in law, sisters, and wife for their generous support, empathy, and encouragement, and my son for our sharing moments as the great inspiration.

Sanit Srichookiat

CONTENTS

CONTENTS (Continued)

CONTENTS (Continued)

CONTENTS (Continued)

LIST OF TABLES

Page

LIST OF TABLES (Continued)

Page

LIST OF FIGURES

Page

LIST OF FIGURES (Continued)

Page

LIST OF ABBREVIATIONS AND SYMBOLS

CAD	Computer aided design
IOC	Index of item-objective congruence
SKU	Stock keeping unit
M	Mean
SD	Standard deviation
Skew	Skewness
Kurt	Kurtosis
b	Unstandardized regression coefficient
r^2	Coefficient of determination
Adj-r^2	Adjusted r^2
WA-r^2	Weighted average adjusted r^2
t	T distribution
$F_{df1,df2}$	F distribution with df_1 and df_2 degree of freedom
p	P value
SE	Standard error
ANOVA	Analysis of variance
α	Cronbach's alpha

CHAPTER 1

Introduction

Statement of the problem

Store environment is considered one of the important marketing tools that motivates consumers to offer their patronage at any particular store (Kotler, 1973). This is especially relevant to the retail business, in comparison to wholesalers and manufacturers, because end products which consumers can utilize and enjoy are typically placed in the retail environment (Kotler, 1973). Retailers use the store environment for specific purposes, for example, mass-merchandising stores uniformly apply merchandise shelves in the column form with clear bright light throughout the selling space to serve a utilitarian intention (e.g., easy to find, visibility enhanced), whereas, hi-end department stores use various kinds of lighting systems to add hedonistic value (Levy & Weitz, 2012; Rea, 2000).

In the early age of environmental research, Donovan & Rossiter (1982) reported a lack of environmental taxonomy because one environment is usually composed of the number of single environmental elements. The first ever classification, by Baker (1986), has classified the construct of the environment in three dimensions: 1) ambient cues provide the environmental background that usually influences human sat the subconscious level (e.g., light, music, temperature, scent), 2) design cues are the environmental foreground that usually affects humans visually at a more conscious level of awareness (e.g., decoration, layout, signage), and 3) social cues refer to the human environment who can interactively respond with a customer (e.g., a salesperson, other customers).

According to Lam's (2001) review of the literature, this environmental construct could also have a direct or indirect influence on shopping behavior. The influence of the environment on human responses is explained by the S-O-R framework (Mehrabian & Russell, 1974) in such a way that the environment (stimuli) firstly impels a human emotional state (organism) that is ultimately reflected via behavior (response) in either approach or avoidance. This implies that while consumers could be attracted to the pleasant environment, they could also leave an unpleasant environment, for

example, consumers may take less time than usual in a store that provides lighting which is too bright, the music too loud, or temperature too cold/warm (J. Baker, 1986). Thus, this could be a problem for many retailers that ignore the importance of the store's environment and general setting.

Unpleasant looking environments can be witnessed in certain small family groceries (see Charoenpoom, 2013; Chemsripong, 2011; Pientam & Rungwannarat, 2012). This store type is generally termed a 'mom-and-pop store' which has different names in many countries such as 'show-huay' in Thailand (Mandhachitara, 2014), 'sundry store' in Malaysia (Tay, 2014), 'sari-sari store' in the Philippines (Kuang-Jen Chen, 1997), and 'kirana store' in India (Ramakrishnan, 2010). The direct salesperson is typically a self-employed owner who uses the ground floor of his/her house as a selling space, which usually appears cluttered with product displays and has a poor layout (see Chemsripong, 2011; Kuang-Jen Chen, 1997; Mandhachitara, 2014; Ramakrishnan, 2010).

The emergence of modern trade that continues to threaten the traditional retailers, this unpleasant environment has been emphasized by some academics as a crucial issue in need of improvement to overcome that unfavorable situation for such family-based retailers. For example, Chemsripong (2011) recommended mom-and-pop stores to improve their store environment by arranging the whole selling space attractively and efficiently. Charoenpoom (2013) advised traditional stores to focus on participation in the community as well as improve their layout and product display to look modern with quality merchandise. Pientam & Rungwannarat (2012) suggested that mom-and-pop stores should focus on interpersonal relationships to enhance customer loyalty and on providing a better store environment with clean spaces, organized displays for easy search, good air ventilation, and adequate lighting. In another example study, Karnchanapa (2011) found that the important factors influencing customers' purchase decisions for traditional mom-and-pop stores are the varieties of goods, store design, and merchandise display. As explained above, this therefore relates to the importance of a study of the overall environment in the context of small family grocers.

In marketing research, a number of environmental studies have devoted their investigation to the isolated effect of a single environmental element such as music, lighting, and temperature (Turley & Milliman, 2000), despite the fact that humans

perceive the environment holistically rather than focusing on a specific element (Babin, Hardesty, & Suter, 2003; Bitner, 1990). Due to this holistic perception, investigating what is the most salient environmental attribute is encouraged (Turley & Milliman, 2000). This encouragement is also supported by the assumption of that in the human decision making process, people typically integrate information from salient attributes to evaluate products or services (Louviere, 1988a). Especially, when encountering a lot of information, as in the case of exposure to a holistic environment, they only consider a few salient clues and ignore some irrelevancies to simplify their decision making (i.e., using heuristic processing) (Huffman & Kahn, 1998). In this regard, the effect of the combination of environmental components that influence store patronage is proposed to be investigated via the individual decision making process.

This individual decision making process is modeled by allowing a consumer to *compare* and *evaluate* all relative alternatives regarding the relevant attributes in a trade-off fashion, termed conjoint analysis (Louviere, 1988a). According to this process, an individual consumer is exposed to a lot of information among a number of related alternatives such that a few salient attributes will be typically applied to simplify his/her decision formation (Orme, 2009). Additionally, this analysis can elicit the utility values of all attribute levels from the individual, subgroup, and totality of consumers, which can ultimately lead to optimal prototyping of products and services (Louviere, 1988a; Rao, 2014). In this regard, the best combination of store environment can also be revealed as a practical guideline for the mom-and-pop store.

In comparison to the traditional survey and classical experiment methodology employed by most environmental research, the conjoint approach is claimed to provide greater understanding of consumers' decision forming behavior (Louviere, 1988a) because of the fact that humans are likely to evaluate alternatives and make a decision on a relative basis rather than considering the alternatives' absolute values (Ariely, 2008). Additionally, this approach is also claimed: 1) to provide greater realism as it involves consumer trade-offs, 2) to better discriminate the relative importance of attributes, and 3) to reduce response biases (Orme, 2009; Roest & Rindfleisch, 2010).

Another benefit of the conjoint approach is the ability to clarify the valuation of nonmarket assets in more tangible terms (e.g., monetary value). This

'nonmarket valuation' is where nonmarket products such as the environment are attempted to be valued (Champ, Boyle, & Brown, 2003). Referring to the extant environmental research, this environmental valuation is revealed to be insufficient, even if past studies confirm the intrinsic value of the store environment. To analyze the environmental valuation, price is simultaneously included with the environmental attributes to form a set of relative alternatives in the conjoint model (Rao, 2014). Hence, this study also aims to investigate the monetary value which the store environment produces. This provides practitioners with guidance to determine their price in accordance with the improved environment.

In conclusion, this study aims to answer the following questions: *What are the most salient environmental attributes for mom-and-pop stores that consumers use as decision rules for patronage? What is the optimal environmental combination for mom-and-pop stores? How much monetary value is contributed by those physical attributes?* The benefits of this study contribute as guidelines for the traditional mom-and-pop stores to prioritize environmental components that would be practical to the real market, to provide the optimal store environment, and to approximately set prices in accordance with the improved environment.

Objectives

1) To investigate the relative importance of environmental attributes for traditional mom-and-pop stores in Thailand.

2) To find out the best combination of environmental attributes for traditional mom-and-pop stores in Thailand.

3) To clarify the monetary value of environmental attributes for traditional mom-and-pop stores in Thailand.

Hypotheses

This study contains three major hypotheses derived from three environmental components. The first, second, and third set of hypotheses are theoretically driven by the perceived typicality, the perceived variety/complexity of

assorted goods, and the perceived agency/communion of the storeowner, respectively. The details of hypotheses development have been provided in Part II of the second chapter.

H_1: The condition of cool lighting with foreground music (i.e., higher ambient typicality) would induce a higher utility of patronage intention rather than the condition of warm lighting and background music (i.e., lower ambient typicality) for mom-and-pop stores.

H_{2a}: A mom-and-pop store that offers a large organized assortment (i.e., higher perceived variety and lower perceived complexity) would produce a higher utility of patronage intention than other conditions of assortment.

H_{2b}: The positive effect of a larger actual assortment, where higher perceived variety is expected, on patronage intention is stronger than the negative effect of a disorganized display, where the higher perceived complexity is anticipated.

H_{3a}: A storeowner who possesses greater agency and communion would attract higher utility of patronage intention than other combinations of levels of agency and communion.

H_{3b}: The absolute effect of communal trait on patronage intention is stronger than the absolute effect of agentic trait.

Significance of the study

This study's main justifications are briefly summarized in the following.

First, many studies affirm (e.g., Charoenpoom, 2013; Chemsripong, 2011; Karnchanapa, 2011; Pientam & Rungwannarat, 2012) that the physical environment can be one of the most important factors that would help mom-and-pop stores to revive from their current poor situation. Most extant literature on the small family businesses appears to show a lack in in-store environment strategy (see Runyan & Droge, 2008), while Kim, Ju, & Johnson (2009) encouraged the investigation of the store environment in other types of store formats. Thus, this study investigates the issue of the in-store environment focusing on the context of mom-and-pop grocery stores, which is insufficiently available in past studies.

Second, this study applies the process of consumers' decision making, which the traditional experimental methodology is unable to address (Louviere, 1988a). This process requires a consumer to compare and assess all environmental alternatives. The outcome of the decision forming process can clarify the relative importance of environmental attributes (Rao, 2014) which helps to identify the most salient attributes in the environment as Turley & Milliman (2000) encouraged. Additionally, the optimal combination of physical attributes for mom-and-pop stores can also be clarified from this decision making process (Rao, 2014).

Third, many studies in the literature have affirmed the influence of the physical environment on positive consumer behavior (e.g., Kotler, 1973; Mehrabian & Russell, 1974). As well, value adding of the environment for human beings is believed to exist and this can be evaluated in economic terms (Champ et al., 2003; Haab & McConnell, 2002). Then, the valuation of physical attributes in the store environment is also investigated to clarify how much extra consumers might be willing to pay to offset the cost of the improved environment.

These various aspects of the significance of this study are also readdressed in detail under the topic of "Research Justification" in the second chapter.

Delimitations of the study

This study contains some delimitations which have been summarized from the second chapter as follows.

First, this study only focuses on the physical environment within the store interior. The exterior surroundings such as architectural structure, parking space, trees, exterior decoration, and store signs, are not in the scope of this study. For the in-store environment, Baker's (1986) environmental construct, which comprises: 1) ambient cues, 2) design cues, and 3) social cues, is used as the scope to investigate patronage intention. The reason for not including the exterior environment is that there is currently no theoretical categorization of the external environment that helps to shape the scope of the investigation.

Second, this study will not manipulate the physical environment in the actual store. Rather, computer aided design (CAD) is applied to create virtual

environments. The reason for not using the actual stores is that this study investigates the in-store environment through consumers' decision making process in which an individual consumer has to compare and evaluate a number of experimental-setting stores. Therefore, using actual stores is impractical in terms of cost and field experimental setting. However, this three-dimensional (3D) environment incurs some limitations such as environmental reality. Additionally, the use of CAD will only allow the aural and visual senses into the study, for example, music, lighting, merchandise display, and interactive scenarios with a salesperson.

Third, this study selects some environmental variables based on the criteria that the selected variables: 1) should be conveniently implemented for a practitioner in reality, 2) should be relevant to the context of mom-and-pop stores, and 3) must be viable in the CAD simulation. Therefore, this study includes the combination of lighting and music in the ambient environment because they can be accommodated in the CAD simulation, and are easier to implement constantly in reality than other elements such as scent and temperature .For design environment, these cues provide the benefit of aesthetics (e.g., decoration, color, and artistic artifacts) as well as functionality (e.g., store layout and assortment display).

This study only focuses on a functional-based design because mom-and-pop stores primarily serve task-oriented motivation rather than hedonistic values. Layout is not included in this study because the mom-and-pop stores typically occupy limited selling space, so layout design can be less flexible. In contrast, assortment structure displayed on shelves can be more viably designed within a restricted space. Additionally, the assortment component is a key consideration of the mom-and-pop stores for business survival. Thus, assortment structure is selected in the design dimension. As for social environment, this type of environment is referred to as the people component, which can be categorized into two aspects: salespersons and other customers in a store. In the context of mom-and-pop stores, this study only includes a salesperson's attributes, service characteristics and the physical appearance of a storeowner, because the variable of other customers is not controllable in reality. Additionally, the small size of mom-and-pop stores does not accommodate the existence of other customers to the extent of giant stores.

Definition of key terms

General terms

Atmospherics is the in-store environment as intentionally designed to enhance consumers' patronage intention.

Environmental construct is the categorization of environmental elements as defined by academic scholars.

Environment is the in-store surroundings.

Mom-and-pop store is the local grocery store as directly operated by an owner. Their stores possess a small selling space and generally have a poor appearance in terms of their physical environment.

Stock keeping unit (SKU) is the smallest identified unit that merely differentiates one distinct item from any others.

Assortment is the variety of different items in a merchandise category.

Ambient environment is the type of environment that provides the general background rather than foreground, for example, lighting, music, air, scent and so on.

Design environment is the foreground environment that typically communicates via the visual sense, for example, decoration, texture of material, layout, and so on.

Social environment is the human environment such as the salespeople and other customers.

Operational definition

Perceived typicality of ambience is the degree to which an ambience (the combination of lighting and music) can be a good representative or example of the category of general grocery retailer.

Perceived variety of assortment is the degree of assortment variety that is perceived by a customer.

Perceived complexity of assortment is the degree of assortment complexity in terms of ease to locate items that is perceived by a customer.

Agency trait of salesperson is the set of salient characteristics of a salesperson that strongly shows the quality of intellectual competency and activeness.

Communion trait of salesperson is the set of salient characteristics of a salesperson that strongly shows the quality of friendliness, courtesy, gratitude, and helpfulness.

Patronage intention is the likelihood of shopping and purchasing an item in the store.

CHAPTER 2

Literature Review

Introduction

This chapter aims to explore the review of relevant literature related to the study. In the first part, general information of the specific context of the study is introduced to give some overall understanding of the retailing concept and finalize the justification of why this study focuses upon the investigation of the in-store environment of traditional mom-and-pop stores. The second part focuses on a theoretically based review in which all variables will be described. The last part of this chapter briefly summarizes the first and the second part into the research justification, the conceptual framework, and hypotheses.

Part I: Background and context of the study

Introduction to Part I

This part provides some justifications for the context of the present study. Initially, the evolution of the retail industry, which partly drives the change in consumer behavior, is introduced to provide a general understanding of the retailing concept from the past until the present. Next, the history of the retail evolution in Thailand is presented illustrating the path to retail modernization. Then, the impact of modernization on consumer behavior, including in Thailand, is further described. After holistically outlining Thai retail history, the specific context of the study is then explained in terms of how traditional mom-and-pop stores in Thailand have encountered some serious problems from the impact of retail modernization. Subsequently, the importance of physical elements on consumer behavior is given in order to support the justification for the knowledge needed about the physical environment for mom-and-pop stores. This is situated in the final section of part I.

The modernization of retail industry around the world

According to the Dictionary of Business Terms (Friedman, 2000), retail is defined as the *“business of selling products and services to the public as the ultimate consumer.”* Levy & Weitz (2012) claimed that the word *'retail'* is derived from the French language *'retaillier'*, which means breaking bulk or resizing the bulk into pieces to sell. In the similar fashion, Mcgoldrick (2002) claimed the original definition as *"the sale of goods in small quantities"* and later proposed a better working definition of retailing *as "the sale of goods and services to consumers for their own use."* Kotler & Keller (2012) stated the definition of retailing as *“all the activities in selling goods or services directly to final consumers for personal, nonbusiness use”* and defined a retailer is *“any business enterprise whose sales volume comes primarily from retailing.”* From definitions, it a similar meaning can be seen: a key point is that the end consumers buy products and services for the purpose of their own consumption, regardless of the kind of selling channel used (e.g., offline or online retailers).

Therefore, retailers play a significant role in a supply chain as they exist between wholesalers and ultimate consumers. They create unique value to ultimate consumers as Levy & Weitz (2012) describe in the four distinct ways. First of all, a retailer helps provide a variety of goods for consumers to select from with wide choices of brands, prices and sizes at one location. Second, a retailer allows consumers to buy a small quantity of product rather than bulk purchases at a wholesaler. Third, consumers do not need to carry a lot of products home because a retailer will manage the inventory to achieve availability all the time. Finally, retailers provide services to ease consumers’ buying decisions such as personal advice, payment with credit card, product warranty and so on. Consequently, without the unique role of retailers, consumers may face more difficulty to buy and use products.

The evolution of the retail industry in many countries seems likely to behave in a similar pattern. The outcome of the retail evolution is the emergence of new retail formats (see Levy, Grewal, Peterson, & Connolly, 2005; Rousey & Morganosky, 1996). For examples, hypermarkets which occupy huge selling spaces with a great variety of food and household items; category killers which also offer a huge selling space but a deeper assortment in specific categories; and convenience stores which

occupy small spaces offering small purchases located residential areas with 24 hour operation (Kotler & Keller, 2012). There have been many attempts trying to explain the reasons behind the new format emergence, for example: value-oriented consumers drive such different formats; some attribute this to the intensive competition among retailers; some even account for it by the excessive supply from the expansion of global manufacturing (Rousey & Morganosky, 1996). What follows are some brief examples of retail evolution from certain countries, which can show us a similar pattern of retail modernization.

In the United States, there has been a long history of retailing evolution going back to the eighteenth century. According to the historical work of Carden (2012), the evolution can be described in two stages: events before and after World War II. Retail's genesis is traced back to the eighteenth century when early trade involved purchasing of local goods from small, independent retailers and peddlers. After the Civil War in 1865, the developmental service of mail-order houses, e.g., Sears, Roebuck & Company (*America: The Story of Us*, 2010) started serving new goods to the local areas and the first department store, named The Grand Depot, was founded in 1876 (Aitken, 2011). Then, the great rise of retail chains commenced and spread out across a vast area from the Northeast to the South, Midwest and West in the late nineteenth to early twentieth centuries.

Such early retail evolution grew quickly in part because of the great development of public infrastructure, e.g., telegrams and railways, which expanded considerably during the Civil War (*America: The Story of Us*, 2010). In the late nineteenth to twentieth centuries, there was a serious conflict between the Northeast retail chains and those in many other states in which some responsive strategies such as sales taxes, licensing and state laws were employed for defensive purposes against the invasion of chain businesses.

After World War II until the 1990s, the chain businesses consecutively increased in number and mutated with the additional emergence of large-format retailers or *'Big Boxes'*, for examples, hypermarkets, discount stores, warehouse clubs, and category killers, whereas the local retailers gradually reduced due to a decline in their profits (Arnold & Luthra, 2000). The reasons behind the trend of Big Boxes, where

low prices and a large assortment are the key strategies, are breakthroughs of technology and the mass distribution concept (KPMG, 2009).

In Taiwan, the history of retail modernization depicted by Trappey & Lai (1996) involved a lot of political issues since the country was subsequently colonized by China and Japan. From 1960-1990, Taiwan was a largely agrarian society whose temples and seaports were the centralized place of living and trade. In the later 1950s, industrialization commenced and then resulted in mass production along with residents' increased purchasing power. Then, the birth of department stores emerged in the 1960s and the rapid development of transport construction in the 1970s enhanced the popularity of going out shopping. From the 1980s to the 1990s, various retail formats such as convenience stores, fast food stores, chain clothing stores, supermarkets, and hypermarkets magnificently expanded to serve more individual preferences. After the 2000s, malls and shopping streets were available as another choice for consumers.

In Singapore, Yap (1996) described the first trigger of retail modernization as initiated in the late 1960s, when the Urban Renewal Authority launched a remodeling project that later brought the one-stop and mixed-use concepts of shopping areas. This developmental construction continued in the 1970s after which many modern retail formats such as category killers and mega shopping malls gradually emerged in the 1980s-1990s.

With the above examples, it is concluded that retail evolution in many nations moved forward to the heart of modernization. Base on the literature review, the fundamental factors that drove the breakthrough of the modern trade era are conceptualized as two main points: 1) industrialization that results in excessive production and the rise of citizens' purchasing power; 2) urbanization in terms of city infrastructure that physically facilitates the flow of supply and demand. An additional concept, called the *'Big Middle'* (Levy et al., 2005), has attributed the evolution of retailing institutions to the intense competition among retailers that continues to offer new innovations (e.g., variety of products, specialized products, new formats of payment, and so on) with reasonable prices. The advances in production, logistics and information technology help reduce costs tremendously and ease information flow enabling wise retailers to customize their format in response to their customers' desires (Srathongwean, 2010).

In Asia Pacific, Nielsen (2010) has predicted that in the retail trend of the next decade large format and convenience chains will keep growing whereas the traditional retailer will also retain its occasional importance to serve society. Moreover, the growth of the middle class and the rise in foreign interest are key impetuses to retail modernization in Asia (Kawasu, 2013).

History of retail modernization in Thailand

In developed nations, for example in the US and Europe, such transformation has developed earlier and longer in comparison to many developing countries, including Thailand (Reardon & Hopkins, 2006). The genesis of retail in Thailand began in the Rattanakosin kingdom. Especially from 1851-1868 under the rule of King Rama IV, there appeared in Thailand a lot of business establishments from western countries and then the incoming of Chinese tradesmen prevailed, replacing these western businesses after World War I (Srathongwean, 2010). In 1936, Nightingale Olympic was founded as the first ever department store in Thailand. It has been operating until today although few people surely have ever heard about it (John, 2010). Retail modernization in Thailand commenced after World War II and comprises four significant periods. The following is the history of retail evolution in Thailand, summarized from Poapongsakorn, Siamwalla, Thungkawee, Thosomboon, & Wattanasuwan (2002), Feeny et al. (1996), and Shannon (2014).

1) The expansion of department stores from 1956 – 1982

During the mid-sixties, Wigglesworth & Brotan's (1966) study clearly reflected what Thai retailing and consumer lifestyles looked like. The study claimed that most retail was still dominated by traditional retailers (e.g., local mom-and-pop stores) and there was a hopeful sign of modernization from the government attempting to improve food markets and promote weekend markets. In this period, the concept of the department store had dominated modern retailing in Bangkok. In 1956, Central Trading launched its first department store in Bangkok’s China Town and further expanded into many important areas: Silom in 1968; Chidlom in 1973; and Ladprao in 1983. Another milestone of this period was the birth of Daimaru, from the Japanese retailing group in 1964, which was identified as the first foreign department store. In conclusion, there

were a lot of emerging brands of department stores in Bangkok at the time such as Central, The Mall, Robinson, Merry King, Pata, and Banglampoo.

2) The expansion of department stores to suburban areas from 1983 – 1989

The second period saw economic growth with the gradually change to westernization of lifestyle. The department store still played a major role in Thai retailing. The Mall Group, who was the major competitor against the Central Group, gave birth to the second department store on Ramkhamhaeng Road. This continued until there were 4 branches of The Mall Department Store situated in suburban locations. In 1983, the Central Group started their fourth branch, Central Plaza Ladprao, in a suburb. This is considered the most comprehensive kind of shopping mall, combining retail shops, a hotel, convention hall, and office building in one place (Central Group of Companies, 2011).

3) The huge investment of modern trade from 1990 – 1996

In the third period, a lot of modern trade expanded tremendously throughout Bangkok and started to grow in upcountry areas. Besides, the diversification of retail formats such as convenience stores, specialty stores, category killers, cash and carries, hypermarkets, and supermarkets, was born during this time. The department stores had reached saturation in Bangkok and started their businesses in provincial area. For example, the Central Group launched their first upcountry branch in Chiangmai. The specialty stores, category killers and supermarkets successively came out, most of them situated within the large department stores.

Another retail format that really influenced Thai consumption lifestyles was the convenience concept. There were many emerging brands of convenience stores (e.g., 7-Eleven, Central Minimart, AM-PM, and Family Mart) in response to the pursuit of changing lifestyles in metropolitan areas at the time. Nowadays, the 7-Eleven under CP-ALL is the most prominent chain in the convenience sector with more than 8,000 branches in mid-2014 (Shannon, 2014). In 1994, the first birth of the hypermarket (e.g., Lotus and Big C) started to impact the new lifestyle concept by offering low prices and a large assortment of goods. At the same time, the mega-size shopping malls (e.g., Seri Center, Seacon Square, Future Park) started establishing themselves in suburban areas. Conclusively, this period is considered to be when there was a huge transformation of retail formats and diversification to better serve the urbanized lifestyle

with the massive growth of the economy. On the other hand, traditional retailers started to lose their revenue in this period.

4) The huge foreign investment in hypermarketsfrom1997 onwards

In 1997, Thai financial capability faced a crisis, sometime called the Tom-Yum-Kung crisis, which caused some difficulties for operating businesses due to their incremental debt. Thus, for business survival, Thai retail businesses started to trade their major shares to foreign investors: Makro to SHV Group from Netherland; Big C to Casino Group from France; Lotus to Tesco Group from England. After this foreign investment, the technological and service systems were incorporated into business operations that turned out a better response to customers' lifestyles. As a result, the number of hypermarkets increased significantly. However, the convenience format was still considered to be the strong player with a greatly continued expansion in the retailing industry. To summarize, the dominant retailers that gained successful growth in this period were hypermarkets and convenience stores in contrast to department stores and supermarkets that faced downturns. For traditional retailers, their revenue in this period became much worse than in the past.

Table 1 Modern trade expansion in Thailand

Chain stores	1999	2003	2005	2007	2009	2011	2013
Hypermarkets and superstores							
Big C	22	36	45	54	67	92	103
Makro	17	24	29	41	44	52	60
Tesco Lotus	17	48	54	59	86	135	157
Supermarkets and mini supermarkets							
Mini Big C	–	4	5	5	12	51	278
Tesco Talad	–	1	5	27	68	130	182
Tops	–	4	5	92	99	107	127
Villa Market	8	8	8	11	19	21	25
Convenience stores							
108 Shop	–	–	500	556	750	52	293
7-Eleven	1324	2397	3311	4279	5270	6200	7206
CP Fresh Mart	–	–	200	330	500	600	640
Family Mart	160	310	500	542	561	661	1048
Tops Daily -2006	–	–	–	5	12	111	293
Tesco Express	–	11	112	315	473	755	1309

Note. From "The expansion of modern trade food retailing in Thailand," by R. Shannon, 2014, *The International Review of Retail, Distribution and Consumer Research, p.* 535.

Today, the number of modern stores of various types has been increasing year by year. As presented in the Table 1, the growth of convenience stores has accelerated over that of other store types. This is naturally true because the smaller sized store can be constructed more quickly and cheaply (Shannon, 2014). Additionally, the giant retailers have attempted to trick the regulation of hypermarket restriction by diversifying their business into the convenience sector (Shannon, 2014).

In conclusion, Thai retail evolution has also been modernized, as commonly seen in developing countries. Many types of store formats have been emerging over time, but there are still less than in developed countries like the United States, where industrialization and urbanization have taken place much earlier. In future, there is still a prosperous space for modern trade in Thailand, especially in provincial locations. However, traditional retailers have faced a serious situation since the birth of modernization. This issue will be further clarified in the later section on "The problem of mom-and-pop shops in response to retail modernization"

The change of consumer behavior in retail modernization

Since gradual industrialization and urbanization have commonly taken place in many countries, a change in consumer behavior has also evolved along with such a transformation. Andersone & Gaile-Sarkane (2011), who first incorporated the expectancy theory to the change in consumer behavior, has well explained that external factors, at the structural level (technology development, infrastructure development, economic globalization, national crises, cultural change etc.) and the individual level (age, family life cycle, social status, etc.), can importantly influence consumer behavior. For example in Romania, the economic crisis forced citizens to change their lifestyle as they became much smarter consumers (Catana, 2012). Some people who critically encounter life-changing events such as marriage, divorce and promotion to a higher position, may alter their consumption patterns (Andreasen, 1984; Mathur, Moschis, & Lee, 2008). In Germany, the controversial change to longer hours in the retail industry on Saturday made changes in consumption behavior as people considered shopping trips to be purposely more hedonistic rather than just for getting products (Grünhagen, Grove, & Gentry, 2003). Undoubtedly, significant changes in social structure caused by

industrialization and urbanization definitely impact on changes in consumer behavior, to varying extents.

Another instance, illustrated by the work of Zaichkowsky (1991), has explained chronologically how the transition in U.S. society affected consumer behavior in. He stated that the consumption behavior prior to 1950s was mainly for economic reasons, i.e., price and value. Later in the 1950s, consumers started behaving irrationally to consume products because of their hidden value, such as hair tonic for sexual attractiveness, cars for social status and safety belts for fear (as they were not compulsory at the time).

In the 1960s to 1970s, there were many important transitions, for example, the birth of the consumer right to be informed and protected and the concept of consumer-oriented merchandizing that ultimately shifted the former behavior pattern to developing wiser consumers who utilized product information for decision making. In 1980s, the slower economy made the structure of work change to tougher and longer hours in which citizens were busier and had less leisure time; meanwhile, product choices were much more diversified and excessive than ever before. Consequently, this changing lifestyle has led to a demand for convenience shopping. Thus, shopping at home via a catalog, the TV, and the computer prevailed in this period. It can be seen that changes at the structural level have partly driven the development of consumer behavior. Nowadays, the U.S. society consists of sub-ethnicities (e.g., Hispanic, African, and Asian American) that are characterized by different consumption behavior due to their different subcultures (Schiffman & Wisenblit, 2015). Thus, changes in the demographic structure are another factor that leads to the diversification of consumer behavior.

Social changes, e.g., demographic and socioeconomic shifts, are another impetus that drives changes to consumer behavior overall. Demographic shifts in population structure can also determine how consumption behavior would change in the market. The structure of the family life cycle can shape what kinds of services and products serve in that particular society (Rich & Jain, 1968). In the next decade, ageing citizens are expected to become a larger proportion of the population so some particular products and services partly need redesigning to serve them (Accenture, 2011). Meneely, Burns, & Strugnell (2009) also confirmed in his study that as

consumers get older their buying behaviors keep changing. Moreover, as household sizes become smaller (Kantar Retail, 2013) and the middle class becomes larger (Clearwater, 2012) these can be other important factors that influence changes in consumer behavior. Hence, the change of the social structure, which is easily predictable, can be employed as an effective predictor of what the market should look like in the future.

As stated above, it is seen that many external factors of the micro and macro environment have influenced changes to how we live and, in turn, consumption behavior. Retail evolution has come to promote complementary changes of consumer behavior. This can be accounted for by the work of Dreesmann (1968), who incorporated the Darwinian theory of evolution to explain why various types of retailers have been emerging in the market from time to time (i.e., retail evolution). His explanation is that among intense competition, wise retailers will adapt themselves to better respond to changes of the external environment (e.g., consumer behavior, competitor strategies, and innovative technologies) so that they can ultimately survive to the next generation. For example, Levy et al. (2005) explained that successful retail players would always come up with either a new innovation strategy (e.g., broader variety of products, specialized product lines, new formats of payment, and so on) or a low price strategy to serve the niche demand when they initially entered into the market. Afterward, such retailers would try adapting their strategy by combining their own innovations and reasonable prices to particularly serve the Big Middle segment, in which the majority of consumers exist. Therefore, retail modernization can be seen as a catalyst, rather than the main driver, of the change in consumer behavior because the retail landscape has evolved in response to the changes in lifestyles.

It is also very important to clarify the question of what consumer behavior would looks like in the 21st Century. Global consumer behavior as reported from various sources such as Accenture (2011), Kantar Retail (2013), and Clearwater (2012), are likely to have many elements in common, which can be summarized as the following. Firstly, consumers are in search of more value in consumption since the economic crisis has taken place in the U.S. and Europe. The increasing rate of house brand consumption is a great indicator of the certainty of this trend in value-conscious

behavior (Nielsen, 2011). Nielsen (2011) has stated that such private brands are very popular in Europe and the same trend seems to be repeated in Asia.

Secondly, far more than before, there is an emphasis on the convenience concept such as easy-to-use products, and accessible locations, since every minute is more valuable in a globalized society. Based on Euromonitor International's Annual Study 2011, Alexander (2012) indicated that the highest percentage of consumers were willing to pay more for products with the label *'convenient to use.'* This convenience concept can be related to the benefit of technology proliferation as consumers are able to do research much more easily with the smart mobiles online. For example, these phones are more convenient in comparing prices, finding out valuable or unique products, searching out relevant information, ordering the product and so forth. As a result, the increasing number of customers online can be seen as the incoming trend these days.

Thirdly, quality is still of concern in consumers' decision making on product and service selection. This dimension does directly impact on the positive perception of value, satisfaction and behavioral intention (Cronin Jr., Brady, & Hult, 2000). Even though better quality usually comes with a higher price, some people are willing to sacrifice paying that cost. In South-East Asia, Kawasu (2013) has reported that the quality issue is more emphasized in mature consumers.

Fourthly, consumers care more about their personal health and environmental preservation. Accenture (2011) reported that some bad news, for example, the increasing number of patients with chronic diseases (e.g., diabetes, heart disease, and cancer) and the impact of global warming in part promote a healthy and eco-friendly lifestyle. This is another reason that consumers with higher disposable income are willing to pay more for premium products, organic produce and eco products.

In summary, global consumer trends show that consumers are more likely to favor the products or services that provide value, convenience, quality, personal health and environmental care. Another important characteristic is that there are more diversified versions of personal behavior and choices for an individual. Especially in the retail sector, consumers have more choices pertaining to different occasions (Coca-Cola retailing research council, 2007). A person may have different behaviors, depending on

what he/she is involved in at that moment. For example, one would like to go to a nearby convenience store in case of urgent need rather than visiting a large format store, which in turn would be the regular choice in a situation of predetermined purchasing. This is unlike the old days when customers did not have many alternatives to tailor their shopping plan. In other words, as the retail structure has changed in modern days, consumers have more ability to adapt their buying behavior to correspond with the currently existing store formats (Uusitalo, 2001). Conclusively, the pattern of patronage behavior may change according to the emergence of new and diversified formats (Rousey & Morganosky, 1996).

The development of consumer behavior in Thailand

With the previous section, it can be seen that global consumers have changed their behavior of consumption in accordance with the transformation of external environments (e.g., industrialization, urbanization, retail modernization, economic globalization). It is undeniable that the incursion of westernization has impacted existing cultures that in turn has influenced consumer behavior in developing countries (Gupta, 2011). In Thailand, people's lifestyles have been developing from the past since the emergence of urbanization, which has provided both advantages (e.g., income and employment opportunities, infrastructure) and disadvantages (e.g., traffic problem, pollution) (Krongkaew, 1997). This phenomenon firstly began in the capital city, Bangkok, and is expected to recur throughout the nation (Feeny et al., 1996). The change in consumer behavior can be seen as, for examples, people tending to prefer convenience because of being time-poor (Sengupta, 2008), the growth of low and middle class segments' concern for more value and lower prices and higher income consumers preferring superior quality (Kongarchapatara & Shannon, 2014).

As expected by the Darwinian concept of retail evolution (Dreesmann, 1968), with such changes, Thai retail modernization, which is characterized by various types of retail formats, can better respond to consumers' particular needs than ever before. This can be seen in some literature (e.g., Kumar, Trivedi, Bezawada, & Sridhar, 2012; Levy & Weitz, 2012; Rousey & Morganosky, 1996) illustrating that different types of store formats employ different strategies to achieve their own targets. For example,

convenience stores tend to offer small-sized products with flexible operating hours in convenient locations to serve any consumer with time restrictions, while supermarkets aim to provide a large array of food assortments in a one-stop shopping model for consumers (Kumar et al., 2012). In Thailand, Kongarchapatara & Shannon (2014) have shown that Thai consumers have been particularly satisfied by three main strategies by different retail clusters: 1) price leadership strategy by hypermarkets, cash and carries, and category killers; 2) superiority strategy by supermarkets and lifestyle malls; 3) convenience strategy by convenience stores. Therefore, retail modernization can be one of many possible causes that has contributed to the accelerated development and changes in consumer behavior.

It is also essential to realize what Thai consumer behavior looks like today. McKinsey&Company (2010) have reported that currently Thai consumers are likely to be conscious of value, convenience and health concept in their product choices. The increasing rate of house brand consumption is an indicator representing the rise of value-conscious behavior in which Nielsen (2011) reported that Thailand held the sixth place out of the world ranking in 2010 as Thais would purchase private brands during the economic recession. However, more than half of Thais would still buy the better quality products even if the price goes a bit higher (Kawasu, 2013). Convenience is also considered as a favorite concept for Thai consumers since time stress has increased with greater urbanization. For example, location convenience was found to be a key success factor in running retail businesses in Thailand (Shannon & Mandhachitara, 2008). Furthermore, there has been an increasing number of health-conscious consumers who really emphasize the cleanliness and healthiness of food stores (Saepaisan, Somtrakoon, & Koseyayothin, 2009) and some, especially the higher household income group, are willing to pay more for organic products (Sriwaranun, Gan, Lee, & Cohen, 2013).

In terms of changes in social structure, McKinsey&Company (2010) identified that major Thai demographic trends in consumption in the next decade can be classified into three: the rise of 1) aging citizens, 2) smaller households, and 3) increasing income per capita, which was congruently reported by Syamananda et al. (2011). Vitamins and supplements, recreational products, prepared food, entertainment and fashion products are some examples of upcoming trends driven by those factors

(Syamananda et al., 2011), although, materialism was not found to be very significant in Thailand (Sangkhawasi & Johri, 2007).

In addition, consumer behavior can also be described through the lens of cultural perspective in such a way that different cultures would adopt different styles of consumption (De Mooij, 2011; De Mooij & Hofstede, 2011). One of the most far-reaching cultural classifications regarding social behavior would be seen from the perspective of: 1) individualism involving self-reliance, mostly found in North America and Europe; and 2) collectivism where decisions are usually influenced by other group members, mostly found in Asia, Africa and South America (Hofstede, Hofstede, & Minkov, 2010; Triandis, 1989). Shannon (2009) has pointed to the collectivist culture to explain the particular phenomenon that Thais tend to shop in a group and one person's action is likely to influence those of another in the group. Another piece of supportive evidence of high collectivism in Thailand can be found from Kawasu's (2013) report and Hofstede et al. (2010). Face and status may seem to be important issues (Shannon & Mandhachitara, 2008), for example, one may avoid buying private brands, as one would appear to have a low social profile, shopping with a high status group. Moreover, Shannon (2009) found Thai consumers tended to shop frequently but buying small amounts per visit, which de-emphasized the convenience concept and highlighted spending a lot of time shopping with little time pressure. Last but not least, Cai & Shannon (2012) reminded with caution that culture collectivism or individualism alone may not perfectly predict consumer behavior, for example, Thais and Chinese have contrasting behavior in their shopping styles, even though both nations represent collectivist cultures.

In conclusion, Thai consumer behavior has been developing from the past since the advent of industrialization and urbanization. Retail modernization has emerged to completely fulfill this adaptation of consumer behavior. The characteristics of Thai consumer behavior have not very much departed from the global consumer trends mentioned in the previous section. Thais are also increasingly interested on value, convenience, quality and personal health. Besides, the Thai social structure is in line with the global demographic and socioeconomic trends as it tends to gain an increasingly ageing population, more middle class members, and smaller household sizes.

The problem of mom-and-pop shops in response to retail modernization

History and importance of mom-and-pop stores in Thailand

It is believed that the genesis of the traditional mom-and-pop shop was from the lifestyle influence of Chinese people, who have initially migrated to Thailand many centuries ago. Show-huay is derived from the Hokkien dialect and pronounced “zá-huò” (杂货) in Mandarin. Chinese merchants began trading in the Thai kingdom in the early 17th century and the number of Chinese migrants increased enormously in the beginning of the Chakri dynasty until they were officially endorsed to live in Thailand (Thai-Chinese Chamber of Commerce, n.d.). A show-huay shop was believed to have been first established in the Chinese community at Sam-Peng, where King Rama I assigned them to move and a new community constructed (Kornanthakiat, 2009). At that time, the place was known as Chinatown and the retail structure looked similar to that of the Southern Chinese style (Kornanthakiat, 2009). In the period of King Rama V, show-huay shops were initially located in the central area of Bangkok, and expanded to provincial areas in the period of King Rama VI (Pientam & Rungwannarat, 2012). After World War II, the government encouraged the grocery business, which experienced a great expansion from 1959 to 1987 (Pientam & Rungwannarat, 2012).

Show-huay shops are considered to be the traditional mom-and-pop stores that have some noticeable characteristics as follows, summarized from Chemsripong (2011), Pientam & Rungwannarat (2012), and Poapongsakorn et al. (2002). Firstly, the shop is directly operated by an owner on the ground floor of his/her townhouse. Secondly, the shop appears to be poorly arranged physically with a clutter of product displays, poor layout, no price tags and so on. Thirdly, the shop lacks technological hardware and software to assist its operation. It can be concluded that traditional mom-and-pop stores are far behind modern trade in terms of physical and managerial perspectives. Unfortunately, the pronunciation of show-huay also conveys the negative Thai meaning of *'poor display,*' so much so that many Thai people nowadays, misunderstand the real Chinese meaning and coincidentally perceive the store in terms of the way it looks (Khoasod, 2013).

Traditional mom-and-pop stores are considered to be very essential to the Thai community as they carry symbols of the local lifestyle and economy

(Charoenpoom, 2013). In terms of economic impact, small grocery stores have on average produced a market value of about 72,260 million baht from 2011 to 2013 (Department of Business Development, 2014). However, they have gained a much smaller market share than modern convenience stores and hypermarkets. Saepaisan, Somtrakoon, & Koseyayothin (2009) have summarized three important aspects of community businesses for the local society. First, they can enhance integrity within the community, where interpersonal relationships may take place among local customers or between customer and retailer (Uusitalo, 2001). Second, employment would improve and income from the community business would circulate to support the community. Third, there is the opportunity of a distribution channel for local produce. Besides, another reason why the local retailers should not be completely replaced by the modern chains is that it help reduces income inequality within the community. Zheng (2012) found that income inequality could cause risk to individual morality in the long term. Last but not least, the presence of local retailers is very important for the survival of traditional wholesalers as they are cut out of the logistics process of modern-trade business.

The difficult situation of Thai mom-and-pop stores

In many countries, traditional retailers, especially local mom-and-pop stores, have been found to encounter serious problems since the birth of retail modernization. For example, Arnold & Luthra (2000) reported that the small US retailers in rural communities have been negatively influenced as manifested in profit decline since the coming of the large format stores such as Wal-Mart. Thus, some areas in the US like Iowa city applied their own regulations to control the large-format stores setting up within the community (Ozment & Martin, 1990). In Portugal, Farhangmehr, Marques, & Silva, (2000) surveyed the impact of hypermarkets, finding that small retailers encountered fatal troubles such as lowered customer volumes, sales volumes, profit margins and so forth. In another example, Reardon & Hopkins (2006) stated that the extensive emergence of modern supermarkets in the early to mid-1990s caused traditional retailers to be displaced from the business in many regions such as South America, Mexico, South Africa, and Southeast Asia. Particularly, in Southeast Asia, Coe & Bok (2014) has summarized that the emergence of modern retailers (e.g., large

hypermarkets) has threatened the survival of local mom-and-pop stores as seen by the studies from many ASEAN countries, such as, Malaysia, the Philippines, Indonesia, and Thailand. However, the impact of modern retailing on traditional stores has also been revealed to be less effective in some countries like Argentina, Mexico (D'Andrea, Lopez-Aleman, & Stengel, 2006), and India (Ramakrishnan, 2010) because a large proportion of the emerging mass of consumers has been well serviced by those traditional retailers.

Table 2 Market value of different retail types from 2011 to 2013

Code	Retail type	Revenue (Millions)			percentage (Trend analysis)		
		2011	2012	2013	2011	2012	2013
47111	Supermarkets	151,252.55	77,591.68	74,546.21	100%	51%	49%
47113	Convenience stores	183,066.84	224,116.31	246,525.53	100%	122%	135%
47114	Grocery stores	118,123.96	95,537.08	61,595.94	100%	81%	52%
	- small grocery stores	*87,429.22*	*77,546.92*	*51,810.82*	*100%*	*89%*	*59%*
	- medium/large grocery stores	*30,694.74*	*17,990.16*	*9,785.12*	*100%*	*59%*	*32%*
47112	Hypermarket/Discount stores	190,153.96	313,256.53	480,086.79	100%	165%	252%

Note. From *Business Data Warehouse*, 2014, Department of Business Development, Ministry of Commerce.

Table 3 The estimation of revenue loss of mom-and-pop stores caused by modern trade

		Revenue (Millions)			Market share	
Code	Retail type	2001	2013	2013*	2001	2013
47111	Supermarkets	22,785.00	74,546.21	48,518.13	6%	9%
47113	Convenience stores	34,175.00	246,525.53	72,771.87	9%	29%
47114	Grocery stores					
	- small grocery stores	*217,610.00*	*51,810.82*	*463,376.34*	*54%*	*6%*
47112	Hypermarket/Discount stores	126,000.00	480,086.79	268,303.01	31%	56%
	Total	400,570.00	852,969.35	852,969.35	100%	100%

* The assume revenue of 2013 by the proportion of 2001

In Thailand, it is found that consumers today are more likely to shop at the modern retailers than at traditional shops. This can be seen by the inverse trend Shannon (2009) reported, that mom-and-pop stores declined roughly from 400,000 in

1997 to 280,000 in 2007, meanwhile, the number of modern retailers rose tremendously, especially hypermarkets (with Tesco as the leader) and convenience stores (with 7-Eleven as the leader). Due to the increasing number of modern trading shops, their market share has also been overwhelming the traditional retailers (Chemsripong, 2011). Recently, from 2011 to 2013, the Department of Business Development (2014) stated that revenue of local grocery stores has fallen to 52%, whereas those of hypermarkets and discount stores have soared nicely (see Table 2). To estimate how much market value mom-and-pop stores have lost to modern stores, this study has combined data from Rungruangphon (2003) and the Department of Business Development (2014). From Table 3, it can be found that if the market share of mom-and-pop stores in 2013 had maintained the same proportion as they had in 2001, they would have the approximate market value of 463,376 million. Therefore, the assumed loss of mom-and-pop stores to modern trade can be estimated as around 411,565 million (i.e., 463,376 minus 51,810).

In addition, Kawasu (2013) has shown results from the NRI Survey of Consumer Shopping Behavior in Eight Southeast Asian Cities which state that in 2011 the proportion of Thai consumers who still patronize small traditional stores, appeared to be 36%, proving to be the smallest share compared to other formats, while hypermarkets and convenience stores outperformed in modern retailing with 94% and 95% of all consumers respectively. It can be concluded that Thai mom-and-pop stores are still in an impoverished situation as opposed to a prosperous future for modern retailers.

Many academics (see Charoenpoom, 2013; Feeny et al., 1996; Kongarchapatara & Shannon, 2014; Mutebi & Ansari, 2008; Shannon, 2009) have claimed that the expansion of modern retailers has caused the demise of traditional mom-and-pop stores. From those studies, hypermarkets and convenience stores are considered to provide a strong impact on mom-and-pop stores. Basker, Klimek, & Hoang Van (2012) and Mutebi & Ansari (2008) mentioned the reason behind the negative effect of superstores' strategy on mom-and-pop stores in that their size was conceptualized as providing the one-stop benefit, lower cost of goods and saving time, which better responds to the general consumer lifestyle nowadays. In contrast, hypermarkets, however, seem to provide some benefits to mom-and-pop stores, for

example, some small retailers have bought merchandise cheaper than before at hypermarkets, especially during sales promotions, because the large-store chains can directly get the merchandise from manufacturers without any traditional middlemen (Poapongsakorn et al., 2002).

On the other hand, convenience stores, rather than hypermarkets, are considered as the most intimidating rival to mom-and-pop stores (Feeny et al., 1996 ; Shannon, 2009). The reason may be attributed to mom-and-pop stores occupying the same consumer segment as convenience stores do, though the latter have better managerial operation (Shannon, 2009). Then, it seems that the situation for mom-and-pop stores has become much worse since convenience stores have expanded throughout Thailand much faster than other types of retailers (Kongarchapatara & Shannon, 2014). One of the reasons for this fast expansion is that large format retailers are likely to avoid restrictive zoning regulations by maneuvering their business expansion to smaller sized locations such as convenience stores (Coca-Cola retailing research council, 2007; Kongarchapatara & Shannon, 2014; KPMG, 2006; Shannon, 2009). For examples, Lotus Express derives from Tesco, Tops Daily from Tops and Mini BigC from BigC. Additionally, there was also an attempt from large format chains to accelerate their small format expansion before regulatory enforcement in the convenience sector was expected to be launched (Shannon, 2009).

It is accepted that convenience chain stores have better managerial operations than traditional mom-and-pop stores. Ngaochay & Walsh (2011) have investigated the key success factors of 7-Eleven, the most dominant convenience chain in Thailand, which can be summarized into three main points. First, assortment is managed to directly meet customer satisfaction. This means the product management principle is applied to increase efficiency, such as designing shelves to gain more space for best-selling and new products. Additionally, the company also aims to achieve food safety standards through best practices along the supply chain. Second, employees are trained for organizational competency through human resource development and knowledge management, for example, the provision of standard training, including the ability to learn from customers' demands and share learning among employees. Third, the internal and external environment is guaranteed for continuous improvement as the

company launched the project “New and Modern Store with Prompt Service.” It can be seen that the store environment is one of the success factors for convenience stores.

As stated above, it is clear that modern convenience stores provide customers with a much better standard when compared with mom-and-pop stores. This may be the reason why consumers are likely to patronize them rather than mom-and-pop stores. Additionally, it is admitted that most mom-and-pop shops have failed to respond to current consumer behavior, in contrast to chain stores, which has resulted in their businesses closing down as explained by the following examples. Karnchanapa (2011) has compared the failure and success cases of mom-and-pop shops in terms of as how they are different in their retail mix strategies. She found that the failed mom-and-pop shops did not congruently incorporate into their retail mix the changes in consumer behavior. For example, they tended to lack: surveying their customers’ need for the assortment planning; supplementing with extra service; and arranging proper physical environments. Poapongsakorn et al., (2002) claimed that the mom-and-pop owners, who successfully survived during the establishment of hypermarkets and convenience stores always customized their strategies toward what customers needed, for example, they displayed various assortments from modern convenience stores and appended comparative price signage on each assortment to show that their price was cheaper than the 7-Elevens. It can be concluded that the surviving mom-and-pop stores have tried to adapt their strategies in response to the change but most failed stores have not.

In the past, a Thai private company, Saha Patanapubul PLC., launched 180 shops aiming to assist mom-and-pop stores to withstand the modern retailers. This was done by modernizing their physical and managerial aspects without requiring any investment from these small retailers (Kongarchapatara & Shannon, 2014). However, the concept was not very successful because many franchisees, who could join very easily due to the affordable cost, did not strive for business success and they loosened the franchising rules (e.g., having inconsistent open/closed timed, saving cost by turning off lights and air-conditioning) as was insisted by Vathit Chokwatana, a director and executive board of Sahapat (“108 ช็อป Survival Network [108 Shop: Survial Network],” 2010). He additionally claimed that such non-serious operations would destroy brand reliability. These reasons for failure were also supported by Shannon (2014) who stated

that the execution of the 108 concept had some problems because of a lack of strong brand consistency and location selection. Recently, Sahapat has decided on a joint venture with Lawson (Japan) to launch *'Lawson 108'* in the hope of brand revitalization (Kongarchapatara & Shannon, 2014). The new concept of Lawson 108 aims to provide *"High-quality and fresh products in a comfortable, friendly atmosphere"* for the customers (Saha Lawson Co., Ltd., 2013). The Lawson 108 stores are expected to renovate the existing 108 shops and build some new ones to reach 1,000 stores in the five years since their initiation in 2013 (The Nation, 2013).

Need of knowledge in physical environment for mom-and-pop stores

To help mom-and-pop stores survive in the modernization era, many academics have investigated various retail strategies for small independent retailers such as location, technology adoption, promotion, pricing, and planning (Runyan & Droge, 2008). In Thailand, scholars have often included several dimensions to investigate the context of mom-and-pop stores, which has contributed knowledge for a holistic perspective rather than for a specific point of view. For example, Pientam & Rungwannarat (2012) prepared a comparative SWOT analysis between mom-and-pop and convenience stores that helped emphasize what dimensions should be focused on for further improvement. Some parts of the study by Chemsripong (2011) reported some problems and obstacles for mom-and-pop stores in many dimensions of insufficiency such as assortment variety, physical environment, opening hours, merchandizing display and so forth. The benefit of the aforementioned studies is that they help to provide guidelines for what aspects of mom-and-pop shops should be reformed; but they do not provide deeper knowledge. Therefore, study of a specific dimension or aspect is required for greater insights.

Surprisingly, the investigation of the in-store environment has not received much attention in small retail strategy research (see Runyan & Droge, 2008) despite the fact that there has been burgeoning environmental research (see Lam, 2001). There are many signs indicating the importance of reform in the physical environment for traditional mom-and-pop shops. This is noted in many holistic studies of retailing operations. For example, Reutterer & Teller (2009) claimed that the value-

creating dimensions in which small retailers would effectively differentiate over large-format scale were store atmosphere and quality of sales personnel. Pientam & Rungwannarat (2012) suggested that mom-and-pop shops should have improved physical environments in many ways such as cleanliness, brightness, and organized display. Chemsripong (2011) advised some physical management such as decoration, organized display, price tags, and freedom to choose that mom-and-pop stores tend to have neglected. Charoenpoom (2013) stated the need for mom-and-pop shops to improve store layout, merchandise display and product quality. Karnchanapa (2011) found the top three factors that influenced consumers' patronage of mom-and-pop stores were assortment and service, physical arrangement and store location. In addition to mom-and-pop cases, Jindabot (2012) also recommended as essential the improving of physical arrangements, e.g., widening the selling area, improving decoration, organizing product displays, and maintaining cleanliness, for Thai local department stores to enhance their store image. Thus, the above findings have academically affirmed the need for physical management for Thai local businesses, especially, mom-and-pop stores.

In addition to scholars' advice, the Department of Business Development, under the Ministry of Commerce, has joined hands with the Thai Wholesale and Retail Trade Association to initiate the scheme "Show-Huay Show-Suay" the objective of which is to renovate the traditional mom-and-pop stores for sustainable competency by, for example, improving the physical environment, reducing operating costs, broadening additional services to the one-stop concept, and strengthening the relationship between traditional wholesalers and retailers (Department of Business Development, n.d.). As to the essence of physical reform, the department also launched the modern model of a physical arrangement for 24 and 48 square meters with technological adoption proposed as the prototype for traditional retailers to follow. It was claimed that the first project, held from 25 April to 15 May in 2013, has increased traditional wholesalers' and retailers' sales by 13% and 17% respectively for two months (Pramotmaneerat, 2013).

With a similar campaign in Malaysia, Tay (2014) has explained the philosophy and the solution, originating from the Malaysian government, to heal mom-and-pop stores. The main philosophy is that the government does not want to restrict

the expansion of foreign retailers but the aim is to develop both foreign and domestic retailing. With this philosophy, the government has launched "TUKAR," a program that helps modernize local sundry stores, by collaborating with the large retailers (i.e. Tesco, Carrefour) to support the program. The result was claimed to be very satisfying, being attributed to stringent recruitment of the store owners and consecutive coaching from the large retailers. TUKAR has focused on four important areas: 1) physical improvement, 2) operational and managerial skills, 3) technological assistance, and 4) the art of consumer service. Therefore, it can be seen that the physical environment is one of the important components that should not be overlooked in order to improve stores.

Summary of part I

It can be seen that traditional mom-and-pop stores have encountered serious problems in the era of retail modernization. The significance of the study of in-store environments for mom-and-pop stores has been evident due to the request of academics and government sectors to revive their poor situation. Besides, there are few studies that particularly focus on the physical environment in the context of small family grocers. Consequently, this part has provided reasonable justification for the study of in-store environments in the context of Thai mom-and-pop stores.

Part II: Theoretical construct of the study

Introduction to Part II

The previous part explained why the context of the small family grocer is important for the study, particularly in terms of environmental research. Subsequently, this part provides deeper understanding of variables of the in-store environment used in this study. Patronage intention is selected as the consequent variable because it would help traditional mom-and-pop stores to recover from their impoverished position. Three main dimensions of environment construct (i.e., ambience, design, and social cues) are selected as the antecedent variables to investigate their impact on patronage intention. However, it is emphasized that not all variables of physical elements will be included in this study because of the particular context (i.e., mom-and-pop stores), analysis technique (i.e., conjoint analysis), and data-collection technique (i.e., computer simulation). Thus, further explanation of the reason for adopting these particular relevant variables will later be given.

Physical environment research in marketing

The early recognition of physical environment literature in marketing

The original recognition of the importance of environmental research in marketing was by Kotler (1973), who first initiated the term *'atmospherics'* as *"the effort to design buying environments to produce specific emotional effects in the buyer that enhance his purchase probability."* He emphasized that physical surroundings could be strategically applied to promote specific customer emotions and behavior for a desired result. As Kotler mentioned, shoe retailing switched, redefining shoes from the utilitarian concept (e.g., comfortable, warm and dry) to a more pleasurable concept (e.g., feel different, masculine, and feminine) so that the store environment needed a particular design to produce such emotions in customers. He explained that physical surroundings affect our human behavior through our four main senses: 1) the visual channel by color, brightness, size, and shape; 2) the aural channel by music; 3) the olfactory channel by scent and freshness; and 4) the tactile channel by softness and smoothness.

The early conceptual model that provoked the long stream of environmental research in marketing was derived from the field of environmental psychology by Mehrabian & Russell (1974), and called the S-O-R paradigm. The S-O-R concept depicts the chain of influence that stimuli (S), which can be seen as the environmental elements, impel our organism (O) in three emotional dimensions (i.e. pleasure, arousal and dominance) that finally drive our response (R) in either approach or avoidance behavior (see Figure 1). In Mehrabian & Russell's (1974) framework, color, lighting intensity, sound, taste, odor, tactile, and temperature were represented as the stimuli that activated the organism in three emotional dimensions (i.e., pleasure, arousal and dominance - PAD), which separately worked together to form particular emotional feelings such as happiness, anger, surprise and so on. Then, those emotional states, in turn, led humans to either approach or avoid the environmental stimuli.

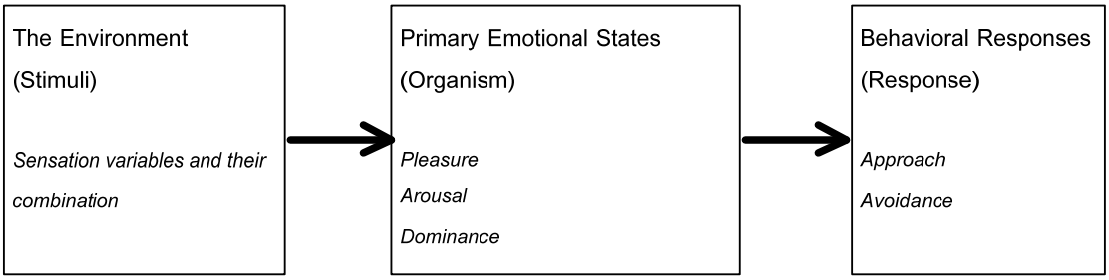


Figure 1 SOR model

Note. From *An Approach to environmental psychology,* p. 8, by A. Mehrabian and J. A. Russell, 1974, Cambridge: M.I.T. Press

Another notion by Belk (1974), called situational influence, affirmed that environmental components do really influence consumer behavior (see Figure 2). He defined the term *'situation'* to have a different meaning from *'environment'* so that a situation involves a momentary period of time, whereas, an environment relates to the long-term orientation. In other words, a situation took a specific point of time into consideration, for example, people might want different kinds of meals depending on the time: morning, afternoon or evening. The benefit of the situational concept regarding this study is that Belk's (1974) theoretical model did show the direct influence of situational components (e.g., temporal, physical, and interpersonal surroundings) on consumer behavior unlike in Mehrabian & Russell's (1974) framework, in which the

organism seemed to be playing the role of mediator between the environment and the actual behavior. However, Belk's (1974) model showed the indirect effect of mood on consumer behavior and that different those with personal characteristics would behave differently in the same situation. Finally, it is summarized that, without a given point of time, physical surroundings can directly influence consumer behavior.

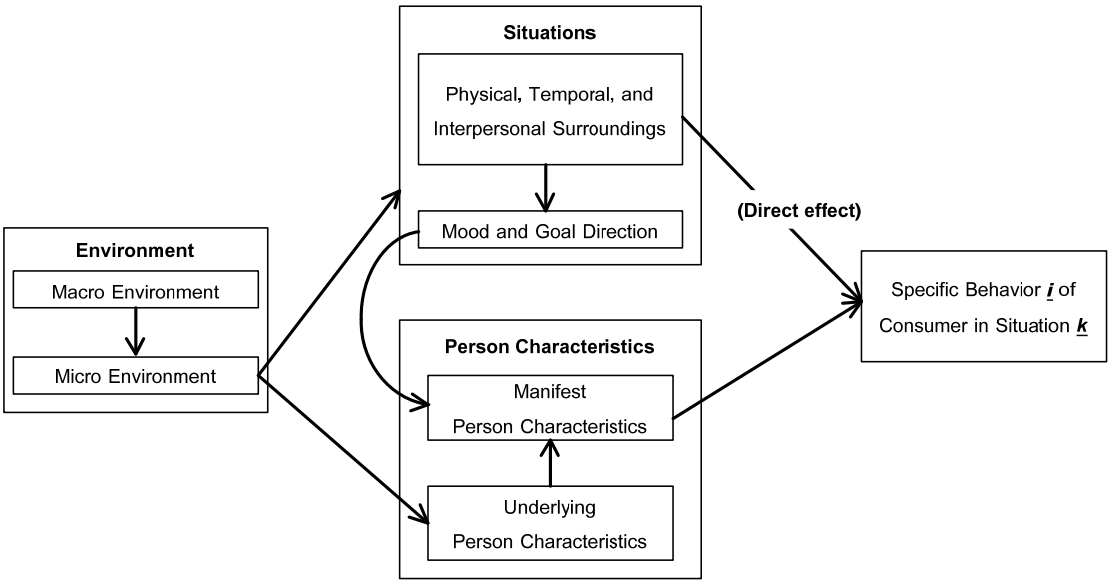


Figure 2 Belk model of situational influence on consumer behavior

Note. From *Situational influence in consumer behavior* (Working Paper No. 195), p. 16, by R. W. Belk, 1974, College of Commerce and Business Administration University of Illinois at Urbana-Champaign.

The categorization of physical environment literature in marketing

Based on the literature review, the long series of physical environmental research can be divided into three main categories according to how environmental elements are combined in an investigation: 1) specific element research, 2) environmental dimension research, 3) holistic environment research. This categorization is mostly congruent with Lam's (2001) classification, namely, the elementary level, factor level, and global level. Firstly, it is naturally accepted that one complex environment can be composed of a great number of specific elements such as lighting, color, material, music, scent, temperature, air, and so on. Then, some scholars went deeply into one specific element to explore its effect on behavior. For example in specific element

research, there have been studies over the last 30 years of the effect of music (Jain & Bagdare, 2011) that witnessed the impact of musical components (e.g., tempo, volume, familiarity and popularity) on consumer behavior (e.g., time perception, money and visiting time, merchandise perception and emotion) (Andersson, Kristensson, Wästlund, & Gustafsson, 2012; Beverland, Lim, Morrison, & Terziovski, 2006; Garlin & Owen, 2006; Herrington, 1996; Milliman, 1982; Sullivan, 2002, 2002; Yalch & Spangenberg, 2000). However, some scholars have simultaneously included a few specific elements into their single study, for example, lighting and temperature (e.g. Briand & Pras, 2013), color and lighting (Babin et al., 2003; Barlı, Aktan, Bilgili, & Dane, 2012), scent and retail density (e.g. Michon, Chebat, & Turley, 2005). In sum, this type of research typically aimed to examine the effect of variables (e.g., brightness, contrast, color and temperature) in the given specific element (e.g., lighting). Therefore, most studies usually manipulated those variables in their experiment.

Secondly, given that a real store environment is complex and consists of many specific elements, some scholars (e.g., Baker, 1986; Bitner, 1992; Turley & Milliman, 2000) have, then, classified those various elements into a dimensional structure. Consequently, this series of studies usually refers to the construct of environmental dimensions in which some basic elements are combined within the given dimension. For example, four basic elements such as music, lighting, temperature and scent, are simultaneously composed within the dimension called *'ambience.'* In research of this second type, some scholars have purposely manipulated the environmental dimension in the experiment in order to explore various effects on human responses (Baker et al., 1994; J. Baker, Levy, & Grewal, 1992; J. Baker et al., 2002; Grewal & Baker, 1994). On the other hand, some have used various real stores as the environmental stimuli (in a field study) to explore the dimensional effect; therefore, environmental components were not usually manipulated (Lin & Liang, 2011; Liu & Jang, 2009; Mohan, Sivakumaran, & Sharma, 2012; Raajpoot, Sharma, & Chebat, 2008). However, the clarification of the dimensional effect was the primary focus for this type of investigation.

Table 4 The environmental studies in marketing summarized into three categorizations

Research	Music	Lighting	Scent	Temperature	Color	Layout	Assortment	No. of other customers	Social class	No. of salespersons	Salesperson behavior	Salesperson appearance
(Milliman, 1982)	❶											
(Areni & Kim, 1993)	❶											
(Yalch & Spangenberg, 2000)	❶											
(Bailey & Areni, 2006)	❶											
(Andersson et al., 2012)	❶											
(Areni & Kim, 1994)		❶										
(Summers & Hebert, 2001)		❶										
(Park & Farr, 2007)		❶										
(Spangenberg, Crowley, & Henderson, 1996)			❶									
(Chebat & Michon, 2003)			❶									
(Spangenberg, Sprott, Grohmann, & Tracy, 2006)			❶									
(Cheema & Patrick, 2012)				❶								
(Hadi & Dan King, 2012)				❶								
(Zwebner, Lee, & Goldenberg, 2014)				❶								
(Bellizzi, Crowley, & Hasty, 1983)					❶							
(Bellizzi & Hite, 1992)					❶							
(Simonson & Winer, 1992)							❶					
(Broniarczyk, Hoyer, & McAlister, 1998)							❶					
(Kahn & Wansink, 2004)							❶					
(Morales, Kahn, McAlister, & Broniarczyk, 2005)							❶					
(Eroglu & Machleit, 1990)								❶				
(Pan & Siemens, 2011)								❶				
(Wang, 2009)											❶	
(Darian, Wiman, & Tucci, 2005)											❶	
(Shao, Ramser, & Wilson, 2005)												❶
(Kim et al., 2009)												❶
(Briand & Pras, 2013)		❶		❶								
(Babin et al., 2003)		❶			❶							
(Barlı et al., 2012)		❶			❶							
(V. Vaccaro, Yucetepe, Torres-Baumgarten, & Myung-Soo Lee, 2008)	❶	❶										

Table 4 The environmental studies in marketing summarized into three categorizations (continued)

Research	Music	Lighting	Scent	Temperature	Color	Layout	Assortment	No. of other customers	Social class	No. of salespersons	Salesperson behavior	Salesperson appearance
(Grewal et al., 2003)	❶							❶		❶		
(Michon et al., 2005)			❶					❶				
(Yüksel, 2009)					❶			❶				
(J. Baker et al., 1992)	❷	❷								❷	❷	
(J. Baker et al., 1994)	❷	❷			❷	❷	❷			❷	❷	❷
(Grewal & Baker, 1994)	❷	❷			❷	❷	❷			❷	❷	❷
(Schlosser, 1998)	❷	❷				❷						
(J. Baker et al., 2002)	❷	❷			❷	❷	❷			❷	❷	❷
(Raajpoot et al., 2008)							❷		❷		❷	
(Liu & Jang, 2009)	❷	❷	❷	❷		❷				❷	❷	❷
(Lin & Liang, 2011)	❷	❷	❷	❷	❷	❷			❷		❷	
(Mohan et al., 2012)	❷	❷	❷			❷	❷				❷	
(Hooper, Coughlan, & Mullen, 2013)	❷	❷	❷		❷	❷					❷	
(Donovan & Rossiter, 1982)	❸ Environmental cues were not manipulated in field study.											
(Donovan & Rossiter, 1994)	❸ Environmental cues were not manipulated in field study.											
(Babin & Darden, 1995)	❸ Environmental cues were not manipulated in field study.											
(Richardson, Jain, & Dick, 1996)	❸ Environmental cues were not manipulated in field study.											
(Spies, Hesse, & Loesch, 1997)	❸ Environmental cues were not manipulated. (Modern vs Dilapidated IKEA stores)											
(Foxall & Greenley, 1999)	❸ Environmental cues were not manipulated in field study.											
(Babin & Attaway, 2000)	❸ Environmental cues were not manipulated. (Utilitarian vs Hedonistic malls)											
(Ha & Jang, 2012)	❸ Environmental cues were not manipulated in field study.											
(Mobach, 2013)	❸ Environmental cues were manipulated in field study but it was too complex for classification.											

❶ The specific element study (First category)

❷ The environmental dimension study (Second category)

❸ The holistic environment study (Third category)

Lastly, holistic environment studies employed a real situation as being typically loaded with a great number of environmental elements; therefore, research methods such as field observation, field intercept, and descriptive excerpt, were adopted in these investigations. The main characteristic of the third type of studies was that environmental manipulation was not implemented. As such the intended clarifications of specific environmental elements were not the focus for this type of

study. Instead, the environment was intentionally used to simulate the respondent's internal organism (e.g., emotionally, cognitively and physiologically (Bitner, 1992)) and external behavior (e.g., approach or avoidance (Mehrabian & Russell, 1974)) such that the relationship for other variables were emphasized more than physical environment. Table 4 illustrates some literature of all three types with twelve basic elements.

Taxonomy of environmental dimensions

Referring to the second type of environmental research from the previous section, there was an academic attempt to categorize the environmental elements into dimensional constructs. This section explores the evolution of dimensional categorization in environmental elements with reference to a literature review. In the early 1980s, there was a lack of taxonomy for environmental elements because of an abundance of stimuli and their unconfirmed effects on the emotional state (Baker et al., 1992; Donovan & Rossiter, 1982). Thus, some studies in this period mostly applied holistic elements in their field studies, for example Mehrabian & Russell (1974) proposed to use the concept of information rate, rooted from the theory of information, to describe how environmental stimuli are characterized.

Later in 1986, Baker (1986) originated the first ever classification of environmental components in the academic literature, which comprised 3 dimensions: ambience, design and the social component. It is often ambiguous for people in general to differentiate the ambience from the design and this has been clearly explained by Baker (1986) and Baker et al. (2002). In summary, the ambient environment tends to impact us at a subconscious level, which goes unnoticed. Therefore, the ambient function serves as a background environment rather than at the forefront. Non-visual and intangible elements such as music, scent, lighting, air and temperature are some examples, which are categorized to be part of the ambient environment. On the other hand, the design environment is likely to be visual and tangible, for example, decoration, spatial layout and material used in a store. Baker (1986) has separated design components for 2 purposes: 1) aesthetics (e.g., architecture, color, style and material), and 2) functional utility (e.g., layout and signage). The final element, which is easily distinguished from the previously mentioned components, is the social environment, which concerns aspects of people as influential in the environment, such

as employees' dress, customers' appearance, number of customers, employees' interaction and so on. Baker (1986) has also classified this dimension into two sub-categories: 1) other customers, and 2) service personnel.

At a later time, Bitner (1992) introduced the term *'servicescape'*, which comprised 3 main dimensions. The first is the ambient dimension which is mostly conceptualized as similar to Baker's (1986) definition, for example, lighting, temperature, scent, noise, music and color. Second, spatial layout and functionality are served in the environment to facilitate performance and goal attainment. Bitner referred to functionality as the performing capability of machinery, equipment, and furnishings; meanwhile, spatial layout mean show all things are arranged in the available space. The last dimension of the servicescape is composed of signs, symbols, and artifacts. Signage is used for the purpose of explicit communication, for example, the company label, a directional sign, or a label of product category. Some other environmental objects can be simultaneously combined to represent symbolic meaning, which carry implicit value and aesthetics, for example, type of materials used in construction and decoration, painting, photograph, ancient artifact, and so on. It can be seen that social elements are not included in the servicescape. Later, Rosenbaum & Massiah (2011) extended social and natural dimensions from this former version.

Another classification proposed by Turley & Milliman (2000) exhibited five atmospheric stimuli in which the first four elements, adopted from Berman and Evans in 1995, consisted of the 1) exterior, 2) general interior, 3) layout and design,4) point-of-purchase display and the last element, included by his own study, was the human variables. First, the exterior refers to components that exist outside such as the storefront, marquee, building architecture, parking space and so on. Second, the general interior could be, for example, lighting, scent, sound, temperature, cleanliness, texture and color, which mostly contribute to the background environment or, as Baker (1986) classified them, the ambient component. Third, allocation space, equipment arrangement, traffic flow, waiting queue, and furniture are some examples of layout and design. Fourth, point-of-purchase and decoration variables include for example, point-of-purchase display, product display, signage, price display, certificates, pictures, artwork, and wall decoration. The last dimension is the human variable, which appeared the

same as in Baker's (1986) study, mainly including customers' and salespersons' attributes.

As stated above, it is apparent that Baker's (1986) taxonomy is the best classification in term of its comprehensiveness and non-overlapping, due to its sorting with clear definitions. Besides, a comprehensive review of past environmental studies by Lam (2001) also used Baker's (1986) taxonomy of environmental components in his summarized conceptual framework. Consequently, this study will congruently follow the environmental construct (ambient, design and social elements) introduced by Baker (1986) as a guideline for further investigation.

Ambient environment

Ambient elements are the components that provide the general background of the environment, which exist under the level of our immediate human awareness (sub-consciousness). These include air quality, noise, scent, and so on (Baker, 1986). The distinction between ambient and design cues is sometimes unclear. Baker et al. (2002) has summarized how their differences citing the two following reasons. Firstly, ambient cues usually influence non-visual senses, whereas design cues are naturally involved with visual-based stimuli. Secondly, ambient cues are naturally processed at the subconscious level whereas design cues are not. Therefore, the cues that affect our three main senses, aural, olfactory, and tactile, are mostly classified as ambient cues. There have been a number of intensive investigations into each ambient element, for example, music (Andersson et al., 2012; Bailey & Areni, 2006; Milliman, 1982; Yalch & Spangenberg, 1990), lighting (Areni & Kim, 1994; Babin et al., 2003; Briand & Pras, 2013), scent (Chebat & Michon, 2003; Fowler & Bridges, 2012; Spangenberg et al., 1996) and temperature (Cheema & Patrick, 2012; Zwebner et al., 2014). However, the present study includes only music and lighting to jointly shape the experimental ambience because they can be easily manipulated by retailers (Baker et al., 1994). Additionally, this study applies computer simulation for data collection, which is only viable for the visual and aural senses; therefore, other ambient elements (e.g., scent and temperature) are not be able to operationalize in the simulation (see Baker et al., 2002).

Literature related to lighting

In marketing, lighting is one of many important elements to create a desired ambience through which a retailer intends to manipulate shopping behavior (Custers, de Kort, IJsselsteijn, & de Kruiff, 2010). IESNA has stated three primary goals of retail lighting: 1) attract customers to the retail space and merchandise; 2) visually enhance merchandise evaluation; 3) facilitate functional activities (Rea, 2000). The optimal light setting can induce the favored emotional states and shopping behavior, for example, arousal and pleasant feelings (Park & Farr, 2007), store patronage (Babin et al., 2003), purchase intention (Babin et al., 2003; Briand & Pras, 2013), multiple number of items picked up and touched (Areni & Kim, 1994; Summers & Hebert, 2001), extended time spent on shopping (Barlı et al., 2012; Briand & Pras, 2013). Not only academics, but practitioners also have discussed the importance of light setting. For example, James Geier, president of 555 Design Fabrication Management, made the point that lighting had many extra functional purposes rather than only performing its basic illumination (Wilson, 2003). In physiological science, there is also strong evidence to affirm that lighting affects the human body in several ways such as increasing the hormone level, which is a chemical reaction in the human body (e.g., Wurtman (1975)). However, in marketing research the investigation of lighting on consumer behavior is still limited (Areni & Kim, 1994; Briand & Pras, 2013; Summers & Hebert, 2001).

Brightness (bright vs. soft) is a light attribute that has been mostly studied as it is a readily manipulated item. Areni & Kim (1994) proved that for wine items, bright lighting encourages more products to be examined and handled than soft lighting, which Summers & Hebert's (2001) confirmed with a similar kind of result. This can be psychologically explained by Mehrabian & Russell (1974) in that brighter lighting would better create an emotional state of arousal and pleasure. Examples of emotional impact can be seen in the work of Custers et al. (2010) which certify that brightness has a direct relationship to tension, but an inverse relationship to coziness. In addition to luminance level, the correlated color temperature (CCT) also plays an important role in influencing mood and behavior. For example, Park & Farr (2007) found that clear bright lighting, which stimulated better arousal, made customers more likely to approach the store, even though warm lighting created more pleasure. This may imply that arousal state influences approach behavior better than pleasure in a retail environment.

Later in the past decade, marketing researchers started to combine lighting with color to create effect (e.g., Babin et al. (2003), Park & Farr (2007), Briand & Pras (2013)). The reason behind the combination is probably because a light source associates color as one of its inherent properties, for example, candle light appears as a red tone, while a welding machine produces a blue light. Surprisingly, human feel blue tones as cooler than red (Park & Farr, 2007), which is the inverse of their relative strengths in terms of powerful sources of energy. Based on the Kruithof curve, the correct interaction between illumination and color temperature can create a pleasing effect in such a way that higher luminosity should combine with higher color temperature (i.e., bright cool lighting) and lower should combine with lower temperature (soft warm lighting). In contrast, the inverse interaction, bright warm lighting and soft cool lighting, would make humans feel uncomfortable. For example in marketing research, Babin et al. (2003) found that bright lighting with a blue interior greatly enhanced store patronage and purchase intention over bright lighting with an orange interior. In the case of soft lighting, a blue and orange interior did not make the result different, but only affective evaluation and perception of price fairness did better in an orange interior. Briand & Pras (2013) claimed that bright cool lighting has a positive effect on stimulating perception of the environment and purchase intention, meanwhile soft warm lighting influenced customers to intentionally spend their time in a retail store.

Literature related to music

There has been a long series of intensive studies about the effect of music variables on human responses, which is summarized and classified well in the work of Jain & Bagdare (2011). Music has probably gained the most popularity with many scholars and practitioners because of its nature: low cost and easily controllable (Demoulin, 2011; Yalch & Spangenberg, 1993). Designing the appropriate music for the affectively aroused aural sense in a retail environment becomes a challenging task for many managers. This is especially the case as practitioners may need to contemplate how to implement the proper combination among various music variables such as tempo (Herrington, 1996; Milliman, 1982; Sullivan, 2002), volume (Herrington, 1996; Sullivan, 2002), genre (Herrington, 1996), likeability (Garlin & Owen, 2006), popularity (Sullivan, 2002), familiarity (Garlin & Owen, 2006; Yalch & Spangenberg, 2000) and

presence/absence (Andersson et al., 2012; Beverland et al., 2006; Sullivan, 2002). Additionally, the impact of those music variables have also been theoretically and empirically proven to have an effect on cognitive, emotion, and behavioral responses (Jain & Bagdare, 2011), for example, time perception (Yalch & Spangenberg, 2000), merchandise perception (Areni & Kim, 1993), mood (Bruner, 1990) and money and time spent (Andersson et al., 2012; Herrington, 1996; Milliman, 1982; Sullivan, 2002).

As seen in many of the aforementioned studies, music variables can be strategically applied to manipulate consumer behavior for marketing purposes. For example, Milliman (1982) proved that a slow tempo, compared to a fast tempo, was able to retard shoppers' movements so they would have a longer stay at a supermarket. Garlin & Owen (2006) used meta-analysis on several studies and insisted that subjects stayed longer when the music was set to a slower tempo, lower volume and was familiar to shoppers. Another study by Herrington (1996) claimed that shopping time and expenditure were observed to increase with a background level of music, regardless of the tempo and volume. However, the presence of music should be applied to a store environment with caution because the wrong setting can result in a negative impact (Alpert, Alpert, & Maltz, 2005; Beverland et al., 2006). For example, an overpowering volume of music causes a negative impact regardless of its kind (Beverland et al., 2006). In another study by Areni & Kim (1993) it was reported that top-forty music, compared to classical music, did not work for a prestige wine store, whose target consumers were really associated with upscale products.

There is the notion by some scholars (Beverland et al., 2006; Yalch & Spangenberg, 1990) that one type of music is not able to universally fit all situations. A misfit between a certain type of music and a store can produce a negative result (e.g., the deterioration of the consumer-brand relationship) because a specific genre of music helps represent a certain store concept (Beverland et al., 2006). For music type, foreground and background music is perhaps one of the most frequent classifications (Yalch & Spangenberg, 1990), certain of which were empirically proven to suit certain types of store format (i.e., up-market as distinct from discount image). Yalch & Spangenberg (1990) has defined the foreground music as a song with an artist's voice, whereas, background music is composed of musical instrument/s without vocals (e.g., classical music). Based on the study of Yalch & Spangenberg (1993), foreground music

was significantly verified to provide a perceived inexpensiveness of merchandise and a down-to-earth image of the retail store, rather than background music. This finding is also supportive to some other studies, for example, Areni & Kim (1993) found that classical music induced customers to purchase more expensive items of wine than playing top-forty music; Yalch & Spangenberg (1990) expected that classical music will support a perceived higher price of merchandise as compared to country and western music. Another example by Grewal & Baker (1994) is that classical music with soft warm lighting (a high ambient environment) improved the price acceptability of a product than an environment with top-forty music.

Referring to the context of this study, foreground music is, therefore, expected to fit a general store format (e.g., a discount store, convenience store or mom-and-pop store), which mostly sells general products (e.g., fast moving consumer goods (FMCG)). Meanwhile, background music is supposed to serve the up-market retail format (e.g., an up-class department store or expensive specialty store). Additionally, music is likely to have a big effect on low involvement products (e.g., general products) unlike high involvement products (e.g., cars, appliances, PCs and cameras), for which it tends to have less effect (Bruner, 1990).

Perceived typicality of ambience in music and lighting

As stated above, it can be seen that music and lighting elements have been investigated intensively by many scholars and proven as great influences on various aspects of consumer behavior. To identify what level of ambient elements (i.e., the combination of music and lighting) should be optimal for particular circumstances (i.e., hypothesized), the concept of typicality has raised some interesting point here. Referring to Rosch (2002), typicality originated from the principles of categorization in which the term *'prototype'* was initiated, a term which the following example helps us to understand as a cognitive item. In the color spectrum, there are various shades of red that may be classified to be within the red color category, but there will be only one specific red (e.g., fire-engine red) that best represents the real red in the human cognitive structure. It follows that this red is called a prototype of the red color category. Hence, the term *'prototypicality'* (or simply typicality) refer to the degree to which an object can be a good representative or example of such a category (Alba & Hutchinson,

1987). A better clarification is given by Rosch & Mervis, (1975), *'family resemblance'* was incorporated to further explain the concept of prototypicality in such a way that an item which represented strong prototypicality would share more characteristics in common with its intra-members but not with members in a neighboring category.

In marketing, many studies have empirically proven that perceived typicality positively influenced various aspects of consumer behavior such as preference (Babin & Babin, 2001; Nedungadi & Hutchinson, 1985; Ward & Loken, 1988), market share (Ward, Bitner, & Barnes, 1992), feeling of happiness and satisfaction (Barnes & Ward, 1995), and, especially, patronage and purchase intention (Babin & Babin, 2001; Roest & Rindfleisch, 2010). Ward & Loken (1988) have accounted for why typicality is positively associated with preference giving the example that some widely available products, whose attributes (e.g., inexpensive or affordable) are naturally preferred, can usually be seen in the market and ultimately become typical in consumer cognition. Another supporting reason by Alba & Hutchinson (1987) stated that general consumers preferred to minimize their cognitive effort to process information so that typicality cues allowed familiarity for consumers and require fewer cognitive resources.

However, there are some particular situations in which typicality might be inversely related to preference. For example, Ward & Loken (1988) have found a positive relationship between typicality and preference in the soft drink category, while for cars and clothing stores typicality is revealed to be less preferable (thus a negative relationship exists). Ward and Loken have explained that for some particular products (e.g., automobiles and clothing) uniqueness is valued as the reason for purchase so that the degree of typicality deteriorated such a value of uniqueness. Moreover, Babin & Babin (2001) have empirically claimed that store typicality purposely served a utilitarian value rather than hedonistic value in such a way that the typical store would preserve familiarity, which facilitated a shopping task and induced patronage intention. Therefore, in summary, the typicality concept is quite valuable for common products, general consumers and utilitarian benefits.

In a grocery shopping situation, consumers are likely to have a task-oriented motivation rather than a recreational expectation as usually seen in shopping malls and fashion stores (Kaltcheva & Weitz, 2006). Shoppers who perform task orientation are likely to seek utilitarian value from shopping rather than hedonistic

benefit (Stoel, Wickliffe, & Lee, 2004). For example, in grocery superstores, the environmental design is purposely focused to facilitate optimal use with features such as layout simplicity, low price and rationality (Bäckström & Johansson, 2006). In convenience stores, where a variety of utilitarian products is typically available, a consumer receives a great benefit from his/her quick trip rather than engaging in a planned purchasing trip (Mantrala et al., 2009).

This means that convenience stores must aim to facilitate customers in terms of utilitarian benefit because time pressure and complex stimuli will confine customers to require automaticity in their decision making process. Typicality is deserved for this great benefit (Alba & Hutchinson, 1987). In short, it is concluded that typicality can improve customer intention and satisfaction for mass-market retail services (e.g., gas stations, drugstores and grocery stores) because they are naturally utilitarian rather than hedonistic in their orientation (Ward et al., 1992). This is also related to the case of Thai traditional mom-and-pop stores, which occupy limited selling space and purvey utilitarian products as convenience stores also do.

For lighting variables, IESNA (Rea, 2000) technically advised basic grocery stores to maintain a high luminance level with natural to cool color temperature (3500-5000 K) for visibility and task enhancement (both utilitarian benefits), not for aesthetics. That is why most general grocery stores are typically seen in bright cool lighting rather than soft warm lighting which is mostly found in department stores. For music variables, background music was found to purposely contribute to the image of up-market retail, whereas foreground music was proven to provide an inexpensive and down-to-earth image (Areni & Kim, 1993; Yalch & Spangenberg, 1990, 1993). That is why most grocery stores, which mainly sell general products, typically apply foreground music; meanwhile, up-class department stores usually use background music to characterize their upscale image. With combinations of both lighting and music, Baker et al. (1994) have defined warm lighting with classical background music as enhancing a prestige ambience, whereas cool lighting with popular music offers a discount ambience. Following this, Schlosser (1998) has also adopted both ambient conditions to prove that a discount environment gains a higher likelihood of buying in a store that sells items for everyday use (for utilitarian motives) rather than that of selling items for special occasions (for social identity motives).

Therefore, it is *postulated* that mom-and-pop stores that apply bright cool lighting with foreground music (with expected higher perceived typicality) would enhance consumers' patronage intention than if they used soft warm lighting with background music (with expected lower perceived typicality).

Design environment

Design cues dominantly influence humans through the visual sense, which creates stronger conscious awareness than the sub-conscious level (Baker, 1986; J. Baker et al., 2002). Baker (1986) identified that design cues served customers for two main purposes, namely, aesthetics (e.g., decoration, accessories, color and materials) and functionality (e.g., layout, comfort and signage). In comparison to Bitner's (1992) *'servicescape,'* physical components were also classified to serve an aesthetic impression (e.g., through symbols and artifacts) and functionality (e.g., through spatial layout and signage). Based on the context of this study, the patronage at mom-and-pop stores, which is considered as a type of convenience format (Mutebi & Ansari, 2008), has sometimes engaged a self-service concept and the notion of being under time pressure as opposed to conditions in a specialty or department store (Kim et al., 2009; Sengupta, 2008). With these given reasons, mom-and-pop stores have to primarily serve task-oriented motivation as typically found in grocery shopping (Kaltcheva & Weitz, 2006), for which the functionality of the environment is particularly salient (Bitner, 1992). Therefore, this study has particularly focused on a design that serves a functional purpose rather than aesthetics.

Layout, signage and merchandise display are, for example, subject to facilitating functional commitment rather than hedonistic value. However, spatial layouts designed for functional purposes as seen in supermarkets or discount stores are usually designed in the grid pattern (Levy & Weitz, 2012), which can also be seen in the convenience retail format. In addition, most Thai mom-and-pop stores usually occupy a limited selling space (i.e., the space of the bottom floor of one townhouse (Pientam & Rungwannarat, 2012)), in which the variation in design for the spatial layout is restricted; therefore, layout is not really meaningful to include in this study.

In contrast, product assortments displayed on the shelf are more flexible to design within a limited space. Additionally, dealing with this variety of products is a fundamental strategy to any retail business (Grewal et al., 2003). Especially for mom-and-pop stores, Ramakrishnan (2010) found product assortment an important strategy for business survival against modern trade. Hence, assortment is identified as one of many design cues that are selected in this study for investigation. The literature dealing with assortment studies will be described in the following section.

Basic foundation of the term 'assortment' and 'variety'

Product assortment is perhaps one of the most important strategies (Simonson, 1999) and also the most challenging tasks in the retail industry (Bauer, Kotouc, & Rudolph, 2012). Without merchandise in the store, the retail industry does not seem to be differentiated from any other general service. According to Levy & Weitz (2012), merchandise can be conceptualized in a variety dimension such as breadth (number of categories such as drinks, snacks, produce, canned food) and depth (the degree of item variation within the given category called *'assortment'*). Then, going deeper into any categories, *'assortment'* is defined as the product variation, which is also partitioned into breadth (the number of brands) and depth (the number of stock keeping units, SKUs, which can be varied in size, flavor, color, packaging and so forth, to cater for the heterogeneity of customers' need) (Dhar, Hoch, & Kumar, 2001). As a result, SKU is the smallest identifying unit that merely differentiates one distinct item from any others. For example, two products which have identical characteristics except a difference in size are considered as two SKUs.

From the above definition, the term assortment is much related to the term *'variety'* meaning a number of displayed items, a number of SKUs. Bauer et al., (2012) also found that variety was the best characteristic to represent the definition of *'good assortment'* over other attributes such as quality, price and display. The benefit of serving a larger variety of assortments in a store can be explained in two main paradigms (Oppewal & Koelemeijer, 2005): 1) an economic reason, the concept of one-stop shopping to reduce time and transaction cost; 2) a psychological reason, the concept of more availability to increase the probability of perfect match and satisfying fluctuating preferences (Boatwright & Nunes, 2001; Hoch, Bradlow, & Wansink, 1999).

As a result, the store that offers a greater assortment is likely to gain more benefit from customer patronage than that of a smaller one.

However, there are also some risks in keeping a great variety of assortments, for example, the greater likelihood of overstocking that may allow a higher level of obsolete products (Ryzin & Mahajan, 1999) and purchase discouragement due to overloaded choice (Iyengar & Lepper, 2000). Especially, such risks may really burden the small family-run stores because most of them possess limitations (e.g., budget constraints and a lack of technological operation) in business operations as compared to chain stores (Chemsripong, 2011; Pientam & Rungwannarat, 2012; Poapongsakorn et al., 2002). It then follows that the concept of perceived variety was purposely served to alleviate the limitations of a small local grocer (Broniarczyk et al., 1998) and as enacted in modern consumer behavior this operates against them.

Perception of variety and complexity of assortment

The concept of perceived variety can be simply explained because humans perceive variety differently from what they actually encounter (Broniarczyk et al., 1998). In the same fashion as the given benefit of actual variety, perceived variety was considered as an important mediator that positively effects many important behaviors: consumption quantity (Kahn & Wansink, 2004), satisfaction (Mogilner, Rudnick, & Iyengar, 2008) and store selection (Broniarczyk et al., 1998). Kahn & Wansink (2004) have been found to explain the fact that perception of assortment variety could induce consumers' positive feeling such that their enjoyment was established in order to initiate more consumption.

According to the work of Broniarczyk et al. (1998), the benefit of *'perceived variety'* was attracted distinctive attention in academic research. Broniaczyk urged traditional format grocers, whose profits were beaten by modern format chains like Warlmart, to adopt the concept of *'efficient assortment,'* an idea to encourage retailers to cut unpopular items to reduce inventory cost. In doing so, retailers were afraid of losing their regular customers, so then the concept of perceived variety was delivered by Broniarczyk et al. (1998) which insists that reducing some unnecessary SKUs would not worsen consumers' perception of assortment variety. In Broniarczyk's study, one interesting finding was that perceived variety started dropping when the

number of SKUs was cut by up to 50% unless favorite items were still retained in the store. In other words, if favorite items were taken off the shelf, the store would lose perceived variety more quickly.

Perceived variety can be established by the concepts of *'actual variety'* and *'assortment structure'* (Kahn & Wansink, 2004). Actual variety is defined as the degree of availability of actual assortments displayed on the shelves, which comprises two main components: firstly, the number of distinct options (i.e., numbers of SKUs); secondly, the number of repeated items included in the occupied space on the shelves (Kahn & Wansink, 2004). For the full display on the shelf facing, the degree of unique options was found to produce a stronger perceived variety than the number of repeated items (Broniarczyk et al., 1998; Hoch et al., 1999). Besides, the availability of favorite items can also be identified as a component of actual variety (Broniarczyk et al., 1998). For example, the store purveying a large number of popular SKUs fully displayed on the shelf facing can lead to the perception of a higher variety than those which offer fewer.

In addition to the actual variety, the assortment structure (i.e., the merchandise display on the shelves) can also alter the perception of variety. Kahn, Weingarten, & Townsend (2013) have conceptualized display strategies of how assortments can be manipulated to achieve perceived variety. This started with the study of Morales et al., (2005) which revealed that, in the case of familiar product categories, consumers perceived more assortment variety if the items were organized in away matching their internal schemas. In addition, Mogilner et al. (2008) investigated the effect of the number of product categorizations on perceived variety. The idea was that the same things can be categorized into different ways, for example, their experiment categorized the same display set of 77 magazines into 3 categories (e.g., "men," "women," and "general" magazine) or 18 categories (e.g., “cooking,” “auto,” “sports,” and so on) by labeling the name tags on the shelf. The results revealed that the greater number of categories increased the perceived variety only for the customers who had no choice to buy in advance.

Other important assortment display studies were by Kahn & Wansink (2004) and Hoch et al. (1999), who investigated the effect of organized versus disorganized displays on the relationship between actual variety and perceived variety. The results showed that disorganized displays (i.e., random displays) activated more

perceived variety than organized displays. However, the disorganization effect was true only when the consumers were involved in holistic processing (scanning the overall assortment) rather than analytical processing (assessing the comparison within the assortment) (Hoch et al., 1999; Kahn et al., 2013).

Although consumers prefer assortment variety, too much variety can incur choice overload, termed "perceived complexity," which ultimately deters choice motivation, (Kahn et al., 2013). Iyengar & Lepper (2000) challenged this idea by observing consumer behaviors toward 6 or 24 flavors of jams placed in the store. The results revealed that the extensive options of jams were able to attract more customers but the final purchases of jams when many were offered were actually fewer than when limited choices were available.

This phenomenon might be explained by the utility theory (Frank, 2008) that a rational person would gain an additional utility as he/she gets more, but further incremental utility appears to have a lesser margin. This incremental aspect of the utility would finally reach the point of diminishing returns and start falling even if the actual assortment is increased. To incorporate this theory to a situation of perceived variety and complexity, by holding the assortment structure constant, the gradual increase of the actual variety (i.e., the number of distinct SKUs and repeated items) would continuously increase consumers' satisfaction to reach the highest point (optimal perceived variety), then the satisfaction starts dropping, which can be identified as the zone of complexity (see Figure 3).

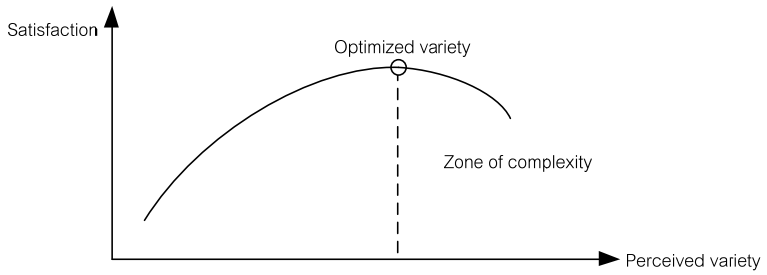


Figure 3 The proposed relationship between perceived variety and satisfaction
(Frank, 2008; Iyengar & Lepper, 2000; Kahn & Wansink, 2004)

Such theoretical explanation lets the researcher spot some cues of perceived complexity in some studies with initially perplexing results where even if the

assortment variety was perceived to be higher, the behavioral responses appeared not very impressive. For example, a study by Kahn & Wansink's (2004) has disorganized the large number of jelly bean flavors in a tray. The perceived variety was found to be higher, but the anticipated consumption utility was reversely dropped. Another example by Mogilner et al.(2008) revealed that consumers who had a prior preference perceived a little higher variety with categories (eighteen against three), but their satisfaction was not found to be impressive.

Unfortunately, no past study has identified the exact condition of what constitutes choice overload, i.e., how many options start to establish choice overload (Scheibehenne, Greifeneder, & Todd, 2010). However, some types of display (e.g., random displays) have been noticed to incur the perception of choice confusion, especially in the case of a larger actual variety (see Kahn & Wansink, 2004). A possible explanation is that consumers usually apply basic intuitive rules to simplify their decision making (Huffman & Kahn, 1998), termed *'heuristic principles,'* which is the mental method for a shortcut solution (Tversky & Kahneman, 1974). Thus, the disorganized display, where consumers have difficulty detecting any heuristic cues to reach a decision (Kahn & Wansink, 2004), may eventually lead to perceived complexity. Additionally, in the choice making stage, a visual display can cause perceived complexity more easily than a verbal description (Townsend & Kahn, 2014).

In this regard, the assortment conditions, where perceived variety and complexity may coexist, are proposed for investigation. Due to the favorite effect of perceived variety and unimpressive effect of perceived complexity, it is *postulated* that a large organized assortment, where perceived variety is highly expected and perceived complexity is minimized, would produce the highest utility of patronage intention over other combinations of assortment such as a large disorganized assortment, a small organized assortment, and a small disorganized assortment.

Although the disorganized display may incur a certain degree of perceived complexity (Kahn & Wansink, 2004), the two concrete benefits of variety, economic and psychological reasons (Hoch et al., 1999), are expected to overwhelm the negative effect of complexity. In the classical model of decision making under uncertainty, humans take the process of decision making by weighting each choice's attractiveness with its likelihood of occurrence (Hardman & Macchi, 2003). In the case

that the store's attractiveness is identified with successful purchasing, consumers could perceive a higher likelihood of successful purchasing on the quality of a larger assortment, where greater perceived variety is provided, rather than considering whether the product display is organized. In other words, consumers may prefer a cluttered store with a large assortment to an organized store with a small assortment because they have a higher probability of acquiring the desired product at the store with more variety

Thus, it is *postulated* that the positive effect of the larger actual assortment, where perceived variety is engaged, is stronger than the negative effect of the disorganized display, with which perceived complexity is associated.

Social environment

The human or social environment is considered as an important component of the physical environment in marketing services, other than ambient and design components (J. Baker, 1986), because humans are recognized as social animals such that socializing with other people is the key of human wellbeing (Vangelisti & Perlman, 2006). People such as other customers and sales personnel (J. Baker, 1986; Kim & Kim, 2012) can be perceived as interactive objects in the environment that a customer may respond with. For instance, a very excessive number of customers in a store would convey a density perception that impairs the evaluated store atmosphere whereas increasing the number of service employees could reduce customers' waiting-time expectation (Grewal et al., 2003). Social cues have originally been categorized in the service environment by Baker (1986) into two major sources: other customers and service personnel. Factors such as number, physical appearance and behavior of both customers and service providers were proposed as the key attributes in Baker's framework. Particularly in retail stores, Kim & Kim (2012) have also conceptualized social elements, slightly differently from Baker, but their work using empirical studies deepened clarification of those attributes. With regard to the context of this study of mom-and-pop stores, the physical appearance and behavioral attributes of a salesperson (i.e., business owner) will be focused on only, whereas, the environment

created by other customers will not be taken into account because this is very difficult to be manipulated in reality (Rosenbaum & Massiah, 2011).

The importance of salesperson relationship in small family-run business

The relationship between salespersons and customers is considered as an important predictor on repurchase intention (Crosby, Evans, & Cowles, 1990). Particularly for the small family-run stores, many scholars have proven that the relationship between customer and service provider (usually a direct owner) is an important component to retain customers' patronage. For example, Farhangmehr et al. (2000) found that personal service with a close relationship to customers was the advantageous strategy for Portuguese small retailers when compared against hypermarkets. In Thailand, Charoenpoom (2013) found that the friendliness of the owner, free delivery and the enjoyable opportunity to meet the neighborhood were the key reasons for customers to keep patronizing traditional mom-and-pop stores, in spite of their awareness of higher prices and riskier product quality. That is to say that the core strength of small stores is associated with the opportunity of social benefit in which customers may enjoy the feeling of personal attention and care, and the sense of familiarity and intimacy given by the business owners (Uusitalo, 2001). Therefore, the characteristics of the service provider, especially in mom-and-pop stores, can be identified as an important component of the physical environment that helps promote their competitive strength against the big chain stores.

One of many possible reasons how the customer-salesperson relationship is more important for mom-and-pop stores than for chain stores can be explained by the inherent nature of a small family-run business: the difference in concept between a *'service relationship'* and *'service encounter.'* Gutek, Groth, & Cherry (2002) defined a *'service relationship'* as a situation where a customer repeatedly expects to see the same service provider and then both parties are personally recognized, for example, we may expect to consult with our physician, who has personally known our problem well. In contrast, a *'service encounter'* is a circumstance where a customer doesn't care who is going to give the service and the interaction is not expected to occur with the same provider, for example, we may book an air ticket with any service provider and we do not specifically require the same provider for the

next booking. The service triangle, which comprises three parties, the customer (C), service provider (P) and organization (O), was used to explain how these two service interactions are differently shaped. Gutek et al. (2002) explained that a service relationship occurs when there is a robust link between a customer and a service provider in such a way that the customer personally expects the same provider consistently for service interactions (see Figure 4)

There are two reasons that small family-run stores can better facilitate the customer-provider relationship than chain stores. Firstly, a customer who patronizes chain store may relate service employees to organizational performance because retail organizations are likely to make customers a promise through advertising (Bitner, 1995). Therefore, he/she may have some barrier against employees and require providers' standard performance from the organization. In a small family-run business, which does not run under a chain of organization, a customer perceives a service provider without linkage to an organization; therefore, he/she may not require standard service but rather empathy (see Figure 5). This reasoning is supported by Klemz (1999), who found that chain stores required a higher degree of performance (e.g., promptness and politeness) rather than personalization (caring and empathy) which is generally seen in small local stores.

The other reason for a better customer-provider relationship is that the service provider in a small family-run store is usually an owner, who is always available to provide service. Hence, a customer has a more frequent opportunity to repeatedly interact with the same provider from time to time so that both parties ultimately get to know each other and sometimes even become friends (Gutek et al., 2002), which is not easily seen in chain stores. In sum, it is believed that the customer-provider relationship is a valuable strategy for mom-and-pop stores to take the advantage over chain stores because the small family-run business possess this personalization inherently, which is not seen in chain stores.

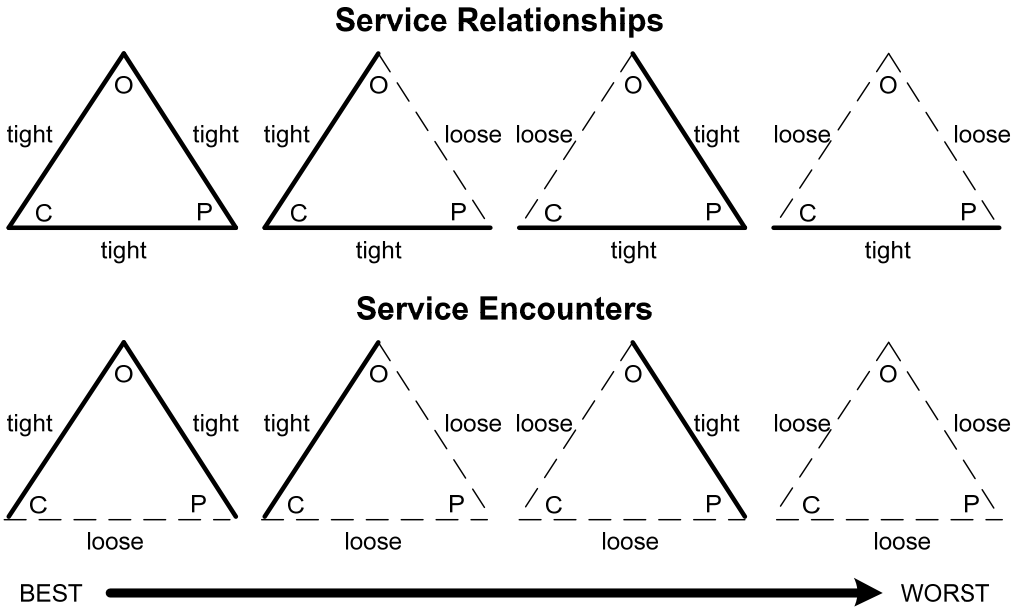


Figure 4 The different types of service interactions in a service triangle model

Note. From "Achieving service success through relationships and enhanced encounters," by B. A. Gutek, M. Groth, and B. Cherry, 2002, *Academy of Management Executive*, *p.*135.

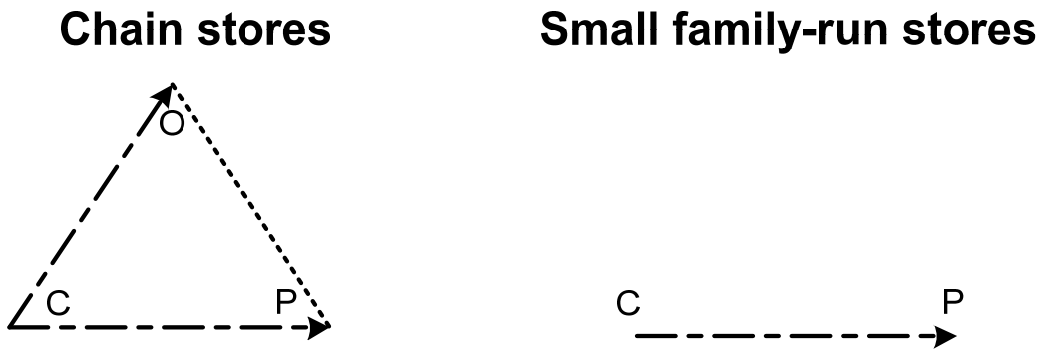


Figure 5 The likely customers' relationship perceptions comparing chain and small family-run stores

(Gutek et al., 2002; Klemz, 1999)

Agentic versus Communal trait for salesperson

In social and personality psychology, the most classical classification in attempting to describe person characteristics into groups has been widely referred to the domain of *'agency'* and *'communion'* as originated by Bakan in 1966 (Abele & Wojciszke, 2007). Agency involves a person's characteristics that strive to be independent, which asserts for the competency to protect and expand self

differentiation; meanwhile communion refers to a person's characteristics that strive to establish the interpersonal relationship with others (Abele, Uchronski, Suitner, & Wojciszke, 2008; Wiggins, 1991). Technically, agency can be described by the adjectives, such as independent, self-interest, self-confident, assertive, active, intelligent, innovative, competent, and well-orgnaized; whereas communal trait can be related to interdependent, other-interest, empathy, kind, helpful, caring, considerate, friendly, and honest (Abele & Wojciszke, 2007; Ghaed & Gallo, 2006; L. C. Ward, Thorn, Clements, Dixon, & Sanford, 2006; Wojciszke, Abele, & Baryla, 2009). Therefore, it can be summarized that the agency may be generally referred to the intellectual-based characteristics, whereas the communion can be related to the relationship-based characteristics.

The integration of agency and communion can be illustrated in an example of sex-role differentiation, where, in tradition times, males were supposed to work outside and females served the role of maintaining harmony within the family (Wiggins, 1991). Wojciszke et al. (2009) found that if one possessed the agentic quality, this would allow him/her to be perceived as a respectful person, whereas the communal quality was related to being a likable person. This implies that both agency and communion are required to supplement different aspects of the social desirability (see Wortman & Wood's (2011) empirical study).

However, we are reminded by Wiggins (1991) and Ghaed & Gallo (2006) that agency and communion do not stand opposite each other on a bipolar spectrum (i.e., they are not mutually exclusive). On the other hand, both traits can separately coexist to form particular personal characteristics. For example, high-agency and low-communion individuals could be active and self-confident but not helpful and emotional; whereas, low-agency and high-communion people could be highly aware of others' feelings but passive and not competitive (Helgeson & Fritz, 2000). It is also possible for an individual to have high agency and high communion qualities.

The quality of agency and communion can be communicated through personal physical appearance. Firstly, dress is used as an effective means to convey information of individual potency, such as power, competence and intelligence (Damhorst, 1990). For example, students or teachers who wear a uniform are perceived as intelligent and with academic potential (Behling & Williams, 1991). Thus, it is seen

that well-organized dress can be inferred to attract the perception of agency quality. Secondly, the perception of facial expression is the most important visual cue for humans to imply some communication in social exchange (Leopold & Rhodes, 2010). Within a facial area, the eyes and mouth are the two most powerful sources that infer some meaningful information about facial expression (Calvo & Fernández-Martín, 2013). Involved with cultural perspectives, Hack (2014) stated that smiling behavior was commonly characterized by people, typically women, who possessed the communal quality (e.g., warmth and friendliness) rather than those with agentic quality (e.g., competence and toughness), usually found in men, who are associated with not smiling.

In adapting this framework to the context of salespersons' characteristics (e.g., a storeowner in mom-and-pop stores), the agentic trait is interpreted as the intellectual competency to be able to answer customers' questions, completing tasks quickly and looking organized. On the other hand, the communal trait is interpreted as relationship proneness such as offering help and being friendly and polite. Consequently, all of the possible combinations from these two traits can result in four types of salesperson: 1) low-agency, low-communion; 2) high-agency, low-communion; 3) low-agency, high-communion; and 4) high-agency, high-communion. For example, the high-agency, low-communion storeowner has good knowledge of product information but is not friendly to customers.

Due to the complementary roles between agency and communion, it is *postulated* that the storeowner who characterizes the greater agency and communion, would provide a higher utility of patronage intention than other agency-communion combinations of these characteristics.

Form a macro perspective, the importance of relationship can also be explained through the cultural dimension. Since 1970, Geert Hofstede began developing a framework of cultural dimensions from an IBM survey database and, years later, many scholars who repeated studies by retesting to other groups of respondents and countries, have affirmed the validity of Hofstede's cultural dimensions until today (Hofstede et al., 2010). One of these cultural constructs relates to the dimension of individualism/collectivism (De Mooij, 2011). Thai society strongly emphasizes collectivism as opposed to the individualism of most western countries (see Hofstede et al., 2010).

In a collectivist culture, children are basically taken care of by the extended family in exchange for loyalty and they learn to think of themselves as *'we'* rather than *'I'* as usually seen in individualist culture (Hofstede et al., 2010). Thus, collectivist people are interdependent with their in-groups and emphasize empathy and sociability to form intimate, long-term relationships (Triandis & Suh, 2002). In consumption behavior, consumers' decisions in collectivist cultures are also greatly influenced by others (e.g., their family, friends and salespersons) (Kongsompong, Green, & Patterson, 2009). To better treat in-group customers (particularism) is typically acceptable for a collectivist society, whereas, equal treatment (universalism) is important for business practice in an individualist society (Hofstede et al., 2010). In addition, consumers in collectivist cultures are also more likely to perform relational market behavior with firms, products and brands than those in individualist cultures (Arnold & Bianchi, 2001).

As a result, the relationships and trust between parties in collectivist cultures are considered very important in the sales process, whereas in individualist cultures, parties just want to get the purchasing goal reached fast (De Mooij & Hofstede, 2010) and this can ultimately influence buyers' behavioral intention (Ozdemir & Hewett, 2010). For example, Pornpitakpan & Han (2013) found that Singaporeans, who represent a strong collectivist society, showed greater sensitivity when impulse buying to salespersons' characteristics (e.g., friendliness, attention, willingness and patience) than do Americans, who represent an extremely individualist society.

Thai collectivistic society is, therefore, likely to maintain harmonious relationships in the groups and avoid any extremities of conflict, which can be seen in the popularity of some frequently used words such as 'chai-yen' (keep cool), 'sa-nook sa-nhan' (enjoy life and be happy), 'mai-pen-rai' (never mind), 'kreng-chai' (not hurting other's feelings) (Mishra, 2010). From the perspective of consumption behavior, Thais are likely to be involved in a low time pressure style to enjoy their shopping experiences, social relations and in-store activities (Shannon, 2009; Shannon & Mandhachitara, 2008). Additionally, as mentioned earlier, Thais' buying decisions are also highly interdependent on others in comparison to people in western countries. For example, Kongsompong et al. (2009) empirically found a greater influence of parents, friends and even salespersons on Thais' decision buying than that of Australians and

Americans, who possess strong individualist cultures. In service interactions, Thai customers were found to be more sensitive to interpersonal treatment than customers in individualist countries like the USA (Patterson & Mattila, 2008).

As mentioned above, it is expected that a salesperson who is characterized by good communion is in strong demand in collectivist societies because the communal trait tends to serve others' interests. Additionally, due to this supporting role for others' interests, a person who possesses the communal trait is generally acknowledged as being more liked by others (Wojciszke et al., 2009; Wortman & Wood, 2011). Therefore, it is *postulated* that the absolute effect of the communal trait would produce a higher patronage intention than the absolute effect of the agentic trait for Thai mom-and-pop stores.

Price

In a long series of investigations into the effect of price on patronage intention, it was found that price has played a major role in two ways, namely, via economic and behavioral paradigms (Bornemann & Homburg, 2011). From an economic perspective, Bornemann & Homburg (2011) explained the role of price as the cost of making a purchase, which carried some degree of monetary sacrifice as perceived by the customer, whereas, from the behavioral perspective price served as an information cue to infer product quality. With such dual roles, setting a higher price, for example, may result in a positive perception of the product quality but involves sacrificing more money. This then results in an evaluation of the trade off, called *'perceived value,'* which is used to finalize customers' buying decision (Dodds & Monroe, 1985).

Since many scholars have proposed different processing models involving price setting and purchase intention, this study would like to combine that literature and refurnish it into the proposed process as described in the following (see also Figure 7). The process begins when customers start comparing the actual price with their internal reference price (e.g., price from other stores, price from other customers' purchasing or their previous experience (Xia, Monroe, & Cox, 2004)) to form their perception of the store's price (Chang Tung-Zong & Wildt, 1994). If customers

perceive that the actual price is higher than their internal reference, the product quality, then, may be inferred as more superior, legitimately requiring more money to be sacrificed (Dodds & Monroe, 1985; Dodds, Monroe, & Grewal, 1991; Teas & Agarwal, 2000) or alternatively the perceived price is considered unfair (Xia et al., 2004). Thereafter, customers will form their perceived value judgment by trading off between the perceived quality and perceived sacrifice (see empirical evidence in Teas & Agarwal, 2000) to finalize their purchase intention (Dodds et al., 1991).

It is, however, believed (but not empirically proven) by some scholars that perceived price fairness would indeed increase perceived sacrifice (Xia et al., 2004) and perceived value and enhance the purchase intention (Martins & Monroe, 1994; Xia et al., 2004). Due to the process mentioned above, in summary the actual price has been somehow processed by our human cognition to finalize our purchase intention. The concept of price fairness helps this study to understand how a better store environment can produce consumers' positive perceptions as further described below.

Theories behind price fairness in the literature help to clarify how the improved store environment can be valuable to our human perception. Based on Campbell (1999) and Martins & Monroe (1994), *'equity theory'* and *the 'principle of dual entitlement'* were pointed out to explain how people perceived such price levels as either fair or unfair.

Equity theory posits that parties (e.g., buyers and sellers) try to balance trade fairness by achieving equal ratios of gains to losses (investment) in the transaction process. This theory results in the principle of dual entitlement (Martins & Monroe, 1994) to explain fairness in such a way that if a buyer increases price because of a cost increment (profit is not increased), the customer may perceive fairness for such a reasonably increased price. In contrast, if the buyer learns that the seller increases price for additional profit (i.e., cost to the seller remains the same as before), the price is, then, perceived as unfair. In short, customers tend to perceive fairness as long as they learn that buyers' profit is not increased. In empirical investigation, Campbell (1999) proved that to increase price while keeping the seller's profit constant could effectively maintain the customer perception of price fairness.

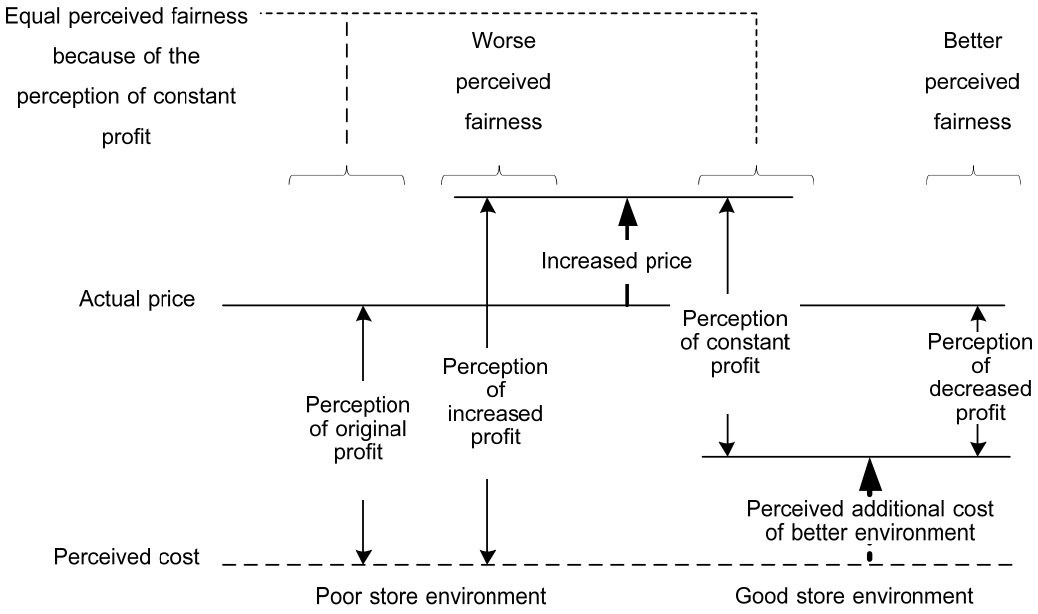


Figure 6 The explanation of how a store environment can provide some value via the principle of dual entitlement in price fairness

(Campbell, 1999; Martin, Ponder, & Lueg, 2009; Xia et al., 2004)

According to the previous concept, perceived price fairness was found to improve perceived value (e.g., Martins & Monroe, 1994; Xia et al., 2004). Additionally, customers may perceive some value in the store environment via the perception of price fairness. For example, it is accepted that improving a store environment may involve more cost for renovation. Therefore, the principle of dual entitlement can be used to reason that products displayed in a nice store environment which have of the same price as those poor store environment may be perceived as having a fairer price because the attractive store incurs some additional cost for the improved environment, which infers a less profitable margin than in the poor looking store. In other words, it can be said that to increase price in the nice looking store would be perceived as fairer than in the unattractive store (see Figure 6).

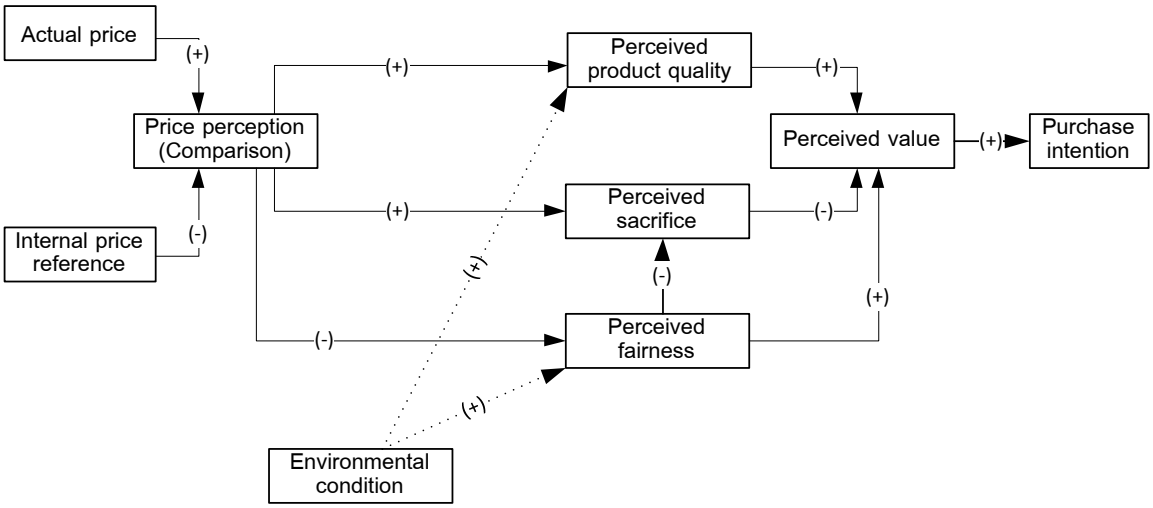


Figure 7 The processing model of price to purchase intention and the contribution of environmental conditions on perceived value

(Bornemann & Homburg, 2011; Chang Tung-Zong & Wildt, 1994; Dodds & Monroe, 1985; Dodds et al., 1991; Martins & Monroe, 1994; Teas & Agarwal, 2000; Xia et al., 2004)

To date, there are few studies emphasizing the impact of store environment on perceived price fairness. For instance, Babin et al. (2003) found that the surroundings with soft lighting and orange tone produced a better perception of price fairness. Grewal & Baker (1994) proved that good conditions in ambience, design and social cues provided more acceptability of a higher price. In another example related to the social component of the environment, Xia et al. (2004) pointed out that with the first-ever contact to the seller, customers utilized some cues such as store reputation, store display and product assortment to evaluate the perceived price fairness rather than using their mutual relationship. After seller-buyer transactions have repeatedly occurred, parties would form trust in a relationship, which helped enhance perceived price fairness. Lastly, not only does a better overall environment provide value through the channel of perceived price fairness, but it also positively contributes to the perception of product and service quality (Baker et al., 1994). For a clearer understanding of the above explanation about price, please refer to Figure 7.

Another concept called *'nonmarket valuation'* derived from the combining the fields of natural resources and economics supports the notion that the environment provides some certain value, which can be evaluated in economically (i.e. in terms of

monetary value). Based on Champ et al. (2003), the concept of *'nonmarket valuation'* originated since scholars have seen the value of something differently, for example, ecologists typically refer to intrinsic value in nature, whereas economists usually refer to instrumental value in market commodities. However, the justification of an intrinsic value is very difficult by its very nature such that it is problematic to apply it to the managerial perspective. Therefore, there has been an attempt to evaluate nonmarket products (e.g., the value of a better environment) in terms of their economic value, which aims to satisfy human needs or the increased utility of an individual (Champ et al., 2003).

To appraise the nonmarket value of the environment, the price variable is typically adopted in experiments. Methods such as stated preferences, conjoint analysis or the attribute-based method are applied to measure willingness to pay for changes in environmental attributes (Champ et al., 2003; Haab & McConnell, 2002). For example, Darian et al. (2005) investigated the value of salesperson attributes (e.g., respect, friendliness, knowledge and responsiveness) in terms of utility, which, in turn, translates to an equivalent monetary value. One managerial implication suggested by Darian et al. (2005) is that a manager could make a trade-off by raising prices to offset the increased cost of personnel improvement.

In conclusion, this study claims that a good store environment provides some certain value to customers. This can be proven by applying the concept of price fairness to the price model. Such environmental value can be translated as a monetary value according to the concept of nonmarket valuation (i.e., how much monetary value the better store environment holds). Thus, to apply the nonmarket valuation concept, price is an important independent variable for investigation in this study.

Patronage Intention

Patronage intention is used as the dependent variable as previously stated. Before explaining the term *'patronage intention'*, it is better to firstly understand the concept of *'behavioral intention.'* Yun & Good (2007, p. 9) have defined behavioral intention as *“the degree of conscious effort a person will exert to perform a behavior."* Many empirical studies confirm that a person who has a high level of behavioral intention will have a high probability of performing that behavior in reality. This is

supported by robust investigations based on reasoned action theory (Ajzen & Fishbein, 1974; Chandon, Morwitz, & Reinartz, 2005; Morwitz & Fitzsimons, 2004; Sheppard, Hartwick, & Warshaw, 1988). With such a large stream of studies, Sheppard et al., (1988) performed a meta-analysis and found quite a strong correlation between behavioral intention and actual behavior at the average value of 0.53, which is considered statistically valid. Consequently, based on past studies, behavioral intention may be inferred as the best predictor of actual behavior and this could be a good reason to examine behavioral intention.

Many scholars in marketing research (e.g., Belleau et al., 2007; Heung & Gu, 2012; Ogle, Hyllegard, &Dunbar, 2004; Yun & Good, 2007) have related patronage intention as a particular case of behavioral intention with the explanation that any consumer who has a higher level of patronage intention will have a higher probability to perform patronage at a store. Patronage intention in many studies can be interpreted as a customer's perceived likelihood that he/she will: 1) shop at the store, 2) buy something at the store and 3) tell or bring a friend to the store. These three items are commonly found to describe or define the term *'patronage intention'* and, for example, can be seen in the works of Babin & Babin (2001),Baker et al. (2002), Grewal et al.(2003), Ogle, Hyllegard, & Dunbar (2004), Min Hou, Xiaoding Wu, & Zuohao Hu (2013). Patronage intention may also be referred to as *'store choice'*; Pan & Zinkhan (2006) interpreted it as a likelihood that a shopper will patronize a store. As referred to in some studies, purchase intention was solely investigated when its definition was isolated from patronage intention (for example: Belleau, Summers, Xu, & Pinel, 2007; T. Hansen, Møller Jensen, & Stubbe Solgaard, 2004; Newberry, Klemz, & Boshoff, 2003). Especially, Babin et al.(2003) operationalized the definition of patronage intention as *"the likelihood of shopping in a store"* and purchase intention as *"the likelihood of purchasing an item."* However, it is logical to say that both patronage and purchase intentions are similarly formed by the cognitive process of consumers (Darian et al., 2005).

To manipulate the actual behavior of patronage, it is, therefore, reasonable to understand what factors drive a high level of patronage intention. For example, retailers can increase retail patronage through enhancing store- and product-specific elements (e.g., assortment variety, excellent service from personnel and

pleasant in-store decor) (Pan & Zinkhan, 2006). Many studies found direct and indirect impacts of physical environmental elements on patronage intention. In the case of indirect impact, many mediators were found to exist between environmental cues and patronage intention, most of which were a kind of consumers' perception such as store image (Sirohi, McLaughlin, & Wittink, 1998), merchandize value perception (J. Baker et al., 2002), self-congruity (Sirgy, Grewal, & Mangleburg, 2000), congruity of store typicality (Babin & Babin, 2001), wait expectation and atmosphere evaluation (Grewal et al., 2003), perceived variety of assortment (Broniarczyk et al., 1998) and satisfaction with service personnel (Wang, 2009). Additionally, there were some studies that investigated the direct effect on the patronage intention of some environmental cues, for example, in-store lighting (Babin et al., 2003; Summers & Hebert, 2001), friendliness of salesperson, assortment quality, store atmosphere (Pan & Zinkhan, 2006), convenience, physical elements and (again) friendliness of salesperson (Seock, 2009).

Due to the focus of this study, what follows will report evidence about the physical environment which has an impact on patronage intention, either directly or indirectly. The sequence of this explanation is in accordance with Baker's (1986) taxonomy of the physical environment: ambience, design and social component.

First, the ambient component including lighting and color can affect consumers' patronage intention. For example, Summers & Hebert (2001) found that the optimal level of lighting would lead consumers to engage in approach behavior such as more touching and picking up of items. Babin et al. (2003) found the interaction effect of color and brightness of lighting was such that brighter lighting could intensify the effect of color on patronage and purchase intention. However, too much bright could lead consumers to avoidance behavior. Music is another important component in ambience that has been mostly studied among interior cues (Turley & Milliman, 2000). The mere presence of music would enhance store patronage and especially familiar and favored music could even promote a positive effect on patronage (e.g., store choice, frequency of visits and return patronage intention) (Garlin & Owen, 2006; V. L. Vaccaro, Yucetepe, Ahlawat, & Lee, 2011).

Second, design elements which are concerned more with visual appearance have also influenced patronage intention. For example, Broniarczyk et al.

(1998) found respondents were likely to choose the store that was characterized by a perception of more assortment variety, which can partly be managed by shelf display.

Thirdly, social cues including both service personnel and customers are considered as part of the store environment which can promote patronage intention. For example, Baker et al. (2002) found that retail personnel who are well-dressed, friendly, and helpful can increase consumers' perception of interpersonal service, which, in turn, improved store patronage intention. Wang (2009) claimed that service personnel displaying emotions such as greeting, smiling and eye contact had an indirect impact on patronage intention. Darian et al. (2005) found salespersons' respect to be the most important attribute and almost equally as important as price setting.

Summary of part II

This part has mainly focused on the content of this study, comprising the justification of variable selection, the content of all selected variables used in this study, and the theories used in hypotheses development. In summary, this study has identified the independent variables as the environmental construct, which consists of three main components (i.e., ambience, design and social environment), and the dependent variable as the consumers' patronage intention. Additionally, the dependent variable of price is also encompassed due to the purpose of nonmarket valuation (i.e., an attempt at environmental valuation).

Three theoretical constructs have been used in the underlying logic to develop hypotheses about the three environmental components, the final two of which have two aspects each: perceived typicality for the ambient component, perceived variety/complexity of assortment for the design component, and perceived agency/communion of salesperson for the social component.

Part III: Conceptual model and hypotheses

Introduction to Part III

In Part I, the issues of retail transformation were pointed out, which led to important study of the context of mom-and-pop stores, a store category where there has been scarce study of in-store environment, establishing the need and required for further investigation of this area. In Part II, the literature on the physical store environment was reviewed and three theoretical concepts were applied to the respective environmental constructs. Dependent and independent variables were also clarified in Part II. Subsequently, the hypothetical statements were finalized for each environmental component. Part III, the following section, will therefore shortly summarize both previous parts and integrate them into the research justification, hypotheses and the final conceptual framework.

Research justification

Based on the literature review in Part I and Part II, this present study provides some contributions as summarized in the following:

First, there have been some recommendations to investigate the effect of store environment in other types of retail formats (Kim et al., 2009). Especially in the context of small family businesses, the research of store environment appears insufficient (see Runyan & Droge, 2008). Thus, this study has narrowly focused on the in-store environment in the context of mom-and-pop grocery stores. Some Thai scholars (e.g. Charoenpoom, 2013; Chemsripong, 2011; Karnchanapa, 2011; Pientam & Rungwannarat, 2012) have pointed out the need for management of the store environment for Thai mom-and-pop stores.

Second, within the stream of environmental research at the factor level (Lam, 2001), this study has initially included 3 different theoretical concepts to formulate its hypotheses based upon Baker's (1986) environmental construct: 1) the concept of prototypicality, ambient cues; 2) perceived variety/complexity of assortment, design cues; and 3) agency/communion of salesperson, social cues. Importantly, all

environmental components are simultaneously evaluated through the individual decision making process (i.e., this is a within-subject design), which requires a consumer to compare and assess all environmental scenarios. This process is claimed to understand how a consumer makes a decision, whereas the traditional experiment, as usually investigated in environmental research, does not (Louviere, 1988a). The result of this process will clarify the relative importance of attributes such that the most salient environmental attribute, as encouraged by Turley & Milliman (2000), can be revealed.

Third, a salesperson is included as one of the important environmental components in service marketing (Baker, 1986). In personality psychology, two fundamental types of individual traits have been identified: agency (intellectual-oriented) and communion (relationship-oriented). These have been incorporated into the context of salesperson traits.

Fourth, this study also investigates the non-market valuation of the in-store environment. This will clarify how much extra, with the environmental improvement, consumers are willing to pay. This type of investigation usually includes price in the experiment (Champ et al., 2003; Haab & McConnell, 2002). Thus, price is included in the present study not for the primary investigation of patronage intention, but as a supplementary contributor to evaluate the environmental value in monetary terms (Darian et al., 2005).

Last, this study uses 3D interactive simulation operated by a computer as the experimental stimuli, which has been rarely seen in past studies. Computer-aided design (CAD) to explore environmental effects has also been encouraged as another option for experimental studies because it is so easy to change the experimental scenario on a limited budget (Baker et al., 1994; Grewal et al., 2003). However, using CAD to design the computer interface requires some particular skills, which need time to practice and develop.

Conceptual model and hypotheses summary

As stated in Part II, environmental studies have been conducted at three levels: the first class is the elementary level, the second is the factor level and the third is the global level. This study follows the second class of environmental research, namely, the factor level (see Lam, 2001). The reason is that customers actually

perceive a holistic pattern of the environment rather than focusing on each independent stimuli (Babin et al., 2003; Bitner, 1992; Michon et al., 2005) since people normally encounter the real environment, which is complex, and tend to simplify their cognitive processes for daily living (Schiffman, Kanuk, & Wisenblit, 2010). Therefore, the first type of environmental studies, the elementary level, is not the focus of attention. This study also aims to investigate the effect of some environmental elements, which requires some control of the experimental environment. Therefore, the third type, the global level, which typically applies investigation of the real situation without controlling the environment, will not be of interest. Of the following of factor-level studies, Baker's (1986) environmental taxonomy has been selected because it provides a broader construct over that of Bitner (1992) and a clearer classificatory set of definitions than Turley & Milliman (2000).

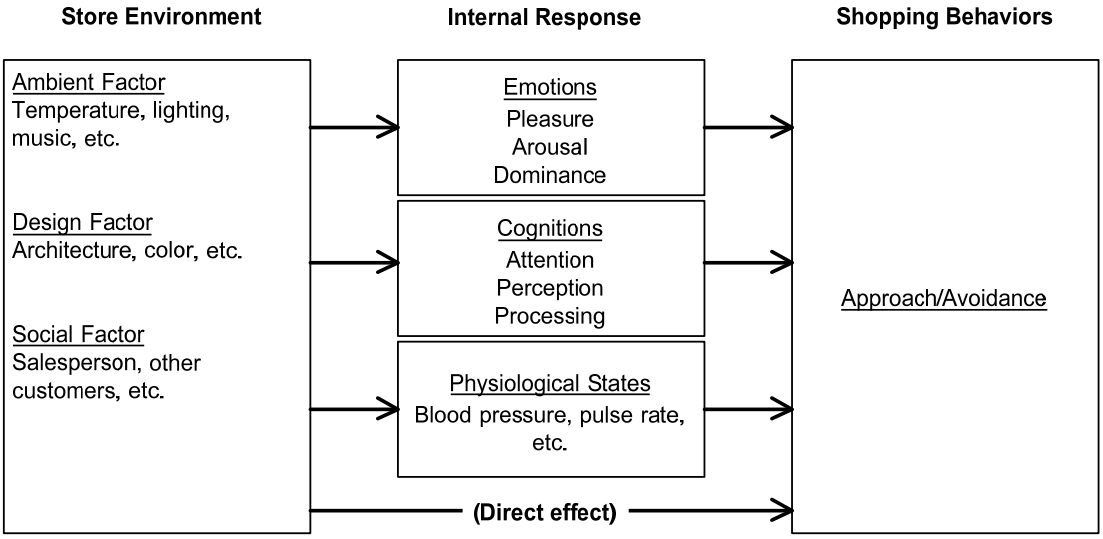


Figure 8 An Integrative Framework of Store Environmental Effects

Note. From "The Effects of Store Environment on Shopping Behaviors: A Critical Review," by S. Y. Lam, 2001, *Advances in Consumer Research*, *28*(1), p. 191.

Based on a combination of the S-O-R model (Mehrabian & Russell, 1974) and situational influence (Belk, 1974), it can be summarized that environmental components, which are treated as stimuli, do somehow affect consumer behavior directly. The direct effect of store environment on consumer behavior was also evident in a critical review of research of that environment by Lam (2001) (see Figure 8). Thus, the present study aims to focus on the direct effect of environmental dimensions (e.g.,

ambience, design and social cues) on store patronage intention, which many studies (see Sheppard et al., 1988) have identified as a great predictor for actual behavior. Therefore, the conceptual framework for the present study is as seen in Figure 9.

As initially introduced in Part II of literature review, three main hypotheses will be tested. These have been developed based upon Baker's (1986) environmental constructs (e.g., ambience, design, and social cues). Price has been selected in the model for the purpose of non-market valuation (i.e., as an attempt to estimate store environment in terms of its economic value). First, the ambient condition of cool lighting with foreground music is selected to be tested against warm lighting with background music. The concept of typicality has been adopted as an underlying reason to establish the hypothesis. Then, the first hypothesis is proposed as the following.

H_1: The condition of cool lighting with foreground music (i.e., higher ambient typicality) would induce a higher utility of patronage intention rather than the condition of warm lighting and background music (i.e., lower ambient typicality) for mom-and-pop stores.

Secondly, the four design conditions of assortment (e.g., small organized actual assortment, small disorganized actual assortment, large organized actual assortment, and large disorganized actual assortment) are established according to the underlying concept of perceived variety/complexity. Based on the literature review, the larger actual assortment (in terms of number of items in the store, number of SKUs and availability of favorite items) is expected to relate to greater perceived variety, whereas the disorganized display is anticipated to relate to greater perceived complexity). Thus, two sub-hypotheses in the design environment are proposed as the following.

H_{2a}: A mom-and-pop store that offers a large organized assortment (i.e., higher perceived variety and lower perceived complexity) would produce a higher utility of patronage intention than other conditions of assortment.

H_{2b}: The positive effect of a larger actual assortment, where higher perceived variety is expected, on patronage intention is stronger than the negative effect of a disorganized display, where the higher perceived complexity is anticipated.

Lastly, the four types of storeowner characteristics (e.g., low-agency low-communion storeowner, high-agency low-communion storeowner, low-agency high-

communion storeowner, high-agency high-communion storeowner) are established according to the domains of agency and communion. Agency and communion supplement different roles, both of which are required in society. The communal trait is expected to be highly valued in a collectivistic society such as Thailand. Thus, two sub-hypotheses about social cues are proposed as the following.

H_{3a}: A storeowner who possesses greater agency and communion would attract higher utility of patronage intention than other combinations of levels of agency and communion.

H_{3b}: The absolute effect of communal trait on patronage intention is stronger than the absolute effect of agentic trait.

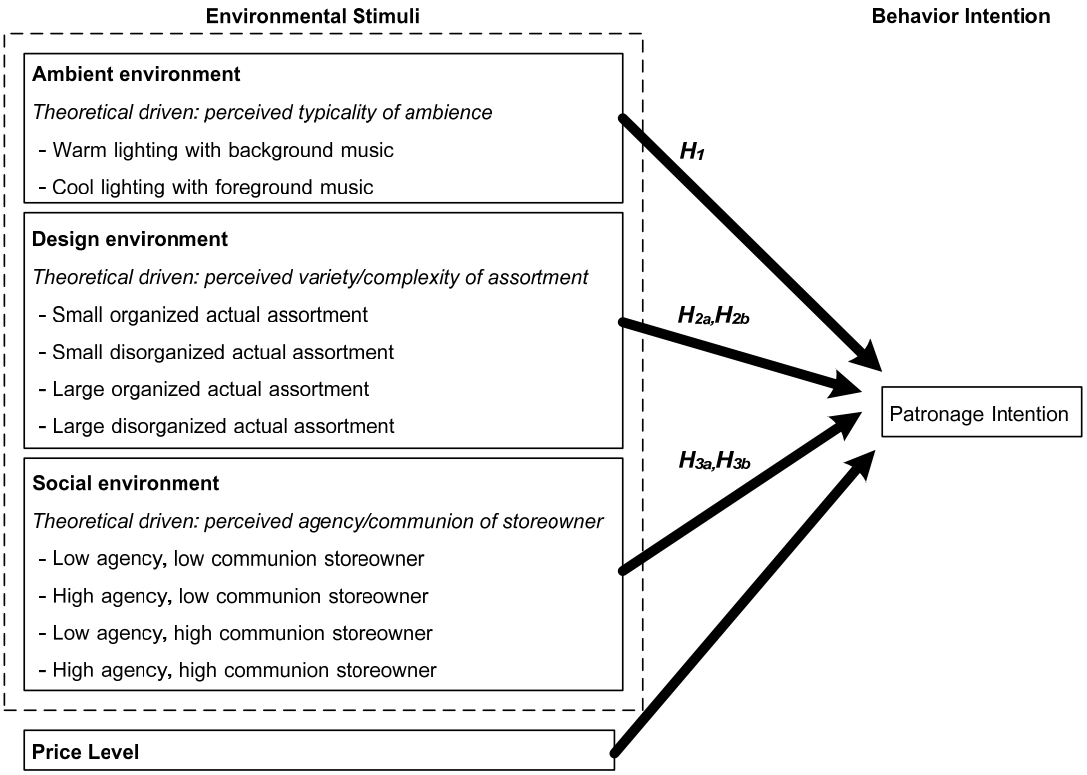


Figure 9 Conceptual Framework

CHAPTER 3

Research Methodology

Introduction

This chapter provides the steps through which the conceptual framework is broken down for the implementation of practical investigation. The research questions can be answered by a technique called conjoint analysis, which owns a particular research design (e.g., selection of conjoint methodology, selection of attributes and levels, treatment and experimental design, stimuli presentation and manipulation check, reliability and validity). This technique is outlined in detail below. Finally, the data collection and the data analysis are also provided.

Research design

Research design aims to provide a proper procedure to answer research questions (Jonker & Pennink, 2010; Matthews & Ross, 2010; Mitchell & Jolley, 2009). This study was designed using deductive logic in such a way that a number of theoretical and empirical studies were reviewed until the researcher came up with the set of hypotheses as seen in Chapter 2 and empirical verification was further performed to finalize the conclusion (see Adams, Khan, Raeside, & White, 2007; Gray, Williamson, Karp, & Dalphin, 2007; Matthews & Ross, 2010; Morgan, 2013). Referring to the research questions of what the optimal combination of physical attributes should look like and how much the given attributes can add value, the quantitative technique of conjoint analysis was, therefore, found eligible for this investigation (see Champ et al., 2003; Orme, 2009). Conjoint analysis can be applied to a number of different paradigms through the common use of the experimental design technique (Louviere, 1988b). It has been shown by many scholars (e.g., Champ et al., 2003; Hair, Black, Babin, & Anderson, 2010; Rao, 2014) that the conjoint approach has brought part of the experimental paradigm to part of survey research. Therefore, the conjoint method owns a particular research design, which is not the same as for other general survey studies.

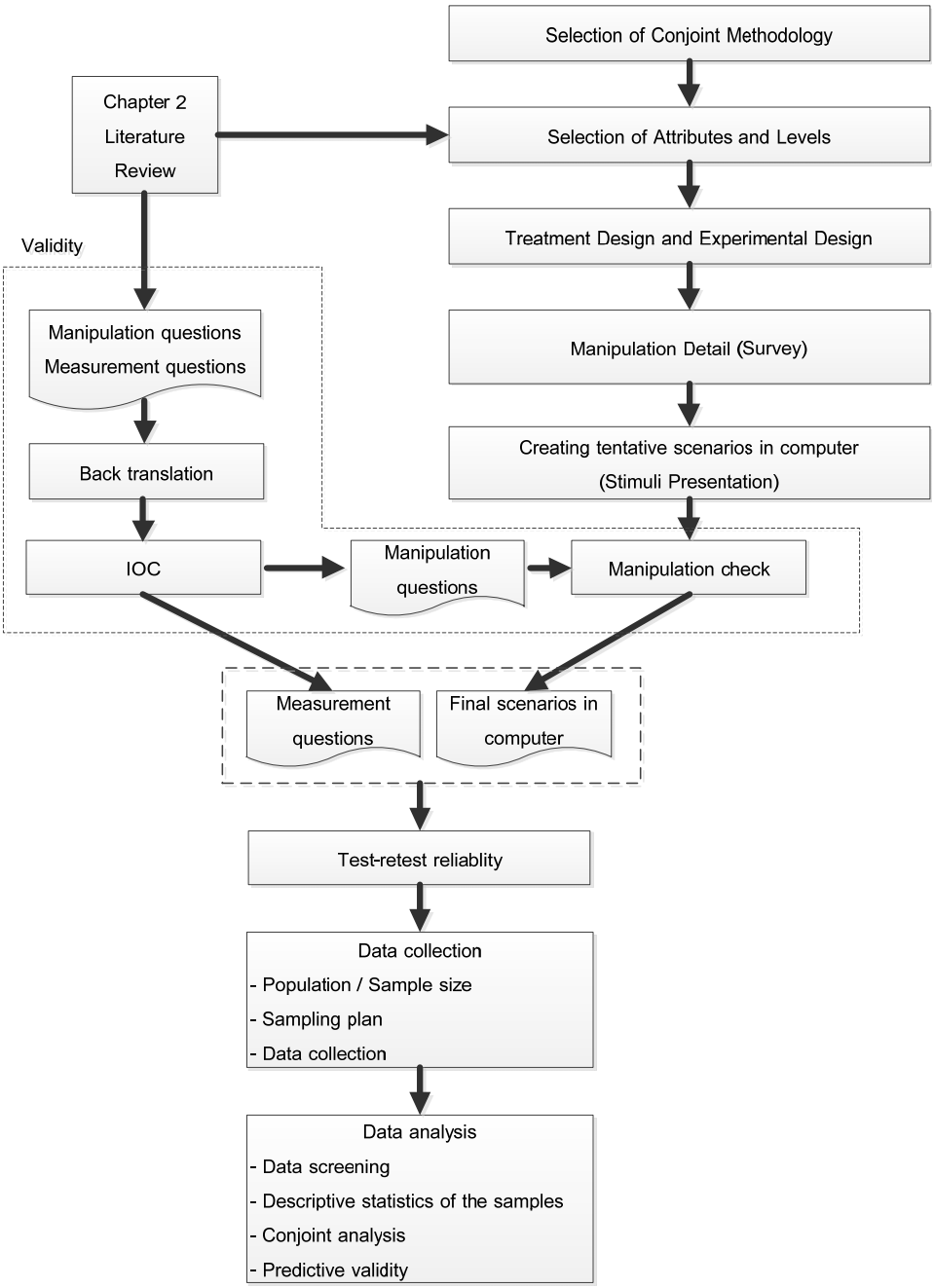


Figure 10 The procedure of research design

What follows is a summary of the procedures involved in the research design for studies using conjoint analysis (see Hair et al., 2010; Rao, 2014). First, a particular type of conjoint methodology is selected. Second, attributes and levels are reasonably established. Third, the levels of all attributes are constructed to create a set of profiles as well as a plan of how all constructed profiles are approached by a respondent. In this third procedure, the given two sub-steps were respectively entitled the *'treatment design'*

and *'experimental design'* (Raghavarao, Wiley, & Chitturi, 2010). Fourth, the presentation of constructed profiles is then designed. Fifth, validity and reliability are then verified to finalize the research instrument. Sixth, a plan for data collection, which includes population, sample size, sampling plan and data collection procedures, is later explained. Lastly, data analysis is further clarified. These elaborated steps are summarized in Figure 10 to convey the flow of the research design.

Selection of conjoint methodology

There are three main methodologies of conjoint analysis: 1) traditional conjoint analysis (CA), 2) adaptive conjoint analysis (ACA), 3) choice-based conjoint analysis (CBC) (Hair et al., 2010; Orme, 2009). ACA is best for 8 to 15 attributes and its methodology needs particular software (e.g., Sawtooth software), which can only be administered via computer (Orme, 2009); whereas, CA and CBC are suitable for a smaller number of attributes (Hair et al., 2010; Orme, 2009). Due to this study comprising 4 attributes for investigation, adaptive conjoint analysis might not be appropriate. Traditional conjoint analysis is selected as an approach to answer the research questions because the methodology is compatible with the number of attributes. Additionally, the two important advantages of CA over CBC are that 1) the method can analyze at the individual level and 2) the CA task reduces the cognitive burden of judgmental processes; whereas, the CBC task brings more realism to the purchase process (Orme, 2009; Raghavarao, Wiley, & Chitturi, 2011; Zwerina, 2000).

Selection of attributes and levels

The selection of the attributes and levels was related to the stated hypotheses, which has logically been accounted for by the literature review in Chapter 2. This study has come up with three main hypotheses according to Baker's (1986) environmental construct, namely, ambience, design, and social cues. Three theoretical concepts (typicality, perception of assortment variety versus complexity, and agentic versus communal trait), which were proposed to examine Baker's construct, were defined as the attributes for mom-and-pop stores in this study. Additionally, this study has also aimed to

investigate the non-market valuation of the physical environment for which price is typically adopted as another attribute (Champ et al., 2003; Haab & McConnell, 2002). In conclusion, this study ultimately comprises four attributes for the investigation: typicality of ambience, perceived variety/complexity of assortment, agentic/communal traits of the salesperson, and price level in the store (see Table 5). Next, the levels of each subsequent attribute were identified in response to the stated hypotheses, which is explained below.

Table 5 Summary of attributes and levels in the study

Attribute	Theoretical driven	Levels of attribute	Expected theoretical result
Ambient cues (Light and Music)	Typicality ***Reference*** *Alba & Hutchinson (1987)* *Rosch & Mervis (1975)* *Ward & Loken (1988)* *Yalch & Spangenberg (1990)* *Ward et al. (1992)* *Yalch & Spangenberg (1993)* *Areni & Kim (1993)* *Babin & Babin (2001)* *Roest & Rindfleisch (2010)*	Warm lighting, Background music	Lower perceived typicality
		Cool lighting, Foreground music	Higher perceived typicality
Design cues (Assortment)	Perceived Variety / Complexity ***Reference*** *Broniarczyk et al. (1998)* *Hoch et al. (1999)* *Iyengar & Lepper (2000)* *Kahn & Wansink (2004)* *Kahn et al. (2013)* *Townsend & Kahn (2014)*	Small actual assortment, Organized display	Lower perceived variety, Lower perceived complexity
		Small actual assortment, Disorganized display	Lower perceived variety, Higher perceived complexity
		Large actual assortment, Organized display	Higher perceived variety, Lower perceived complexity
		Large actual assortment, Disorganized display	Higher perceived variety, Higher perceived complexity
Social cues (Storeowner)	Agency / Communion ***Reference*** *Wiggins (1991)* *Helgeson & Fritz, (2000)* *Ghaed & Gallo (2006)* *Abele & Wojciszke (2007)* (Abele et al., 2008) *Wojciszke et al. (2009)* *Wortman & Wood (2011)*	Low agentic quality, Low communal quality	Lower perceived agency, Lower perceived
		High agentic quality, Low communal quality	Higher perceived agency, Lower perceived
		Low agentic quality, High communal quality	Lower perceived agency, Higher perceived
		High agentic quality, High communal quality	Higher perceived agency, Higher perceived
Price level (Price)	- ***Reference*** *Dodds & Monroe (1985)* *Campbell (1999)* *Martins & Monroe (1994)* *Xia et al. (2004)* *Champ et al. (2003)* *Bornemann & Homburg (2011)*	Much higher than average	Much higher than average
		A little higher than average	A little higher than average
		A little lower than average	A little lower than average
		Much lower than average	Much lower than average

First, ambient typicality was divided into two levels (high versus low). Based on the literature review, mom-and-pop stores that apply the bright-cool lighting (with a white tone) with foreground music (music with vocals) can represent a greater degree of typicality for the context of a grocery store rather than those with soft-warm lighting (with an orange tone) and background music (instrumental music). Therefore, there were two levels of ambient typicality to be tested in this study: 1) warm lighting with background music, 2) cool lighting with foreground music.

Second, it was summarized from the previous literature that the assortment variety could be perceived through the actual variety (e.g., numbers of items, numbers of SKUs, the selling space and the availability of favorite items), whereas the perceived complexity could be created through the shelf display (e.g., organized/disorganized display) (Broniarczyk et al., 1998; Hoch et al., 1999; Kahn & Wansink, 2004). Thus, the four assortment scenarios derived from the factorial combination between large/small actual variety and organized/disorganized display were established: 1) smaller organized actual assortment, 2) smaller disorganized actual assortment, 3) greater organized actual assortment, and 4) greater disorganized actual assortment. Consequently, the effect of perceived variety and complexity were included in one scenario, for example, a disorganized greater actual assortment conveyed greater perceived variety, but also greater perceived complexity.

Third, it has been realized from the literature that agentic and communal traits are not mutually exclusive (i.e., a person may possess both agency and communion) (Ghaed & Gallo, 2006; Wiggins, 1991). Therefore, the combination of agency and communion formed four levels of salesperson attributes: 1) low agency, low communion; 2) high agency, low communion; 3) low agency, high communion; 4) high agency, high communion. For example, a person who possessed high agency and low communion could be active and self-confident but not helpful and emotional; whereas, a person who possessed high communion and low agency could be highly aware of others' feelings but passive and not competitive (Helgeson & Fritz, 2000).

Finally, as expected, price level was varied within a low to a high level. The details of how much the price level was identified will be explained in the later section on "Stimulus Presentation and Manipulation Details." However, it was determined that four levels of price would be used because of the optimal number of

orthogonal profiles. Rao (2014) reminds us that attributes and levels should be actionable from a managerial point of view, which this study has realized and it therefore has followed this principle by taking a price survey.

Treatment design and experimental design

Once the selection of attributes and levels has been identified, all different levels in each attribute were composed into a number of profiles (scenarios). To establish the optimal profiles in the conjoint study, a basic foundation of experimental design was required (Raghavarao et al., 2011; Rao, 2014). In traditional conjoint analysis (CA), the simplest way to create the profiles can be by building them up through a full factorial design (i.e., all combinations of attribute levels). For example, assuming there are 3 levels of each 4 attributes, the full factorial design can produce a total of 3 x 3 x 3 x 3 = 81 profiles. The advantage of a full factorial design is to allow the estimation of the interaction effect among attributes; however, such full profiles are typically not feasible for one respondent to evaluate (Rao, 2014). In the design of experiments, a profile can be treated as a treatment such that the procedure in which profiles are created a called treatment design (Raghavarao et al., 2011).

Orthogonal design is one of many useful plans because it allows the minimum number of profiles to estimate all main effects of attributes (Rao, 2014). Besides, if the orthogonal array is balanced (i.e., each level occurs equally for every attribute), such a design will qualify with the maximum efficiency in parameter estimation (i.e., with the smallest variances) (Rao, 2014; Zwerina, 2000). Therefore, this study applied orthogonal design in a rating-based conjoint method. However, the orthogonal design was incapable of the estimation of interaction effects among attributes (Rao, 2014).

Next, the orthogonal profiles (treatments) were then administered to respondents. This stage is named the experimental design (Raghavarao et al., 2011). Balanced incomplete block design can be applied in case of too large a number of profiles (Rao, 2014; Zwerina, 2000). However, this study came up with 16 orthogonal profiles, a total which was still feasible for one respondent to evaluate. In comparison Rao (2014) recommended not to exceed 30 profiles for a self-administered survey.

Table 6 illustrates the 16 orthogonal profiles generated by the statistical software package from 2 levels of the ambient environment, 4 levels of the design environment, 4 levels of the social environment and 4 levels of price.

Table 6 The 16 orthogonal profiles generated with the statistical software package

Profiles No.	Ambient cues (2 levels)	Design cues (4 levels)	Social cues (4 levels)	Price (4 levels)
1	Warm lighting-Background music	Organized - Large actual assortment	High agency - Low communion	Much higher
2	Warm lighting-Background music	Organized - Small actual assortment	Low agency - High communion	Much lower
3	Cool lighting-Foreground music	Organized - Large actual assortment	Low agency - Low communion	A little lower
4	Warm lighting-Background music	Organized - Small actual assortment	Low agency - Low communion	Much higher
5	Cool lighting-Foreground music	Disorganized - Small actual assortment	High agency - High communion	Much higher
6	Cool lighting-Foreground music	Disorganized - Small actual assortment	High agency - Low communion	Much lower
7	Cool lighting-Foreground music	Disorganized - Large actual assortment	Low agency - High communion	Much higher
8	Cool lighting-Foreground music	Disorganized - Large actual assortment	Low agency - Low communion	Much lower
9	Warm lighting-Background music	Organized - Large actual assortment	High agency - High communion	Much lower
10	Warm lighting-Background music	Disorganized - Small actual assortment	Low agency - High communion	A little lower
11	Warm lighting-Background music	Disorganized - Large actual assortment	High agency - Low communion	A little higher
12	Warm lighting-Background music	Disorganized - Small actual assortment	Low agency - Low communion	A little higher
13	Warm lighting-Background music	Disorganized - Large actual assortment	High agency - High communion	A little lower
14	Cool lighting-Foreground music	Organized - Small actual assortment	High agency - High communion	A little higher
15	Cool lighting-Foreground music	Organized - Large actual assortment	Low agency - High communion	A little higher
16	Cool lighting-Foreground music	Organized - Small actual assortment	High agency - Low communion	A little lower

There are some approaches for traditional conjoint analysis to administer a set of orthogonal profiles to a respondent, for example, full profile method, paired comparison and tradeoff matrix. Paired comparison gains a big advantage in that respondents focus on only two profiles at a time, which induces more meaningful evaluation, but the method causes fatigue from an excessive number of pairs to evaluate (Rao, 2014). In terms of reliability calculated from the comparison between two

different sets of profiles for parameter estimation, the full profile method and paired comparison are found to have greater reliability than tradeoff matrix (Reibstein, Bateson, & Boulding, 1988). Thus, this study used the full profile method in traditional conjoint analysis (CA) in which all 16 orthogonal profiles were exposed to a respondent for them to evaluate their patronage intention on a rating scale.

Stimuli presentation and manipulation details

This section is devoted to explaining how the identified profiles can be presented to respondents for evaluation. Conjoint analysis has brought up some experimental aspects (i.e., controlled independent variables) to be incorporated into various survey approaches such as mail surveys, telephone surveys, internet-based surveys and intercept surveys (Champ et al., 2003). Similarly to any traditional questionnaire in survey research, a number of profiles are administered to a respondent for evaluation. There are many types of presentations by which profiles can be exposed to respondents such as verbal descriptions, pictorial descriptions and prototypes of actual products (Rao, 2014). The important consideration is that the profile presentation should bring out qualities which are as realistic as possible (Rao, 2014). Additionally, Hoch et al.,(1999) identified that a more realistic environment for experimental studies was a good area of future research. In past environmental studies, Baker et al. (1994) and Grewal et al. (2003) have recommended using computer-aided design (CAD) technology in environmental studies because it allows environmental manipulation less expensively and more easily than executing research in a real store. Furthermore, it also provides more realistic scenarios than verbal descriptions and static pictures. Therefore, this study used computer simulation to present the set of profiles from the conjoint study.

A private company was hired to build the simulated environment, where a respondent could virtually walk and browse on a laptop screen controlled via a mouse and a keyboard. The following subsections are the details of manipulated attribute levels as presented in the computer simulation.

General in-store surrounding in computer simulations

This study selected a store space of 4 x 6 meters as referred to in the layout prototype of the "Show-Huay Show-Suay" campaign (Department of Business Development, n.d.). A white color was used for the general background of the walls because it is a neutral tone that reflects the true color and tone of lighting. Additionally, it was advised by Kaltcheva & Weitz (2006) that grocery stores, which are primarily functional, were supposed to apply less saturated color. The salesperson was female as predetermined from a small pilot survey. The store layout was shaped by three columns of four-tier shelves positioned at the leftmost, middle, and right most areas of the store space. The commercial fridge was located at the innermost part of the store. These elements of the general surroundings remained consistent (i.e., they did not vary with the changes of other variables) throughout the simulations. Figure 11 presents the layout of the simulated store.

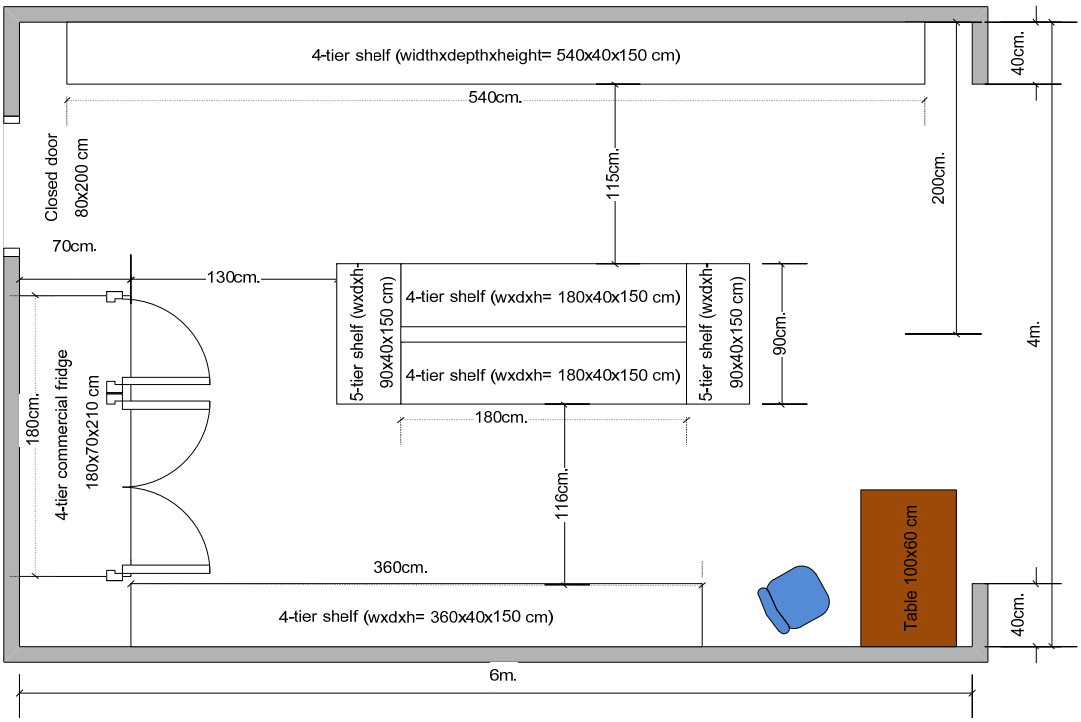


Figure 11 The store layout in the computer simulations

Details about the manipulation of lighting and music in ambient cues

Lighting and music were selected to represent the ambient environment because both elements can be easily employed by retailers (Baker et al., 1994). In addition, as this study used computer simulation, only visual and auditory presentation are possible (see Baker et al., 2002). For lighting manipulation, this study referred to the standard Phillips LED lamps because they were generally available in the market place. Most LED products from Phillips provide 6500K for cool lighting (white tone) and 3000 K for warm lighting (orange tone). To apply the color tone to the computer screen, which allows manipulation in RGB format, this study used a conversion table (Charity, n.d.), where 6500 K and 3000 K are equal to the RGB values of#fff9fd (R=255, G=249, B=253) and #ffb46b (R=255 G=180 B=107) respectively. The condition of brightness remained constant in cool and warm lighting because it was difficult to actualize the true value of light (LUX units) appearing in the computer as compared with the reality.

Based on the literature review, foreground and background music was selected for the experiment. In past studies, foreground music was defined as songs with a voice; while, background music was instrumental (e.g., Baker et al., 1992; Yalch & Spangenberg, 1990). Due to a variety of factors such as tempo, volume and familiarity which might confound the effect of foreground and background music, these variables were, therefore, held constant as much as possible in both types of music, similarly to how for example, Grewal & Baker (1994), and Baker et al. (1992) hold the tempo constant in the foreground and background music in their studies. To minimize confounding effects, the same song was played in both the foreground (i.e., by music with a voice) and the background (i.e., by only a piano without a voice), to ensure steady familiarity and tempo. This study selected the song 'Sabuy Sabuy' by 'Thongchai McIntyre' because of its fame and familiarity for Thai people of a wide range of ages (Panyaroj, 2013). Additionally, the tempo of this song was around 118 beats per minute, which is considered not too fast. Some studies (Ding & Lin, 2012; Kaltcheva & Weitz, 2006; Yalch & Spangenberg, 2000) have suggested that fast loud music, which increases the arousal state and complexity, is not recommended in grocery stores. Thus, the music volume was adjusted to soft enough to be in the environmental background. Lastly, headphones were applied to benefit hearing help eliminate noise from the on-site survey environment.

Details about the manipulation of actual variety and display in design cues

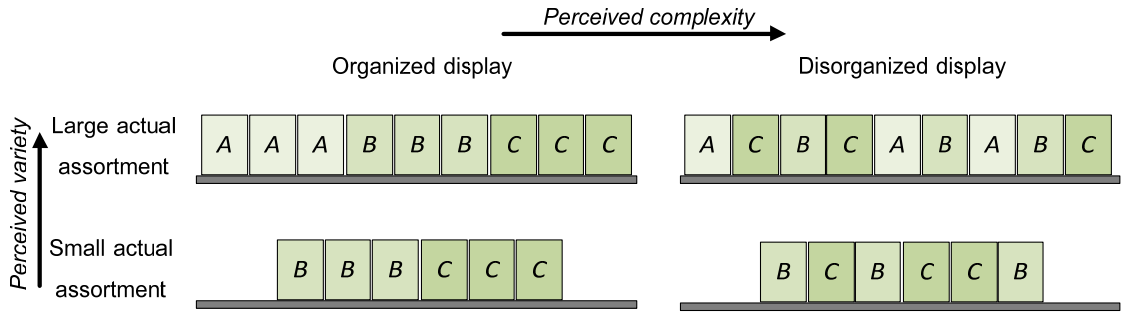
The simulated store contained152 brands from 49 merchandise groups including edible and non-edible categories. In each product group, those brands were selected from the top three national market shares available via printed and online sources (e.g., Marketeer and Positioning magazine). Some of the product groups might contain more than three brands because some have gained equal market share. Table 7 illustrates all 152 brands included in the simulation.

Table 7 The 152 brands that are included in the simulated store

General Edible Products							
Soy cooking sauce	Soy sauce	Soybean oil	Palm oil	Rice	Coffee cream	Instant coffee	Canned fish
Poo-kao-tong	*Poo-kao-tong*	*A-ugoon*	*Emerald*	*Royal umbrella*	*Coffee mate*	*Nest café*	*Three lady cook*
Dek-som-boon	Dek-som-boon	Cook	Yok	Golden phoenix	Khao Shong	Super	Select
Maggi	Maggi	Thip	O-lean	Ma-boon-krong	Buddy dean	Birdy	Rosa
Seasoning powder	Instant cup noodle	Instant noodle	Milk powder			Moccona	C-chef
Ros-dee	*Ma-ma*	*Ma-ma*	*Dumex*				Pum-Pui
Knorr	Wai-wai	Wai-wai	Enfa				
Thip-pa-ros	Yum-yum	Yum-yum	Bear brand				
Snack							
Crispy seaweed	Biscuit	Corn snack	Potato chip	NUT	Wafer	Crisp rice	Fish snack
Taokaenoi	*Fun-O*	*Cornae*	*Lays*	*Kokae*	*Beng-Beng*	*Hanami*	*Taro*
Seleco	Oreo	Dozo	Tasto	Double pagoda	Tivoli	Tawan	Bento
Masita	Homey	Corn puff	Paprika	Snack jack	Shanghai	Manora	Fisho
Gum and Candy							
Pellet gum	Stick gum	Cool Candy	Stuff Candy	Tasty Candy			
Dentyne	*Dentyne*	*Halls*	*Mymint*	*Heart Beat*			
Wrigley	Wrigley	Cloret	Dynamite	Kopiko			
Lotte	Lotte	Mentos	Lush	Ole'			
Drink							
Drinking water	Mineral water	Energy drink	Sport drink	Soybean milk	UHT milk	Tea	Beer
Singha	*Minere*	*M-150*	*Sponsor*	*Lactasoy*	*Foremost*	*Ishitan*	*Singha*
Crystal	Aura	Ca-ra-bao	M-sport	Vitamilk	Nong Pho	Oishi	Heineken
Pure life	Mont Fleur	Red bull	Sanvo	Dena	Anlene	Puriku	Leo
blacked softdrink	Colored softdrink	Canned coffee	Fruit juice				Chang
Coke	*Mirinda*	*Birdy*	*Tipco*				Archa
Pepsi	Fanta	Nescafe	Unif				
Est+Big cola	est+big	Ivy	Malee				
General Non-edible products							
Dishwashing liquid	Laundry detergent	Talcum powder	Toothpaste	Shampoo	Liquid soap	Tissue paper	sanitary napkin
Sunlight	*Breeze*	*Care*	*Colgate*	*Sunsilk*	*LUX*	*Scott*	*Sofy*
Lipon	Attack	Baby mind	Darlie	Clear	Shoko	Cellox	Laurier
Pro	Oh-mo	Johnsons	Close up	Pantene	Protex	Silk	Modess
Roll-on deodorant	Mosquito repellent	Mouthwash	Diaper				
Nivea	*Baygon*	*Listerine*	*Poko*				
Rexona	Han-fah	Colgate plax	Baby love				
12 Plus	Chang	Systema	Pampers				

Note: The italic font represents the brand leader in its product group.

Literature has previously revealed that perceived variety could be managed through actual variety, whereas assortment complexity was expected to be perceived through disorganized display. High perceived variety was expected to be created by displaying all assigned SKUs (152 brands) with the full facing on the shelves. Meanwhile, lower perceived variety was expected when removing the brand leader in each product group from the shelves without replacing it with anything in the empty selling space (i.e., the smaller number of SKUs and items revealed empty facing on the shelves and unavailable favorite items) (Broniarczyk et al., 1998; Kahn & Wansink, 2004). The organized assortment was displayed neatly in such a way that identical items were arranged together and located next to one another in sequence; whereas, the disorganized assortment was displayed by scrambling the items within their product groups on the shelves (Hoch et al., 1999; Kahn & Wansink, 2004). Figure 12 illustrates the four assortment scenarios interactively combined from both variables for one product group and their expected results in terms of perceived variety and complexity are given.



Note: The letters A, B, or C are the leading brands that exist within a product group

Figure 12 Illustration of four assortment scenarios derived from the factorial combinations of small/large actual assortment and organized/disorganized display

Details about the manipulation of agency and communal traits

It was previously mentioned that the four levels of attributes in a salesperson had been assigned through the combination of agentic and communal traits (e.g., low agency, low communion; high agency, low communion; low agency, high communion; high agency, high communion). In the context of salesperson traits, high agency can be reflected by his/her competency and activeness; whereas, high

communion is portrayed by the quality of friendliness, courtesy, thankfulness and helpfulness (Abele et al., 2008; Ghaed & Gallo, 2006; L. C. Ward et al., 2006; Wojciszke et al., 2009; Wortman & Wood, 2011). Therefore, this study interpreted the high agency traits of the salesperson as an organized look, the capability to answer questions, and to complete tasks quickly, whereas the low agentic traits were characterized by the incapacity with those activities and an ordinary look. The high communion salesperson was willing to help a customer with politeness and friendliness, whereas the low communion salesperson did not have those characteristics. Figure 13 presents the independent interaction between agency and communion in the context of the salesperson as interpreted in this study.

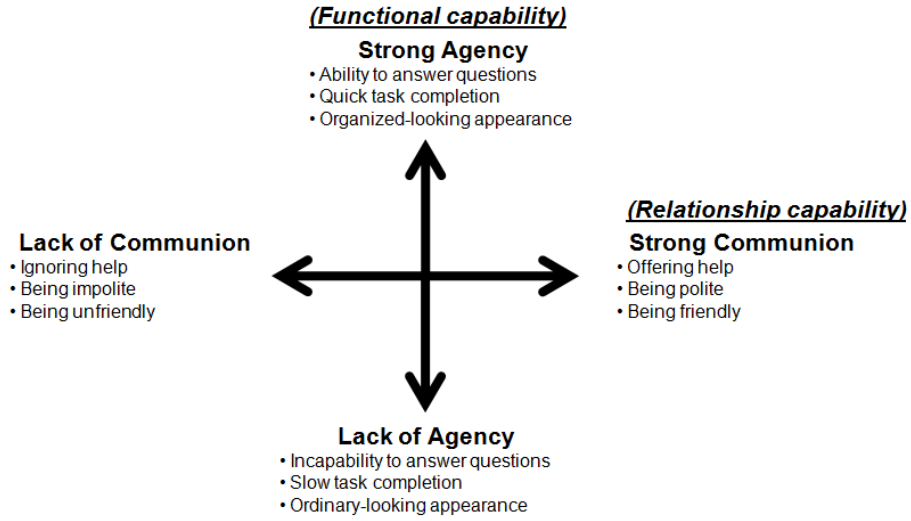


Figure 13 The independent interaction between agency and communion in the context of salesperson in the study

For details about the manipulation of agency, the salesperson who wore a polo shirt with neat hair represented the organized look, while the ordinary look was represented by the wearing of a T-shirt with ordinary hair. This study created interactive situations to demonstrate the salesperson's intellectual competency in two tasks: 1) whether the salesperson was capable of answering a question about the location of a product in the store, 2) how long it took the salesperson to return the change. Therefore, the high agency salesperson was able to give the exact location right away and returned the change quickly, whereas the low agency salesperson replied she was *unsure* about the location and took more time to return the change.

High communion characteristics brought out the service with friendliness (e.g., with a smiling face and greeting customers), courtesy (e.g., "Kha" at the end of sentence), thankfulness (saying "Thank you" when customers walk out), and the offer to bring the product for the customer; whereas, low communion characteristics were the opposite (e.g., no smiling face, no greeting, no "Kha" at the end of sentence, no saying "Thank you," and not offering help. Table 8 provides the summary of four scenarios characterizing the different combinations of agency and communion.

Table 8 The four levels (scenarios) of salesperson traits in agency and communion

	Lack of Agency (solid underline)	Strong Agency (double underline)
Lack of communion	**Scenario 1**	**Scenario 2**
(italic font)	• Ordinary hair, T-shirt, *Not smiling*	• Neat hair, Polo-shirt, *Not smiling*
	• Doing noting when no service	• Reading a book when no service
	• *Not greeting when a customer enters*	• *Not greeting when a customer enters*
	• Unable to answer where the product is	• Able to answer where the product is
	• *Not offering help to find the product*	• *Not offering help to bring the product*
	• Returning change slowly	• Returning change quickly
	• *No thanking when the customer leaves*	• *No thanking when the customer leaves*
	• *No "Kha" in the sentences, strong voice and no smiling*	• *No "Kha" in the sentences, strong voice and no smiling*
Strong communion	**Scenario 3**	**Scenario 4**
(Bold font)	• Ordinary hair, T-shirt, **Smiling face**	• Neat hair, Polo-shirt, **Smiling face**
	• Doing noting when no service	• Reading a book when no service
	• **Greeting when a customer enters**	• **Greeting when a customer enters**
	• Unable to answer where the product is	• Able to answer where the product is
	• **Offering help to find the product**	• **Offering help to bring the product**
	• Unable to find the product	• Able to bring the product
	• Returning change slowly	• Returning change quickly
	• **Thanking when a customer leaves**	• **Thanking when a customer leaves**
	• **Using "Kha" in the sentences, soft voice and smiling**	• **Using "Kha" in the sentences, soft voice and smiling**

Details about the manipulation of price levels

As there were many products in the simulated store; different prices of all products were assumed by displaying in higher or lower percentages of the overall prices in comparison to the average market price. A price survey was implemented to search out the variation of price in various retail types: BigC, hypermarket; 7-Eleven,

convenience store; Tops, supermarket; and mom-and-pop stores.87 SKUs from various product categories were included in this study. Some SKUs were not available in all retail formats but at least more than one product type was included to ensure the price variation.

In each SKU, the individual price was transformed to the percentage by dividing the subtracted result (the individual price from the average price of its class) by the average price of its class. For example, the same rice product in the identical SKU from 7-Eleven, Top, and BigC were 189, 185, and 175, which could be transformed to 3.3%, 1.1%, and -4.4%respectively. Then, the price percentages from all SKUs in various stores were aggregately calculated for the standard deviation, for which the value was 4.273%. The four levels of price were identified at ±1 and ± 2 standard deviations. To simplify the logic of price information, the standard deviation of 4.273% was rounded to 4%. Therefore, the price levels were finalized as 8% lower, 4% lower, 4% higher, and 8% higher than the average market price.

The price information was presented in black text on a white background located at the upper-right position of the computer screen during the simulation. To ensure the meaning of the percentage was clearly conveyed, this study added an interpretation of the percentage as the monetary value. The values of 10 and 100 baht were provided for clarification and the simple comprehension. Figure 14 illustrates an example of price information during the store simulation.

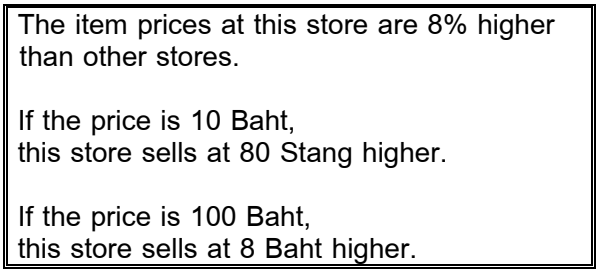


Figure 14 The example of price information at the price level of 8% higher

Assessment of validity

Basic validity and questionnaires

Validity means how close an evaluated value to the true value (Singh, 2007). This study comprised two sets of questionnaires to serve different purposes. Firstly, the manipulation questionnaire was purposively used to confirm whether the manipulations of environmental variables (i.e., the independent variables) were correctly perceived in response to their theoretical meaning. Secondly, the measurement questionnaire was used to elicit the respondents' patronage behaviors for the various simulated stores. Qualifying good manipulation and behavioral measurement can result in the reduction of 1) random error, 2) experimenter bias, 3) participant bias, and 4) invalidity (Mitchell & Jolley, 2009). Thus, the details of those questionnaires are clarified below.

Questionnaire for manipulation check

Since the experimental environments have been manipulated in the study, to examine whether such manipulation does really produce its intended effect on participants it is required to ask if participants perceive and feel the same way as the theoretical setting (Mitchell & Jolley, 2009). For example in environmental research, Kaltcheva & Weitz (2006) have questioned participants about whether the manipulated environment (i.e., the three visual elements: 1) number of redundant elements, 2) color warmth, and 3) color salutation) could provide the different levels of arousal by applying an ANOVA to test the effects.

This study will manipulate those independent variables according to the levels in each attribute. The details of manipulation have been earlier stated in the previous section "Stimuli Presentation and Manipulation Details." To ensure that the environmental stimuli are manipulated successfully and correspond to the theoretical concepts (i.e., perceived typicality, perceived variety/complexity, and agency/communion); checking questions were then derived from the past literature (see Appendix A).

First, perceived typicality will be measured by the questions, which appears to be consistent with both the classic literature and contemporary literature (Barnes & Ward, 1995; Blijlevens, Gemser, & Mugge, 2012; Loken & Ward, 1990;

Roest & Rindfleisch, 2010; Rosch & Mervis, 1975; J. Ward et al., 1992). The questions, mostly found in the given literature, usually cover three related scopes of typicality: atypical/typical; poor example/good example; very unrepresentative/very representative. Therefore, respondents will be asked to rate how much the manipulated ambience: 1) is typical; 2) is a good representative; 3) is a good example for the category of general grocery retail format.

Second, assortment variety is likely perceived as a tangible or concrete concept rather than an abstraction. Therefore, many studies (e.g., Broniarczyk et al., 1998; Hoch et al., 1999) asked one direct question on an endpoint scale ranging from very little variety to very much or excellent variety. Later, Kahn & Wansink, (2004), in line with Broniarczyk et al. (1998) and Townsend & Kahn (2014) have come up with four questions to measure the perceived variety, which are also found in some later studies (e.g., Mogilner et al., 2008; Townsend & Kahn, 2014). Therefore, this study adopts the measurement of perceived variety from Kahn & Wansink, (2004). Additionally, too much variety may cause perceived complexity, so Townsend & Kahn (2014) have separately measured perceived complexity and perceived variety. Because of this, the present study will also measure perceived complexity by adopting items from Townsend & Kahn (2014).

Third, it should be kept in mind that agency and communal traits do not exist as bipolar traits. A person may contain both positive or both negative aspects or only of either one of them (e.g., Helgeson & Fritz, 2000; Wiggins, 1991). Abele & Wojciszke (2007) have gathered as many as 300 traits from various scales (e.g., agency/communion; masculinity/femininity; individualism/collectivism; intellectual social; competence/warmth). To examine the dimensions of the construct of interest, two major clusters of constructs were found: 1) communion, femininity, collectivism, morality; and 2) agency, masculinity, individualism, competence.

Later, Wojciszke et al.(2009) selectively distilled the agentic and communal traits from the 300 traits of Abele & Wojciszke's (2007) study. More specifically, the selected agency and communal items were found to be independent from each other (no correlation). Additionally, the scales from Wojciszke et al. (2009) are considered to be operationalized in the context of salespersons' traits as being noticed by respondents rather than being self-assessed. Therefore, the items measuring

agency and communal traits from Abele & Wojciszke's (2007) have been adopted in this study.

Questionnaire for behavioral measurement

The measures of dependent variables (i.e., patronage intention) are also derived from the past literature. Store patronage intention is a particular issue developed as a subset of behavioral intention. The patronage intention construct was first developed by Baker et al. (1992) whose scales included the willingness to buy, developed from Dodds et al. (1991). Later, the scales have further been employed by Baker et al. (2002) and Grewal et al. (2003). The scales comprise 3 main items involving asking about the likelihood of shopping, the willingness to buy and the likelihood of recommending the shop to their friends. Such questions used in this study have been derived from Grewal et al. (2003).

Content validity through the specialist

Due to the fact that this study was conducted in Thailand, all items as derived from the past literature needed translating into Thai. The back-translation process (Brislin, 1970) was adopted to preserve meaning validity during the translation from English to Thai. Firstly, all items were translated from the original language (English) to target language (Thai) by the Thai native bilingual, which is called 'forward translation.' Secondly, the Thai-version items were again retranslated back to English by the English native bilingual, which is called 'backward or back-translation.' Lastly, both original English and back-translated English versions were compared for the same meaning by the native English monolingual to finalize the validity of the Thai version.

After the validity of the translation was completed, confirmation of whether all translated items were congruent with their theoretical definitions was required. The index of item-objective congruence (IOC) was employed for the purpose of content validity (Turner & Carlson, 2003). The process involved a specialist to judge all translated items (i.e., the scales used in manipulation check and the patronage intention scales for this study) by scoring "+1" if the item is a definite measure of the operational definition, "-1" if the item is not a definite measure, and "0" if the item is undecided as a definite measure (Rovinelli & Hambleton, 1976). Then, the average score from all specialists for every single item was calculated to assess the validity of

the items. The item that gains an IOC index higher than 0.5 is considerably identified as having good content validity (Laosap, Nimpitakpong, Kongkaew, & Jedsadayanmata, 2012).

This study came up with three specialists to assess the questionnaire (see Appendix C). The IOC value of the back-translated items presented with the original-version items is presented in Table 9. The summarized result is that all items attained IOC values higher than 0.5, which indicated an acceptable level of content validity.

Table 9 The result of IOC values for the back-translated items presented with the original-version items

Items for the manipulation check	Labels at the ends of seven-point scales	Specialists 1st	2nd	3rd	IOC	Result
Perceived typicality of ambience						
How much is the given combination of light and music typical for the category of general grocery retailer? การผสมผสานของแสงและเสียงดนตรีที่กำหนดให้เป็นไปตามแบบฉบับของประเภทร้านของชำมากน้อยเพียงใด	Very atypical Very typical ไม่เป็นตามแบบฉบับ เป็นตามแบบฉบับ	1	1	1	1.00	Accept
How much does the given combination of light and music represent the category of general grocery retailer? การผสมผสานของแสงและเสียงดนตรีที่กำหนดให้สามารถนำเสนอตัวตนของร้านในประเภทร้านของชำได้มากน้อยเพียงใด	Very unrepresentative Very representative ไม่นำเสนอรูปแบบร้าน นำเสนอรูปแบบร้าน	1	1	1	1.00	Accept
How much does the given combination of light and music stand as a good example for the category of general grocery retailer? การผสมผสานของแสงและเสียงดนตรีที่กำหนดให้เป็นตัวอย่างที่ดีในการสื่อถึงประเภทร้านของชำมากน้อยเพียงใด	Poor example Good example เป็นตัวอย่างที่ไม่ดี เป็นตัวอย่างที่ดี	1	1	1	1.00	Accept
Perceived variety of assortment						
This grocery assortment gives me a lot of variety for me to enjoy. การจัดสรรสินค้าในร้านนี้มีความหลากหลายซึ่งทำให้ท่านเพลิดเพลิน	Strongly disagree Strongly agree เห็นด้วยอย่างยิ่ง ไม่เห็นด้วยอย่างยิ่ง	1	1	1	1.00	Accept
This grocery assortment gives me at least one flavor I like. การจัดสรรสินค้าในร้านนี้ ทำให้ท่านมีสิ่งที่ท่านชอบอย่างน้อยหนึ่งอย่าง		1	1	1	1.00	Accept
This grocery assortment offers more ways to enjoy it. การจัดแบ่งประเภทสินค้าของร้านนี้ทำให้การเลือกซื้อสินค้ามีความเพลิดเพลินมากยิ่งขึ้น		1	1	1	1.00	Accept
How much variety do you think there is in this grocery assortment? ท่านคิดว่าการจัดหมวดหมู่สินค้าในร้านนี้มีความหลากหลายมากน้อยเพียงใด	Very little variety Very much variety มีความหลากหลายน้อย มีความหลากหลายมาก	1	1	1	1.00	Accept

Table 9 The result of IOC value for the back-translated items presented with the original-version items (continued)

Items for the manipulation check	Labels at the ends of seven-point scales	Specialists			IOC	Result
Perceived complexity of assortment						
This grocery assortment is too complex to consider. การจัดสรรสินค้าในร้านนี้มีความซับซ้อนเกินกว่าจะพิจารณา	Strongly disagree Strongly agree เห็นด้วยอย่างยิ่ง ไม่เห็นด้วยอย่างยิ่ง	1	1	1	1.00	Accept
It is difficult to keep track of all the various options in this grocery assortment. เป็นเรื่องยากที่จะติดตามสินค้าทุก ๆ รายการ จากการจัดสรรสินค้าในร้านนี้		1	1	1	1.00	Accept
There are too many options in this grocery assortment. มีตัวเลือกที่มากเกินไปในการจัดสรรสินค้าในร้านนี้		1	1	1	1.00	Accept
Agentic trait						
The salesperson is competent. พนักงานขายมีความสามารถ		1	1	1	1.00	Accept
The salesperson is efficient. พนักงานขายมีประสิทธิภาพ	Strongly disagree - Strongly agree เห็นด้วยอย่างยิ่ง - ไม่เห็นด้วยอย่างยิ่ง	1	1	1	1.00	Accept
The salesperson is clever. พนักงานขายเป็นคนฉลาด		1	1	1	1.00	Accept
The salesperson is full of energy. พนักงานขายเป็นคนที่เต็มไปด้วยพลัง		1	1	1	1.00	Accept
The salesperson is a well-organized person. พนักงานขายเป็นคนที่มีระเบียบแบบแผน		1	1	1	1.00	Accept
Communal trait						
The salesperson is sincere พนักงานขายมีความจริงใจ		1	1	1	1.00	Accept
The salesperson is an honest person พนักงานขายเป็นคนซื่อสัตย์	Strongly disagree - Strongly agree เห็นด้วยอย่างยิ่ง - ไม่เห็นด้วยอย่างยิ่ง	1	1	1	1.00	Accept
The salesperson is fair toward others พนักงานขายมีความเป็นธรรมต่อบุคคลอื่น		1	1	1	1.00	Accept
The salesperson is a loyal sort of person พนักงานขายเป็นบุคคลที่มีความภักดี		1	0	1	0.67	Accept
The salesperson is selfless พนักงานขายเป็นคนไม่เห็นแก่ตัว		1	1	1	1.00	Accept
Items for the behavioral measure						
Store patronage intention						
The likelihood that I would shop in this store is very high. มีความเป็นไปได้สูงที่ฉันจะเลือกซื้อสินค้าในร้านค้านี้	Strongly disagree - Strongly agree เห็นด้วยอย่างยิ่ง - ไม่เห็นด้วยอย่างยิ่ง	1	1	1	1.00	Accept
I would be willing to buy merchandise at this store. ฉันเต็มใจที่จะซื้อสินค้าในร้านค้านี้		1	1	1	1.00	Accept
I would be willing to recommend this store to my friends.ฉันมีความเต็มใจที่จะแนะนำร้านค้านี้ให้เพื่อนๆ ของฉันรู้จัก		1	1	1	1.00	Accept

Construct validity of experimental manipulation

As this study had to manipulate independent variables (physical environment) into experimental treatments for measuring the effect on a dependent variable (i.e., patronage intention), construct validity of the manipulation needed, therefore, to be established. Construct validity refers to the degree of truthful representation of the theoretical domain (Jonker & Pennink, 2010), which is really concerned with the accuracy in the manipulation of independent variables in the experimental scenarios (Mitchell & Jolley, 2009). After the manipulation of the independent variables in the simulated stores, each of the manipulated environments (e.g., perceived typicality of ambience, perceived variety/complexity of assortment, and perceived agency/communion of storeowners) needed evaluating for the validity. This evaluation was executed by getting respondents to rate the manipulated simulations through the manipulation check questionnaire.

In this study 50 participants were involved in the manipulation check process. All 10 simulated scenarios (i.e., two of ambient typicality, four of assortment variety/complexity, four of salesperson agency/communion) illustrated on a laptop screen were subsequently shown to each respondent. After finishing each scenario, the respondent evaluated it through the corresponding construct of the manipulation check questionnaire. For example, after the respondent finished looking at the simulated scenario of high levels of ambient typicality, he/she had to rate how much typicality he/she perceived in the given simulation through answering some questions. Repeated measuring with ANOVA was used to assess the successful variation of the simulated scenarios because of the within-subject design (i.e., each respondent encountered all scenarios or treatments). The result of this manipulation check was revealed is now presented.

Firstly, the condition of bright cool lighting with foreground music was expected to induce higher perceived typicality than soft warm lighting with background music. The mean of perceived typicality in the condition of bright cool lighting with foreground music was revealed as 4.84, whereas the value for bright cool lighting with foreground music was 3.35. The assumption of sphericity, an assumption of equal variance for within-subject design, was ignored in the case of two-treatment examination (Field, 2009). The statistical testing confirmed the higher perceived typicality of the bright

cool lighting with foreground music as compared with the soft warm lighting with background music ($F(1,49) = 21.59$, $p < 0.001$).

Secondly, the four scenarios were created from a factorial combination of the degree of actual assortment and the degree of organized display (i.e., small organized actual assortment, small disorganized actual assortment, large organized actual assortment and large disorganized actual assortment). Each respondent had to evaluate all four assortment scenarios on both variety and complexity scale. The result showed that the manipulation of large actual assortment (i.e., the larger number of items on full shelf facing, the larger number of SKUs, and the availability of brand leader) was successfully perceived as having a higher degree of assortment variety than the condition of small actual assortment (F (1,49) = 74.11, $p < 0.001$, *Partial Eta Squared* = 0.60). The mean difference of perceived variety between the manipulation of large and small actual variety was 1.55. Meanwhile, the disorganized display (i.e., scrambled SKUs within their own category) created a significantly higher degree of perceived complexity than the organized display (F (1,49) = 27.88, $p < 0.001$, *Partial Eta Squared* = 0.36). The mean difference of perceived complexity between disorganized and organized display was 1.02. Therefore, these results confirmed the success of manipulation to create variation in the variety and complexity (see Figure 15).

Thirdly, the four salesperson scenarios created from a factorial combination between high/low agency and high/low communion (i.e., low agency low communion, low agency high communion, high agency low communion and high agency high communion) was manipulated (see Table 8). Each respondent had to evaluate all four scenarios on both the agency and communion scale. The agency manipulation successfully established the main effect of perceived agency (F (1,49) = 195.07, $p < 0.001$, *Partial Eta Squared* = 0.80). The mean difference of perceived agency between high and low agency scenarios was 2.24. Meanwhile, the communion manipulation successfully created the main effect of communion (F (1,49) = 237.70, $p < 0.001$, *Partial Eta Squared* = 0.83). The mean difference of perceived communion between high and low communion scenarios was 2.70. This result confirmed the variation effects between agency and communion domains among the four manipulated scenarios (see Figure 16).

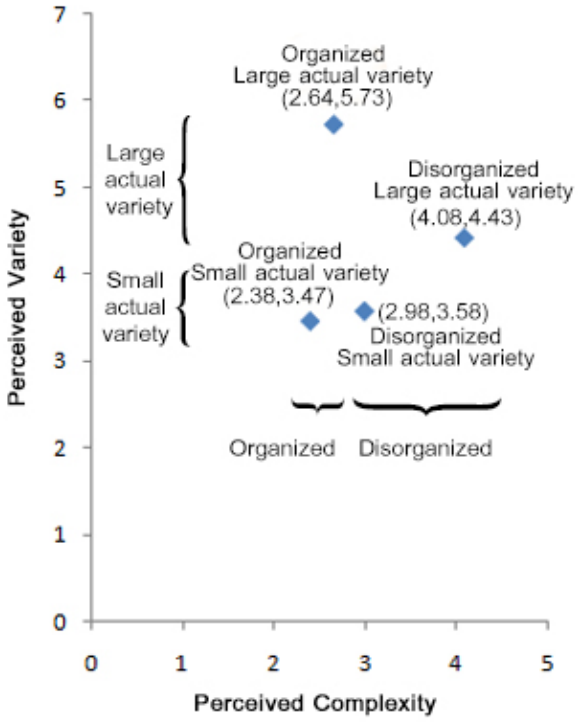


Figure 15 The mean plot of the four assortment scenarios on the variety and complexity scale

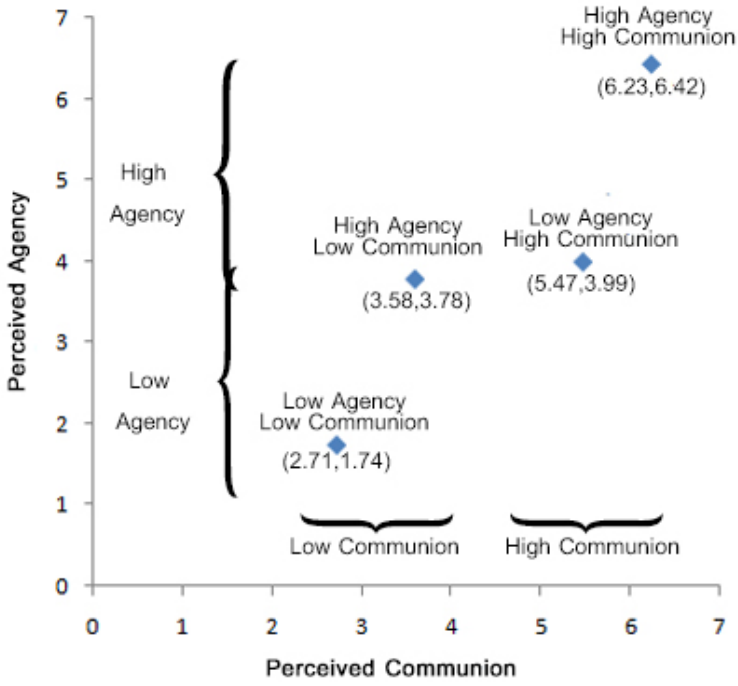


Figure 16 The mean plot of the four salesperson scenarios on the agency and communion scale

Predictive validity

Another type of validity that can be tested on rating-based conjoint analysis is predictive validity, usually known as cross-validity. For rating-based conjoint analysis, predictive validity can be measured by the correlation between the predicted scores from the model and actual rating scores (Leigh, MacKay, & Summers, 1984). The procedure needed a holdout set of profiles to be evaluated together with the 16 orthogonal profiles. This study used a statistical software package to generate 2 holdout profiles (see Table 10). As a result, this study comprised 18 profiles for each respondent to evaluate. The results for this will be reported in Chapter 4 after the conjoint model is evaluated from the collected data.

Table 10 Holdout profiles for predictive validity

Profile No.	Ambient cues	Design cues	Social cues	Price
17	Warm lighting- Background music	Organized - Small actual assortment	Low agency - Low communion	A little lower
18	Warm lighting- Background music	Organized - Large actual assortment	High agency - High communion	A little lower

Assessment of reliability

Test-retest reliability

Reliability refers to the consistency of the measurement, in other words, the ability of the measurement instruments to induce the same values in the same situations over time (Singh, 2007). Reliability can be treated as an initial gate to measurement validity. In other words, the measurement cannot attain high validity without a great degree of reliability, for example, if the reliability is achieved at 0.4, the measurement cannot have a validity of more than 0.4 (Mitchell & Jolley, 2009). Based on the conjoint method employed in this study, the set of various simulated scenarios (profiles) administered via computer was exposed to the respondents.

Test-retest reliability, the most straightforward measure on reliability definition (Mitchell & Jolley, 2009), is usually applied and found prevalent in most conjoint studies (Green & Srinivasan, 1990; Leigh et al., 1984). The Pearson correlation (Singh, 2007) or the square of correlation (Mitchell & Jolley, 2009)between pre-test and

post-test is usually used to assess test-retest reliability. This has been applied to many conjoint studies (Green & Srinivasan, 1990; Leigh et al., 1984).

Therefore, this study assessed the test-retest reliability by administering the same set of profiles to the same respondents at different point of time one week apart. 28 sample respondents, including undergraduates and consumers, were used in this test-retest reliability assessment process. The Pearson correlation of patronage score along the 18 profiles between test and retest was shown to be 0.78. The acceptable level of correlation coefficient is any value higher than 0.7 (Mayers, 2013).

Population, sample size and sampling technique

Population

The target population of this study was Thai consumers who are at least 20 years old and have visited mom-and-pop stores in the past year. In Thailand, the age of maturity is considered to be 20 at which point the brain has been developed to the stage of neuromaturation, producing better logic in decision making (Iselin, DeCoster, & Salekin, 2009; Johnson, Blum, & Giedd, 2009). Based on the Official Statistics Registration System in 2013, the total population over the age of 20 was 47,576,836 people.

Sample size

In conjoint analysis, few studies discuss the topic of appropriate sample size. For example in a rating-based conjoint study, Orme (2009) has provided a practical guideline for a robust quantitative research, setting the minimum sample size at 300 respondents, meanwhile Hair et al. (2010) has advised that 200 was found to provide an acceptable margin of confidence.

In statistics, an acceptable sample size must provide the estimation of parameters at an acceptable level of accuracy (Kelley & Maxwell, 2003). Based on the parameter estimation of beta in multiple regression, Kelley & Maxwell (2003) have derived the formula of sample size from the beta confidence interval as:

$$N_j = \left(\frac{z_{(1-\frac{\alpha}{2})}}{w}\right)^2 \left(\frac{1-R^2}{1-R^2_{XX_j}}\right) + p + 1$$

where z is the standard normal value to provide the $1-\alpha$level of confidence that standardized beta will fall in the specified range $2w$. Therefore,$w$is the half-width of an entire confidence interval of standardized beta. R^2 is the observed multiple correlation coefficient of the model. $R^2_{XX_j}$ is the observed multiple correlation coefficient predicting the j[th] predictor $(\mathrm{X_j})$ from the remaining $\mathrm{p}-1$ predictor and p is the number of predictors. It is noted that if the equation includes 10 predictors, at least 10 betas will be estimated. That is N required for each beta might not be equal. Therefore, the maximum N may be used to ensure all requirements of beta estimation. Then, the maximum $R^2_{XX_j}$ is selected because of the maximum N_j.

For N_j, Kelley & Maxwell (2003) claimed that there is a 50% chance that the interval will be less than the specific width. Therefore, they further modified the Nformula to ensure that the computed confidence interval will have $1-\gamma$ probability, to be less than the specific width $(2w)$. The modified formula is:

$$N_m = \left(\frac{z_{(1-\frac{\alpha}{2})}}{w}\right)^2 \left(\frac{1-R^2}{1-R^2_{XX_j}}\right)\left(\frac{x^2_{(\gamma;N_j-1)}}{N_j-p-1}\right) + p + 1$$

where $x^2_{(\gamma;N-1)}$is the chi-square value at the tail probability of γ at $N-1$ degree of freedom.

To use Kelley & Maxwell's (2003) formula to calculate sample size, this study seta confidence level at 90% $(\alpha = 0.1)$ so that the population standardized beta fell within the range of $\pm 0.1 (w = 0.1)$. There are 10 dummy variables $(p = 10)$ in effects coding styles (see Table 11) that provided $R^2_{XX_1} = 0$ and the remaining 9 dummies gave $R^2_{XX_j} = 0.333$. The observed R^2 is given at the mid value as 0.5. Therefore, N is calculated as:

$$N = \left(\frac{1.645}{0.1}\right)^2 \left(\frac{1-0.5}{1-0.333}\right) + 10 + 1 = 213.85 \approx 214$$

Then, it is assigned to ensure an 80% chance $(\gamma = 0.2)$ that the confidence interval will be less than the specific width. This let $x^2_{(0.2;df=213)} = 230.15$. So, the appropriate sample size will be calculated as:

$$N_m = \left(\frac{1.645}{0.1}\right)^2 \left(\frac{1-0.5}{1-0.333}\right)\left(\frac{230.148}{203}\right) + 10 + 1 = 240.95 \approx 241$$

In summary, the sample size was determined by two different approaches (an ad hoc method and a statistical technique). For the ad hoc method, scholars have advised the minimum size should be variously 200 (Hair et al., 2010) and 300 (Orme, 2009), whereas, the statistical technique provided the size as 241. The minimum sample size required which both methods support is therefore 241 respondents. Yet it was very difficult for a respondent to perform self-administered questions on subsequent presentations of all 18 profiles. Therefore, the respondents personally needed assistance from a researcher to complete a set of the experimental survey. To compromise the cost of data collection as well as retain an acceptable size requirement, this study, therefore, it was decided to use a sample size as 241.

Sampling plan

Hatyai district, the main city in Songkhla Province, was selected to be the representative sampling area of Thai consumers. Hatyai is the south's heart of education, transportation, tourism, commerce, and shopping (Tourism Authority of Thailand, n.d.). This may be the reason that Hatyai is one of the top urbanized cities, the population of its municipality area (21 m^2) reached 159,130 in 2013, which ranked itas the highest population density (7577.62 people/m^2) in Thailand (see Official Statistics Registration Systems, 2014). Referring to the updated population and housing census of 2010 (National Statistical Office, 2010), Songkhla province reveals a diversity of population like other regions of Thailand in which many indicators are close to the characteristics of the whole kingdom, for example, age distribution, sex ratio, averaged age at first marriage, proportions of occupational types, household size, and households with technology usage.

According to retail structure, the Hatyai landscape reveals a diversity of retail formats, for example, hypermarkets (Tesco Lotus and Big C Extra), a cash and

carry (Makro), category killers (Homepro, Index, Vichusin, Office Depot and Super Sport), convenience stores (7-Eleven, Lotus Express and Tops Daily), specialty stores (Watson, Boots andApple), department stores (Central, Robinson, Diana, Odean and Leegarden), a shopping mall complex (Central Festival Hatyai), a supermarket (Tops), flea markets (Greenway and Aseantrade), fresh markets, and mom-and-pop stores.

It is unsurprising that with such diversity of modern retail formats in Hatyai, local mom-and-pop stores have been affected by this invasion (Songsom & Trichun, 2013) as seen in other urbanized areas such as Bangkok (Feeny et al., 1996). Due to the modernization of its retail landscape and the impact of retail modernization on local stores, Hatyai was selected as the sampling area for this study.

Due to the definition of the study population, it was difficult to employ a random sampling technique because of the impracticality of acquiring a respondent by equal chance drawing from a large population. It was noted by Orme (2009) that the most common sampling type in marketing research was rarely at random. Therefore, convenience sampling (a non-probability type) was employed for this study.

Survey administration

A consumer was firstly invited for survey participation, where the screening questions were introduced (such as his/her age and the patronage at grocery shops in the last year). Once a respondent agreed to participate, he/she was set in front of a laptop screen with the questionnaire sheet (see Appendix B), which comprised: 1) rating scale of patronage intention for 18 profiles, 2) personal background questions. Then, the trained research assistant explained the details and administered the proper sequence of scenarios until the survey was completed. Participants used an over-ear headphone to eliminate the noise from external on-site surroundings. The respondent was asked to ensure proper screen brightness and sound before the simulation. The research assistant helped him/her to browse within the simulated store and the respondent was able to request stopping or looking at any point in the scenes within the store. After finishing each simulated scenario, the respondent had to rate his/her patronage intention on the questionnaire right away. This cycle of steps was repeatedly executed until 18 profiles were completed.

It should be emphasized that the sequence of the 18 profiles (i.e., 16 orthogonal profiles and 2 additional holdout profiles) might have an effect on evaluation, for example, the early exposed profiles might attract higher attention than the later profiles because of task fatigue. Therefore, this study attenuated this effect by randomly assigning the sequence of profile expositions.

Based on the field survey, data collection of the 241 samples came from: the shopping mall (Hatyai Central Festival) for 28 cases; a flea market (Greenway) for 121 cases; and households for 92 cases. The average time for completing the survey was approximately 30 minutes per person.

Data analysis approach and statistical method

As elaborated above, this study applied the 16 profiles of orthogonal design to rating-based conjoint analysis, which only allowed the estimation of the main effect in an additive mathematical model. The levels assigned to each attribute were treated as the categorical values, which was compatible for a part-worth function model (Rao, 2014). The additive conjoint model can be written as:

$$y_j = U_1(x_{j1}) + U_2(x_{j2}) + \cdots U_t(x_{jt}) \cdots + U_r(x_{jr}) + Error$$

where $U_r(x_{jr})$is the component utility function of ther^{th}attributeat the j^{th}profile. The component utility function for anyt^{th}attribute is:

$$U_t(x_{jt}) = U_{t1}D_{t1} + U_{t2}D_{t2} + \cdots U_{tk}D_{tk} \cdots + U_{t(r_t-1)}D_{t(r_t-1)}$$

where

r_t is the number of levels for t^{th}attribute

D_{tk} is the dummy code for t^{th}attribute

U_{tk} is utility value at the k^{th} level for t^{th}attribute

The utility values assigned on each level of all attributes in the additive conjoint model are the beta coefficients as analyzed by multiple regression. This study applied *'effects coding'* because traditional dummy coding involves the defect of estimation at the point that an omitted category is perfectly collinear with the intercept in

a regression model (Champ et al., 2003). Additionally, the effect coding is used in conjoint analysis by some popular statistical software packages such as SPSS and R. With effects coding, the sum of estimated utility value is equal to zero (Rao, 2014). Table 11 illustrates the effects coding of dummy variables for all levels of each attribute in this study.

Table 11 Effects coding for levels of each attribute

Attributes	Levels of attribute	Effects coding		
Ambient cues	LA1: Warm lighting with background music	-1		
	LA2: Cool lighting with foreground music	1		
Design cues	LD1: Small organized actual assortment	-1	-1	-1
	LD2: Small disorganized actual assortment	1	0	0
	LD3: Large organized actual assortment	0	1	0
	LD4: Large disorganized actual assortment	0	0	1
Social cues	LS1: Low agency, low communion storeowner	-1	-1	-1
	LS2: High agency, low communion storeowner	1	0	0
	LS3: Low agency, high communion storeowner	0	1	0
	LS4: High agency, high communion storeowner	0	0	1
Price	LP1: 8% above average price	-1	-1	-1
	LP2: 4% above average price	1	0	0
	LP3: 4% below average price	0	1	0
	LP4: 8% below average price	0	0	1

As each respondent had to rate all 18 profiles (i.e., a within-subject design), this allowed an adequate amount of data for each individual to be analyzed. This is the distinct advantage of the rating-based conjoint approach. The analysis can be performed at the individual, subgroup and aggregate levels. The aggregate level analysis executes the regression on all stacking scores across all respondents simultaneously. As such, the overall utilities of all attribute levels are estimated. Meanwhile, the individual utility values across all respondents are used to test the hypotheses by using repeated ANOVA because of the within-subject design. Additionally, the individual utilities can also be used for market segmentation.

The individual utilities obtained from the effect coding can be used to test the hypotheses H_1, H_{2a}, and H_{3a}, but not $H_{2b}$and H_{3b}. As the aim of hypotheses H_{2b}, H_{3b} is to compare the main effect; therefore, orthogonal contrast coding is used instead. Table 12 presents the orthogonal contrast coding, which allows no correlation among all dummy variables. The way to identify these dummy values is that the code '1' is tested

for the difference against the code '-1', whereas the code '0' is not intended for estimation. For price coding, it is pointless to assign a code to identify the main and interaction effect because the price levels are not derived from the factorial combination of two sub-variables. All results from the given analyses will be presented in the following chapter.

Table 12 The orthogonal contrast coding used for identifying the main effect

Levels of attribute	Orthogonal contrast coding		
	Main effect [LA1]vs.[LA2]		
LA1: Warm lighting with background music	-1		
LA2: Cool lighting with foreground music	1		
	Main effect [LD3,LD4]vs.[LD1,LD2]	Main effect [LD3,LD4]vs.[LD1,LD2]	Interaction effect
LD1: Small organized actual assortment	-1	1	-1
LD2: Small disorganized actual assortment	-1	-1	1
LD3: Large organized actual assortment	1	1	1
LD4: Large disorganized actual assortment	1	-1	-1
	Main effect [LS3,LS4]vs.[LS1,LS2]	Main effect [LS2,LS4]vs.[LS1,LS3]	Interaction effect
LS1: Low agency, low communion storeowner	-1	-1	1
LS2: High agency, low communion storeowner	-1	1	-1
LS3: Low agency, high communion	1	-1	-1
LS4: High agency, high communion	1	1	1
	[LP3,LP4]vs.[LP1,LP2]	[LP2]vs.[LP1]	[LP4]vs.[LP3]
LP1: 8% above average price	-1	-1	0
LP2: 4% above average price	-1	1	0
LP3: 4% below average price	1	0	-1
LP4: 8% below average price	1	0	1

Summary

This study has applied conjoint analysis to explore the process of consumer decision making in order to understand the effect of the environment on store patronage. This technique comprises two main parts. The first part relates to an experimental aspect that is associated with the instrumental development such as the treatment design, the manipulation of the experimental treatment and the assessment of the instrument’s validity and reliability. Next, the second part involved the data collection aspect in which the final research instrument was brought to consumers' evaluation

according to the survey plan. Finally, this study's research was successfully conducted as planned.

CHAPTER 4

Result

Introduction

This chapter reports the overall statistical results, which include the background features of the study sample, the description of observed variables, the aggregate level analysis of the conjoint model, the nonmarket valuation of environmental attributes, and the subgroup level analysis of the conjoint model. Firstly, descriptive statistics are employed to describe the overview image of the sample and the measured variables. Secondly, the data of all the samples are both individually and collectively analyzed in order to acquire the individual and pooled part-worth utility for explanation of the model. Hypotheses are also verified in this part. Next, the nonmarket valuation of environmental attributes is then clarified. Lastly, due to the heterogeneous preferences revealed from the individual analysis, a subgroup level analysis is implemented to identify market segments, which improves explanation of the model.

Table 13 Statistical abbreviations and symbols

Abbreviation/Symbols	Definition
M	Mean
SD	Standard deviation
Skew	Skewness
Kurt	Kurtosis
b	Unstandardized regression coefficient
r^2	Coefficient of determination
Adj-r^2	Adjusted r^2
WA-r^2	Weighted average adjusted r^2
t	T distribution
$F_{df1,df2}$	F distribution with df_1 and df_2 degree of freedom
p	P value
SE	Standard error
ANOVA	Analysis of variance
α	Cronbach's alpha

Table 13 presents the statistical abbreviations and symbols that have been used in this section. Most of them are included in the descriptive statistics and the

discussion of some statistical techniques being used in this study such as regression analysis and repeated analysis of variance.

Background characteristics of the study sample

Table 14 describes the background characteristics of the study samples, including gender, marital status, number of children, occupation, educational attainment and earned income. These are presented as frequencies with percentages and the participants' ages are explained by mean, standard deviation, maximum and minimum values. 70.5% of the sample are female. Most respondents have no children (71.78%) and are single (65.14%). Half of the respondents are approximately under 30 years of age. A minority of respondents have achieved a higher educational level than a bachelor's degree (9.13%). The distribution of different occupations is quite impressive. The largest category for employment (34.03%) is respondents who run their own business or are self-employed. This is followed by those who work for a private organization (24.9%). 14.5% are employed in the government sector, whereas the rest are students (24.4%). The majority earns less than 30,000 Baht (65.98%), whereas one fifth of the respondents do not have their own income from working.

Table 14 Background characteristics of respondents

[N=241]

Background variables	Frequency	Percentage
Gender		
Male	71	29.46%
Female	170	70.54%
Age		
20-24	66	27.39%
25-29	60	24.90%
30-34	37	15.35%
35-39	24	9.96%
40-44	17	7.05%
45-49	22	9.13%
Higher than 50	15	6.22%
Marital status		
Single	157	65.14%
Married	70	29.05%
Divorced, widowed or separated	14	5.81%

Table 14 Background characteristics of respondents (continued)

Background variables	Frequency	Percent
Number of Children		
None	173	71.78%
One	21	8.71%
Two	32	13.28%
Three	12	4.99%
Four	3	1.24%
Occupation		
Student	59	24.48%
Works for government sector or state enterprise	35	14.52%
Works for private sector	60	24.90%
Business owner or self-employed	82	34.03%
Other	5	2.07%
Educational attainment		
Lower than bachelor's degree	99	41.08%
Bachelor's degree	120	49.79%
Higher than bachelor's degree	22	9.13%
Earned income		
No earned income	47	19.50%
Lower than 10,000 Baht	38	15.77%
10,001-20,000 Baht	77	31.95%
20,001-30,000 Baht	44	18.26%
30,001-40,000 Baht	14	5.81%
Higher than 40,000 Baht	21	8.71%
Total	***241***	***100***

Note: The period of data collection was from December 2015 to February 2016.

Descriptive characteristics of the observed patronage intention

Table 15 presents the descriptive statistics of the three items which are used for measuring patronage intention in 18 scenarios. The values of Cronbach's alpha among the three items in each of 18 scenarios is greater than 0.7, which is generally acceptable (Field, 2009). This implies that the three items are acceptable for parceling (summated or averaged) so that the overall patronage intention is then produced.

Table 15 Descriptive statistics of patronage intention items for all 18 profiles

Profile	Items of patronage intention	*M*	*SD*	α
1	The likelihood that I would shop in this store is very high.	2.22	1.45	
	I would be willing to buy merchandise at this store.	2.14	1.34	
	I would be willing to recommend this store to my friends.	1.96	1.28	0.95
2	The likelihood that I would shop in this store is very high.	5.13	1.48	
	I would be willing to buy merchandise at this store.	5.11	1.42	
	I would be willing to recommend this store to my friends.	4.83	1.58	0.92
3	The likelihood that I would shop in this store is very high.	3.55	1.56	
	I would be willing to buy merchandise at this store.	3.35	1.62	
	I would be willing to recommend this store to my friends.	3.08	1.58	0.95
4	The likelihood that I would shop in this store is very high.	1.83	1.04	
	I would be willing to buy merchandise at this store.	1.77	1.07	
	I would be willing to recommend this store to my friends.	1.66	1.05	0.90
5	The likelihood that I would shop in this store is very high.	3.88	1.67	
	I would be willing to buy merchandise at this store.	3.94	1.73	
	I would be willing to recommend this store to my friends.	3.78	1.75	0.94
6	The likelihood that I would shop in this store is very high.	3.76	1.65	
	I would be willing to buy merchandise at this store.	3.64	1.66	
	I would be willing to recommend this store to my friends.	3.29	1.65	0.92
7	The likelihood that I would shop in this store is very high.	3.52	1.56	
	I would be willing to buy merchandise at this store.	3.52	1.49	
	I would be willing to recommend this store to my friends.	3.34	1.50	0.93
8	The likelihood that I would shop in this store is very high.	3.81	1.69	
	I would be willing to buy merchandise at this store.	3.69	1.64	
	I would be willing to recommend this store to my friends.	3.39	1.69	0.92
9	The likelihood that I would shop in this store is very high.	6.41	0.89	
	I would be willing to buy merchandise at this store.	6.44	0.96	
	I would be willing to recommend this store to my friends.	6.38	1.00	0.91
10	The likelihood that I would shop in this store is very high.	4.55	1.44	
	I would be willing to buy merchandise at this store.	4.59	1.41	
	I would be willing to recommend this store to my friends.	4.27	1.49	0.94
11	The likelihood that I would shop in this store is very high.	2.53	1.32	
	I would be willing to buy merchandise at this store.	2.48	1.37	
	I would be willing to recommend this store to my friends.	2.29	1.31	0.91
12	The likelihood that I would shop in this store is very high.	2.05	1.17	
	I would be willing to buy merchandise at this store.	1.98	1.11	
	I would be willing to recommend this store to my friends.	1.84	1.09	0.91
13	The likelihood that I would shop in this store is very high.	5.63	1.34	
	I would be willing to buy merchandise at this store.	5.71	1.29	
	I would be willing to recommend this store to my friends.	5.61	1.37	0.97
14	The likelihood that I would shop in this store is very high.	4.44	1.49	
	I would be willing to buy merchandise at this store.	4.45	1.56	
	I would be willing to recommend this store to my friends.	4.31	1.54	0.95
15	The likelihood that I would shop in this store is very high.	3.90	1.48	
	I would be willing to buy merchandise at this store.	4.03	1.45	
	I would be willing to recommend this store to my friends.	3.75	1.53	0.93
16	The likelihood that I would shop in this store is very high.	3.20	1.43	
	I would be willing to buy merchandise at this store.	3.10	1.45	
	I would be willing to recommend this store to my friends.	2.84	1.45	0.93
17	The likelihood that I would shop in this store is very high.	3.00	1.44	
	I would be willing to buy merchandise at this store.	2.95	1.41	
	I would be willing to recommend this store to my friends.	2.66	1.43	0.93
18	The likelihood that I would shop in this store is very high.	6.00	1.15	
	I would be willing to buy merchandise at this store.	6.01	1.07	
	I would be willing to recommend this store to my friends.	5.95	1.12	0.94

Table 16 demonstrates the basic descriptions of the average patronage intention for all scenarios. The evaluations of patronage intention on the first, fourth and twelfth scenarios are prone to positive skewness, which indicates that most consumers have unpleasantly evaluated their patronage intention in those scenarios. In contrast, the ninth, thirteenth and eighteenth scenarios have received high scores, which corresponds to the shape of negative skewness. Kline(2010) reported the acceptable range for normality as not exceeding ±3 for skewness and ±8 for kurtosis.

Table 16 Descriptive statistics of average patronage intention for all 18 profiles

Profile	Value	*M*	*SD*	Skew	Kurt
1	Average patronage intention	2.10	1.29	1.39	1.85
2	Average patronage intention	5.02	1.39	-0.50	-0.23
3	Average patronage intention	3.33	1.51	0.19	-0.58
4	Average patronage intention	1.75	0.96	1.70	3.30
5	Average patronage intention	3.87	1.62	0.11	-0.72
6	Average patronage intention	3.56	1.53	0.14	-0.57
7	Average patronage intention	3.46	1.42	0.21	-0.43
8	Average patronage intention	3.63	1.55	-0.04	-0.82
9	Average patronage intention	6.41	0.88	-1.67	2.50
10	Average patronage intention	4.47	1.37	-0.31	-0.03
11	Average patronage intention	2.43	1.23	0.61	-0.25
12	Average patronage intention	1.96	1.04	1.37	2.97
13	Average patronage intention	5.65	1.29	-1.22	1.74
14	Average patronage intention	4.40	1.46	-0.28	-0.20
15	Average patronage intention	3.90	1.39	-0.21	-0.30
16	Average patronage intention	3.05	1.36	0.24	-0.59
17	Average patronage intention	2.87	1.34	0.64	0.26
18	Average patronage intention	5.99	1.05	-1.36	2.59

The aggregate level analysis of the conjoint model

This section answers the first and second objectives of this study. Firstly, the part-worth utilities of all levels of attributes are derived by multiple regression analysis. These utilities are taken to calculate the relative importance of each attribute and the best combination of environmental attributes is summarized. Additionally, the stated hypotheses will also be tested in this following section.

The part-worth utilities at the aggregate level

Since each respondent has performed his/her own decision making process by comparing and evaluating all 18 scenarios, the individual set of part-worth utilitie scan be feasibly estimated (i.e., the individual regression coefficients). These individual utilities are then used to find the relative importance of attributes at the individual level. In other words, the preference for attributes may vary according to individual taste. The ability to arrive at this set of individual values is claimed to be a distinct advantage of conjoint analysis over other multivariate techniques (Hair et al., 2010, p. 298).

At the aggregate level, the pooled data from all respondents were simultaneously regressed. These pooled utilities are equal to the average of the individual part-worth utilities (Moore, 1980). This implies that the pooled values represent the preferences of the majority of consumers, despite the fact that these consumers' preferences are heterogeneous. Table 17 presents the part-worth utilities of all levels of attributes, which are derived from the pooled regression analysis, and the relative importance of the attributes, which are averaged from the individual data on relative importance. The results reveal that the social attribute is the most important (42.63%) followed by price (33.62%), design (17.43%), and ambience (6.31%). Figure 17 depicts the results of pooled part-worth utilities from Table 17, graphically indicating the utility values and their relative importance.

The pooled analysis reveals the adjusted r^2 as 0.469, which is interpreted to show that the 46.9% variation of the patronage intention is explained by ambient, design, social and price attributes, whereas the remaining of 53.1% is unexplained. For the individual analysis, the adjusted r^2 averaged from 241 cases is 66%. This improvement of adjusted r^2 assumes that consumers' preferences may be heterogeneous so that subgroup-level analysis can be investigated to improve the explanation. Referring to the predictive validity, two profiles (i.e., 17^{th} and 18^{th} scenarios) were held out for the model prediction. The Pearson correlation between the true scores of the holdout samples and the predicted values, which are estimated by each individual conjoint model, is 0.81, which is more than sufficient as Rao (2014) claimed a high correlation value to begin at 0.75 for predictive validity in conjoint analysis.

Table 17 Part-worth utilities from pooled analysis and relative importance of attributes

Environmental attributes and levels	Pooled part-worth utility	Relative importance
Ambient attribute		6.31%
LA1: Warm lighting with background music	0.038	
LA2: Cool lighting with foreground music	-0.038	
Design attribute		17.43%
LD1: Small organized actual assortment	-0.131	
LD2: Small disorganized actual assortment	-0.222	
LD3: Large organized actual assortment	0.247	
LD4: Large disorganized actual assortment	0.106	
Social attribute		42.64%
LS1: Low agency, low communion storeowner	-1.020	
LS2: High agency, low communion storeowner	-0.900	
LS3: Low agency, high communion storeowner	0.525	
LS4: High agency, high communion storeowner	1.395	
Price attribute		33.62%
LP1: 8% above average price	-0.891	
LP2: 4% above average price	-0.516	
LP3: 4% below average price	0.436	
LP4: 8% below average price	0.970	

Note: The aggregate-level adjusted r^2 is 46.9%.

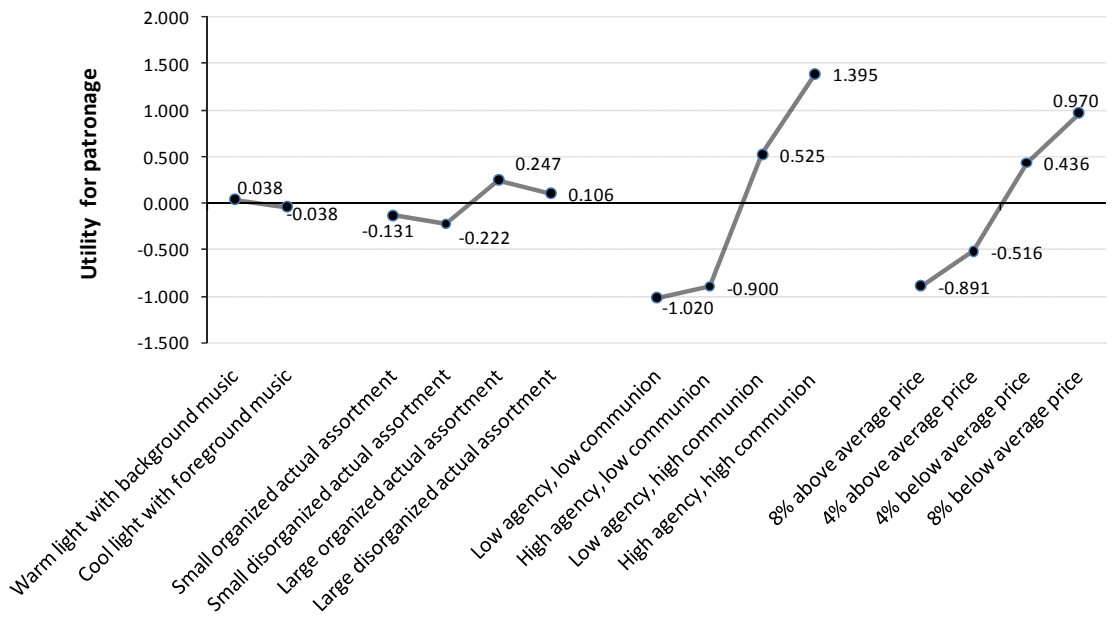


Figure 17 The graphic presentation of part-worth utilities

Hypotheses testing and the best combination

To test whether the utility of the proposed level is higher than other levels within its own attribute (hypotheses H_1, H_{2a}, and H_{3s}), the individual utilities from 241 samples were analyzed by contrasts in repeated ANOVA. Table 18 shows the result of the hypotheses testing analyzed through this process. For the ambient attribute, the result indicates that H_1 is not accepted, meaning that the condition of cool lighting with foreground music (LA2) does not significantly induce a higher utility of patronage intention compared with warm lighting with background music (LA1). For the design attribute, H_{2a} is accepted, which shows that the large organized actual assortment (LD3) has a higher utility of patronage intention to other assortment conditions (LD1, LD2, and LD3). For the social attribute, H_{3a} is accepted, which indicates that the storeowner who is characterized by both strong agency and strong communion (LS4) can provide consumers a higher utility of patronage intention than other types of storeowner traits (LS1, LS2, and LS3).

Table 18 The result of level contrast in repeated ANOVA for hypotheses testing

Level contrast	Utility difference	$F_{1,240}$	p	Hypotheses
LA2 vs. LA1	-0.076	4.39	0.037	H_1 failed
LD3 vs. LD1	0.378	55.80	< 0.01	
LD3 vs. LD2	0.469	75.70	< 0.01	H_{2a} accepted
LD3 vs. LD4	0.141	9.04	< 0.01	
LS4 vs. LS1	2.415	808.11	< 0.01	
LS4 vs. LS2	2.295	716.25	< 0.01	H_{3a} accepted
LS4 vs. LS3	0.870	180.37	< 0.01	

With reference to the design and social attributes, the four levels of each attribute were created by factorial combination from two sub-variables. This factorial combination allows the investigation of the main and interaction effects which are produced by those sub-variables. To compare and interpret the main effect by which the hypotheses in design (H_{2b}) and social (H_{3b}) factors are engaged, the interaction effect plays an important role prior to the explanation of the main effect. For example, if the interaction is found to be disordinal (the ranked order of contributory factors changes at some value), the interpretation of the main effect can be invalid (Hair et al., 2010). In this regard, the orthogonal contrast coding (see Table 12) is applied as the dummy code that allows the estimation of the main and interaction effects.

Table 19 The pooled regression analysis by the orthogonal contrast coding

Model	*b*	*SE*	*t*	*p*
(Constant)	3.69	.022	170.07	< 0.01
Warm lighting with background music vs. Cool lighting with foreground music	-.038	.022	-1.75	0.081
Large vs. Small assortment *(effect of actual assortment)*	.177	.022	8.16	< 0.01
Organized vs. Disorganized display *(effect of display)*	.058	.022	2.67	< 0.01
Interaction between actual assortment and display	.012	.022	0.57	0.566
High vs. Low communion *(effect of communion)*	.960	.022	44.29	< 0.01
High vs. Low agency *(effect of agency)*	.248	.022	11.42	< 0.01
Interaction between communion and agency	.187	.022	8.64	< 0.01
Below vs. Above price	.703	.022	32.44	< 0.01
4% vs. 8% above average price	.188	.031	6.12	< 0.01
8% vs. 4% below average price	.267	.031	8.71	< 0.01

The results from Table 19 indicate that no interaction effect between actual assortment and display is significantly found, such that the main effect interpretation within the design attribute can be straightforwardly done. In contrast, there is a mild interaction effect between agency and communion therefore the main effect cannot be simply ascertained. However, Figure 18 shows that the interaction effect between agency and communion is of an ordinal type so that the interpretation of main effect can be reasonably permitted, but not directly (Hair et al., 2010). Therefore, a comparison between the main effects within design and social cues can be reasonably implemented.

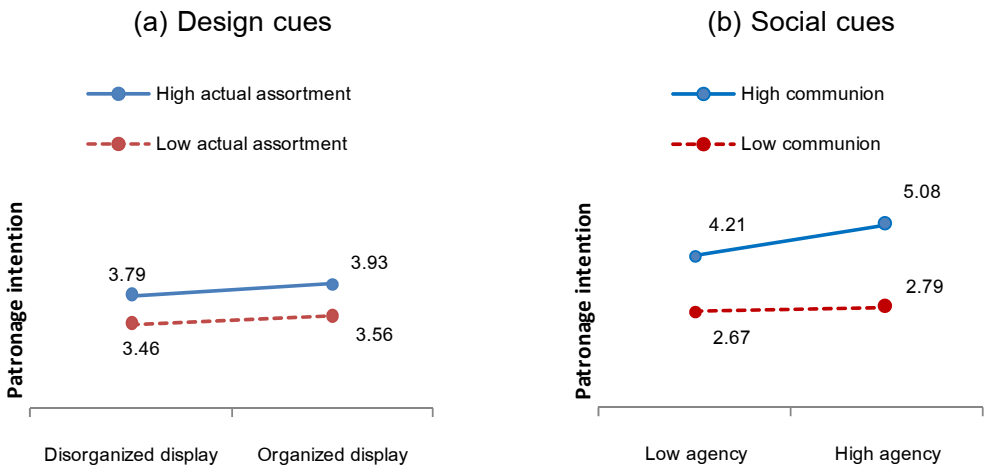


Figure 18 The impact of design and social cues on patronage intention

Table 20 The result of main-effect contrasts in repeated ANOVA for hypotheses testing

Main-effect contrast	Effect difference	$F_{1,240}$	p	Hypotheses
Effect of actual assortment *(High - Low SKUs)* vs. Effect of display *(Organized - Disorganized display)*	0.119	23.76	< 0.01	H_{2b} accepted
Effect of communion *(High - Low communion)* vs. Effect of agency *(High - Low agency)*	0.713	283.96	< 0.01	H_{3b} accepted

Table 20 demonstrates the result of main effect contrast as analyzed from repeated ANOVA. The result identifies the acceptance of $H_{2b}$with the explanation that the effect of higher actual assortment (i.e., large vs. small assortment), which improves the perceived variety, is found to produce a stronger effect on patronage intention than the main effect of organized display (i.e., organized vs. disorganized display), where perceived complexity is engaged with the disorganization. For social cues, the effect of communion (i.e., high vs. low communion) is found to influence a higher patronage intention than the effect of agency (i.e., high vs. low agency), which indicates the acceptance of H_{3b}. However, the ordinal interaction effect between agency and communion reminds us that the effect on consumers' patronage intention is even more effective when strong agency is presented together with strong communion (see Figure 18).

According to the testing of the given hypotheses, a conclusion can be drawn providing the best combination of environmental attributes. The acceptance of H_{2a} and H_{2b} verifies that the large organized assortment, in comparison to other assortment types, provides the best utility for consumers' patronage intention at the mom-and-pop store. Likewise, the acceptance of H_{3s} and H_{3b} indicates that the storeowner who is characterized by both strong agency and strong communion is found to produce the best utility. Especially when the ordinal interaction between agency and communion is significantly found, the integration of both these characteristics can work even more effectively.

In contrast, the rejection of H_1 implies that the mom-and-pop stores can either apply warm lighting with background music or cool lighting with foreground music.

However, the advice from the literature review suggests that the grocery stores should apply cool lighting for better visual clarity and foreground music to provide a down-to-earth image. Therefore, the best combination of in-store environment attributes can be summarized as the mom-and-pop stores that purvey a larger actual assortment with an organized display, where the storeowner is able to serve customers with well developed agency and communion.

Figure 19 demonstrates the best combination of in-store environmental attributes. The first priority is the storeowner who is supposed to provide great relationship skills and the ability to solve customers' problems and answer their questions correctly. Serving with friendliness and politeness is a must for mom-and-pop stores. With such competent service, the storeowner even produces value to consumers. Storeowners can communicate the quality of communion and agency through their physical appearance such as by smiling, appropriate tone of voice and proper dress. For design cues, the stores should use the full facing space on the shelves to display the products with an organized arrangement. In this way, the perceived variety is probably maximized, whereas the perceived complexity is minimized. Additionally, it is advisable to keep favorite items on the shelves. To cut favorite items would severely deteriorate the perception of variety.

Figure 19 The demonstration of the best in-store environment

The nonmarket valuation of environmental attributes

The last research question aims to clarify how much the value of environmental attributes can be translated into a more tangible form such as a monetary value. The same unit of utility value between environmental attribute and price can benefit this value translation. Figure 20 illustrates the relationship between price level, setting it in comparison to average market price, and its utility value. The r^2 value of 0.997 is close to 1, implying that the relationship is a close fit to perfectly linear (Ho, 2006). The slope value of -0.117 can be explained as one unit of decrease in price percentage is equal to 0.117 units increase in its utility. Thus, the translation of the environmental value can be achieved by dividing the environmental utility by this slope value. For example, the change from a large disorganized assortment to a large organized assortment has improved the utility value by 0.141 units (i.e., 0.247-0.106), which can approximately offset the price increase by 1.21% (i.e., 0.141 is divided by 0.117).

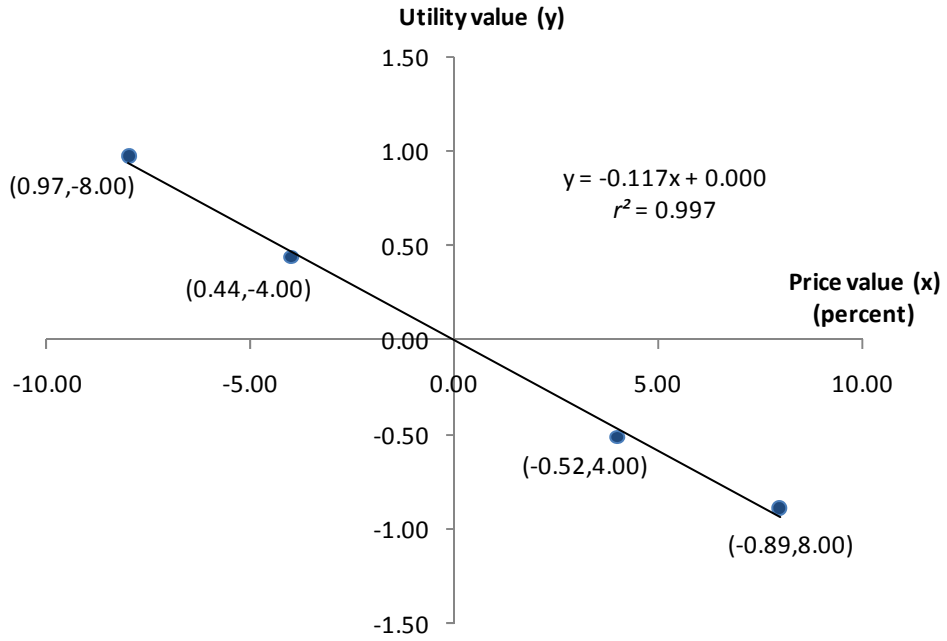


Figure 20 The relationship between price value and its utilities value

Using the same mechanism, the main effect of actual assortment (large vs. small assortment) that produces the utility margin of 0.354 is equivalent to the price being increased by 3.03%, whereas the effect of organized display (organized vs.

disorganized display) is approximated as an increase of only 0.99%. The main effect of agency (high vs. low agency) is evaluated as a price enhancement by 4.24%, whereas the effect of communion (high vs. low agency) reveals the valuation of an astoundingly high 16.41%.

From this it can be seen that the communal trait of a storeowner plays a crucial role to motivate consumers' patronage intention. However, due to the mild interaction effect between agency and communion, the estimation of nonmarket valuation from the pure combination of main effects can be slightly distorted by ±1.6% (i.e., 0.187 divided by 0.117), depending on what levels of agency and communion interact together (refer to interaction effect coding in Table 12). In practice, the main cautionary advice for this application of nonmarket valuation is that the range of price increase should not be over 8% because this study applied a maximum range of price variation as ±8%. Beyond this given range, the relationship between price and its utility might be subject to nonlinearity.

The subgroup level analysis of the conjoint model

This section has not been mentioned in the initial study objectives but it is worth being analyzed so that market segmentation can be revealed through the subgroup level analysis. Due to the heterogeneity of the consumers' preferences, the aggregate conjoint model can encounter a low r^2 (Moore, 1980). To improve the analysis, the consumers can therefore be formed into segments, where homogenous preferences are preserved within the same segment and heterogeneous preferences are maximized across the different segments. Although some sophisticated approaches for conjoint segmentation (e.g., the method proposed by Hagerty (1985) and Kamakura (1988)) have been proposed to date, the traditional two-stage approach was reported not to be inferior to those techniques in term of its predictive validity (Green & Helsen, 1989). Thus, the traditional two-stage conjoint segmentation, where the first stage is to obtain the utilities from regression analysis and those utilities are secondly clustered by either a hierarchical or non-hierarchical method (Vriens, Wedel, & Wilms, 1996), was employed in this study.

Due to there being no absolute consensus regarding the clustering technique in conjoint analysis, there are two major considerations in this traditional two-stage conjoint segmentation. First, the clustering variable used in the conjoint segmentation can be either the individual part-worth utility or the individual relative importance (Rao, 2014). There is no final consensus about which one can outperform the other. For example, Green & Krieger(1991) found part-worth focused segmentation to be superior, while Haley (1968) claimed that the relative importance could be used as an effective criterion for segmenting market. Second, there have also been inconsistent results about whether the hierarchal (e.g., Ward's method) or non-hierarchical (K-means) method is more superior (Punj & Stewart, 1983). Therefore, this study tested both clustering variables using both clustering methodologies. The K-means method was selected for non-hierarchical clustering because it is a common technique for this type (Hair et al., 2010), whereas the Ward's method was selected for hierarchical clustering due to its superior performance against other methods (Punj & Stewart, 1983).

Another challenging task in cluster analysis is to determine the proper number of clusters. Hair et al. (2010) advised running two or more cluster solutions and comparing them to make a final decision. Thus, between 2 and 5 cluster solutions were selected and analyzed using both clustering methods. Afterward, all clustered results were compared according to the criteria of improved adjusted r^2 and interpretability of the cluster.

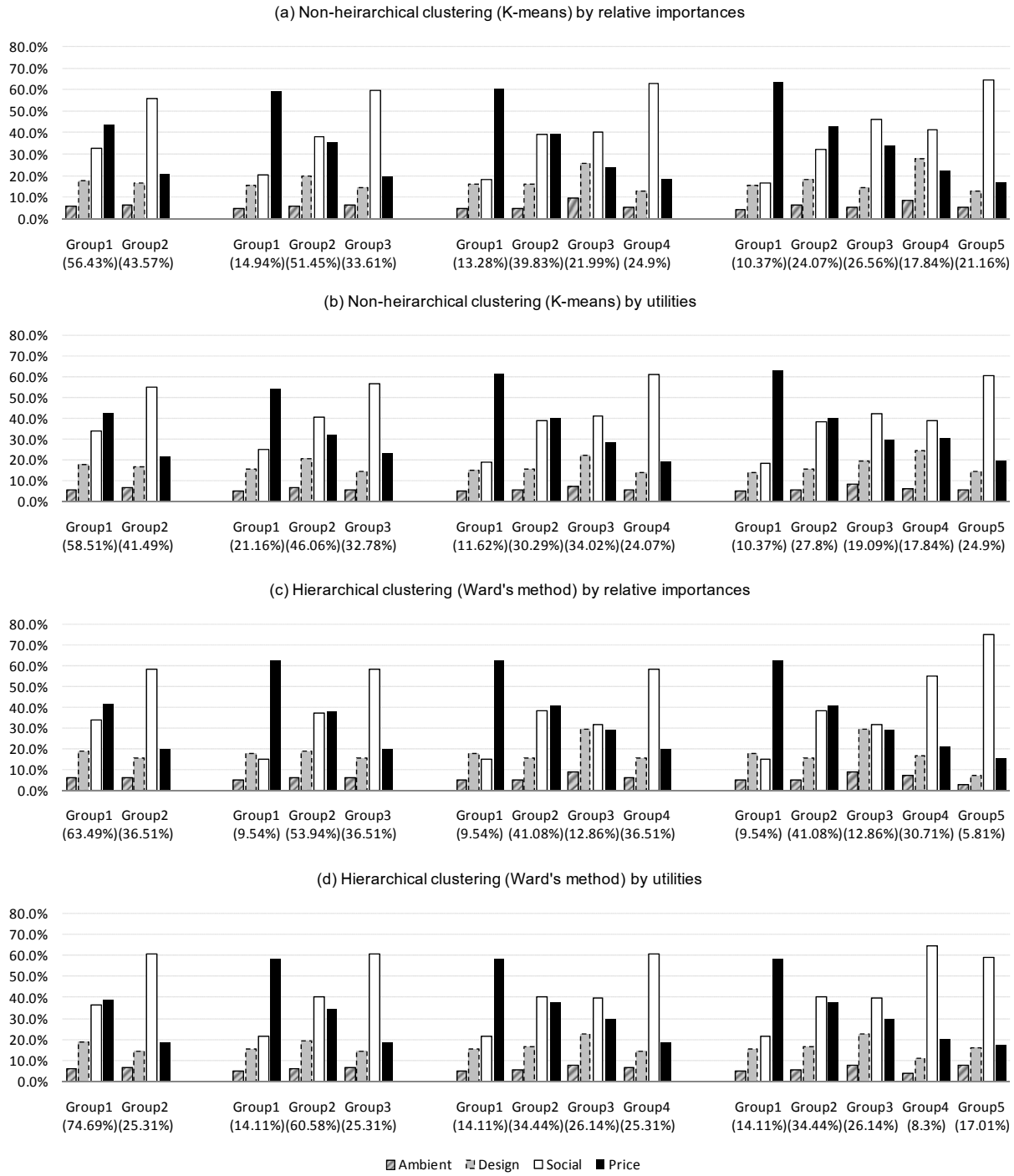
Table 21 reports the adjusted r^2 derived from the regression analysis of each cluster as presented in accordance with the clustering methods (e.g., K-means vs. Ward's method), clustering variables (e.g., relative importance vs. part-worth utility), and the number of clusters. As expected, the magnificent improvement of $WA\text{-}r^2$ is found at the change from the aggregate level (single cluster) to the 2-cluster solution and the rate of improvement climbs up slowly as the number of clusters increases. This improvement of adjusted r^2 at the subgroup level implies the existence of heterogeneous preferences across individual consumers. The non-hierarchical K-means method is mostly found to outperform the hierarchical Ward's method. There is no consistent result about whether relative importance or part-worth utility can provide the clusters with greater results for $WA\text{-}r^2$.

Table 21 The results of subgroups adjusted r^2 presented according to the clustering method, clustering variables and number of clusters

	K-means [Importance]			K-means [Utility]			Ward's method [Importance]			Ward's method [Utility]		
Cluster	Size	*Adj-r²*	*WA-r²*	Size	*Adj-r²*	*WA-r²*	Size	*Adj-r²*	*WA-r²*	Size	*Adj-r²*	*WA-r²*
Two clusters												
1	136	.505	.528	141	.496	.531	153	.486	.523	180	.471	.517
2	105	.558		100	.581		88	.587		61	.654	
Three clusters												
1	36	.623		51	.595		23	.611		34	.598	
2	124	.494	.544	111	.426	.539	130	.498	.541	146	.483	.543
3	81	.586		79	.662		88	.587		61	.654	
Four clusters												
1	32	.625		28	.628		23	.611		34	.598	
2	96	.579	.554	73	.623	.551	99	.571	.550	83	.622	.550
3	53	.376		82	.358		31	.334		63	.329	
4	60	.632		58	.697		88	.587		61	.654	
Five clusters												
1	25	.648		25	.644		23	.611		34	.598	
2	58	.529		67	.620		99	.571		83	.622	
3	64	.589	.556	46	.290	.564	31	.334	.551	63	.329	.555
4	43	.382		43	.541		74	.562		20	.846	
5	51	.648		60	.692		14	.737		41	.588	

Note: The aggregate level adjusted r^2(single cluster) is .469.

Another consideration for cluster selection is the interpretability of the cluster result. The relative importance of attributes is used to present the interpretability of the clusters because it contains fewer dimensions, which allows easier comparison among the clusters. Additionally, due to individual benefit, people differ significantly in the relative importance they place on particular attributes even if they usually like as many benefits as possible (Haley, 1968).



Note: The numbers in parentheses are the number of cluster members in percentage form.

Figure 21 The relative importance of attributes of each cluster presented according to the clustering method, clustering variables and number of clusters

Figure 21 demonstrates the feature of relative importance as generated from each cluster from various criteria and methods. It can be seen that the shape of the relative importance is not much different across the variation in clustering methods (e.g., K-means vs. Ward's method) and clustering variables (e.g., relative importance vs. part-worth utility). In comparison, the 3 cluster solution seems to provide better interpretability with higher *WA-r^2* than the 2 cluster solution. For example, the 3 cluster solution classifies all consumers into these distinct groups: 1) price focused consumers, 2) price and service focused consumers, and 3) service focused consumers. In comparison to the 4cluster solution, the 3 cluster solution also gains better interpretability. For example, the third and fourth groups in the 4 cluster solution are characterized by the same order of attribute importance, which is quite undifferentiated. In addition, the third group obtains lower *WA-r^2* than the based *Adj-r^2* of the aggregate level. The 5 cluster solution has a similar problem to that of the 4cluster solution.

It can be seen that the 3 cluster solution seems to provide the best option for result interpretability. Besides, there is one sub-cluster in each of the 4cluster and 5cluster solutions that gains lower *WA-r^2* than the based *Adj-r^2*. Therefore, the 3cluster solution was selected after consideration of the above points even though the higher cluster solutions attain higher *WA-r^2*. In comparison within the 3cluster solution, the K-means clustering on relative importance achieves the highest *WA-r^2* (.544). Thus, the final decision was to choose the 3 cluster solution which was analyzed with K-means clustering on relative importance.

In conclusion, this 3 cluster solution consists of three distinct segments. The first comprises consumers who are solely sensitive to price level sand were named *'price focused consumers.'* This segment is occupied by 14.9% of all consumers. The second segment is termed *'price and service focused consumers'* who place an equal importance on price and storeowner's services. This segment comprised the largest share of the participants with 51.45%. The last segment consists of consumers who solely emphasize storeowner's services who can be labeled *'service focused consumers.'* This segment was 33.61% of the total population. Figure 22 presents a scatter plot of the 3 cluster solution on the axes of price and social importance.

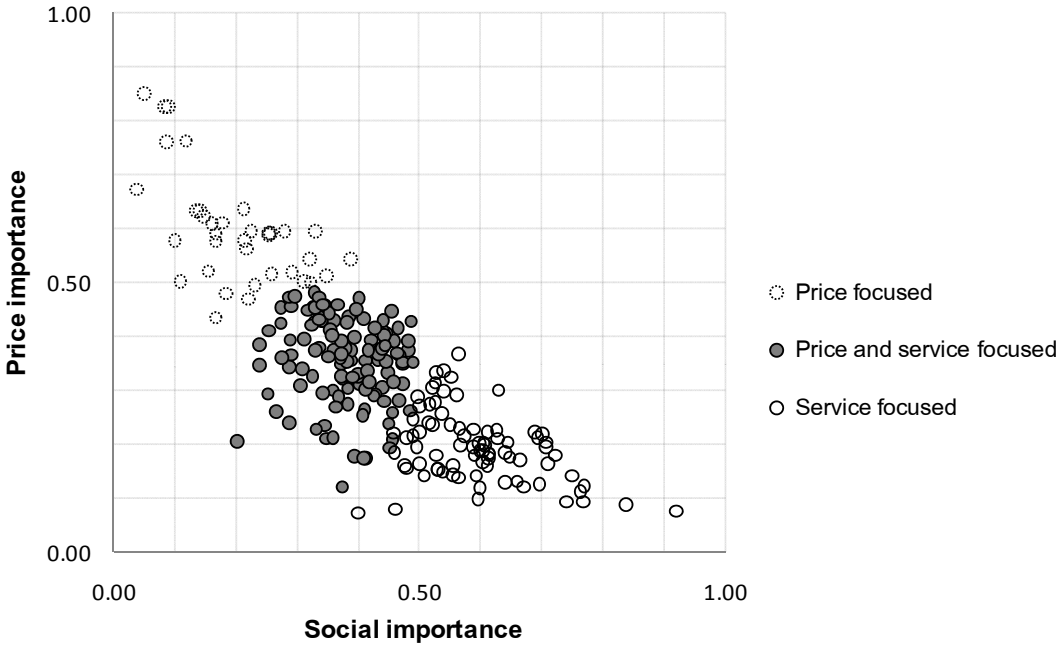


Figure 22 Graphical presentation of the 3 cluster solution on the axes of price and social importance

Lastly, an attempt was made to describe the 3 cluster solution in terms of their sociodemographic characteristics. Table 22 presents the background characteristics for each cluster, which reveals no outstanding differences among the three clusters. However, there is a small distinction that can reasonably be used to explain the differences in clusters. For example, students occupy a greater proportion of the price and service focused segment in comparison to other segments. Besides, it seems that those consumers who earn a higher income are more likely to place greater importance on the storeowner's services. Moore (1980) claimed that the relationship between background variables and the clusters derived from the main effect was not usually large. Additionally, the traditional use of demographic segmentation is reported to be no longer effective to predict future consumer behavior (Haley, 1968) or serve as the basis of marketing strategies (Yankelovich & Meer, 2006).

Table 22 Background characteristics of the final three clusters

[*N*=241]

Background variables	Price focused		Price & service focused		Service focused	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Gender						
Male	11	30.56%	36	29.03%	24	29.63%
Female	25	69.44%	88	70.97%	57	70.37%
Age						
20-24	8	22.22%	43	34.68%	15	18.52%
25-29	10	27.78%	34	27.42%	16	19.75%
30-34	6	16.67%	13	10.48%	18	22.22%
35-39	1	2.78%	15	12.1%	8	9.88%
40-44	5	13.89%	9	7.26%	3	3.7%
45-49	3	8.33%	5	4.03%	14	17.28%
Higher than 50	3	8.33%	5	4.04%	7	8.64%
Marital status						
Single	21	58.33%	89	71.77%	47	58.02%
Married	12	33.33%	26	20.97%	32	39.51%
Divorced / widowed / separated	3	8.33%	9	7.26%	2	2.47%
Number of Children						
None	25	69.44%	94	75.81%	54	66.67%
One	5	13.89%	9	7.26%	7	8.64%
Two	5	13.89%	15	12.1%	12	14.81%
Three	1	2.78%	5	4.03%	6	7.41%
Four	0	0%	1	0.81%	2	2.47%
Occupation						
Student	6	16.67%	42	33.87%	11	13.58%
Works for government / state	8	22.22%	18	14.52%	9	11.11%
Works for private sector	7	19.44%	31	25%	22	27.16%
Business owner / self-employed	13	36.11%	33	26.61%	36	44.44%
Others	2	5.56%	0	0%	3	3.7%
Educational attainment						
Lower than bachelor's degree	13	36.11%	58	46.77%	28	34.57%
Bachelor's degree	15	41.67%	54	43.55%	51	62.96%
Higher than bachelor's degree	8	22.22%	12	9.68%	2	2.47%
Earned income						
No earned income	5	13.89%	33	26.61%	9	11.11%
Lower than 10,000 Baht	12	33.33%	16	12.9%	10	12.35%
10,001-20,000 Baht	6	16.67%	41	33.06%	30	37.04%
20,001-30,000 Baht	9	25%	18	14.52%	17	20.99%
30,001-40,000 Baht	3	8.33%	8	6.45%	3	3.7%
Higher than 40,000 Baht	1	2.78%	8	6.45%	12	14.81%
Total	*36*	*100%*	124	*100%*	81	*100%*

CHAPTER 5

Conclusion

Introduction

This chapter incorporates the literature to explain the statistical results as analyzed from the previous chapter. The chapter begins with the conclusion section which condenses every relevant detail into an overall picture of this study. Next, the discussion section provides possible explanations for these results for which the literature is incorporated. Last but not least, the recommendation section wraps up some important matters, which are the consequences of the results and discussion sections: theoretical recommendations for academics, practical recommendations for practitioners and recommendation for further research.

Conclusion

Due to pressing growth of transnational retailers, Thai small family grocers have found themselves in a serious predicament that needs attention for remedy from the academic and governmental sectors. In this regard, this study aimed to investigate the in-store environment for Thai mom-and-pop stores through consumers' decision making processes in which all simulated alternatives are compared and evaluated by each individual study participant. This process allows the disclosure of individual preferences that can be used to reveal market segmentation. Additionally, this study also evaluates the in-store environment in a more tangible way (i.e., monetary value) such that pricing is also included.

Consequently, this examination lays out the investigating framework indicating how the in-store environment influences consumers’ patronage intentions. The research scope of the in-store environment is shaped by Baker's (1986) environmental construct including ambience (background environment), design (visual-based environment), and social (human) cues. Three different theoretical concepts are respectively incorporated to develop hypotheses about the three environmental cues: 1)

perceived typicality of light and music, as ambient cues; 2) perceived variety/complexity of assortment, as design cues; 3) perceived agency/communion of storeowner, as social cues.

The stated investigations are handled by a conjoint approach that allows the individual consumer to perform his/her own decision making process. The conjoint methodology combines two aspects of research design in which the experimental stimuli are presented and evaluated via a questionnaire through surveying opinions. For experimental stimuli, a randomized shuffling integration of different levels from each environmental attribute, including price, are incorporated into18 environmental scenarios that are simulated in an interactive 3D-model. For survey design, convenience sampling was used on 241 consumers within various locations in Hatyai district: a department store, a community market, and a number of households. The majority of respondents are female (70.5%), single (65.14%) and have no children (71.78%). Most are working (75.6%), and earn less than 30,000 bahts per month (65.98%).

The results reveal that the social environment (i.e., the agency and communion of the storeowner) is considered the most important attribute (by 42.64% of respondents). The design environment (i.e., assortment and display) attracted 17.43% and the ambient environment (i.e., music and lighting) a mere 6.31%. This implies that social cues are the most salient attribute of the environment that consumers take into account for patronage decision making. The importance of social environment is also relatively higher than the importance of a ±8% price variation, which implies the high significance of these social attributes in mom-and-pop stores.

Based on the hypothesis testing, the mom-and-pop stores should provide the best in-store environment by purveying a large organized assortment and serving consumers aiming to develop a relationship with them while also offering product knowledge, regardless of the type of music and lighting. For this social environment, the communal trait (i.e., relationship-based characteristic) is much more highly valued than the agency trait (i.e., intellectual-based characteristic) *($b_{communion}$=0.960 vs. b_{agency} =0.248, p<.01)*. The reason behind this strong emphasis on relationship is assumed to be that this study was carried out in a strongly collectivistic society in which interpersonal relationship is highly valued, and the context of small family grocers naturally accommodates the expectation of relationship-based

participation rather than the intellectual-based performance that is expected in chain stores. Both traits provide the highest utility for influencing patronage intention.

For the design environment, the greater the size of actual assortment, which enhances the perceived variety, the higher the relative value when compared with the attributed of the organized structure of assortment display, which minimizes the perceived complexity *($b_{actual\ assortment}$=0.177 vs. $b_{display\ structure}$ = 0.058, p<.01)*. This affirms the concrete benefit of the actual assortment itself (i.e., for economic as well as psychological reasons) over the benefit of an organized structure of assortment (i.e., which reduces confusion in searching). Combination these two benefits, a large organized assortment obtains the highest utility over other types of assortment because it provides greater perceived variety with the smallest perceived complexity.

For the ambient environment, the mom-and-pop store could either apply cool lighting with foreground music or warm lighting with background music because no difference was found in the utility of either of these (significance level of 0.01 (*p= .038*)).

All ways in which the environment is improved environment has been proved to increase a value that can be translated into monetary value. In other words, the store that provides a better environment can increase consumers' price acceptability. For the design environment, the improvement of organized display (i.e., reducing perceived complexity) provides an approximate value of 1% of price, whereas the increased assortment size (i.e, improving perceived variety) is revealed to render 3.03%. In the same fashion, for the social environment, the improved intellectual-based trait (agency) produces an approximate value of 4.24% in price rise, whereas the improved relationship-based trait (communion) discloses a value of 16.41%. However, it should be remembered that the price setting should not exceed8% due to the maximum variation of pricing used in this study.

For subgroup level analysis, the whole consumers can be classified into three main segments such as the price focused consumers (14.94%), the service focused consumers (33.61%), and the price and service focused consumers (51.45%). The price focused segment is composed of the consumers who emphasize price as the dominant factor regarding their decision at the store. Meanwhile, the service focused consumers place strong consideration only on the service interaction received from the storeowners. The majority of consumers place equal importance on price and service.

These three segments do not correspond with any background characteristics of consumers. Thus, it is not possible to distinctively classify a consumer from their background into any of these three segments.

Discussion

Discussion of relative importance

The individual decision making process requires a customer to compare and assess a lot of information on available alternatives so that only salient attributes are used as criteria for decision making (Orme, 2009). The results of relative attribute importance clarify that the storeowner's characteristics (social cues) are the most salient environmental attribute, followed by the design cues, then the ambience cues. This sequence of relative importance is consistent with the definition of Baker's (1986) environmental construct. The ambient environment is supposed to have the least impact on approach behavior because it is in the background and influences human sat the sub-conscious level. However, the ambient environment is claimed to induce a strong effect on avoidance behavior which this study does not examine, for example, too loud music, too hot/cool temperature and too smelly surroundings. Meanwhile, design and social environments are perceived so much more easily that they produce stronger impacts. Social cues, with which consumers can interactively participate, are therefore expected to produce the highest level of influence.

In past empirical studies, the order of attribute importance has been revealed to be inconsistent, for example, Liu & Jang(2009), who studied the context of restaurant dining, found ambience as the most indirect impact on patronage intention, whereas Baker et al.(2002) detected design cues as the most important for gift and card stores. The possible explanation of these inconsistent findings may be that these different contexts of retail service invoke differences in attribute importance, for example, Baker (1986) claimed that ambient cues are able to strongly influence the emotions so that some businesses (e.g., bakeries) are naturally engaged with the human emotions to attract consumers. However, the context of grocery stores does not strongly require such emotional involvement because they serve a utilitarian benefit rather than having hedonistic value. Moreover, this study was implemented in Thailand,

a strongly collectivistic culture; therefore, the social cues (e.g., of service personnel) may be highly emphasized.

It is worth noting that Hofstede's notion of cultural dimension was investigated at a national level, and so subcultures in each country were ignored (see Hofstede et al., 2010). Although various areas around the country may possess different subcultures they still have some common norms, beliefs and values, which is referred to as the core culture (Schiffman & Wisenblit, 2015). Thus, collectivism can be treated as the core culture in Thailand. Therefore, people in Hatyai district are considered to be Thai consumers who commonly share the core culture of collectivism.

Discussion of hypothesis H_1

H_1 postulates that a higher patronage intention would be induced in consumers by the condition of cool lighting with foreground music than the condition of warm lighting with background music. The underlying logic of H_1 is derived from the concept of typicality, predicting that the condition of higher typicality is expected to provide a higher patronage intention. However, this hypothesis failed to be accepted. A possible explanation is that such ambient cues are part of the background environment of which consumers are usually unaware such that they are expected to provide little influence on approach behavior (J. Baker, 1986). Additionally, as this study is conducted in a culture where interpersonal interaction is highly valued, ambient cues can be even overwhelmed by social cues since consumers only adopt a few salient attributes to compare and assess alternatives in their decision making process.

Warm lighting with background music is found to produce a little higher utility of patronage intention even if the H_1 proposed a condition of cool lighting with foreground music. Actually, some past studies revealed warm lighting with background music was preferred to cool lighting with foreground music. For example, Baker et al. (1994) and Grewal and Baker (1994) found soft lighting with classical music to produce a higher store image and purchase intention than cool lighting with top 40 music. However, both studies used gift stores, so the condition of soft lighting with classical music may gain typicality for this type of store. This explanation is also supported by Schlosser (1998) who revealed that soft lighting with classical music induced a higher likelihood of buying for a store selling the social identity products (e.g., perfume and

jewelry), whereas a store that purveyed utilitarian products (e.g., toothbrushes and can openers) was enhanced by fluorescent lighting with top 40 music. Schlosser (1998) explained this phenomenon by stating that consumers had congruent thinking (i.e., they perceived typicality) about soft lighting with classical music in a store selling social identity products.

There is one possible explanation for why soft lighting with background music gains a slightly higher utility despite the fact that cool light with foreground music is anticipated to be considered more typical in a grocery store. Aggarwal, Mcgill, & Sears(2007) claimed that general consumers preferred characteristics that are moderately incongruent to their schema (i.e., moderate atypicality) than conditions that are highly congruent (i.e., typicality) or extremely incongruent (i.e., atypicality). Mandler's hypothesis explains that consumers increase their proper level of arousal and cognitive effort in an attempt to resolve such moderate incongruity, which leads to more positive responses (as cited in Meyers-Levy & Tybout, 1989). The condition of soft lighting with background music in mom-and-pop stores may not be extremely incongruous because consumers may have experienced some other stores using this type of ambience (i.e., it does not fundamentally change their existing cognitive structure) (see Meyers-Levy & Tybout, 1989). Therefore, it would be possible that warm light with background music in mom-and-pop stores can be favored by some consumers.

Discussion of hypotheses H_{2a} and H_{2b}

In respect to the combinations of actual assortment (large vs. small) and display (organized vs. disorganized), H_{2a} postulates that a large organized assortment provides a higher utility of patronage intention than other combinations. This is accepted, the results imply that consumers have the highest patronage intention where they find a large organized assortment. This result is congruent with two previous studies (e.g., Hoch et al., 1999; Kahn & Wansink, 2004), which also found that a large organized assortment provided the greatest value for behavioral responses such as store choice and consumption quantity. A large organized assortment attracts the greatest perceived variety and the smallest perceived complexity. Although a large disorganized assortment also provides high perceived variety, it induces the highest

perceived complexity, which results in an unfavorable effect on consumers' patronage intention.

In theoretical explanation, consumers also value the benefits of assortment variety for economic and psychological reasons (Oppewal & Koelemeijer, 2005), as they perceive (Hoch et al., 1999). A number of studies have confirmed that the larger the size of the actual assortment, which invokes more perceived variety, the more likely it is to be positively evaluated in terms such as assortment attractiveness (Oppewal & Koelemeijer, 2005), satisfaction (Hoch et al., 1999), consumption demand (Kahn & Wansink, 2004) and store choice (Broniarczyk et al., 1998).

However, some studies have found larger assortment size to have an unfavorable effect, but there has not been sufficient evidence consistently to explain when and why an increase in assortment size would create such adverse results (Scheibehenne et al., 2010). One of several attempts at explanation is that the extensive assortment can easily provoke information overload (i.e., perceived complexity) since consumers have numerous options to consider and may identify items via (un)desirable attributes (Huffman & Kahn, 1998). The presence of choice overload occurs when cognitive effort to make a choice is increasingly required (Mogilner et al., 2008). Especially in random displays, consumers can even be interrupted while spotting some salient cues in their decision making process (Kahn & Wansink, 2004). Therefore, the assortment that conveys the greater perceived variety and the smaller perceived complexity is supposed to optimally cater for consumers.

The subsequent hypothesis H_{2b} postulates that the positive effect of a larger actual assortment on patronage intention is stronger than the unfavorable effect of disorganized display. This is accepted. The results can be explained by the expected utility theory in consumer decision making. This classical theory predicts that consumers will choose the alternative that maximizes their overall expected utility, which is evaluated from the choice outcome (utility) with its perceived likelihood of occurrence (probability) (Hardman & Macchi, 2003).

In the case of store selection, the larger assortment size can surely increase the probability of a match with the right item (i.e., outcome) (Hoch et al., 1999), whereas a disorganized display can only incur consumers' perceiving complexity in finding the desired item. Besides, it is commonly assumed that people tend to avoid

uncertainty (via the principle of the certainty effect), for example, the prospect of getting $50 for sure is commonly preferred over a .5 chance of getting $100, despite the fact that both choices have an equal value of expected utility (Hardman & Macchi, 2003). In this regard, consumers supposedly prefer the condition of a large disorganized assortment over a small organized assortment (see Figure 18 for the congruent results).

Discussion of hypotheses H_{3a} and H_{3b}

In respect to the combination of agency and communion in storeowners' characteristics, H_{3a} postulates that the storeowner with the greater agency and communion would provide the highest utility of patronage intention in comparison to other agency-communion combinations. H_{3a} is accepted, implying that consumers prefer a storeowner who provides them with the solution-focused (i.e., agency) and relationship-focused (i.e., communion) service. As expected by the theoretical review, agency and communion both complement each other (e.g., being respectful, being liked) in a society (Wojciszke et al., 2009).

Although, there is no extant study that applies the domain of agency and communion on salesperson characteristics, a few empirical studies have been found in a fairly similar area. For example, Newell, Belonax, McCardle, & Plank(2011) found that a business-to-business salesperson performing both consultative task and personal relationship behavior could improve consumers' perception of that salesperson's expertise and trust, which eventually enhance consumers' loyalty toward the salesperson and the organization. Another study by Darian et al. (2005) also used conjoint analysis to investigate salesperson characteristics, which could be related to the concept of agency (e.g., respect, friendliness) and communion (e.g., knowledge). Darian also found that all service attributes are preferred by consumers.

To compare agency and communion, H_{3b} postulates that the effect of communal characteristics on consumers' patronage intention would be stronger than the effect of agency characteristics. H_{3b} is accepted, which is quite congruent with past studies. For example, Newell et al. (2011) found that the effect of relationship behavior on consumers' loyalty was greater than that of consultative behavior (i.e., higher beta coefficient). Darian et al. (2005) also found that a salesperson's respect and friendliness is a little more important than his/her knowledge and responsiveness. These congruent

results can be theoretically explained by the fact that communal characteristics such as caring, helping, other-interest, empathy, kindness, consideration, friendliness and honesty serve a nurturing role for unity in a society (Wiggins, 1991). Therefore, one who has more communal characteristics is found to be a likeable person (Wojciszke et al., 2009; Wortman & Wood, 2011).

While previous studies share several similarities to the results in the present research, my study finds communion to have a much stronger effect than agency, which is less the case in past studies conducted in the western countries. The possible explanation already provided is that this study was conducted in a strongly collectivistic society (i.e., Thailand), where people place a highly important value on interpersonal relationship (Hofstede et al., 2010). This interpersonal value in collectivistic culture is also extended to consumers' buying decisions, on which the salesperson relationship is strongly influential (De Mooij & Hofstede, 2010; Kongsompong et al., 2009; Ozdemir & Hewett, 2010; Pornpitakpan & Han, 2013).

Additionally, this study focuses on the context of the small family grocer, where a consumer can directly interact with the storeowner without the intervention of an organizational image as would be the case with chain retailers (see Figure 5). Consumers usually expect organizational performance from employees in such chains because retail organizations are likely to make a promise of service standards through advertising (Bitner, 1995). Therefore, consumers expect the feeling of friendship, empathy and sincerity from local independent stores rather than a high standard of performance (see Klemz, 1999). In sum, in mom-and-pop stores, the interpersonal relationship between the salesperson and the customer must be established at the beginning of a service interaction.

Discussion of non-market valuation of the environment

This study includes price to evaluate the store's environmental value by trade-off decision making. The results reveal that increased value is produced by an improved environment. This environmental value allows consumers to accept higher pricing because the deteriorated utility of the price increase will be offset by the added utility of the environmental improvement. This finding agrees with Grewal & Baker (1994), who proved that an enhanced environment (in terms of ambience, design, and

social cues) could increase price acceptability. Among the environmental components, the social environment (e.g., service interaction) is claimed as a crucial cue that provides higher price acceptability, which is also in accordance with the Grewal & Baker (1994) study. Additionally, Darian et al. (2005) showed that a salesperson's friendliness, respect for customers, knowledge and responsiveness were able to improve consumers' perceptions such that price can be increased to a particular extent.

Theoretical contributions

This study contributes original value to the body of existing knowledge in environmental research in the following ways:

The most salient environmental attribute

Unlike past environmental research, this study allows an individual consumer to employ his/her decision process, where a number of alternative scenarios were compared and assessed (i.e., within-subject design). In comparison to a classical experiment (i.e., between-subject design), where a person is randomly assigned to one treatment for an evaluation, in this study a consumer makes an absolute evaluation in spite of the fact that people are likely to evaluate things on a relative basis (Ariely, 2008). Although, the within-subject design may enable consumers to become fatigued by the presentation of a lot of information (Mitchell & Jolley, 2009), it benefits the investigation by identifying a few salient attributes which consumers usually adopt for simplification when facing complex decision making (Orme, 2009).

Therefore, the assessment of the in-store environment through consumers' decision making process contributes to our existing knowledge that, when compared with the design and ambient environment, the social environment (i.e., storeowner's service interaction) is the most salient attribute that consumers use as a key criterion for their patronage at a mom-and-pop store. The importance of the social environment is especially strong in a collectivistic society.

The main-effect comparison between agency and communion

This study has firstly incorporated the personality domain of agency and communion from the field of social psychology into salesperson characteristics. This study shows that consumers demand both a intellectual-based characteristic (agency) and a

relationship-based characteristic (communion) from the service of salespersons. Additionally, the salesperson's communal trait is found to be quite highly valued relative to the agentic trait.

One of the hypothetical justifications for this strong effect of communion over agency is that this study has been performed in a strong collectivistic society, where interpersonal relationship is intensively emphasized (Hofstede et al., 2010). This cultural value is also found to spread into the context of the sales process (see De Mooij & Hofstede, 2011; Kongsompong et al., 2009). Additionally, the context of small family grocers probably allows consumers to naturally expect a kind of relationship-based interaction that is different from the chain store for which service efficiency is anticipated (see Figure 5).

The main-effect comparison between actual variety and display structure

This study has also initiated a relative comparison between the actual variety and display structure, which fuses the concept of perceived variety with perceived complexity. The results reveal that the effect of actual variety on patronage intention, which provides higher perceived variety, is stronger than the effect of disorganized display, where higher perceived complexity occurs. This affirms the concrete benefit of greater variety (for the economic and psychological reasons (Hoch et al., 1999)) that allows most people to emphasize the larger actual variety over the display structure. In correspondence with the expected utility theory, the larger actual variety involves a higher probability of matching for the desire products, regardless of how the assortment is presented.

The best combination of environment

On applying the conjoint analysis in this study, the value of all levels of environmental attributes are represented in the form of utility values that can be numerically added to search for the best combination of in-store environmental attributes. The mom-and-pop store that purveys a large organized assortment with relationship-based and intellectual-based service from storeowners is found to provide the overall highest utility for consumers' patronage, regardless of the ambient environment, whether cool light with foreground music or warm light with background music.

The value of environmental component

Past environmental research has proved that a pleasant environment can produce value adding for consumers but there has been a lack of clarification about

how to translate its intrinsic value into more tangible value (i.e., monetary value). This study clarifies this tangible value by including the price variable to test against the environmental variables in a trade-off fashion using conjoint analysis. The approximate translation of environmental value can be found in the section on the nonmarket valuation in the fourth chapter.

Recommendations

Theoretical recommendations

This subsection summarizes some concluding remarks from the results and the discussions oriented towards academics.

First, previous studies and this one have revealed inconsistent results in the order of importance of environmental components, although other studies did not utilize consumer decision making in the process of investigation in the same way as this research has. The relative importance of environmental components differ according to the business context, for example, ambient cues produce a great impact on businesses engaging consumers' emotions during the service process such as upscale restaurants (J. Baker, 1986). Therefore, it is expected that the nature of the business, for instance offering purchases which are motivated for utilitarian vs. hedonistic reasons, and high service vs. low service businesses, accommodates different levels of importance to different environmental attributes.

Second, culture can be an influential factor that accounts for the inconsistent results. Recently, Kastanakis & Voyer (2014) after review, have conceptualized that individualistic consumers possess many essential contrasts to collectivistic consumers, for instance, perception of environment (focal vs. holistic), categorization (rule-based vs. relational), message processing (content focused vs. generally focused). Additionally, Hedden, Ketay, Aron, Rose Markus, & Gabrieli (2008) indicated that this cultural difference could even push consumers' brains to function differently when they need to solve the absolute versus relative tasks. Their results showed that East Asians' brain facilitated relative task completion more comfortably. In this regard, the investigation of the holistic environment (i.e., including many environmental variables such as the overall surroundings) may be more particularly

attractive to a collectivistic culture because consumers are likely to relate various elements together and perceive them holistically.

Last, this study found three distinct segments of attribute preferences, which signifies the heterogeneity of consumers' demand. These three have been related to '*benefit segmentation,'* an approach that uses the benefit which consumers are seeking as the criterion for segmentation (Haley, 1968). For example, some consumers are searching for the benefit of price value, whereas some are pursuing the benefit of relationship value. Nowadays, traditional segmentation (e.g., demographics) is insufficient to serve as a basis for marketing strategy (Yankelovich & Meer, 2006), which was confirmed by this study. There was no relationship between benefit segmentation and demographic background. Although most consumers generally tend to prefer as many benefits as possible, the relative importance across individual consumers can differ significantly and, therefore, can be used as an effective criterion for segmentation (Haley, 1968).

Practical recommendations

There are some recommendations for practitioners to implement in their businesses, based on the analyzed results.

First, storeowner characteristic is of the utmost importance as an environmental attribute for mom-and-pop stores. The storeowner should firstly establish a nice relationship with customers, for example, being friendly, helpful, kind, empathetic and sincere. In Thailand, this relational trait is a must so mom-and-pop stores can naturally gain an advantage over chain stores. In addition to a great relationship, the storeowner should also be able to handle customers' technical problems, such as, clarification of product information and awareness of customers' needs, providing effective responses.

Second, the assortment should be displayed in such a way that consumers perceive the highest variety while their confusion is minimized. Although, a large number of actual assortment (large number of items and SKUs) can potentially create a perception of great variety, it can also burden the mom-and-pop stores in term of risk, involving a lot of stock investment and the possibility of being stuck with obsolete non-selling products. Academics have claimed that cutting off non-selling items

as well as retaining customers' favorite items cannot severely deteriorate the perception of assortment variety and that the storeowner could reduce such a burden of the cost of extensive stocking. Therefore the storeowner is advised to be aware of regular customers' needs. In a large actual assortment, a disorganized display could easily cause consumers confusion during product selection. Thus, the storeowners are advised to organize their display on the shelves, which eases customers 'product search.

Third, the mom-and-pop store may either apply cool lighting with foreground music or warm lighting with background music. Although, warm lighting with background music was found to produce a little higher patronage intention, bright cool lighting with foreground music is still advised for such stores because it enhances visual clarity as well as the feeling of frankness. Nowadays, the advancement of light emitting diodes (LED) technology has increased usage efficiency in terms of energy saving and longer durability. Thus, if the store needs an additional installation of lighting, this type of LED lighting is highly recommended. However, it is worth remembering that this background environment is not as important as the assortment and especially the service from the storeowner.

Fourth, the results of the study revealed that the advice given above is able to improve the overall environment, and in addition the price can be marked up to neutralize this benefit. This concept can be simply executed through directly adding up the utility level from each attribute (see Table 17) so that the overall sum of the utility before and after changes should be approximately equal. Taking the example (see Figure 23) of Store A which has cool lighting with foreground music (utility = -0.038), a large disorganized actual assortment (utility = 0.106), a low agency, high communion storeowner (utility = 0.525), and goods which are 4% below the average price (utility = 0.436), this has a total utility score of 1.030. Later, if Store A improves some environmental attributes, for example, developing a large organized actual assortment (utility = 0.247) with a high agency, high communion storeowner (utility = 1.395), the total utility of this new improvement is 2.041. This results in the utility margin as 1.01, which is translated to the price increment as 8.64%. Therefore, the price is approximately offset to 4.64% above the average (utility = -0.574), which brings down

the total utility to 1.030. It is seen that the total utility between the former and the latter situation remain the same.

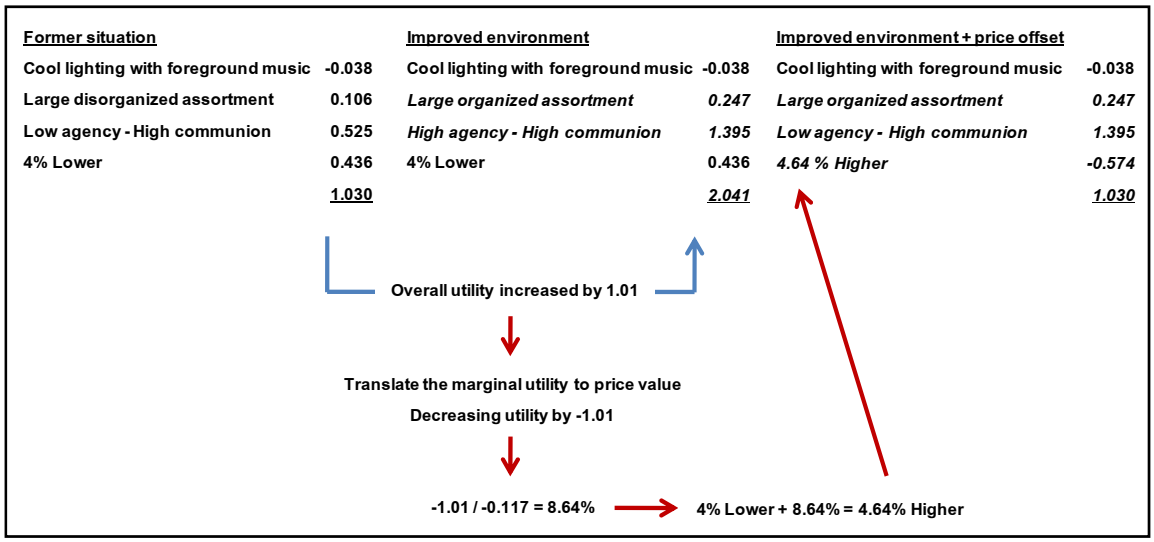


Figure 23 Example of the application of the translated value of environment.

Considering that the relationship between the price levels and their utility is linear, the utility decreases by 0.117 with every 1% increment of price, such that the additional utility of improved environments can be simply offset by the price increment. The main caution for this application is that the range of price variation must be from 8% below to 8% above the average price.

Fifth, the results of utility values in Table 17 can also be used to approximately simulate the market share, to which several methods can be applied. This study proposes the most practical approach which practitioners are able to work with. This method is referred to as the Bradley-Terry-Luce (BTL) rule, where a market share of any store is estimated by the proportion of the store's utility to the total summation of utilities from every store. To simplify this explanation, take three nearby stores, such as Stores A, B, and C, for estimation. Initially, the utility values from each of the three stores are calculated and transformed into proportional percentages. This value transformation is executed for each individual respondent (i.e., 241 samples). Then, all transformed percentages for each store are averaged from all respondents to represent the market share.

It is however seen that practitioners who are reading this paper have no idea about individual utility, which has not been reported in this study. Therefore, this

study proposes a practical way for estimation by using the overall utility presented in Table 17. It should be remembered that the constant value of 3.687 must be added every time for the store utility calculation. Table 23 demonstrates that Store C gains the highest utility score (4.397) in comparison to Stores A (3.432) and B (2.360). These store utilities are transformed into the percentage values, which are approximately interpreted as market shares. The calculation shows that Store C gains the most market share (43.15%) followed by Stores A (33.68%) and B (23.16%).

In reality, practitioners must be reminded that there are some other factors not included in this study (e.g., spatial convenience and promotion) that also influence the store's utility. Thus, the calculated market share is deemed to provide an approximate simulation. One of the important implications from the market simulation is that the storeowner must be aware of other competitors' strategies because a difference in every single attribute could alter the change in market share.

Table 23 Example of market simulation

Store characteristics	Part-worth utility	Store utility	Market share
Store A			
LA2: Cool lighting with foreground music	-0.038		
LD3: Large organized actual assortment	0.247		
LS2: High agency, low communion storeowner	-0.900		
LP3: 4% below average price	0.436		
Constant	3.687	3.432	33.68%
Store B			
LA2: Cool lighting with foreground music	-0.038		
LD3: Large organized actual assortment	0.247		
LS1: Low agency, low communion storeowner	-1.020		
LP2: 4% above average price	-0.516		
Constant	3.687	2.360	23.16%
Store C			
LA2: Cool lighting with foreground music	-0.038		
LD1: Small organized actual assortment	-0.131		
LS4: High agency, high communion storeowner	1.395		
LP2: 4% above average price	-0.516		
Constant	3.687	4.397	43.15%
Total		*10.190*	*100%*

Last, subgroup level analysis clarified that consumers can mainly be classified into three segments: 1) price focused (14.94%), 2) service focused (33.61%), and 3) price and service focused (51.45%). Even though the service interaction gains the most importance among all attributes, this is not applicable for all consumers.

Unfortunately, no distinct demographic information could be linked to those segments, as they were demographically heterogeneous, which implies that it is difficult to explicitly identify any individual customer as typically belonging to one of the segments. Thus, the storeowner is advised to observe consumers, especially those who live nearby the store, and react with appropriate strategies.

In conclusion, mom-and-pop stores are advised to provide the best environment possible. In particular, competent service and a strong relationship focus from the storeowner can be employed without any involvement of cost. The relationship characteristic is able to facilitate the storeowner becoming aware of customers' desires so that the right strategies, such as purveying favorite items, and setting acceptable price levels, can be reasonably designed. The storeowner should also notice other competitors nearby the store because this affects appropriate strategies. If the store provides the best environment, lowering the price is not advised because small retailers are supposed to provide the benefit of convenience rather than price.

Limitations of the study

This subsection identifies some limitations that have been found during the progress of the research. Some are the result of the delimitations, which have been previously addressed in the first chapter.

First, this study employed computer aided design (CAD) to simulate the stores on a laptop screen. Only some environmental variables can be presented via CAD technology, for example, visual and aural variables. Therefore, this technology limits some other ambient variables (e.g., scent and temperature) from being included into the simulated store. Additionally, some parameters could not be manipulated through CAD software, such as the LUX unit, the measurement of light intensity. Thus the brightness in both conditions of cool lighting and warm lighting needs to be held constant even if humans prefer high brightness for cool light and low brightness for warm light.

Second, this study employed the orthogonal main effect design to establish a set of treatments for the experiment. This design is parsimonious, meaning the number of treatments is minimized to produce efficient estimation of the main effect, so that information overload causing fatigue in respondents can be mitigated during

their survey tasks. However, a limitation of this design is that it does not allow the estimation of the interaction effect between attributes.

Third, the experimental simulation was developed to resemble playing a game, where a respondent is supposed to browse in the simulated store via mouse and keyboard control. However, this was found to be very difficult for some respondents who were not familiar with the computer.. Therefore, this study used a trained research assistant to do the task instead, and the respondent could freely ask for any location within the simulated store.

Fourth, this study was conducted in Hatyai city, which may limit its full generalization. Some areas may possess a particular retail landscape dominated by a particular group of consumers that are highly different from Hatyai, for example, a prosperous area with rich consumers, or a remote countryside location where consumers live with a particular lifestyle. Thus, the application of this study to those particular areas is quite restricted.

Fifth, in reality, consumers can encounter other in-store environmental attributes not included in this study (e.g., temperature, scent, store layout, decoration, cleanliness and signage) as well as other factors (e.g., location and spatial accessibility). Those factors can actually impact consumers' decisions about patronage at stores. Therefore, this may restrict the generalizability of this study on consumer behaviors.

Last, the translation of the environmental value may be limited to Thailand since the Thai currency (Baht) has also been declared in the price information in the simulation. Although this study has attempted to generalize this result by using the price variation in the form of a percentage with the exact amount, this value compared to the monetary amount can vary across different countries, for example, the cost of an ordinary meal at the market can vary in different countries.

Recommendations for future research

First, the previous discussion implies that the relative importance of environmental attributes is expected to differ according to the business context, such as, the utilitarian vs. hedonistic product offerings, high service vs. low service businesses and offline vs. online stores. Thus, future research is encouraged to explore

insight into this relationship. For example, the hedonistically orientated products may require the business to generate a stronger ambient environment in comparison to businesses selling utilitarian products.

Second, this study can be related to the literature on service quality. For example, the attribute model of service quality proposed by Haywood-Farmer (1988) has categorized the antecedents of service quality as: 1) physical facilities (e.g., layout, decoration, location and process), 2) behavioral aspects (e.g., verbal/nonverbal communication, speed, dress, friendliness and politeness), and 3) professional judgment (e.g., competence, advice, innovation and knowledge).

For environmental research, the physical facilities may partially be related to the ambience and design environment, whereas the behavioral aspects and professional judgment may be partly associated with the social environment. However, the literature on service quality has rather emphasized an aspect of the service delivery process (see Fukey, Issac, Balasubramanian, & Jaykumar, 2014), with some mediators in between. In terms of this study, mediators such as perceived service quality, perceived customer value, customer satisfaction, or service trust may be recommended for future research.

Third, regarding the CAD limitation that only allows some variables in the investigation, other sensory variables (e.g., temperature and scent) can be additionally included by using other types of stimuli presentation (e.g., laboratory setting or a real store setting). However, using these settings can be very expensive and it is difficult to control other confounding variables in such experimental research. Especially, using a within-subject design can be difficult to implement in practical terms. Thus, the classical experiment and traditional survey may be more practical for including other sensory variables into the study unless the isolated environmental component is particularly focused on. In addition, future research may also include other environmental variables that can be accommodated by simulation using CAD technology, for example, store layout, decoration, cleanliness, signage and a green environment.

Fourth, future research may also consider other factors beyond the scope of the in-store environment such as location and spatial accessibility. In reality, these factors can influence consumers' decision for patronage at stores.

Fifth, the results of this study reveal that the communal trait of salespersons (i.e., a relationship-based orientation) received much higher utility than the agentic trait (i.e., a intellectual-based orientation). This is because this study was conducted in a strong collectivistic society, where consumers place high importance on a salesperson's communal traits. Additionally, the context of this study focused on small family grocers, where consumers do not expect the service performance to be as high as in chain stores. Therefore, it is recommended to further investigate the agentic versus communal characteristics of salespersons in individualistic countries as well as in the context of chain stores. It is anticipated that communal characteristics would have a weaker effect in these contexts in comparison to the context of this study.

Sixth, consumers in different cultures (e.g., individualist vs. collectivist) have a fundamental difference in their cognitive processes, perceptions and behaviors (Kastanakis & Voyer, 2014). This may imply that most environmental variables can be moderated by those cultures. Therefore, it is a challenging task for academics to extend the existing knowledge about which environmental variables are generalizable throughout the different cultures.

Last, this study employed rating-based conjoint analysis whereby alternative scenarios are required for comparison and assessment (i.e., through an individual decision making process). There is another approach, called choice-based conjoint analysis, where consumers are exposed to a number of choice sets from which they choose their most preferred. There are pros and cons for both rating-based and choice-based approaches. For example, the choice-based approach is claimed to bring more realism to the buying situation, in which consumers cognitively process the trade-off among the given choices in order to decide on the best selection for them. Applying a choice-based conjoint approach can also be considered for future environmental research.

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APPENDICES

Appendix A

Questionnaire for manipulation check

แบบสอบถามสำหรับการตรวจสอบการควบคุม (Manipulation-check Questions)

คำชี้แจ้ง แบบสอบถามชุดนี้เป็นการตรวจสอบการควบคุมว่าตัวแปรที่ถูกออกแบบในแบบจำลองนั้นมีลักษณะตรงกับทฤษฎีที่ต้องการหรือไม่

การรับรู้ความเป็นแบบฉบับของบรรยากาศพื้นหลังของร้านของชำ

โปรดทำเครื่องหมาย ○ ล้อมรอบ ตัวเลขที่ตรงกับความคิดเห็นของท่านมากที่สุด

บรรยากาศพื้นหลังรูปแบบที่ 1

ความเป็นแบบฉบับของบรรยากาศพื้นหลัง (Perceived typicality of ambience)							
1.1) การผสมผสานของแสงและเสียงดนตรีที่กำหนดให้เป็นไปตามแบบฉบับของประเภทร้านของชำมากน้อยเพียงใด	ไม่เป็นตามแบบฉบับ 1	2	3	4	5	6	เป็นตามแบบฉบับ 7
1.2) การผสมผสานของแสงและเสียงดนตรีที่กำหนดให้สามารถนำเสนอตัวตนของร้านในประเภทร้านของชำได้มากน้อยเพียงใด	ไม่นำเสนอรูปแบบร้าน 1	2	3	4	5	6	นำเสนอรูปแบบร้าน 7
1.3) การผสมผสานของแสงและเสียงดนตรีที่กำหนดให้เป็นตัวอย่างที่ดีในการสื่อถึงประเภทร้านของชำมากน้อยเพียงใด	เป็นตัวอย่างที่ไม่ดี 1	2	3	4	5	6	เป็นตัวอย่างที่ดี 7

บรรยากาศพื้นหลังรูปแบบที่ 2

ความเป็นแบบฉบับของบรรยากาศพื้นหลัง (Perceived typicality of ambience)							
1.1) การผสมผสานของแสงและเสียงดนตรีที่กำหนดให้เป็นไปตามแบบฉบับของประเภทร้านของชำมากน้อยเพียงใด	ไม่เป็นตามแบบฉบับ 1	2	3	4	5	6	เป็นตามแบบฉบับ 7
1.2) การผสมผสานของแสงและเสียงดนตรีที่กำหนดให้สามารถนำเสนอตัวตนของร้านในประเภทร้านของชำได้มากน้อยเพียงใด	ไม่นำเสนอรูปแบบร้าน 1	2	3	4	5	6	นำเสนอรูปแบบร้าน 7
1.3) การผสมผสานของแสงและเสียงดนตรีที่กำหนดให้เป็นตัวอย่างที่ดีในการสื่อถึงประเภทร้านของชำมากน้อยเพียงใด	เป็นตัวอย่างที่ไม่ดี 1	2	3	4	5	6	เป็นตัวอย่างที่ดี 7

การรับรู้ความหลากหลายของการจัดสรรสินค้าภายในร้าน

โปรดทำเครื่องหมาย ○ ล้อมรอบ ตัวเลขที่ตรงกับความคิดเห็นของท่านมากที่สุด

การจัดสรรสินค้าภายในร้านรูปแบบที่ 1

ความหลากหลายของการจัดสรรสินค้าภายในร้าน (Perceived variety of assortment)	ไม่เห็นด้วยอย่างยิ่ง						เห็นด้วยอย่างยิ่ง
2.1) การจัดสรรสินค้าในร้านนี้มีความหลากหลายซึ่งทำให้ท่านเพลิดเพลิน	1	2	3	4	5	6	7
2.2) การจัดสรรสินค้าในร้านนี้ ทำให้ท่านมีสิ่งที่ท่านชอบอย่างน้อยหนึ่งอย่าง	1	2	3	4	5	6	7
2.3) การจัดแบ่งประเภทสินค้าของร้านนี้ทำให้การเลือกซื้อสินค้ามีความเพลิดเพลินมากยิ่งขึ้น	1	2	3	4	5	6	7
2.4) ท่านคิดว่าการจัดหมวดหมู่สินค้าในร้านนี้มีความหลากหลายมากน้อยเพียงใด	มีความหลากหลายน้อย 1	2	3	4	5	6	มีความหลากหลายมาก 7

ความซับซ้อนของการจัดสรรสินค้าภายในร้าน (Perceived complexity of assortment)	ไม่เห็นด้วยอย่างยิ่ง						เห็นด้วยอย่างยิ่ง
2.5) การจัดสรรสินค้าในร้านนี้มีความซับซ้อนเกินกว่าจะพิจารณา	1	2	3	4	5	6	7
2.6) เป็นเรื่องยากที่จะติดตามสินค้าทุก ๆ รายการ จากการจัดสรรสินค้าในร้านนี้	1	2	3	4	5	6	7
2.7) มีตัวเลือกที่มากเกินไปในการจัดสรรสินค้าในร้านนี้	1	2	3	4	5	6	7

การจัดสรรสินค้าภายในร้านรูปแบบที่ 2

ความหลากหลายของการจัดสรรสินค้าภายในร้าน (Perceived variety of assortment)	ไม่เห็นด้วยอย่างยิ่ง						เห็นด้วยอย่างยิ่ง
2.1) การจัดสรรสินค้าในร้านนี้มีความหลากหลายซึ่งทำให้ท่านเพลิดเพลิน	1	2	3	4	5	6	7
2.2) การจัดสรรสินค้าในร้านนี้ ทำให้ท่านมีสิ่งที่ท่านชอบอย่างน้อยหนึ่งอย่าง	1	2	3	4	5	6	7
2.3) การจัดแบ่งประเภทสินค้าของร้านนี้ทำให้การเลือกซื้อสินค้ามีความเพลิดเพลินมากยิ่งขึ้น	1	2	3	4	5	6	7
2.4) ท่านคิดว่าการจัดหมวดหมู่สินค้าในร้านนี้มีความหลากหลายมากน้อยเพียงใด	มีความหลากหลายน้อย 1	2	3	4	5	6	มีความหลากหลายมาก 7
ความซับซ้อนของการจัดสรรสินค้าภายในร้าน (Perceived complexity of assortment)	ไม่เห็นด้วยอย่างยิ่ง						เห็นด้วยอย่างยิ่ง
2.5) การจัดสรรสินค้าในร้านนี้มีความซับซ้อนเกินกว่าจะพิจารณา	1	2	3	4	5	6	7
2.6) เป็นเรื่องยากที่จะติดตามสินค้าทุก ๆ รายการ จากการจัดสรรสินค้าในร้านนี้	1	2	3	4	5	6	7
2.7) มีตัวเลือกที่มากเกินไปในการจัดสรรสินค้าในร้านนี้	1	2	3	4	5	6	7

การจัดสรรสินค้าภายในร้านรูปแบบที่ 3

ความหลากหลายของการจัดสรรสินค้าภายในร้าน (Perceived variety of assortment)	ไม่เห็นด้วยอย่างยิ่ง						เห็นด้วยอย่างยิ่ง
2.1) การจัดสรรสินค้าในร้านนี้มีความหลากหลายซึ่งทำให้ท่านเพลิดเพลิน	1	2	3	4	5	6	7
2.2) การจัดสรรสินค้าในร้านนี้ ทำให้ท่านมีสิ่งที่ท่านชอบอย่างน้อยหนึ่งอย่าง	1	2	3	4	5	6	7
2.3) การจัดแบ่งประเภทสินค้าของร้านนี้ทำให้การเลือกซื้อสินค้ามีความเพลิดเพลินมากยิ่งขึ้น	1	2	3	4	5	6	7
2.4) ท่านคิดว่าการจัดหมวดหมู่สินค้าในร้านนี้มีความหลากหลายมากน้อยเพียงใด	มีความหลากหลายน้อย 1	2	3	4	5	6	มีความหลากหลายมาก 7
ความซับซ้อนของการจัดสรรสินค้าภายในร้าน (Perceived complexity of assortment)	ไม่เห็นด้วยอย่างยิ่ง						เห็นด้วยอย่างยิ่ง
2.5) การจัดสรรสินค้าในร้านนี้มีความซับซ้อนเกินกว่าจะพิจารณา	1	2	3	4	5	6	7
2.6) เป็นเรื่องยากที่จะติดตามสินค้าทุก ๆ รายการ จากการจัดสรรสินค้าในร้านนี้	1	2	3	4	5	6	7
2.7) มีตัวเลือกที่มากเกินไปในการจัดสรรสินค้าในร้านนี้	1	2	3	4	5	6	7

การจัดสรรสินค้าภายในร้านรูปแบบที่ 4

ความหลากหลายของการจัดสรรสินค้าภายในร้าน (Perceived variety of assortment)	ไม่เห็นด้วยอย่างยิ่ง						เห็นด้วยอย่างยิ่ง
2.1) การจัดสรรสินค้าในร้านนี้มีความหลากหลายซึ่งทำให้ท่านเพลิดเพลิน	1	2	3	4	5	6	7
2.2) การจัดสรรสินค้าในร้านนี้ ทำให้ท่านมีสิ่งที่ท่านชอบอย่างน้อยหนึ่งอย่าง	1	2	3	4	5	6	7
2.3) การจัดแบ่งประเภทสินค้าของร้านนี้ทำให้การเลือกซื้อสินค้ามีความเพลิดเพลินมากยิ่งขึ้น	1	2	3	4	5	6	7
2.4) ท่านคิดว่าการจัดหมวดหมู่สินค้าในร้านนี้มีความหลากหลายมากน้อยเพียงใด	มีความหลากหลายน้อย 1	2	3	4	5	6	มีความหลากหลายมาก 7
ความซับซ้อนของการจัดสรรสินค้าภายในร้าน (Perceived complexity of assortment)	ไม่เห็นด้วยอย่างยิ่ง						เห็นด้วยอย่างยิ่ง
2.5) การจัดสรรสินค้าในร้านนี้มีความซับซ้อนเกินกว่าจะพิจารณา	1	2	3	4	5	6	7
2.6) เป็นเรื่องยากที่จะติดตามสินค้าทุก ๆ รายการ จากการจัดสรรสินค้าในร้านนี้	1	2	3	4	5	6	7
2.7) มีตัวเลือกที่มากเกินไปในการจัดสรรสินค้าในร้านนี้	1	2	3	4	5	6	7

การรับรู้ลักษณะของผู้ขาย

โปรดทำเครื่องหมาย ○ ล้อมรอบ ตัวเลขที่ตรงกับความคิดเห็นของท่านมากที่สุด

พนักงานขาย รูปแบบที่ 1

คุณลักษณะมุ่งเน้นตนเอง (Agentic trait)	ไม่เห็นด้วยอย่างยิ่ง						เห็นด้วยอย่างยิ่ง
3.1) พนักงานขายมีความสามารถ	1	2	3	4	5	6	7
3.2) พนักงานขายมีประสิทธิภาพ	1	2	3	4	5	6	7
3.3) พนักงานขายเป็นคนฉลาด	1	2	3	4	5	6	7
3.4) พนักงานขายเป็นคนที่เต็มไปด้วยพลัง	1	2	3	4	5	6	7
3.5) พนักงานขายเป็นคนที่มีระเบียบแบบแผน	1	2	3	4	5	6	7
คุณลักษณะมุ่งเน้นผู้อื่น (Communal trait)	ไม่เห็นด้วยอย่างยิ่ง						เห็นด้วยอย่างยิ่ง
3.6) พนักงานขายมีความจริงใจ	1	2	3	4	5	6	7
3.7) พนักงานขายเป็นคนซื่อสัตย์	1	2	3	4	5	6	7
3.8) พนักงานขายมีความเป็นธรรมต่อบุคคลอื่น	1	2	3	4	5	6	7
3.9) พนักงานขายเป็นบุคคลที่มีความภักดี	1	2	3	4	5	6	7
3.10) พนักงานขายเป็นคนไม่เห็นแก่ตัว	1	2	3	4	5	6	7

พนักงานขาย รูปแบบที่ 2

คุณลักษณะมุ่งเน้นตนเอง (Agentic trait)	ไม่เห็นด้วยอย่างยิ่ง						เห็นด้วยอย่างยิ่ง
3.1) พนักงานขายมีความสามารถ	1	2	3	4	5	6	7
3.2) พนักงานขายมีประสิทธิภาพ	1	2	3	4	5	6	7
3.3) พนักงานขายเป็นคนฉลาด	1	2	3	4	5	6	7
3.4) พนักงานขายเป็นคนที่เต็มไปด้วยพลัง	1	2	3	4	5	6	7
3.5) พนักงานขายเป็นคนที่มีระเบียบแบบแผน	1	2	3	4	5	6	7
คุณลักษณะมุ่งเน้นผู้อื่น (Communal trait)	ไม่เห็นด้วยอย่างยิ่ง						เห็นด้วยอย่างยิ่ง
3.6) พนักงานขายมีความจริงใจ	1	2	3	4	5	6	7
3.7) พนักงานขายเป็นคนซื่อสัตย์	1	2	3	4	5	6	7
3.8) พนักงานขายมีความเป็นธรรมต่อบุคคลอื่น	1	2	3	4	5	6	7
3.9) พนักงานขายเป็นบุคคลที่มีความภักดี	1	2	3	4	5	6	7
3.10) พนักงานขายเป็นคนไม่เห็นแก่ตัว	1	2	3	4	5	6	7

พนักงานขาย รูปแบบที่ 3

คุณลักษณะมุ่งเน้นตนเอง (Agentic trait)	ไม่เห็นด้วยอย่างยิ่ง						เห็นด้วยอย่างยิ่ง
3.1) พนักงานขายมีความสามารถ	1	2	3	4	5	6	7
3.2) พนักงานขายมีประสิทธิภาพ	1	2	3	4	5	6	7
3.3) พนักงานขายเป็นคนฉลาด	1	2	3	4	5	6	7
3.4) พนักงานขายเป็นคนที่เต็มไปด้วยพลัง	1	2	3	4	5	6	7
3.5) พนักงานขายเป็นคนที่มีระเบียบแบบแผน	1	2	3	4	5	6	7
คุณลักษณะมุ่งเน้นผู้อื่น (Communal trait)	ไม่เห็นด้วยอย่างยิ่ง						เห็นด้วยอย่างยิ่ง
3.6) พนักงานขายมีความจริงใจ	1	2	3	4	5	6	7
3.7) พนักงานขายเป็นคนซื่อสัตย์	1	2	3	4	5	6	7
3.8) พนักงานขายมีความเป็นธรรมต่อบุคคลอื่น	1	2	3	4	5	6	7
3.9) พนักงานขายเป็นบุคคลที่มีความภักดี	1	2	3	4	5	6	7
3.10) พนักงานขายเป็นคนไม่เห็นแก่ตัว	1	2	3	4	5	6	7

พนักงานขาย รูปแบบที่ 4

คุณลักษณะมุ่งเน้นตนเอง (Agentic trait)	ไม่เห็นด้วยอย่างยิ่ง						เห็นด้วยอย่างยิ่ง
3.1) พนักงานขายมีความสามารถ	1	2	3	4	5	6	7
3.2) พนักงานขายมีประสิทธิภาพ	1	2	3	4	5	6	7
3.3) พนักงานขายเป็นคนฉลาด	1	2	3	4	5	6	7
3.4) พนักงานขายเป็นคนที่เต็มไปด้วยพลัง	1	2	3	4	5	6	7
3.5) พนักงานขายเป็นคนที่มีระเบียบแบบแผน	1	2	3	4	5	6	7
คุณลักษณะมุ่งเน้นผู้อื่น (Communal trait)	ไม่เห็นด้วยอย่างยิ่ง						เห็นด้วยอย่างยิ่ง
3.6) พนักงานขายมีความจริงใจ	1	2	3	4	5	6	7
3.7) พนักงานขายเป็นคนซื่อสัตย์	1	2	3	4	5	6	7
3.8) พนักงานขายมีความเป็นธรรมต่อบุคคลอื่น	1	2	3	4	5	6	7
3.9) พนักงานขายเป็นบุคคลที่มีความภักดี	1	2	3	4	5	6	7
3.10) พนักงานขายเป็นคนไม่เห็นแก่ตัว	1	2	3	4	5	6	7

Appendix B

Questionnaire for behavioral measure

ชุดที่_____

แบบสอบถามเพื่อการวิจัย

เรื่อง

Practical Design of Store Attributes for Traditional Retailer in Thailand with Conjoint Analysis

คำชี้แจง

แบบสอบถามฉบับนี้มีวัตถุประสงค์เพื่อสำรวจความคิดเห็นของผู้บริโภคที่มีต่อแบบจำลองร้านโชห่วยจำนวน 18 รูปแบบ โดยมีรายละเอียดของแบบสอบถามดังนี้

ตอนที่ 1 แบบสอบถามความตั้งใจในการเข้าใช้บริการต่อแบบจำลองจำนวน 18 แบบ

ตอนที่ 2 แบบสอบถามข้อมูลสถานภาพทั่วไป

ข้อสังเกต [ส่วนนี้สำหรับผู้สำรวจ]

1. _____
2. _____
3. _____
4. _____
5. _____

ตอนที่ 1 ความตั้งใจในการเข้าใช้บริการและความภักดีเชิงการกระทำต่อแบบจำลอง

โปรดทำเครื่องหมาย O ล้อมรอบ ตัวเลขที่ตรงกับความคิดเห็นของท่านมากที่สุด จากแบบจำลองที่ท่านได้ปฏิสัมพันธ์ โดยตัวเลขสื่อถึงความหมายดังนี้

1	2	3	4	5	6	7
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ค่อนข้างไม่เห็นด้วย	เฉยๆ	ค่อนข้างเห็นด้วย	เห็นด้วย	เห็นด้วยอย่างยิ่ง

#แบบจำลองที่ _______

ความตั้งใจในการเข้าใช้บริการ (Patronage intention)	**ไม่เห็นด้วยอย่างยิ่ง**						**เห็นด้วยอย่างยิ่ง**
1.1) มีความเป็นไปได้สูงที่ฉันจะเลือกซื้อสินค้าในร้านค้านี้	1	2	3	4	5	6	7
1.2) ฉันเต็มใจที่จะซื้อสินค้าในร้านค้านี้	1	2	3	4	5	6	7
1.3) ฉันมีความเต็มใจที่จะแนะนำร้านค้านี้ให้เพื่อนๆ ของฉันรู้จัก	1	2	3	4	5	6	7

#แบบจำลองที่ _______

ความตั้งใจในการเข้าใช้บริการ (Patronage intention)	**ไม่เห็นด้วยอย่างยิ่ง**						**เห็นด้วยอย่างยิ่ง**
1.1) มีความเป็นไปได้สูงที่ฉันจะเลือกซื้อสินค้าในร้านค้านี้	1	2	3	4	5	6	7
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#แบบจำลองที่ _______

ความตั้งใจในการเข้าใช้บริการ (Patronage intention)	**ไม่เห็นด้วยอย่างยิ่ง**						**เห็นด้วยอย่างยิ่ง**
1.1) มีความเป็นไปได้สูงที่ฉันจะเลือกซื้อสินค้าในร้านค้านี้	1	2	3	4	5	6	7
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#แบบจำลองที่ _______

ความตั้งใจในการเข้าใช้บริการ (Patronage intention)	ไม่เห็นด้วยอย่างยิ่ง						เห็นด้วยอย่างยิ่ง
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#แบบจำลองที่ _______

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ตอนที่ 2 ข้อมูลสถานภาพทั่วไป

โปรดทำเครื่องหมาย ✓ลงในช่อง ❑ หน้าข้อความที่ตรงกับความคิดเห็นของท่าน หรือเติมข้อความให้สมบูรณ์

2.1) เพศ

❑ 1. ชาย

❑ 2. หญิง

2.2) เกิดปี พ.ศ._____

2.3) สถานะ

❑ 1. โสด

❑ 2. สมรส

❑ 3. หม้าย / หย่า / แยกกันอยู่

2.4) จำนวนบุตร _____ คน (ถ้ามี)

2.5) อาชีพหลัก

❑ 1. นักเรียน นักศึกษา

❑ 2. ข้าราชการ เจ้าหน้าที่รัฐ พนักงานรัฐวิสาหกิจ

❑ 3. พนักงานบริษัทเอกชน

❑ 4. เกษตรกร

❑ 5. ธุรกิจส่วนตัว อาชีพอิสระ

❑ 6. อื่นๆ ระบุ _____

2.6) ระดับการศึกษาที่ <u>สำเร็จแล้ว</u> สูงสุด

❑ 1. ต่ำกว่าปริญญาตรี

❑ 2. ปริญญาตรี

❑ 3. สูงกว่าปริญญาตรี

2.7) รายได้ส่วนตัวเฉลี่ยต่อเดือน

❑ 1. 10,000 บาทหรือต่ำกว่า

❑ 2. 10,001-20,000 บาท

❑ 3. 20,001-30,000 บาท

❑ 4. 30,001-40,000 บาท

❑ 5. 40,001-50,000 บาท

❑ 6. 50,001-60,000 บาท

❑ 7. 60,001-70,000 บาท

❑ 8. 70,001-80,000 บาท

❑ 9. 80,001-90,000 บาท

❑ 10. 90,001-100,000 บาท

❑ 11. 100,000 บาทขึ้นไป

❑ 0.ยังไม่มีรายได้จากการทำงาน

Appendix C

Content specialists for IOC assessment

ที่ ศธ 0521.1.08/ 1164

คณะวิทยาการจัดการ
มหาวิทยาลัยสงขลานครินทร์
ตู้ ปณ. 5 ต.คอหงส์
อ.หาดใหญ่ จ.สงขลา 90112

9 กันยายน 2558

เรื่อง ขอความอนุเคราะห์ผู้เชี่ยวชาญตรวจสอบแบบสอบถามเพื่อประกอบการทำวิทยานิพนธ์

เรียน ดร.วาสนา สุวรรณวิจิตร

สิ่งส่งมาด้วย แบบสอบถามเพื่อประกอบการทำวิทยานิพนธ์ จำนวน 1 ชุด

ด้วยนายสานิตย์ ศรีชูเกียรติ นักศึกษาปริญญาเอก หลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาการจัดการ คณะวิทยาการจัดการ มหาวิทยาลัยสงขลานครินทร์ วิทยาเขตหาดใหญ่ ได้รับอนุมัติให้ทำวิทยานิพนธ์เรื่อง "Traditional Retailer in Thailand with Conjoint Analysis" โดยมีอาจารย์ที่ปรึกษาวิทยานิพนธ์ คือ ผู้ช่วยศาสตราจารย์ ดร. ธีรศักดิ์ จินดาบถนั้น

ในการนี้ หลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาการจัดการ พิจารณาแล้วว่า ท่านเป็นผู้มีความรู้ความสามารถ และเป็นผู้เชี่ยวชาญอย่างดียิ่ง จึงขอความอนุเคราะห์ท่านในการตรวจสอบแบบสอบถามเพื่อประกอบการทำวิทยานิพนธ์ของ นายสานิตย์ ศรีชูเกียรติ หากท่านมีข้อสงสัยหรือซักถามเกี่ยวกับข้อคำถาม ติดต่อได้โดยตรงนักศึกษาที่โทรศัพท์เคลื่อนที่ หมายเลข 090-9519615 และ E-Mail: jard.vaeo@gmail.com

จึงเรียนมาเพื่อโปรดพิจารณาให้ความอนุเคราะห์ จะเป็นพระคุณยิ่ง

ขอแสดงความนับถือ

(ผู้ช่วยศาสตราจารย์ ดร.บุษบง ชัยเจริญวัฒนะ)
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โทร. 0-7428-7852
โทรสาร 0-7428-7852

ที่ ศธ 0521.1.08/ 1163

คณะวิทยาการจัดการ
มหาวิทยาลัยสงขลานครินทร์
ตู้ ปณ. 5 ต.คอหงส์
อ.หาดใหญ่ จ.สงขลา 90112

9 กันยายน 2558

เรื่อง ขอความอนุเคราะห์ผู้เชี่ยวชาญตรวจสอบแบบสอบถามเพื่อประกอบการทำวิทยานิพนธ์

เรียน ผู้ช่วยศาสตราจารย์ ดร. อรจันทร์ ศิริโชติ

สิ่งส่งมาด้วย แบบสอบถามเพื่อประกอบการทำวิทยานิพนธ์ จำนวน 1 ชุด

ด้วยนายสานิตย์ ศรีชูเกียรติ นักศึกษาปริญญาเอก หลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาการจัดการ คณะวิทยาการจัดการ มหาวิทยาลัยสงขลานครินทร์ วิทยาเขตหาดใหญ่ ได้รับอนุมัติให้ทำวิทยานิพนธ์เรื่อง "Traditional Retailer in Thailand with Conjoint Analysis" โดยมีอาจารย์ที่ปรึกษาวิทยานิพนธ์ คือ ผู้ช่วยศาสตราจารย์ ดร. ธีรศักดิ์ จินตาบถนั้น

ในการนี้ หลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาการจัดการ พิจารณาแล้วว่า ท่านเป็นผู้มีความรู้ความสามารถ และเป็นผู้เชี่ยวชาญอย่างดียิ่ง จึงขอความอนุเคราะห์ท่านในการตรวจสอบแบบสอบถามเพื่อประกอบการทำวิทยานิพนธ์ของ นายสานิตย์ ศรีชูเกียรติ หากท่านมีข้อสงสัยหรือซักถามเกี่ยวกับข้อคำถาม ติดต่อได้โดยตรงนักศึกษาที่โทรศัพท์เคลื่อนที่ หมายเลข 090-9519615 และ E-Mail: jard.vaeo@gmail.com

จึงเรียนมาเพื่อโปรดพิจารณาให้ความอนุเคราะห์ จะเป็นพระคุณยิ่ง

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ที่ ศธ 0521.1.08/ 1162

คณะวิทยาการจัดการ
มหาวิทยาลัยสงขลานครินทร์
ตู้ ปณ. 5 ต.คอหงส์
อ.หาดใหญ่ จ.สงขลา 90112

9 กันยายน 2558

เรื่อง ขอความอนุเคราะห์ผู้เชี่ยวชาญตรวจสอบแบบสอบถามเพื่อประกอบการทำวิทยานิพนธ์

เรียน ดร.วิลาวัลย์ จันทร์ศรี

สิ่งส่งมาด้วย แบบสอบถามเพื่อประกอบการทำวิทยานิพนธ์ จำนวน 1 ชุด

ด้วยนายสานิตย์ ศรีชูเกียรติ นักศึกษาปริญญาเอก หลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาการจัดการ คณะวิทยาการจัดการ มหาวิทยาลัยสงขลานครินทร์ วิทยาเขตหาดใหญ่ ได้รับอนุมัติให้ทำวิทยานิพนธ์เรื่อง "Traditional Retailer in Thailand with Conjoint Analysis" โดยมีอาจารย์ที่ปรึกษาวิทยานิพนธ์ คือ ผู้ช่วยศาสตราจารย์ ดร. ธีรศักดิ์ จินดาบถนั้น

ในการนี้ หลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาการจัดการ พิจารณาแล้วว่า ท่านเป็นผู้มีความรู้ความสามารถ และเป็นผู้เชี่ยวชาญอย่างดียิ่ง จึงขอความอนุเคราะห์ท่านในการตรวจสอบแบบสอบถามเพื่อประกอบการทำวิทยานิพนธ์ของ นายสานิตย์ ศรีชูเกียรติ หากท่านมีข้อสงสัยหรือซักถามเกี่ยวกับข้อคำถาม ติดต่อได้โดยตรงนักศึกษาที่โทรศัพท์เคลื่อนที่ หมายเลข 090-9519615 และ E-Mail: jard.vaeo@gmail.com

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B.Eng (Electrical Engineering)	Prince of Songkla University	2000
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List of Publications and Proceedings

สานิตย์ ศรีชูเกียรติ, และธีรศักดิ์ จินดาบถ. (2557). วิธีการจัดเรียงสินค้าที่ก่อให้เกิดการรับรู้ในเรื่องความหลากหลาย. การประชุมวิชาการระดับชาติด้านบริหารจัดการ ครั้งที่ 6. สงขลา: คณะวิทยาการจัดการ มหาวิทยาลัยสงขลานครินทร์.

Srichookiat, S., & Jindabot, T. (2014). Appropriate physical attributes for mom-and-pop stores in Thailand. Presented at the 7th Oxford Asia Retail Conference: The Impact of Retailing in Emerging and Mature Markets. Singapore: National University of Singapore.

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Srichookiat, S., & Jindabot, T. (2016). The practical in-store environment for small family grocers with conjoint analysis in Thailand. Presented at the 8th Conference on Retailing in the Asia Pacfic: Retailing in Emerging Markets: Sustainability and Regulatory Challenges. Thailand: Mahidol University.

Srichookiat, S., & Jindabot, T. (2017). Small family grocers' inherent advantages over chain stores: A review. International Journal of Retail & Distribution Management, 45(4).