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# Le rôle de la congruence perçue dans un contexte de distribution "multicanal" en Chine : trois études sur les influences "cross-canal" des prix et des assortiments

Lingyi Wu

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## **THÈSE**

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préparée au sein du **Laboratoire CERAG FRE 3748 CNRS/UGA**  
dans **l'École Doctorale de Sciences de Gestion**

# **Le rôle de la congruence perçue dans un contexte de distribution « multicanal » en Chine: Trois études sur les influences « cross-canal » des prix et des assortiments**

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金须百炼，矢不轻发



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# **INTRODUCTION**

## 1. RESEARCH BACKGROUND

On every November 11<sup>th</sup> since 2009, Alibaba, the biggest Chinese online C2C and B2C retail platform, will launch a special 24-hour shopping event on their websites: [www.taobao.com](http://www.taobao.com) and [www.tmall.com](http://www.tmall.com). On that day of the year 2015, the recorded total sales revenue from Alibaba's retail platforms within 24 hours goes to 13.22 billion euros, equivalent to a growth of 59.7% year-on-year. To date, this marketing event becomes a cultural symbol containing similar meaning as American Black Friday but more significantly presenting the fast development of online commercial markets in China. Today, an absence to "Double-11" events is intolerant for all e-commercial retailers or multichannel retailers. Thereupon, traditional retailers or the brick-and-mortar stores of multichannel retailers encounter the pressure of inadequate growth. According to the report of Roland Berger (2015), whereas sales revenue in online retailing have an average growth of 26.2% from 2013 to 2014, only an increase of 5.6% is returned from brick-and-mortar retailing sales during the same observation period (see Figure A).

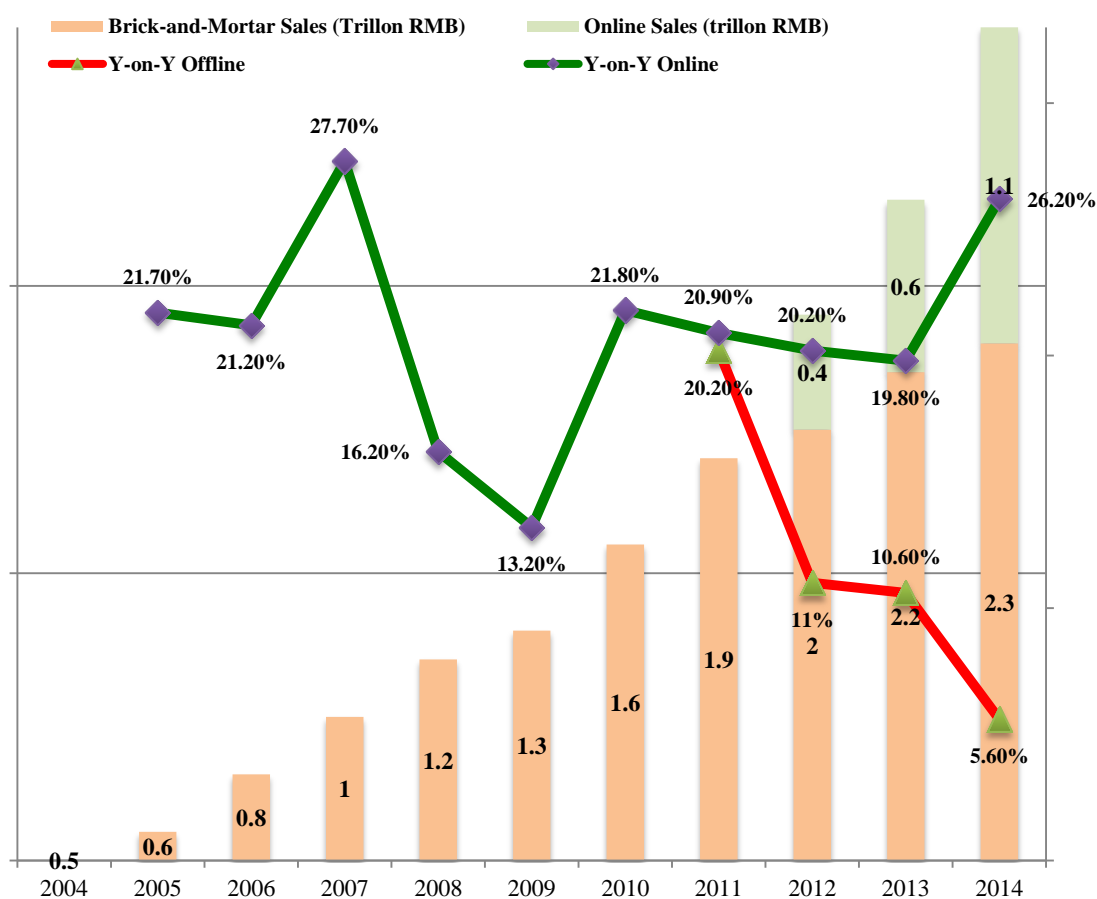
In fact, similar phenomena can also be found in both U.S. and UK retail markets. According to the recent data from the recent Black Friday, customer traffic, average spending per shopper, and total sales revenue are expected to decrease from last year throughout brick-and-mortar stores in the U.S market, however online sales are up by 18% from a year earlier (Thomson Reuters, 2015a). The marketing observers attribute this phenomenon to "*discount spread well beyond the weekend and many shoppers moved to web*" (Thomson Reuters 2015a)<sup>1</sup>. The data also indicates that brick-and-mortar retailers who have online stores see higher sales revenue compared to pure online retailers. The UK market also reports that online shopping on Black Friday gets an increase of 36% year-on-year, whereas the brick-and-mortar store shopper number fell 4 percent year-on-year; total sales revenue from both channel stores gets only a one-digit

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<sup>1</sup> Related information can be found at the following website:  
<http://www.reuters.com/article/2015/11/28/usa-holidayshopping-idUSL1N13N0NN20151128#gyJzMkPFViUKODL1.97>

increase (Thomson Reuters 2015b<sup>2</sup>). Both indicate that consumers' consumption apparently transfer from brick-and-mortar stores to web stores.

**Figure A: Sales Revenue and Year-on-Year Growth of Chinese Top-100 Retail Enterprises**  
(Cited from the report of Roland Berger (2015), and resources from China General Chamber of Commerce and China National Commercial Information Center (CNCIC))<sup>3</sup>



The information above implies three points. First, consumers spend more at multichannel retailers than at pure online retailers. Second, online store offers more convenient shopping anytime, anywhere without the shopper traffic that brick-and-mortar stores must sustain. Third, it is a big challenge to reduce the cannibalization where a multichannel retailer's online stores hurt its brick-and-mortar counterparts. When the growth of sales volume becomes greater in an online system

<sup>2</sup> The related information can be found:

<http://www.reuters.com/article/2015/11/30/britain-blackfriday-idUSL8N13P49N20151130#cFme1VpueYkarhXZ.97>

<sup>3</sup> Chinese currency is called Renminbi. The unit of Renminbi is Yuan, Jian, and Fen. The abbreviated symbol of Renminbi Yuan is RMB. The exchange rate is 1 Euro approximate to 6.80 RMB at 01/12/2015

than that in an offline system, the part of the growth achieved from online stores is, to some extent, equivalent to the volume lost in brick-and-mortar stores. These points reflect both achievements and difficulties emerged within multichannel retailing strategies.

Today, the Multichannel strategy has become a standard and well known by both consumers and retailers. According to a survey organized by PwC<sup>4</sup> in 2011, 45% of Chinese respondents and 70% of respondents in UK and in Germany buy goods from the same retailer but realize it across more than one channel. A big proportion of retailers have been using two or more channels to distribute their products or services to customers (see details in Kilcourse and Rowen 2008) due to explicit benefits from the channels combination (Grewal *et al.* 2010). Consumers use multiple channels in searching, browsing, and purchasing is a reality that happens every day (van Dijk, Minocha, and Laing 2006). Multichannel topics combined with online stores attract researchers' attention (Ansari, Mela, and Neslin 2008; Rangaswamy and van Bruggen 2005; Neslin *et al.* 2006; Neslin and Shankar 2009). Nevertheless, the problem of how multichannel retailers efficiently organize and manage their heterogeneous channel characteristics, particularly focusing on a straightforward comparison among the retailing channels, is still conspicuous.

Perceived congruence (incongruence), derived from cognitive psychology, is a pivotal concept that prevails in marketing research and relates to the studies upon different entities. Congruence is applied to understanding to what extents two similar objects are consistent or not (Mandler 1982). The basic mechanism of congruence perception is how the consumers' cognitive resource responds to a tangible or intangible connection between two marketing entities. The marketing entities can either have exogenous resources such as brand, advertisement, retailer, store, websites, and events, or endogenous resources such as individual's schemas, emotions, needs, desires and

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<sup>4</sup> PwC is the brand under which the member firms of PricewaterhouseCoopers International Limited (PwCIL) operate and provide professional services. <https://www.pwc.com/gx/en/about/corporate-governance/network-structure.html>

self-conception (Maille and Fleck 2011).

The principal congruence studies in regards to retail stores are the investigation between the atmospheric factors and products, or product category (Mitchell, Kahn, and Knasko 1995; Fiore, Yah, and Yoh 2000; Spangenberg, Sprott, Grohmann, and Tracy 2006; Bosmans, 2006; Mattila and Wirtz 2001). The outcomes show that consistency between store ambient odor and product category can positively influence consumers' evaluation and willingness to buy. Moreover, Morales *et al.* (2005) stated if retailers want their products easily to be recognized, the assortment layout must be match up with consumers' internal product-layout schemas. Further, Lamberton and Diehl (2013) focused on the match-up between assortment types and individual's internal tendencies, which explains the reason why the match-up can influence consumers' assortment preference.

Other congruence studies examined the consistence of store image among the channel stores. The findings indicated that image of the secondary store is positively influenced by the image of the mall or the department store where secondary stores are located, and this process is mediated by consumers' congruence perception with regard to how the mall image matches themselves (Chebat, Sirgy, and Valerie 2006). Bèzes (2010) investigated French multichannel retailer FNAC, finding that congruence perception between online and offline store image can increase consumers' utility function, reduce the perceived risk, which in turn increase purchasing intention. Similarly, Badrinarayanan, Becerra, Kim, and Madhavaram (2012) compared the consumer samples from U.S. and South Korea, respectively, the results implied that congruence of image between online and offline store can transfer the trust and attitude from the offline store to the online store, and then increase the purchase intention.

The evidences from aforementioned researches do not lessen multichannel retailer's confusion. When researchers say making store image congruent, no one gives concrete advice in operational level. Note that store characteristics are often different according to



the types of retail stores, but still attain some common attributes such as price and assortment that are easy to be compared. In this case, what is the better strategy regarding those common store attributes for multichannel retailer is difficult to address. Furthermore, it seems academic researchers do not pay enough attention to the world second largest retail market. According to the statistics of retailresearch.org (2015), the estimated online sales revenue in eight European countries<sup>5</sup> approximately 185.39 billion euros, this is less than the 250 billion euros of Chinese online sales volume in 2014. As depicted above, multichannel researches have been launched in France, U.S., South Korea, but are absent in China. The current status reveals the urgent needs of studying the comparative relations between online and offline stores' attributes in Chinese multichannel environment.

In general, multichannel commerce has been growing very fast in the past few years, but multichannel research has not. Lack of direct comparison study regarding store attributes imposes restrictions on understanding consumers' evaluation towards multichannel organization. Based upon perceived congruence concept, this research project attempts to understand how consumers' cognitive process derived from between-channel comparison with respect to store attributes influence consumers' evaluation towards the multichannel retailer. In next section, the author will explain this target in detail.

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<sup>5</sup> The eight European countries contain UK, Germany, France, Spain, Italy, Netherlands, Sweden, and Poland, see the detail report at <http://www.retailresearch.org/onlinereetailing.php>

## 2. RESEARCH SCOPE

### 2.1 Multichannel Market Research Must Take Chinese Context into Account

Strictly speaking, multichannel retailing is not a newborn thing. Retailers have already distributed their products and services through brick-and-mortar channels, mail catalog, TV shopping, or VIP private shopping. This is the prototype of multichannel retail which the interaction of different distribution channels barely exists. That is to say, retailers, not the consumers, can completely control goods distribution, information transforming, price comparison and etc. through the prototype of multichannel scheme. The status quo is broken when online stores are involved in current distribution system. Different from conventional channel stores, online stores offer convenient shopping experiences -- 24 hours/365 days, and an abundance of information related to the products which are freely accessible without additional authorization in online environment (Alba *et al.* 1997; Brynjolfsson and Smith 2000). Accordingly, the communication mode changes from point-to-point one-way transmission in offline stores to concurrent and interchangeable omni-directional transmission in online stores. The controlling power from the retailers is attenuated, but from the customers is magnified (Rangaswamy and van Bruggen 2005; Ward 2001).

When retailers become the multichannel sellers of online stores, the effects are twofold. On one hand, multichannel online store increases the sales revenue (Cooper 2001) and profit (Jeffers and Nault 2011) rather than that of single brick-and-mortar stores. On the other hand, channel cannibalization (Neslin and Shankar 2009; Schoenbachler and Gordon 2002; Zhang *et al.* 2010; Kollmann, Kuckertz, and Kayser 2012) becomes a major challenge in the same multichannel situation (Berman and Thelen 2004). Consumers prefer to use one channel for search and another for purchase (Noble, Griffith, and Weinberger 2005; Shim, Eastlick, and Lotz 2004; Schoenbachler and Gordon 2002; Verhoef, Neslin, and Vroomen 2007). Beyond that, data from Internet Retailer (2011) shows that online stores of multichannel retailers continue to

underperform compared to pure internet retailers in terms of sales (Badrinarayanan, Becerra, and Madhavaram 2012), and about 16% of the total retail sales volume are directly influenced, not increased, by the online stores (Mendelsohn *et al.* 2007).

During the past 10 years, researches in regards to multichannel situation have obtained enough attention. These studies analyzed the multichannel situation within a general view regarding the pros and cons of multichannel (Neslin *et al.* 2006; Rangaswamy and van Bruggen 2005), regarding the identification of the advantages from multichannel retails hold over the single channel stores (Dholakia, Zhao, and Dholakia 2005; Lu and Rucker 2006; Jeffers and Nault 2011), regarding the comparison among different channels acquisition (Avery *et al.* 2012; Verhoef and Donkers 2005), and regarding Multichannel shopper phenomenon (Konus, Verhoef, and Neslin 2008; Verhoef, Neslin, and Vroomen 2007). Apart from these, researchers are also interested in store related concept in multichannel study. For instance, Kwon and Lennon (2009) investigated the reciprocal effects between online and offline brand image on the subjects' attitude and purchase intention. Venkatesan, Kumar, and Ravishanker (2007) ascertained that, the causality of channel-related attributes, purchase-related attributes, and frequency-related attributes respectively influences channel adoption duration based on the longitudinal panel data. Similarly, a joint effect combined by online market-based attributes (security) and offline firm reputation was found to decide consumers' e-satisfaction (Jin, Park, and Kim 2010). More than that, Yu, Niehm, and Russell (2011) analyzed the channel choice and usage within consumer perceptions of price-quality-value. Conversely, Wolk and Ebling (2010) studied price differentiation from retailer perspective and affirmed its positive effort on retailer profit. Cases and Fournier's (2003) early study found French consumers classified the advantages differently for the object of store choices between online store and traditional store. Except all above, still other multichannel studies focused on routine service and service quality (Birgelen, Jong, Ruyter 2006; Sousa and Voss 2006), and assortment (Bhatnagar and Syam 2014).

### **2.1.1 The current Chinese multichannel retail market**

As shown above, twofold effects obtained from previous multichannel researches do occur frequently in the Chinese retail market too. Today, the mainstream media agrees that China has one of the most lucrative and rapidly growing retail markets in the world. On one hand, based on approximate 730 million of internet users and more than 380 million of online shoppers in 2015 (Boston Consulting 2014), China's retail economy reached 26 trillion (€3.76 trillion), almost half of the total amount was dealt through online stores. On the other hand, sales revenue in conventional retail stores demonstrates an apparent negative growth (see Figure A). This phenomenon may be caused by three reasons. First, it is difficult to say common retail economy existed in China until the economic reform and openness started from the year 1978, and then accelerate in the 1990s'. Consequently, the conventional state-backed retailers do not obtain sufficient experiences for coping with the impact from modern and emerging-technology-based commerce.

Second, as the Chinese economic reform goes fast, not only real estate prices have increased by 10 times in all major cities, but also the labor cost has risen quickly as well. This makes the offline retailers burdened with the heavy cost pressure that consequently weakens the profitability. The internet commerce further amplifies these drawbacks so that both conventional retailers and the offline stores of multichannel retailers suffer erosion from online commercial.

Third, thanks to the third party digital marketplaces (e.g. Taobao, Tmall, and Jingdong), the online shopping has become increasingly easier for Chinese online shoppers. Profited from online secure payment platform – Alipay, and instant message service – TradeManager (the international name for AliWangWang developed by Alibaba), the digital marketplaces have been burgeoned and obtained high market shares in the past 10 years. Meanwhile, these digital giants cripple the sellers' power through negotiation with the shoppers. Therefore, the shoppers' decision power of where to go, when to buy, and

what to choose is strengthened. All three reasons stated above reveal that Chinese retailers, along with Chinese multichannel retailers must attach importance to the impact from internet commerce.

### **2.1.2 Store attributes studied in multichannel market**

Store attributes presenting the characteristics of a retail store, are used to categorize relevant store functions. Researches with respect to store attributes are greater to help retrospect the study of store image (Martineau 1958; Lindquist 1974; Mazursky and Jacoby 1986). Store image is defined as "*a set of attitudes based upon evaluation of those store attributes deemed important by consumers*" (James, Durand, and Dreves 1976, p.25). This definition was consistent to Martineau's (1958) proposition of store image which is composed by psychological attributes and functional attributes. Following the definition, different researchers proposed and verified different attributed structures of store image with regard to different store types (Kunkel and Berry 1968; Lindquist 1974; Mazursky and Jacoby 1986; James, Durand, and Dreves 1976; Hirschman 1981; Hopkins and Alford 2005). It is worth mentioning that not all composed attributes of store image are the same through those studies, except for those common attributes such as price, assortment, service, and product quality.

The results shown above reveal that store image or relevant store attributes consumers use for evaluation definitely rely on the store types. For example, the term convenience in conventional store expresses beneficial conditions such as store location, sufficient space of parking area, and longer opening hours (Lindquist 1974), whereas the same aspect is thought to the return policy and refund procedure (Hopkins and Alford 2005) in online stores. In addition, benefit from secure payment system – Alipay (better than Paypal works in U.S and Europe), Chinese consumers do not care too much about the security of payment which is a determinant on e-satisfaction in other online retail markets (Jin, Park, and Kim 2010). Results from the global retail survey of PwC consulting (2014) found that the shopping habits within online stores varied among the

countries. The average product categories Chinese consumers buy from online stores are 9.5, while the figure from French consumers is only 5.7. Therefore, it can be inferred that customer heterogeneity from different countries may be another factor influencing relevant attribute chosen during the evaluation.

In summary, studies on the consumers in developed countries have been accumulated much. Nevertheless, a similar study on Chinese consumers is not distinctive. No one really knows why the world's second-largest retail market does not attract the concerns by researchers; however, previous evidences have pointed out its distinctiveness and importance. Moreover, the aforementioned evidences indicate decision related store attributes vary not only with the types of the stores, but also with regions or countries. There may be great opportunities for retailers to succeed if the store attributes that Chinese multichannel consumers use for shopping can be fully understood. In this research project, the Chinese multichannel retail market becomes the fundamental part that offers environmental element to all the participants. The study will investigate and verify the effort of between-channel store attributes to which the academic gap and managerial implication will be contributed.

## **2.2 Congruence Perception and Related Multichannel Consumer Evaluation**

Studies of congruence (incongruence) perception are often applied to understanding the extent of whether two objects are similar or not (Mandler 1982). Although, the concept of congruence has been adopted in marketing research for more than 30 years, the theoretical controversies are still debated among the researchers.

### **2.2.1 The key point of congruence argument**

The first argument is how consumers perceive congruence. Researchers summarized three principles for understanding congruence cognitive process. That is to say, consumers can perceive congruence not only from a simple evaluation on physical

similarity (Mervis and Rosch 1981; Cegarra and Michel 2001; Aaker and Keller 1990) or thematic similarity (Aaker and Keller 1990; Martin and Stewart 2001), but also by expectation-based schema congruity (Mandler 1982; Meyers-Levy and Tybout 1989; Aggarwal and McGill 2007). Another possibility is the judgment through a mixed bi-dimensional relevancy plus expectancy cognitive structure (Heckler and Childers 1992). In theory, each mechanism has received the theoretical support from the empirical evidences. However, it is yet difficult for researchers, also for managers, to accurately predict which mechanism consumers use for congruence perception in a given marketing situation.

Another argument is about the consequences of congruence perception. In common sense, when congruent information is presented, it is linked to expectancies at the prototypical level, thus allowing easier recognition (Srull 1981). As a result, if a stimulus is perceived as congruent, it is favorably evaluated on the basis of affect transfer (Wansink and Ray 1996). The conclusion of congruence state that generates favorable evaluation is supported by the studies in different marketing domains (Lichtlé 2002; Lee and Thorson 2008; Hung 2000; Lynch and Schuler 1994; Bosmans 2006; Simonin and Ruth 1998; Wänke, Herrmann, and Schaffner 2007; Speed and Thompson 2000; Rifon *et al.* 2004; McDaniel and Heald 2000; Olson and Thjømmø 2011).

In contrast, incongruent extension often entices attention and enhances substantial elaboration of the extension's highly salient source of incongruity (Mandler 1982; Meyers-Levy, Louie, and Curren 1994; Meyers-Levy and Tybout 1989). Psychological experiments indicate that incongruent information stimulates a more elaborative internal process than that of congruent information, resulting in a greater number of associative pathways linking the incongruent information to the knowledge. These additional pathways make the incongruent information more retrievable from memory, thereby enabling greater recall (Hastie and Kumar 1979; Srull 1981). Additionally, when the congruence evaluation is connection with people's expectation, it is found that the subjects engage in a more elaborative form of information processing while the

information deviating from the expectation comparing to the information which has met the expectation (Houston, Childers, and Heckler 1987; Sujan, Bettman, and Sujan 1986; Meyers-Levy and Tybout 1989; Mervis and Rosch 1981).

On the basis of Piaget's (1970) proposition, Mandler (1982) asserted that assimilation and accommodation are two processes following incongruity. Mandler (1982) stated that assimilation is activated when incongruity is slight but can be easily incorporated into its current structure without any major change, which is positively valued. If assimilation is impossible, it must change the structure to "*accommodate*" the incongruity information, the value then depends on whether accommodation can successfully treat the incongruity. Accordingly, this moderate incongruity situation becomes significantly positive rather than either congruity or extreme incongruity situations. Up until now, Mandler's non-monotonic effect (or inverted-U) has been validated by many research studies (Houston, Childers, and Heckler 1987; Lane 2000; Wänke, Herrmann, and Schaffner 2007; Ozanne, Brucks, and Grewal 1992; Meyers-Levy and Tybout 1989).

However, the aforementioned results raise controversy. The consequences of different congruence states vary among researches. Congruence is not always positively evaluated, nor is incongruence always negatively evaluated. Moreover, suppose congruence/incongruence is considered as a continuum with the extreme points of congruity and extreme incongruity, there might be numerous moderate incongruity states existing. Do these different moderate states exert the same effects, or is there a special state existed that can perceive the most positive effect among all other options? There is no answer yet.

In summary, the question of how consumers perceive the congruence in a given multichannel context, along with the consequences influenced by congruence perception, are the two key points in this study project.



### 2.2.2 Congruence concept applied in multichannel retail

The concept of congruence is widely applied into marketing research, from sponsorship, advertising, celebrity spokesperson, to brand extension and product extension. The principal congruence studies in regard of retailing stores can be found in store atmospheric studies (Mitchell, Kahn, and Knasko 1995; Fiore, Yah, and Yoh 2000; Spangenberg, Sprott, Grohmann, and Tracy 2006; Bosmans, 2006; Mattila and Wirtz 2001). The outcomes showed that consistency between store ambient odor and product category can positively influence consumers' evaluation and willingness to buy. Moreover, Morales *et al.* (2005) stated that if retailers want their products to be easily recognized, the layout of their assortment must match with consumers' internal product-layout schemas. Further, Lamberton and Diehl (2013) focused on the matching between assortment types and individual's internal tendencies to explain the relation between congruence perception and assortment preference.

Unfortunately, only a few researches investigated the congruence effect between online and offline stores, and congruence concept almost does not follow the development of multichannel retail. For instance, Wang, Beatty, and Mothersbaugh's (2009) study showed that the way consumers perceived the web store is as well as brick-and-mortar store, consumers' attitude towards physical stores will be transferred to the current online store. Nonetheless, it does not clarify which comparative factors to be used for congruence perception. Christophe Bèzes's (2010) doctoral thesis used French samples to identify that congruence perception based on multichannel store image increases perceived utility and hedonic, which in turn reduces the perceived risk and increases the likelihood of purchasing intention. A similar can be found in the study of Badrinarayanan, Becerra, and Madhavaram (2014) where congruence perceived from between-store dimensions, such as aesthetic appeal, navigation convenience, transaction convenience, atmosphere, service, price orientation, and security, can positively influence consumers' trust to the online store of multichannel retail in United States.

Another study from Badrinarayanan *et al.* (2012) is the investigation in both South Korea and United States multichannel market where between-channel congruence can influence the trust towards the multichannel, but did not transfer the attitude from offline channel store to online channel stores. The results shown above implied that researchers did not pay enough attention to the direct congruence comparison on single store attribute, nor did they consider Chinese multichannel market. In fact, results of congruence perception from general store comparison do not provide enough effort on managers' operation. For multichannel managers, they are eager to know the relevant results of each operation on store attributes.

### **2.3 Relations between Store Attribute-Based Perception and Perceived Congruence**

The effort of store attributed-based perception is another research point included in this project. Some attribute-based perception such as fairness perception or variety perception can directly influence consumers' evaluation. Previous studies identified its strong impact on subsequent evaluation or judgment.

In retailing research, price fairness expresses a subjective judgment derived from a compared process on product price. It is defined as “*a consumer's assessment and associated emotions of whether the difference between a seller's price and the price of a comparative other party is reasonable, acceptable, or justifiable*” (Xia, Monroe, and Cox 2004, p.3). According to the social comparison process (Major and Testa 1989, Major 1994), the comparative reference can be based on other people, class, organization, or the subjects' prior experience (Bolton, Warlop, and Alba 2003; Haws and Bearden 2006). The more similar characteristics between two entities are, the more convenient the comparison is. Normally, there are three possible results from the price judgment: equality, advantage inequality, and disadvantage inequality (Xia *et al.* 2004). Therefore, in multichannel context, the incongruent (moderate or extreme) perception derived from varied price between the channel formats triggers subjective comparative

judgment on price equality, price inequality but advantage, or price inequality also disadvantage. Such comparative judgment may construct a decisive base of perception of price fairness towards the multichannel retailer.

On the other hand, variety perception expresses the extent of different options that consumer recognizes from a given assortment. Simonson (1990) stated three possible factors for explaining why an individual prefers variety: (1) the satiation (Ratner, Kahn, and Kahneman 1999) and the desire for balanced consumption over time, (2) the desire to maintain flexibility (Kahn and Lehmann 1991; Kreps 1979; Simonson 1990), (3) avoid the need of identification stems from trade-off processes (Read and Loewenstein 1995; Simonson 1990). In multichannel retailing context, online channel stores inherently offer numerous options than offline channel does. These numerous options make choice free but difficult. What if multichannel retailers' assortment organization exceeds consumers' expectation? What if equal assortments present in both stores? Researchers do not know the consequences of this situation yet.

Consequently, attribute-based perceptions are also determined through the cognitive process. It will be interesting to see what will happen if different cognitive processes are concurrent in a given scenario. This research project will involve perceived congruence connecting to these attribute-based perceptions in a given multichannel context in order to understand its role in consumers' evaluation towards multichannel retail.

### **3. RESEARCH AIMS AND RESEARCH QUESTIONS**

#### **3.1 Research Aims**

Given a situation that an offline and an online store belong to the same multichannel retailer, it can provide a convenient base in which the results of comparison can determine consumers' evaluation, perception and attitude towards the multichannel retailer. Therefore, finding a balance status between the online and the offline store is the foundation of success for retailers. Except for the consequences of overall store image congruence between offline and online stores, multichannel retailer is also interested in the operation regarding the single store attribute, since the latter operation is simply and easily manipulated.

According to the research about store image, the composed attributes of different channel stores are definitely not the same (Mazursky and Jacoby 1986; Hopkins and Alford 2005). When consumers visit different types of retail stores, the focal points of each type of store are not well matched, even in same aspect. For instance, in online store, the term "convenience" probably means an easy return or refund, whereas in offline store the same term means location, transportation, and working hours. But if both online store and offline store belong to same multichannel retailer, a comparison in regards to the between-channel stores congruence is inevitable. Thus, to understand how consumers compare two channel stores becomes a pivotal point for the retailers. Early researches studied the overall between-channel comparative congruence within store image, but left the gap with regard to what single store attributes retailers can rely on. Consequently, the aims of this research project will involve the congruence perception on single store attributes.

More precisely, the aims of this research are presented as follows:

**1) Investigate how consumers perceive the congruence in multichannel**

Researches of perceived congruence have been sustaining more than 30 years, having found different cognitive mechanisms that consumers have adopted to judge the congruence. From simple evaluation based on physical similarity (Mervis and Rosch 1981; Cegarra and Michel 2001; Aaker and Keller 1990), to the judgment by thematic similarity (Aaker and Keller 1990; Martin and Stewart 2001), or depends on an expectation-based schema congruity (Mandler 1982; Meyers-Levy and Tybout 1989; Aggarwal and McGill 2007) to a mixed bi-dimensional relevant plus expectancy cognitive structure (Heckler and Childers 1992), each mechanism obtains the academic support from the empirical evidences. The difficult point for researchers and for managers too, is that they cannot accurately predict which mechanism will be adopted into cognitive process under any given marketing situation.

Given a situation where online and offline store belong to the same multichannel retailer, it can be inferred that two channel stores are regarded as relevant to each other. In this case, how consumers perceive the congruence or incongruence is very blurry. Furthermore, researchers have no idea whether the overall between-channel congruence judgment process can also be used for congruence judgment between concrete store attributes. Therefore, consumers' perception is based on which mechanism, between-channel similarity, expectation-based congruity, or mixed bi-dimensional structure, will determine the congruence states with regard to single store attributes, which becomes the first aim of this research project.

**2) Investigate the consequences of different incongruence states**

Whether two entities are similar or dissimilar is the research related to perceived congruence (Mandler 1982). The previous studies showed that the consequences of perceived congruence are not fixed (Fleck and Maille 2010). That is to say, not all incongruence states are worse than congruence state (Meyers-Levy and Tybout 1989). In fact, many studies have found that perceived moderate incongruence states can lead to better evaluation and more favorable attitude rather than the results from a congruence

state. To some extent, a moderate unexpected cue in sponsorship, advertisement, or product extension can increase the memory retrieve, and stimulates consumers' interest, which will in turn results in more positive evaluation (Houston, Childers, and Heckler 1987; Lane 2000; Bosmans 2006; Wänke, Herrmann, and Schaffner 2007; Ozanne, Brucks, and Grewal 1992; Lee and Thorson 2008; Meyers-Levy and Tybout 1989).

Such non-monotonic effect brings a question. Think about the case that given congruence is a uni-dimensional structure where congruence and extreme incongruence locate at the two extreme points, respectively, the interval between two extremities can be explained as "infinite" moderate incongruence states existed (Maille and Fleck 2011). Are these moderate incongruence states the same or do these moderate incongruence states have the same effects on the evaluation? These questions, however, seemed unresolved by previous researches. The author asserts that the phenomenon of moderate incongruence states is still ambiguous among the congruence researchers. Beyond that, if not all moderate incongruence states are better than extreme incongruence states or less than congruence states, shall we still use the term moderate for distinguishing congruence extents. Therefore, this research project will investigate it.

### **3) Investigate the decisive attributes Chinese consumers use for evaluation in multichannel retailing**

Multi-channel retailing has become vogue in last decade (Verhoef, Kannan, and Inman 2015). To combine an online store into the distribution system is still a rising business even for retailers in mature markets. In view of Chinese retail situation, its retail market development has only a short history of 20 years, and yet its online business has developed very fast in last decade. Data from Figure A demonstrates that the total sales revenue is from 58.82 billion euros in 2004 to 500 billion euros in 2014 based on statistics of top-100 Chinese retailers<sup>6</sup>. Along with the growth of those e-commercial giants such like Amazon (Joyo), Alibaba, Jingdong, the living space of conventional

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<sup>6</sup> The original currency in figure 1 is in RMB (Chinese official currency), the exchange rate is that 1 euro approximate to 6.8 yuan. (2015/12/1)

retailers or even multichannel retailers is squeezed to a great extent. Thus, only through understanding Chinese multichannel consumers can those small players find the way to resist the pressure from online giants.

Chinese retail market is actually distinct from western retail market. That is not only because of the differences between the underlying culture systems, but also of its status quo. Previous data has illustrated that the growth rate of e-retailer is faster in China relative to those European countries. Further, benefiting from Alipay online secure paying system, most of Chinese shoppers do not feel anxious for financial risk. The average delivery time is between 36 and 72 hours depending on the physical distance across China<sup>7</sup> due to the most efficient transport system and perfect competition. These conditions are definitely different from those in Europe. Consequently, it can be inferred that the shopping habits are not the same between Chinese consumers and European counterpart, and the criteria of shopping decisions should not be same too. Based on the qualitative method, this research project will explore the focal points Chinese consumers concern for multichannel shopping.

#### **4) Investigate by what path of congruence perception consumers' attitude will be influenced**

Previous studies show that congruence state or moderate incongruence states can have positive effects on consumers' evaluation (Meyers and Tybout 1989; Heckler and Childers 1992). This research project aims to explore whether similar consequences will be found in multichannel retail context. When comparison occurs on the store attributes between online and offline stores, should we conclude that the effect of congruence can be mediated by other subjective evaluative processes. It can be inferred that price fairness perception and variety perception can be two relevant judgment processes influenced by the cognitive congruence process.

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<sup>7</sup> Chinese national territorial area is 9.6 million square kilometer. The distances from east to west are around 5,200 kilometer covering five time zones, and the distances from north to south are around 5,500 kilometer.

Price fairness is the judgment based on comparative process, which usually takes an important role in price perception process (Xia, Monroe, and Cox 2004). Consumers use fairness criterion to evaluate retailer's intention because it relates to personal gain and loss, both physically and psychologically. Variety perception, on the other hand, expresses the extent of different-options that consumers perceive from a given assortment. Consumers prefer variety (Simonson 1990) because of their needs of satiation (Ratner, Kahn, and Kahneman 1999), and their desires to maintain flexibility (Kahn and Lehmann 1991; Simonson 1990).

Generally speaking, multichannel retailer must balance their channel stores. A simple way is to make everything, such as the products and the price, to be the same in both online and offline store. Logically, such store presentation should be judged as appropriateness due to its equality. Results from previous studies may contradict this conclusion because of a subtle price discrepancy have been found out from the panel data (Thomas and Sullivan 2005; Tang and Xing 2001; Ancarani and Shankar 2004, Pan *et al.* 2002; Cavero, Cebollada, and Salas 1998; Dulleck and Kerschbamer 2005). Therefore, whether equal price presented in both online and offline store will be perceived as fairness is still a question waiting for answer.

Similarly, multichannel retailer can manage either same or different assortment in their different channel stores. In common sense, an online assortment should provide more product choices than that from an offline assortment because the virtual shelf can infinitely be presented in a former store. What if online assortment has fewer product choices, or what if both stores assortment are identical? What if the result of congruence perception within consumers' prior expectation is another research question?

In summary, this research project is to investigate whether the congruence perception on between-channel store attribute influences consumers' attitude through the mediated consumer evaluation.



**5) Examine the role of instant involvement**

Simultaneously, following the suggestion from previous researches like Herr (1989), it is necessary to examine the moderate effect of subject's involvement (Mittal 1982; Park and Mittal 1985) associated with cognitive congruence process. The subject's involvement refers to the motivational state of a person's mind with regard to an object or activity that reveals itself as the level of interest in that object or activity (Mittal 1982). In consumer research, this reflects an individual's mental state evoked by stimulus to the object (Laaksonen 1994). According to Elaboration Likelihood Model (Petty and Cacioppo 1984), involved people "*are more motivated to devote cognitive effort required to evaluate the true merits of an issue or product*" within the in-processing promotional message (Petty, Cacioppo, and Schumann 1983, p. 137). Consequently, involvement may be a moderator which will influence the subject's cognitive process. This project will examine the effect of whether instant involvement works with incongruence cognitive process (Aaker and Sengupta 2000; Campbell and Goodstein 2001).

**6) Providing guideline beneficial for Chinese multichannel retailers**

Does research on store attributes in a given multichannel situation represent an explicit consideration for those retail managers? In many cases, managers bear the pressure to maximize the performance of both channel stores and minimize the conflict between the stores. Not only that, they should also cope with the attack from their competitors, either other multichannel retailers or pure e-commercial retailers. It cannot be guaranteed that the results from this research project are the panaceas, but managers may be inspired by the findings. One aim of this project is to provide a beneficial guideline based on which managers may adjust their different channel stores through attributes, or at least, to give the suggestion to avoid the operations by which multichannel retailers may get hurt and suffer the loss thereupon. Furthermore, both managers and researchers are expected to switch their interests from pure online topic to multichannel topics. After all, the latter is the reality that retailers will face inescapably and inevitably.

### **3.2 Research Questions**

Following the inference above, the overall research question is that:

**Given a situation in which online stores and offline stores belong to the same multichannel retailer, how does the store attribute-based congruence perception influence consumers' evaluation and the attitude towards the multichannel retailer?**

This aforementioned general research question can be analyzed into more detailed questions:

- 1) Does the consumer perceive congruence based on mixed bi-dimensional cognitive mechanism in a given multichannel environment?
- 2) What attributes do Chinese consumers use to judge and evaluate in a given multichannel environment?
- 3) What are the consequences of perceived incongruence through comparison among store attributes? Will different moderate incongruent states exert to similar consequences?
- 4) Does price fairness perception or variety perception mediate the effect of congruence perception on consumers' attitude?
- 5) Does the subjects' instant involvement vary congruence perception on their evaluation aiming at the multichannel retailer?

## 4. METHODOLOGY

According to the marketing research standard, a 6-step research process (Malhotra 2014; Churchill and Iacobucci 2005) is adopted in this project. To adopt which type of research designs should be associated with the object of research studying. In general, research designs in marketing domain can be categorized into three types that are respectively called “*exploratory research*”, “*causal research*”, and “*descriptive research*” (Churchill and Iacobucci 2005). Each research type focuses on different target and has its own effort to help research workers to analyze social phenomena.

During this research project, two types of research designs, explorative research and causal research, are applied. It will be interpreted in following sections.

### 4.1 Exploratory Research

Explorative research is used for discovery of ideas and insights as opposed to collecting statistically accurate data. In general, explorative research is considered as the initial step that helps to refine the question for causal research (Churchill and Iacobucci 2005), because it is most commonly used for further defining issues, alternative courses of action, and prioritizing areas that require statistical research.

Since lack of multichannel study on Chinese (multichannel) retail market, as is known so far, it is not clear about what store attributes Chinese consumers often use for evaluate multichannel shopping. Such situation implies that the exploratory research can be an appropriate approach to distinguish the intangible elements existing in such special retail market.

One of the popular exploratory approaches is Depth Interview. It is a one-to-one face-to-face interview where the respondents are required to express their thinking or

opinions as much elaborated as possible with regard to the questions pre-defined by the researchers. Other than Focus Group, another exploratory approach, Depth Interview can diminish the social pressure derived from the others which most of Chinese usually attempt to avoid in an unfamiliar context. Furthermore, for the researchers, it is a little bit easier to interview the participants one by one during the Depth Interview rather than to call up participants altogether in Focus Group. Still another more positive point of Depth Interview is that the researchers can visit the participants locally, particularly in the case where costs are limited.

Through this method, researcher will be able to understand the status quo of Chinese multichannel market, what the store attributes consumers used to evaluate online and offline store of the same multichannel retailer are, and what the store attributes consumers prefer store comparison are. The detailed information will be given in Chapter 5.

## **4.2 Causal Research**

Causal research is quantitative in nature as well as preplanned and structured in design, which is also considered as conclusive research. Causal research attempts to explain the cause-and-effect relationship between variables. That is to say, via causal research, researchers will understand which variables are the cause and which variables are the effect, which in turn helps to determine the nature of the relationship between the causal variables and the effect to be predicted. In next section, two causal research approaches will be interpreted.

### **4.2.1 Experiment**

Considering that visiting online store and offline stores is not concurrent in real retail scene<sup>8</sup>, a laboratory experiment design with scenario expression is an appropriate

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<sup>8</sup> Note that along with the development of 3G/4G technology and the popularization of intelligent mobile phone, the consumers can now check online information when they are staying at offline store. To some extent, it is possible to

approach, for researcher to measure participants' evaluation through a similar multichannel retail context. Experimentation, or experimental design "*is one in which the investigator manipulates at least one independent variable*" (Kerlinger and Lee 2000). When researcher knows which attributes are more sensitive to participants, an experimental factorial design offers the chance to manipulate the extents of presentation on store attribute so that it increases the likelihood of observation with regard to concomitant variation of the subjects' evaluation to the manipulation extent of store attribute.

The biggest merit of the experimental method is the greater internal validity due to its greater control, because researcher can eliminate those store elements which do not match the studying object or at least diminish the effort derived from the irrelevant elements. Thus, the effect deriving from causal variables is robust and convinced, and it maximizes the researching effort under the limited resources. However, the external validity of experimentation is always questioned because its high-controlled experimental context is not equal to the real retailing context (Churchill and Iacobucci 2005).

In brief, experimental approach is inexpensive but rigorous. It focuses more on the direct causal relationship rather than the concurrent effect influenced by many elements. In this research project, experimentation can be well suitable for understanding how multichannel price policy will influence the participants' evaluation towards the retailers. The concrete contents are presented in Chapter 6.

#### **4.2.2 Quasi-Experiment**

Quasi-experiment is another approach of causal research, which has a similar purpose to the "standard" experimentation stated above. The distinguished difference between the

quasi-experiment and the "standard" experiment is that the former approach lacks random assignment (Shadish, Cook, and Campbell 2002). Assignment to conditions is by means of self-selection, by which units choose treatment for themselves, or by an administrator selection, or others decide which person should get which treatment. According to Campbell and Stanley's (1963) statement, in natural social settings, researchers do not always have full control over the experimental stimuli<sup>9</sup>.

Although, quasi-experiment has theoretical weaknesses relative to the experiment approach due to its nonrandom design that may weaken the power of the plausible effort from which the quasi-experimental design contributes to the theories, it is still chosen in this research project because it can help the researcher anchor participants' expectations before they start scenario reading. In most of the congruence studies, the subject's expectation is always one of the most important references deciding subjective evaluation. Therefore, when researchers measure the subjects' expectation before they see the stimuli, then, different expectation groups (entitled by expectation measurement) are then assigned to the corresponding manipulation conditions. Consequently, the real cognitive congruence situations instead of manipulated congruence design will be attained. Through adopting this approach, researcher can make the situation to be closer to the real context, and avoid the situation occur in (standard) experiment study where participants' current congruence perception is not equal to researcher's design. This approach will be adopted in Study 3, presented in Chapter 7.

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<sup>9</sup> Campbell and Stanley (1963) stated that research "*lacks the full control over the scheduling of experimental stimuli (the when and to whom of exposure and the ability to randomize exposures) which makes a true experiment possible.*" (p.34)

## 5. STRUCTURE OF DISSERTATION

This thesis is divided into eight chapters. The structure is organized from research objectives to relevant research studies. The content and composition of this thesis is illustrated in Figure B.

Before the first chapter there is a **GENERAL INTRODUCTION** to the whole research project. It begins with an overview of research background where a general view introduces the Chinese multichannel retail market, and the shortcoming existed in current perceived congruence study. After that, the chapter goes on to state the research phenomena and research questions. Next, researcher discusses the research scope and the relevant methodologies applied in the examination and justification to the research questions.

Through Chapter One to Chapter Three is the **LITERATURE REIVEW**, where first chapter focuses on the existing theoretical evidences of **PERCEIVED CONGRUENCE** researches. It introduces and compares the definitions and different cognitive processes of congruence perception, and interprets the relevant consequences within different measurements proposed by the researchers. The following section is a review of application in different marketing research domain based on congruence perception. The last section of Chapter One is the summary of limitation.

The beginning section of Chapter Two is that the author explains the criteria of how he decides which relevant store attributes are chosen for following studies. This section explains **WHY MULTICHANNEL PRICE AND MULTICHANNEL ASSORTMENT ARE CHOSEN** in this project. In the following sections of Chapter Three, the literature review with regard to **PRICE FAIRNESS** is given in order of definition, judgment mechanism, consequences, measurement, practical application, and limitation.

Chapter Three is about another literature review in regards to attribute-based perception. It introduces the relevant studies regarding **VARIETY CONCEPT**. Bearing in mind that variety perception is the term of application; studies regarding variety seeking behavior are also given for reference.

**RESEARCH METHODOLOGY** is interpreted in Chapter Four. There, the author discusses the research design with different research methods containing both qualitative and quantitative studies. It also explains how to choose and decide the relevant measurement used in quantitative studies and corresponding validation method.

The three practical studies depending on three different methodologies are presented from Chapter Five to Chapter Seven. Chapter Five is the first study with **QUALITATIVE METHOD** in which the researcher attempts to know Chinese multichannel consumers' habits and decisive factors for multichannel evaluation.

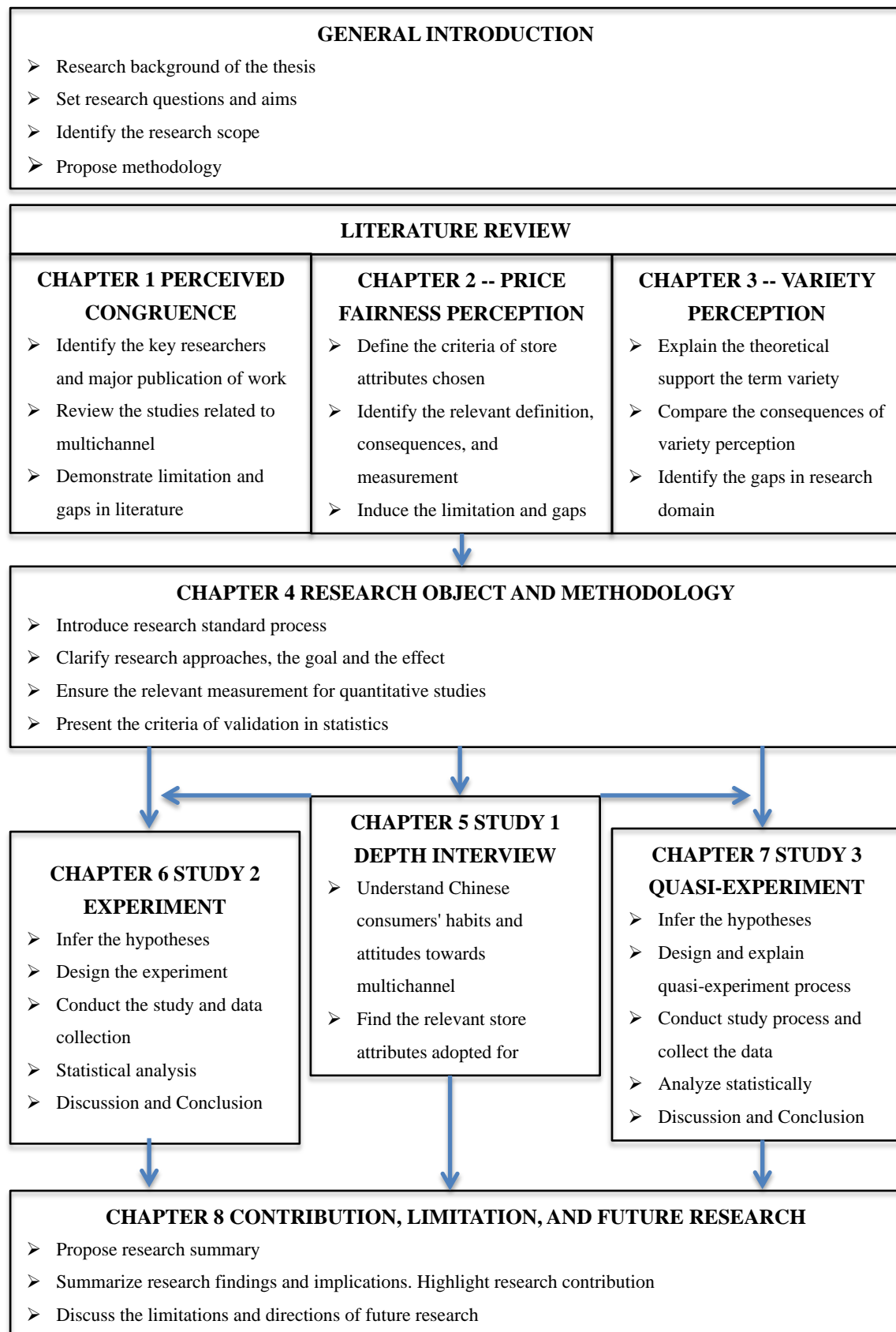
Chapter Six is the second study based on **QUANTITATIVE EXPERIMENT** approach in terms of how congruence perception affects consumers' price fairness perception. In this chapter, the researcher infers the hypotheses and explains the experimental procedure. Analysis based on SPSS provides statistical results to verify the hypotheses. The conclusion and implication are brought forth in section 6.5.

Chapter Seven is another **QUANTITATIVE STUDY** (Study 3) but with **QUASI-EXPERIMENT** approach. This study examines the variety perception based on schema-based congruity. Similarly, the researcher infers the theoretical hypotheses in section 7.2 and introduces the quasi-experiment preparation in section 7.3. Again, SPSS is chosen for statistical verification, and the results are reported in section 7.4. The relevant discussion is presented in section 7.5.

The last chapter, Chapter Eight, is the summary to the **CONTRIBUTION, LIMITATION, and FUTURE RESEARCH**. It contains all contributions achieved



from three different studies (Chapter 6-8), respectively presenting from theoretical and managerial aspects. At the end, the topics of limitations and possible avenues for future research are presented.

**Figure B: Illustration of the Structure and Content of the Dissertation**



# **Chapter 1 - LITERATURE REVIEW – PERCEIVED CONGRUENCE**

## 1. THE DEFINITION OF PERCEIVED CONGRUENCE

### 1.1 What Is (Perceived) Congruence?

In autumn 2012, the French Luxury brand Chanel made a venturesome decision that the famous actor Brad Pitt was selected as the endorser of signature fragrance Chanel No.5. Comparing to those previous feminine celebrities such as Marilyn Monroe, Catherine Deneuve, or Nicole Kidman, this is the first time that a masculine celebrity endorses women perfume brand. To some extent, this strategy is inconsistent with Chanel's previous one, as well as the general expectation of consumers. It may not be questioned that a feminine celebrity enhances Chanel's brand image and stimulates consumers' buying intention, but what if a masculine celebrity? In this case, can anyone assure a male actor will be more effective or attractive than a female, or such incongruent strategy can be better than the one before?

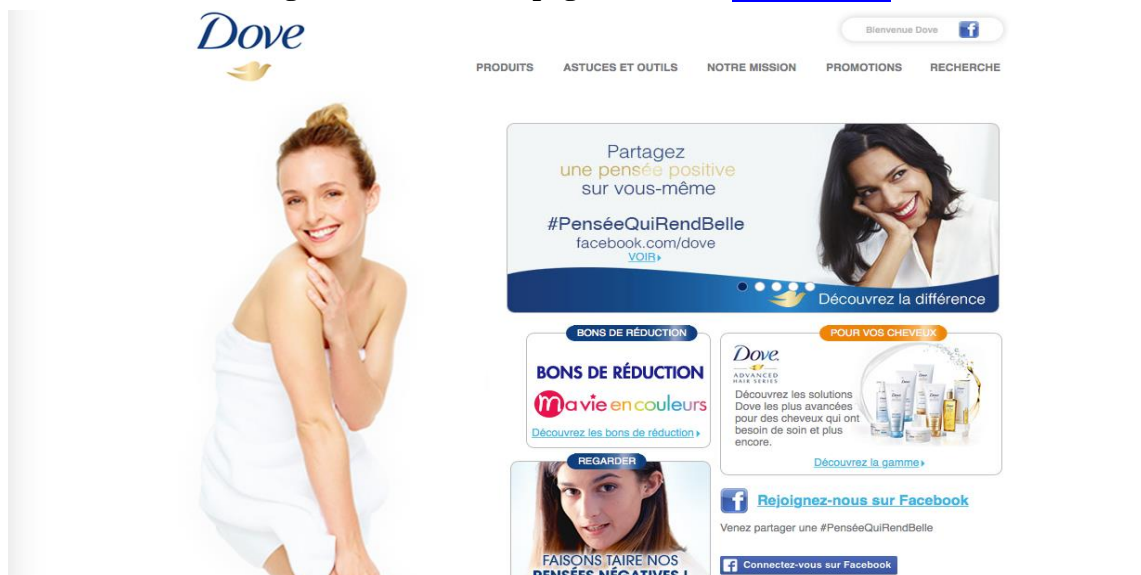
In fact, it is unknown whether the brand image of Chanel is more consolidated, nor does the sales volume get a leap in a comparative reporting period, yet such strategy is very interesting and should be worth concerning. This phenomenon is not unique in celebrity endorsement, but it exists in different kinds of marketing activities as well.

For most people, on hearing that Heineken Beer or Land Rover automobile sponsors the world cup of Rugby, they are not surprised. Both of two brands (and the products themselves) represent freedom, pioneering, and enjoying the success that can be well matched-up the spirit of Rugby sport. In contrast, not many people know that Dove, a detergent and cosmetics brand, is a sponsor of Rugby too. Normally, Dove may be associated to female, mothers and children (see **Figure 1.1**) due to its mission of devoting to help women build their confidences, and reduce the anxieties. What's surprise when people hear or find that the sponsorship to Rugby is from Dove?

Except that, We know that "Sprite", "Fanta", "Coca Zero", and "Coca Light" all belong

to Coca family because all of them are carbonated beverage manufactured by Coca-Cola. What if Coca-Cola decides to introduce *Coca-café*, or *Coca-Wine*? Actually, the above congruence-incongruence phenomena may occur in many marketing situations. Readers can imagine those scenes like that bright yellow presents FNAC, silver white presents the Apple stores, or smelling fresh bread flavor in bakery, hearing the medley music in the stores of Zara and H&M. All these scenes may construct an expectation, consciously or unconsciously, when consumers are going to do shopping. But, sometimes, such congruent scene can be unpredictably changed.

Figure 1.1: The Homepage of DOVE ([www.dove.fr](http://www.dove.fr))



The all above cases present possible facts that people usually encounter incongruent situations, it might be incongruent between two familiar entities or it is incongruent with people's prior expectation. Logically in these incongruent situations, where a male endorses a female's perfume, or changes the familiar brand color, odor, and music, or a favorable brand launches an irrelevant product category, people will be more or less attracted by all of these. This leads people to compare and judge whether one entity is appropriate to link with another one, or to think why incongruent situation occurs. If the answer is "Yes" or reasonable, individuals are inclined to accept it, otherwise it is quite possible for them to reject it. This judging process is cognitive, and its results can be strongly related to individuals' attitude and subsequent behavior. It is also called

"perceived congruence" or "perceived incongruence".

In brief, the above contents reveal that congruence concept is widely adopted in marketing research, particularly to understand how consumers evaluate the relationship when two independent entities are connected. In the following sections, the author will introduce the definition of congruence concept and its synonyms.

## 1.2 The Definition of Perceived Congruence / Incongruence

The current term "Congruence" derives from Latin language so that it can be easily found in French dictionary too. In *Le Robert*, term "*la Congruence*" is expressed as "*fait de convenir, d'être adapté*", but not frequently used in daily French context (0.6 occurrence per million French words<sup>10</sup>).

In many English dictionaries, the term "congruence" is defined as "*(two objects) have the same size and shape* (Oxford Advanced Learner's Dictionary)" Merriam-Webster Dictionary gives a supplementary explanation that congruence is "*(two objects are) matching or in agreement with something*". In addition, congruence, congruity, congruent, and congruous are interchangeable in many occasions or in everyday language (Maille and Fleck 2011).

In marketing research, the definition of congruence has no big discrepancy in everyday language, only subtle difference occurs depending on what researchers attempt to do and where they are doing. In general, congruence in marketing research, no matter it is used for celebrity endorsement, sponsorship, or retailing environment, is defined as "*the facts of entities 'going well together'*" (Maille and Fleck 2011). From this perspective, there are several elements need to mention. First, it must have two entities (or more entities) existed for congruence judgment. Second, these two (or more) entities are linked to compare. Third, the components of these entities, for example, the size, shape, or any

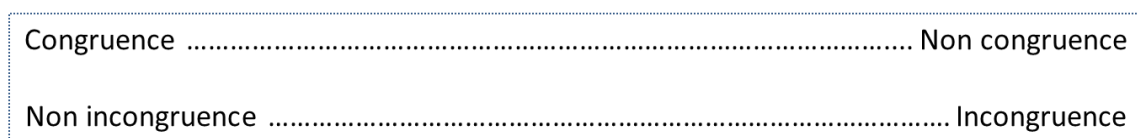
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<sup>10</sup> The statistical figure is reported by the app. (ios) of *Le Robert Dixel Mobile* downloaded from Apple iOS Market.

other tangible or intangible elements, are deemed to be well matched. Therefore, in marketing research, judgment of congruence is to ensure whether two entities are similar and/or well matched.

It seems it is not necessary to provide a separate definition of *Incongruence*. Is it correct? The answer is not exactly correct! In Anglo-Saxons context, term “incongruence” is the antonyms of term “congruence” indeed. To define “incongruence”, researcher can simply substitute the word "mismatched" for "matched", or to use "inconsistent" instead of "consistent" in the previous congruence definition. This substitution cannot succeed in francophone context because the word “incongruence” does not exist in French dictionary (Verfay-Berthaud 2013). Furthermore, Verfay-Berthaud (2013) posited that researchers not only used incongruent (Fleck and Maille 2010) in studies, but also used “not congruent” (Aurier and Fort 2005). To some extent, it cannot say “incongruent” is isomorphic to “not congruent”. Previous research studies often put (extreme) incongruence and congruence as two poles on one single continuum, and make the moderate incongruence inside the continuum. This proposition can emerge a question with regard to how to define other points located between (extreme) incongruence and congruence – whether these points are all moderate incongruent or all moderate congruent? In fact, Verfay-Berthaud (2013) has validated the dual dimensional structure (Figure 1.2) distinguishing congruence and incongruence presented in her doctoral dissertation.

**Figure 1.2: Dual-dimensional Congruence / Incongruence Structure**  
 (Source: Verfay-Berthaud 2013)



Although, the above discussion regarding the definition of incongruence is still controversial, the majority of studies still consider the incongruence is the reciprocal relation of congruence due to incongruent situation usually is not independent to



congruent situation. When researchers talk about incongruence, meanwhile a comparative congruence also exists. Though, researchers are inclined to consider congruence / incongruence locating on the same link, the discrepancy on the definition of congruence/incongruence should still get the attention in researchers' mind. Also, it must be noted that that researchers are more interested in the topic of incongruence rather than congruence, even they are equally treated. Because, congruence state is accepted quickly, nor is incongruent state.

### 1.3 The Synonyms of Congruence

In English context, the term "congruence" is a family in which many convertible words such as congruent, congruity, congruous, or congruency, located altogether. These words can be arbitrarily interchangeable in both oral and writing expression. This also happens in marketing research. Some researchers use "congruity" (Chebat, Sirgy, and St.-James 2006; Spangenberg *et al.* 2006; Puccinelli, Deshpande and Isen 2007; Meyers-Levy and Tybout 1989; Sirgy 1982 and etc.), someone adopt "congruence" (Mattila and Wirtz 2001; Bosmans 2006; Menon and Kahn 2003; Fleck and Quester 2007 and etc.), and yet other researchers use "congruency" (Mitchell, Kahn, and Knasko 1995; Morales, Kahn, McAlister and Bronizrczyk 2005; Aurier and Fort 2005; Wirtz and Mattila 2001 and etc.). None of them attempts to explain what the differences among these terms are. It seems that the words in "congruence" family are completely the same by default.

Beyond that, another group of words, such as appropriate (or appropriateness), fit, match-up, and similarity, is also adopted to substitute the term *congruence* in studies. Researchers never explain to what extent the words from this additional group are completely identical to those words in initial word family of congruence. Besides, the words from this additional group usually can be explained mutually. For instance, Till and Busler (2000) adopted "match-up" as congruence because it reflects that celebrity is fit to the brand. McInnis and Park (1990) used "fit" to express how ambient music is

appropriate to the brand. Aaker and Keller (1990) adopted "fit" or "similarity" to interpret the relationship between product extensions and the original products. It seems that almost all researchers unconditionally accept that, the meaning of words from additional group is identical to the initial definition of congruence.

There is only one possible reason to explain such phenomenon, that is, the Anglo-Saxon's research habit in which the goal is often described as a combination using a term from everyday language rather than reference to a genuine concept (Maille and Fleck 2011). Maille and Fleck (2011) proposed that, the term "*fit*" and "*typicality*" may not completely have the same meaning to "*congruence*". The former is close to "*similarity*" or "*consistence*", and the latter maybe belongs to other conceptual frame since its focal points are not the same in congruence concept (Maille and Fleck 2011). Unfortunately, lack of evidence indicates the necessity to force researchers strictly distinguish the differences among these terms.

To date, in most of cases, researchers accept using these terms mixed in congruence study unless something else is specified. The terms, congruence, congruity or fit, match-up, all seemed as synonymous expressions. Base on this fact, **all the above terms are regarded as synonyms, and can be interchangeable throughout entire dissertation unless otherwise specified.** By default, the meanings of these terms have no difference in any chapter and it can be interchangeable through the whole article.

#### **1.4 Perceived Congruence vs. Congruence**

It seems that perceived congruence and congruence has the same meaning due to none of the researchers distinguished them from each other in previous studies. The term "*perceive*" means that individual is aware of or becomes conscious of (Oxford Advanced Learner Dictionary) and the term "*perception*" is defined as "*the process by which an individual selects, organizes, and interprets stimuli into a meaningful and coherent picture of the world*" (Schiffman and Kanuk, 2007, pp:148). The definitive word

"*perceived*" explicitly expresses that individuals are consciously aware of the differences between the comparative entities, and such differences should be beyond the "*just noticeable difference*" threshold at the same time (Schiffman and Kanuk 2007). Therefore, the term "*perceived congruence*" indicates that consumers or participants recognize the (in)congruence situation and make evaluation (judgment) consciously.

The second reason is that perception is the result of an interaction between physical stimuli and the individuals' certain predispositions (expectations, motives, and learning) based on previous experiences. Although researchers suppose that participants' responses are cognitive consequences during congruence researches, the evidences from manipulation method cannot prove it. For instance, a shopping mall broadcasts background music, or places special flavors in the stores. Many experiments used predefined experimental manipulation with regard to ambient elements to test whether consumers' evaluations are influenced, but it was not effective. It is difficult to say consumers' judgment is truly decided by their perception towards the incongruent ambient elements even the manipulation check question identified that consumers have successfully recognized these ambient elements.

It can be inferred that the term perceived congruence and term congruence have similar meaning unless the incongruence judgment does not derive from direct measurement but from experimental manipulation. The results probably are different between the two methods. Concern more on the subjects' conscious expression can help researchers to definitely comprehend consumers' behavioral pattern, which will then enhance the reliability of prediction.

### **1.5 Summary**

In this section, the author introduces what perceived congruence is. No matter from which facet it is concerned, literally or academically, the term congruence expresses two entities that go well together, whereas incongruence expresses two entities that do not

well match-up well. This definition is accepted by most researchers and launched in many areas of marketing research such as including endorsement, advertisement, retailing environment and etc.

Unlike other marketing concept, there are many similar words used in congruence concept, which are arbitrarily interchangeable without any condition and explanation. In many cases, the terms, *congruity*, *congruous*, *fit*, *match-up*, *similarity*, *appropriateness*, *consistence* and some others, are assumed to have an identical conceptual meaning as *congruence* itself. However, researchers simplifying the differences among these synonyms may deeply affect the effort of congruence study.

Furthermore, people usually cannot consciously observe the connection between two objects. Not every advertisement can immediately evoke the subjects' resonance and feedback, many people do not find the relationship between the celebrity and the endorsed product yet. One possible reason is that the intensity of these stimuli do not trigger consumers' threshold. Another possible explanation can be that the discrepancy between two entities is not significant, or probably irrelevant. Thus, researcher must pay attention to the validity of congruence-incongruence in single manipulation experiment without *a posterior* verification.

## 2. THEORIES RELATED TO PERCEIVED CONGRUENCE

### 2.1 The Cognitive Consistency Theory and Perceived Congruence

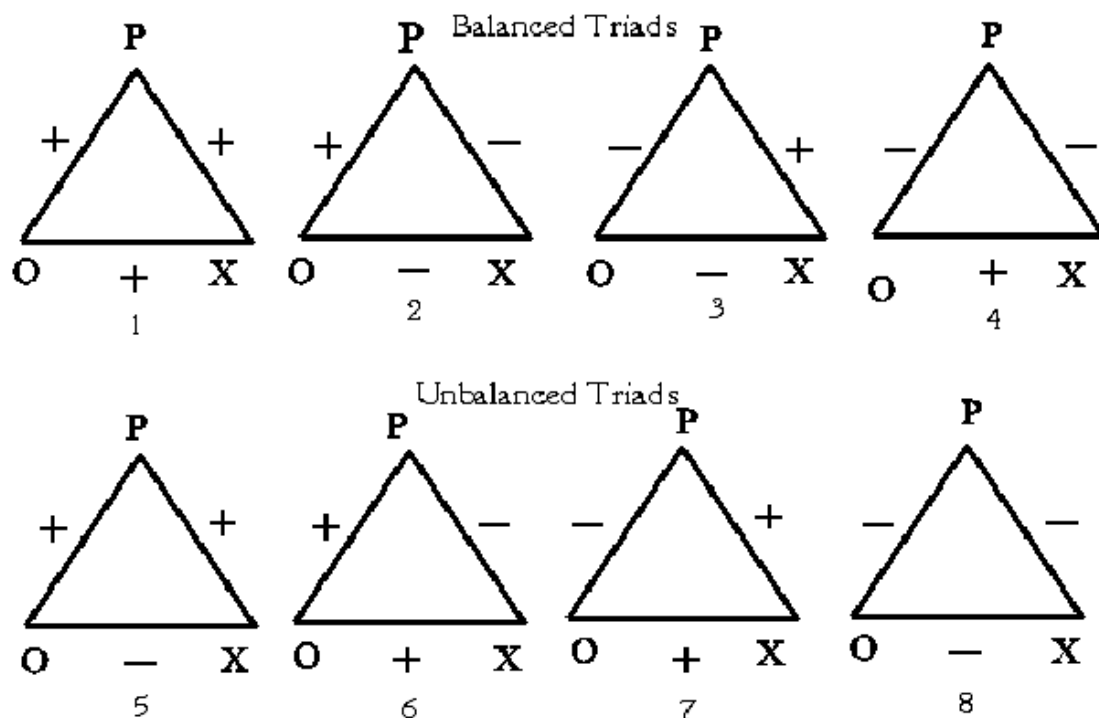
Proposed in 1950's, Cognitive Consistency theory was mostly derived from Balance Theory brought forward by Heider (1946). Balance Theory explains how people develop their relationships with other people and with things in their environment (Heider 1946). Heider (1946) proposed a triadic relationship, in which three parts represent Person (P), another Person (X), and an Object (O). Generally, people (P) tend to maintain a balanced state when they confront an imbalance situation (PX vs. PO). For instance, one person (P) likes French movie star Gerard Depardieu (X), but does not like Russia (O). When this person hears Depardieu decides to immigrate to Russia, an imbalance state occurs. If this guy attempts to maintain his/her balance state, he/she should either think that Depardieu is not worthy being loved (-PX) (see triad 4 in **Figure 1.3**), or thinks that Russia is not a country so disgusting (+PO) (See triad 1 in **Figure 1.3**). In this way, the triadic relationships among the initial person, compared person, and compared thing can keep in psychological balance.

Balance theory suggests that people have a general tendency to seek consonance between their views, and the views or characteristics of others, which offers a fundamental to the Consistency theory (McGuire, 1966). Consistency theory is also about the relationship of the thoughts or ideas in a person's mind. The basic idea is the people prefer harmony, or consistency, in their thoughts. Note that consistency theory is an aggregate composed of different concepts. The two principal concepts are respectively Congruity theory (Osgood and Tannenbaum, 1955) and Cognitive Dissonance (Festinger 1957).

Osgood and Tannenbaum's (1955) Congruity Theory, improved initially from Balance Theory, quantified the degree of liking (or disliking) to the relationships in Heider's triad and offered a formula predicting attitude change, which is the aforementioned Balance

theory cannot do (Cacioppo and Petty 1981). This theory predicts that if there are two contradicting people, or sets of information, or concepts (X and/or O) on which a judgment must be made by a single observer (P), the observer will experience pressure to change his or her judgment on one of the sides. Same pressure will not occur if two sets of information (PO and PX) are similar or congruent. Congruity theory explains that individual changes his/her attitude depending on the level of congruence between the relations that each individual (X or O) encounters.

**Figure 1.3: Triadic Relationships based on Balance Theory**  
(Source: Heider 1946)<sup>11</sup>



Applying this theory into endorsement activities, it can predict that individual will change its attitude when his/her attitude towards the celebrity (PX) is not congruent with its attitude towards the endorsed brand or product (PO). Here is such a case: I like famous

<sup>11</sup> The combination of all triads explains how individual maintains his/her attitude towards another person and to objects. For example, person (p) does not like another person (x), but likes object (o). If other person (x) does not like object (o) too (triad 2), the balance state is maintained. Otherwise, an imbalance state occurs (triad 6)

tennis player Roger Federer but I do not like the endorsed luxury watch brand Rolex. Such instance of Federer endorsing Rolex does not accord with the perceived congruence being talked about in this dissertation, because in the study of perceived congruence, researchers focus on the direct relationship between the celebrity (X) and the endorsed brand (O). Although, the individual's judgment will not doubt be influenced by his/her initial attitude towards the celebrity and brand, researchers will not quantify these initial attitudes in the study. That is to say, the focal point in the study of perceived congruence is that whether the celebrity is perceived to be congruent to the endorsed brand (product), or *vice versa*.

Obviously, the study of congruity theory is not the same as the perceived congruence that is mentioned every now and then in this article, however both theories adopt similar name, and the former offers some useful theoretical support to the latter. First, McGuire's (1966) consistency theory builds a robust standpoint that people prefer harmony, consistency, or psychological balance state. When an incongruent state occurs, such inconsistency should be reduced or eliminated by individual's inner impetus. Second, inconsistent state brings a pressure to force individual to change his/her prior attitude with regard towards other person or object. This process relates to individual's corresponding components: affective, cognitive, and conative (McGuire 1966), which is similar to the consequences of perceived congruence.

## **2.2 The Cognitive Dissonance and Perceived Congruence**

Strictly speaking, theory of Cognitive Dissonance also belongs to Consistency theory, but it expands the theoretical boundary. Festinger (1957) defined dissonance as "*the existence of non-fitting relations among cognitions, is a motivating factor in its own right.*" (pp: 5), and cognitions can be some degree thought to be "*Knowledge*" in which cognition corresponds to the things "*a person know about himself, about his behavior, and about his surroundings*" (pp: 9). Undoubtedly, this theory was developed from

previous Consistency theories depicted in previous section. The evidence is reflected not only in that consonance/dissonance is the term similar to balance/imbalance or consistency/inconsistency, but also in the negative relations (i.e., dissonance) that make individual uncomfortable, which force individual to reduce or eliminate it.

Moreover, Festinger (1957) proposed the third relation entitled "irrelevant" in dissonance theory. If two cognitions are not relevant but independently existing in individual's cognitive system, it means there is no relation each to other. Thus, only relevant cognitions will have the relation of either consonance or dissonance. It should be noted that irrelevant relation is not permanent, two cognitions are irrelevant in one scenario does not mean it is still irrelevant in another scenario.

The above contents reveal that it seems that cognitive dissonance theory and perceived congruence possess a similar conceptual structure because what we compare in both theories is the individual's cognition, which represents individual's knowledge about either person or objects.

Secondly, both theories have a similar positive/negative structure (Maille and Fleck 2011), in which positive result leads to comfortableness, and negative result accounts for uncomfortable. Thirdly, relevancy is another factor that occurs in both theories. Consonance (or dissonance) does not occur until two cognitions are relevant, while two entities are irrelevant to each other, it may fail to stimulate the individual connecting the entities for comparison.

It seems that both theories have many points in common, but they are not completely the same. According to the study of Maille and Fleck (2011), perceived incongruence should be the antecedent of cognitive dissonance, not the parallel relation. The logic is that individuals perceive incongruence, dissonance then arises from the cognition to two entities. Another reason to separate the two theories is the factor of relevancy. If two cognitions are irrelevant, they will not be judged as dissonance, but as perceived



incongruence. In fact, Maille and Fleck (2011) gave an instance cited from Festinger's (1957) study in which how a best-selling writer treats his dog (e.g., often beats his dog) is judged as a case irrelevant to whether his readers like him or not.

Undoubtedly, Maille and Fleck's (2011) conclusion is reasonable, and still it is controversial, because not all incongruence perceptions result in dissonance relation. For instance, a retailer changes the ambient odor from lavender to lemon in his brick-and-mortar store. If the consumers really perceive this discrepancy, will they really generate a negative psychological state such as dissonance? The answer is "maybe" or it depends on other related factors. Furthermore, dissonance may also be the cause of perceived incongruence. For example, Tiger Woods, the famous golf players endorsed Nike products. Many people liked him and believed that he was an ideal spokesperson of Nike until his sexual scandal was exposed. Since then, Tiger Woods was no longer perceived congruence with the brand Nike, because his sexual scandal causes a negative psychological feeling and raises a dissonance to his previous positive healthy image. People attempted to avoid or reduce this dissonance by change their cognition (attitude) towards the Golf King. Consequently, all the connections between Mr. Woods and the brands are definitely perceived as incongruent or inappropriate. This case indicates a possible route that cognitive dissonance influences congruence perception.

Consequently, cognitive dissonance and perceived congruence are not the same, although both underlying cognitive processes may be similar. Therefore, there is an intersection between two theories. In some contexts, they can work well independently, whereas in other cases, they closely connect as one causes another. Both of them offer multiple theoretical perspectives to the researchers.

### **3. HOW DOES INDIVIDUAL PERCEIVE CONGRUENCE?**

The synthesis written by Maille and Fleck in year 2011 is unquestionably one of the most important literature in this domain. No one actually did the same thing like these two authors. As they asserted, the literature on the formation mechanisms of congruence evaluation is sparse. As a matter of fact, it is assumed that more than half of the literature did not consider the process of how individual perceives or determines the congruence or incongruence. Now, the author would like to unfold the 2-layer structure proposed by Maille and Fleck (2011) which summarized several relevant mechanisms that individuals use to judge the relation between the entities.

#### **3.1 Whether Comparison is the Condition of Forming Congruence Evaluation?**

When people want to know whether an entity *A* goes well with an entity *B*, they must put the two entities together, and then attempt to find those similarities and differences. This is what Maille and Fleck (2011) called "comparison" and they thought this is a condition for any congruence evaluation. According to the proposition of Maille and Fleck (2011), the process of comparison starts from perception. If an entity neither recognized nor distinguished, the comparison cannot be moved on. Hence, the two perceived entities must be combined together for further comparison. What are the factors that drive the individuals to form a combination of the two entities, particularly when most of them are completely independent? The answer is learning and context (Maille and Fleck 2011). Learning represents an intrinsic force that leads person to the comparison, whereas context represents an extrinsic force that takes the person to the same object.

The interesting thing is that researchers seldom highlighted the importance of comparison process when they studied congruence perception. This is because the comparison process may not occur in every congruence-incongruence evaluation. A

judgment of incongruence relates to what the congruence is. In some cases, comparison occurs only in the incongruence situation, not in the congruence situation. For instance, when people are watching a football match, they know those advertise boards surrounding the pitch, but only those unfamiliar and irrelevant brands can get their attention. Another instance is that when a customer gets into a Zara store, where a cheerful song is broadcast right at that time. He/she knows this song and starts to hum to the rhythm. The customer may not think it is appropriate to be the background music for the product category, but just feel it is the right time to hear it. People intend to do comparison only when they hear unexpected music, like symphonic music, at that time when they are walking in. In this case, comparison process may occur *ex post* when individuals are asked to answer why they think this cheerful type of music is congruent. If this is true, comparison process is not a *sine qua non* or sometimes is done unconsciously in congruence evaluation.

In summary, comparison is an important process in the formation of congruence evaluation; it is necessary condition for those incongruent situations but may not be for congruence situation.

### **3.2 Congruence Evaluation Driven By Different Cognitive Structures**

To some extent, consumer perceives congruence between two entities based on the elaborative information processing, particularly in the evaluation of incongruence (Heckler and Childers 1992). Some psychologist thought that, perceived incongruence derived from a conflict in which current information cannot match the information that has already been stored in individual's memory (Hastie 1980; Hastie and Kumar 1979). Therefore, the discussion starts from cognitive structures to explain how this mental activity influences individual's congruence evaluation.

### 3.2.1 Perspective from cognitive structure of categorization

According to the statement all above, the term congruence (or incongruence) is often replaced by the words such as similarity, fit, and consistence in studies. When consumers attempt to determine whether two entities are congruent, they may rely on the extent of how similarity is perceived from those relevant components between the entities. Though Heckler and Childers (2011) directly used the term "relevancy" to explain how the subjects form congruence judgment, it did not work well. The term *relevant* is related to a subject in an appropriate way (Merriam-Webster Dictionary), which implies a traceable, significant, logical connection. From this literal definition, involving the term "relevancy" into comparison between two entities only means the entities are significantly associated, but we are not able to determine whether they are congruent. As is known, the flower extracts are indispensable materials in blending perfume, but a few of them will immediately consider a perfume brand sponsors in a flower exhibition into an evaluation related to cognitive congruence.

Consequently, it is appropriate to adopt the cognitive processes, called categorization, instead of the term "relevancy" in interpretation. Based on cognitive psychology, categorization is the cognitive process in which ideas and objects are recognized, differentiated, and understood (Cohen and Lefebvre 2005), it implies that objects are grouped into categories, usually for some specific purpose. Ideally, a category illuminates a relationship between the subjects and the objects of knowledge.

Categorization is considered to be a fundamental cognitive activity encompassing all forms of stimulus situations (Mervis and Rosch 1981). It involves a comparison between a target and categorical knowledge (Cohen and Basu 1987). Some researchers proposed that, people use categorization to evaluate the similarity in two ways, either through physical characteristics resemblance (Mervis and Rosch 1981; Cegarra and Michel 2001), or thematic similarity (Lin and Murphy 2001; Martin and Stewart 2001). The physical similarity is congruent with what Aaker and Keller (1990) called "substitutable"

from which the attributes can be replaced from one entity to another (Ratneshwar and Shocker 1991). Alternatively, the thematic similarity is like "complementarity" (Aaker and Keller 1990) or "usage similarity" (Martin and Stewart 2001) in which the two entities are used together or functionally and causally linked (Lin and Murphy 2001).

The underlying theoretical interpretation of these two types of similarity can be found from Cohen and Basu's (1987) view of categorization in which they proposed that an important point during people's cognitive process is "*whether the process is presumed to build up piecemeal from individual features (i.e., analytical) or is somehow more "holistic" (i.e., nonanalytical)*" (pp:456). Perceived similarity occurs not only from the comparisons between attributes of each entity, but also from the overall similarity without regarding the importance or relevancy of attribute information for the task (Alba and Hutchinson 1987). The latter phenomenon (with holistic processing) can be regarded as various cues comprising stimuli that are combined in an interactive manner to determine the overall similarity of two stimuli (Medin and Schaffer 1978), and it usually appears at the conditions where the stimuli means complexity, under time pressure, lack of motivation, and needs of incidental learning. Such overall similarity can be represented as "target affinity" that marketing events meet the brand's target (Maille and Fleck 2011), or the "lifestyle congruity" such as playing online game with the embedded brand.

Although different cognitive processes may be adopted in different marketing events, analytic and nonanalytic process can work independently but also interdependently as well (Cohen 1982; Elio and Anderson 1981). Kahneman, Slovic and Tversky (1982) found that people use concrete "good examples" in making judgments even though they already have more precise feature-based information. Another question is that, categorization theory cannot explain the perceived similarity with induced emotion. In general, cognition is the precursor of affect (Mandler 1982). Thus, shall we still keep a congruence evaluation between the subjects' emotion? The latter question in perceived congruence paradigm is yet unanswered.

Note that category is not permanently fixed, it will be created spontaneously and be used in specialized situations for achieving novel goals (Barsalou 1983). This is also called *Ad Hoc* categories, which is regarded as a subset of goal-derived categories.

### 3.2.2 Perspective from cognitive structure of schema

Other than categorization, schema is another type of cognitive structure. Schema derives from psychology, and different researchers may give their own schema definition, but most of them accept that schema is a cognitive structure, modifiable by experience, represents organized knowledge about a given concept or type of stimulus (Fiske and Taylor 1984; Neisser 1976; Leigh 1992), and contains both the attributes of the concept and the relationships among the attributes (Fiske and Linville 1980; Hastie, 1981; Taylor and Crocker 1981). The schema concept is a "*top-down*" (Norman 1976, pp:41) or a "theory-driven" process (Fiske and Taylor 1984) that people's prior concepts and theories shape how they view data, and an abstract form in regards to information stored for individual.

In perceived congruence study, Mandler (1982) first proposed the schema-congruity (or incongruity) in the 17<sup>th</sup> annual Carnegie Symposium on Cognition. Mandler (1982) stated that the evaluation, when new encounter are evaluated against existing schemas, is cognitive event where the subjects address it relies on the internal structure of the target event. The evaluative judgments can be distinguished from those descriptive judgments in which people typically handle it through the semantic networks, feature analyses, prototypes, etc. Though evaluation and description mark the end points of a continuum of cognition, it seems that it is the structure of the object, resulted from evaluation that determines the value.

Accordingly, the underlying logic route of schema congruity can be depicted as below.

When consumer encounters a stimulus, he/she attempts to evaluate it. This process comprises descriptive judgment (such as "is this tree green?") and/or evaluative judgment (such as "is this tree beautiful?"). As Mandler stated, whereas a judgment of "is this tree green?" relies on whether the corresponding attribute is presented, a judgment of "is this tree beautiful?" relies on whether the analysis of event matches up the consumer's existing structural description (schema). Mandler (1982) asserted that, the latter judgment plays a very significant role in evaluation than the former judgment does. Thus, the fit from evaluative judgment occupies main effect in the whole cognitive evaluation, and the consequences of fit can lead to a primitive positive evaluation. In contrast, if the result of evaluative judgment is unfit, consumer decides the valence of evaluation based on the subsequent mental activities of treating such unfit (incongruity).

Mandler's proposition then was adopted and verified in different marketing research areas. The evidences supported that, the consumers' prior expectation towards the events or the objects is the basis that determines the congruity perception. For instance, Meyers-Levy and Tybout (1989), also Stayman, Alden, and Smith (1992) studied how the congruity between new product category and consumer's schema of current product category influences consumer's evaluation and attitude. Misra and Beatty (1990) adopted schema-based expectancy theories (Taylor and Crocker 1981) into the study of how consumers view the image of celebrity to the brand. Recently, McDaniel and Heald (2000) applied Fiske's theory of schema-triggered affect to understand how congruence between the subjects' ad perception schema and sponsorship influences young consumers' attitude and purchase intention to the brand. Aggarwal and McGill's (2007) study indicated that, consumers' schema is a determinant to the perception of anthropomorphized products.

### **3.2.3 Perspective derived from mixed cognitive Structure**

Previous two sections explained how different cognitive structures induce consumer's

congruence evaluation. That is, in some cases, perceived congruence relies on the process of categorization through which individual compares the relevant components of two entities or holistically evaluates the similarity of two entities, whereas in other cases, the judgment of congruence is decided by the degree of deviation with regard to individual's expectation. One may argue whether the congruence in former situation is the same as the one in latter situation, or whether congruence itself has different degrees.

What can be induced is that, the meanings of congruence in two situations are indifferent. The reason why consumers adopt different cognitive structure is probably due to different perspectives of questioning. Let's recall the example of Brad Pitt sponsors Chanel No.5 perfume. Researcher will possibly ask "is the image of Brad Pitt (celebrity) congruent to the brand image of Chanel?" or "do you think Brad Pitt is an appropriate spokesperson to Chanel perfume?" The former question may result in the process of categorization to directly compare the celebrity image with brand image, whereas the latter question probably leads consumers to evaluate the congruence within their prior schema. However, the targets of both questions are the same.

The above interpretation brings a question: if both cognitive structures can reach congruence judgment, two cognitive structures will probably present mental process of congruence simultaneously. Heckler and Childers (1992) cited from Goodman's (1980) framework in which the information processing contained two dimensions, entitled *relevancy* and *expectancy*. Heckler and Childers (1992, pp: 477) gave the meaning of these two dimensions, respectively:

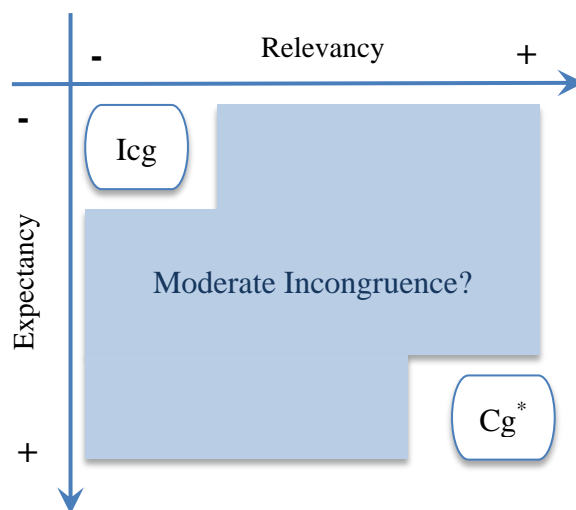
**Relevancy:** "*material pertaining directly to the meaning of the theme and reflects how information contained in the stimulus contributes to or detracts from the clear identification of the theme or primary message being communicated.*"

**Expectancy:** "*the degree to which an item or piece of information falls into some predetermined pattern or structure evoked by the theme.*"



The underlying mechanism of two dimensions can determine the congruence perception because these two dimensions interactively influence the processing effort such as recall, encoding, and overall recognition. Therefore, the integrating relevancy and expectancy can offer effective insight to understand incongruence because the efforts can be more significantly differentiated from the combinations of two dimensions than the evaluation of single dimension. From Heckler and Childers's (1992) perspective, congruence occurs when information of stimulus is both relevant and expected to primary message, and occurrence of incongruence depends on the combination that stimulus is relevant but unexpected to primary message, or *vice versa*, which enhance individuals' elaborative process rather than congruence situation. Only one thing of irrelevant-unexpectancy combination is out of Heckler and Childers's assumption, which presents the most significant elaborative effort in all the four combinations (2 relevant \* 2 expected).

**Figure 1.4: The Dimensional Structure of Perceived Congruence**  
(Source: Maille and Fleck, 2011, p.80)



\* Cg = Congruence / Congruity; Icg = Incongruence / Incongruity

To date, this bi-dimensional structure has been verified in the studies of endorsement (Lee and Thorson 2008), advertisement (Lichtlé 2002; Lee and Mason 1999), sponsorship (Fleck and Quester 2007) and etc. Maille and Fleck (2011) posit in their review that, if congruence and extreme incongruence locate at the end point of a continuum, the relevant-expected combination and the irrelevant-unexpected one are

corresponded theoretical structure (**Figure 1.4**). The other two combinations of relevant-unexpected and irrelevant-expected structure will reflect all the moderate incongruence that fall randomly on the space between the two end points in the continuum. However, Heckler and Childers (1992) did not propose the same inference, nor gave the same definition (for irrelevant-unexpected combination) in original article.

### **3.2.4 Whether congruence evaluation must base on cognitive process?**

Note that some congruence studies cannot simply identify whether the cognitive efforts exist during the judging process. One reason is that some of these studies did not measure individual's congruence perception, neither directly nor indirectly (manipulated and verified *a posteriori*) during the experimental operations. The second and even more important reason is that these studies may be conflict to another theoretical structure.

Some researchers involved the congruence concept into the studies of retailing store with atmosphere. They tended to know whether the congruence between atmospheres, such like odor, music, mood, brand, and product category influences the subjects' attitude or purchasing intention. According to the Stimulus-Organism-Response (S-O-R) model (Mehrabian and Russell 1974), the environmental physical stimuli (e.g., color, music, scent, and lighting) can influence individuals' affective states such as pleasure, arousal, dominance, and consequently lead to different behavioral responses such as approach or avoidance (Donovan and Rossiter 1982; Menon and Kahn 2002).

S-O-R model implies that those environmental cues can directly influence the emotion without getting cognitive process involved. It may manifest the prominent position in decision process, or at least significantly biases against the cognitive process. For instance, consumers walk into a store, hearing the background music. If he/she does not like this type of music (or does not like such song), unpleasant emotion may arise, the perceived congruence is inclined to judge this as inappropriateness. In contrast, if he/she

likes this type of music, he/she will be pleasant or at least be aroused, but congruence evaluation does not guarantee to generate positive result, that is because, individual likes the music does not mean the music is congruent (or appropriate) to the brand or product category.

The above example indicates that consumers' congruence perception in retailing store within environmental cues is not only determined by cognitive process, but also be influenced by affective states exerted from environmental atmospheres. In this case, also as mentioned in the section of schema structure, academic world does not reach a consensus whether affective state (or emotion) can be regarded as a part involved into cognitive process.

### **3.2.5 Summary**

According to the previous statement, many synonyms of congruence probably lead to the different theoretical explanation upon how consumers form the congruence evaluation. For instance, a hypothesis with the term match-up derived from social adaptation theory is used to study celebrity endorsement (Kahle and Homer 1985), or the term “fittingness” is adopted into the study of the relationship between ads and advertised brand (Kanungo and Pang 1973). Although these examples enlighten people to understand the mechanism of perceived congruence, but they are not commonly accepted by other researchers due to lack of generalization.

On the other hand, the relationship between categorization and schema is another problem. In most of the interpretation on categorization, researchers regard that schema is independent cognitive structure (Cohen and Basu 1987; Alba and Hutchison 1987), but still some studies classified schema-incongruity as one type of categorization (Stayman, Alden, and Smith 1992; Meyers-Levy and Tybout 1989). One relative explanation is that, attributes are still the judging elements in schema-incongruity

processing the same as they are in categorization cognitive processing.

Perceived congruence is a popular concept attracting the researchers to adopt it in marketing research, particularly in the conditions where researchers attempt to understand the comparative relationship between different marketing objects. In most of the cases, consumers' evaluation of congruence between two entities (objects) is the cognitive process through which consumers elaborate the information with both compared entities. This elaborative process may have three cognitive resources, which are respectively perceived from analytic or nonanalytic categorization process, from prior expectation or schema, and from the combination of relevancy and expectancy dimensions. These processes imply how consumers conduct the comparative process.

Finally, exceptional examples being studied in atmosphere domain are those that should be mentioned. In that domain, the cognitive process of congruence may intertwine with the influence from S-O-R model. The latter directly connects the physical environmental stimuli to the affective states which vary both congruence judgment and consequences.

#### 4. MODERATE EFFECT OF INVOLVEMENT IN CONGRUENCE PERCEPTION PROCESS

Personal involvement refers to a motivational state of mind of a person with regard to an object or to an activity that reveals itself as the level of interest in that object or activity (Mittal 1982). This definition represents the relationship among individual, object and environmental situation. In consumer research, personal involvement reflects individual's mental states evoked by the stimulus to the object (Laaksonen 1994) that moderates processing based on its cognitive and affective dimensions (Park & Mittal 1985; Zaichkowsky 1994). Based on the Elaboration Likelihood Model of Persuasion (Petty *et al.* 1983; Petty and Cacioppo 1984, 1986), involved people "*are more motivated to devote cognitive effort required to evaluate the true merits of an issue or product*" within in-processing promotional messages (Petty *et al.* 1983, p. 137). Therefore, compared to uninvolved people, the involved people are thus expected to process not only relevant information but more of it as well (Swinyard 1993). Previous studies have reported that consumers involved in a situation or product attend to and comprehend more information about a shopping situation and should produce more elaborate meanings and inferences about it (Swinyard 1993; Celsi and Olson 1988; Ray *et al.* 1973).

Previous congruence studies recommended that the researchers to pay attention to understand the moderate effect that motivation takes in treating incongruence (Aaker and Sengupta 2000; Campbell and Goodstein 2001; Fleck and Maille 2010). There is a large body of empirical research documenting that consumers with greater involvement are more likely to elaborate on advertisements than those with less involvement (Muehling, Laczniak, and Andrews 1993). For instance, Lee and Thorson (2008) found that the effect of celebrity-product congruence will be more manifested for consumers with higher product involvement than those with lower product involvement. DeSarbo and Harshman's (1985) research also suggested that the impact of a celebrity-product

match depends to some extent on the characteristics of the audiences involved. It is argued that celebrity-product pairs should be relevant to specific segment of the audiences involved for celebrity endorsement to succeed.

Except for the influence that involvement is contingent to endorsement, McDaniel and Heald (2000) posited that consumers' involvement with events is also likely to affect their processing of sponsorship stimuli (Daneshvary & Schwer 2000). It seems that involvement with both products and events functions to shape consumer's memory-based expectations and subsequent response to various sponsorship materials (Gwinner 1997; Heald & McDaniel 1994). Similarly, research on schema-based evaluation suggests that the influence on judgment of information inconsistent with existing schemas will not materialize unless consumers are motivated and willing to spend cognitive resources on resolving schema incongruity (Peracchio and Tybout 1996).

In retrospection to the original theoretic base of involvement, researches of social judgment theory indicated that, highly involved people seem to increase the latitude of rejection or resist to persuasion (Sherif and Hovland 1961; Sherif *et al.* 1965). Fleck and Maille (2010) argued that, involvement may present an inverse U-shape effect with processing incongruence. That is, the low involvement subject ignores incongruence, while the high involvement subject persists in accommodation. In all incongruence situations, the low involvement subjects prefer to ignore the incongruence because they will not devote much cognitive resources to weaken or eliminate the dissonance with regard to incongruence, whereas the high involvement subjects attempt to process the relevant dissonance to persist in the accommodation because they expect to operate and assimilate the existing discrepancy that is driven by cognitive involvement. Thus, it can be deduced that high-involved subjects may reduce the negative effect of incongruence perception, but low involved subjects may not.

In summary, involvement is one of the factors influencing the subject's evaluation in

incongruence situation rather than in congruence situation. When participants encounter an incongruence situation, the low involvement subjects prefer to ignore the relevant incongruent information that will not exert the influence to incongruence. In contrast, the high involvement subjects prefer to devote more cognitive effort to assimilate such discrepancy, this attempt may reduce the influence of incongruence perception. This contingent mechanism has not been verified in multichannel retail context in the past, but it will be examined in this project.

## **5. THE CONSEQUENCES OF PERCEIVED CONGRUENCE**

In order to discuss the consequences of perceived congruence (incongruence), it is necessary to review Osgood and Tannenbaum's (1955) assertion in which the consequences of congruity links to the subject's attitude change. According to the Consistency theory, people prefer harmony, consistency, or psychological balance state so that an inconsistency will be reduced or eliminated by individual's inner impetus. On the other hand, inconsistent state brings a pressure forcing individual to change his/her prior attitude with regard to other person or object, which relates to the individual's corresponding components: affective, cognitive, and conative (McGuire 1966). This is in line with Festinger's (1957) proposition. Festinger (1957) stated that people prefer to avoid the dissonance, and to pursue a psychological consonance that meets people's expectation in daily life. Therefore, researchers infer that congruent (consistency or consonance) state can produce more positive evaluation than those from incongruent (inconsistency or dissonance) state.

In the 1980's, the concept of perceived congruence drew psychologists' attention. Researchers found that congruent objects are not very noteworthy to people, thus the retrieve process is bypassed (Srull 1981) and people are unlikely to prompt extensive cognitive process (Meyers-Levy and Tybout 1989). When congruent information is presented, it is linked to expectancies at the prototypical level, thus simplifying the recognition (Srull 1981). In case a stimulus is perceived as congruent, it is favorably evaluated on the basis of affect transfer (Wansink and Ray 1996). The conclusion of congruence state generates favorable evaluation is supported by the studies in different marketing domains. The examples include studies by Lichtlé (2002), Lee & Thorson (2009), Hung (2000), and Lynch & Schuler (1994) in advertisement, by Bosmans (2006), Mattila & Wirtz (2001), and Fiore, Yah, and Yoh (2000) in atmosphere domain, by Simonin & Ruth (1998), Haubel & Elrod (1999), and Wanke, Herrmann, and Schaffner (2007) in brand extension study, as well as studies by Speed & Thompson (2000), Rifon,

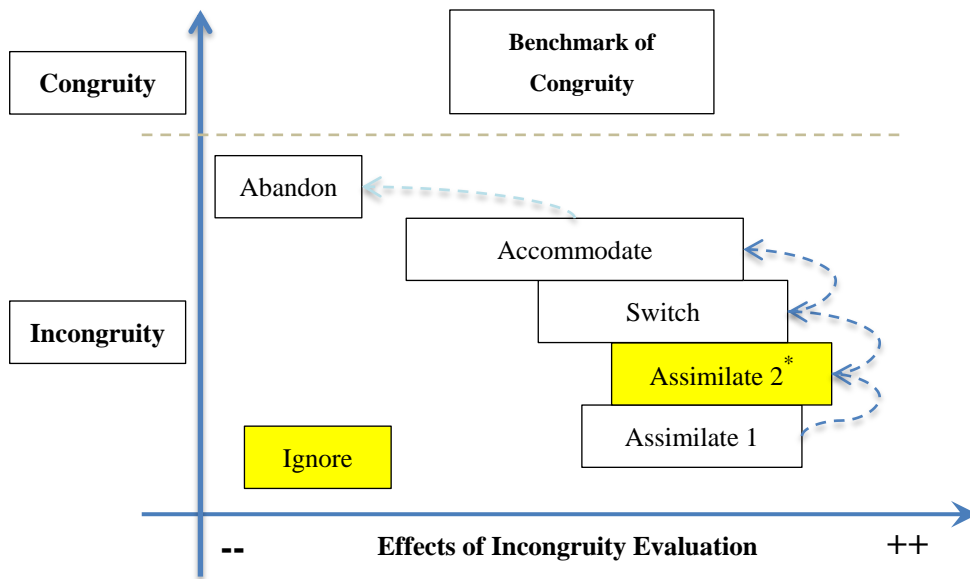


Choi, Trimble, and Li (2004); McDaniel & Heald (2000), Olson & Thjomoe (2011) in regards to sponsorship.

In contrast, incongruent extension often entices attention and enhances substantial elaboration of the extension's highly salient source of incongruity (Mandler 1982; Meyers-Levy, Louie, and Curren 1994; Meyers-Levy and Tybout 1989). Hastie (1980) asserted that incongruent information will be more difficult to comprehend and, when it is perceived, it will be held in working memory longer than congruent information. Psychological experiments indicate that incongruent information stimulates more elaborate internal processing, in which results a greater number of associative pathways are linking the incongruent information to existing knowledge. These additional pathways make the incongruent information more retrievable from memory, thereby enabling greater recall (Hastie and Kumar 1979; Hastie 1980; Srull 1981). Additionally, when the congruence evaluation is in connection with people's expectation, either related to research procedures or schema-based, it is found that the subjects would prefer a more elaborative form of information processing in the situation that information deviates from the expectation compared to the situation that information meets the expectation (Houston, Childers, and Heckler 1987; Sujan, Bettman, and Sujan 1986; Meyers-Levy and Tybout 1986; Mervis and Rosch 1981).

On the basis of Piaget's (1970) proposition, Mandler (1982) asserted that assimilation and accommodation are two processes following incongruity. According to Piaget's (1970) definition, assimilation refers to the integration of "*external elements into evolving or completed structure,*" whereas accommodation refers to the "*modification of an assimilatory scheme or structure by the elements it assimilates* [pp.706-708]." It seems that assimilation provides cognitive continuity and integration, while accommodation allows cognitive change (Mandler 1982).

**Figure 1.5: The Theoretical Mental Process How Consumer Perceives Incongruent Information**



Draw by the author based on the propositions of Mandler (1982) and Fleck and Maille (2010).

\*: The white frames were originated by Mandler (1982), while the yellow parts are proposed by Fleck and Maille (2010)

Following these two processes, Mandler (1982) asserted that assimilation is activated when incongruity is slight, and can be easily incorporated into current structure without any major change, or although incongruity is severe, the subjects successfully involve alternate schema to comprehend it. These results are usually positively valued. On the other hand, if assimilation is impossible, it must change the structure to accommodate the incongruity information (**Figure 1.5**). Mandler (1982) inferred that when accommodation is successful, the evaluative state can be either positive or negative, but the result is most probably negative while it is unsuccessfully treated.

To date, Mandler's interpretation regarding resolution of incongruity is accepted by most of the researchers. For instance, Meyers-Levy and Tybout (1989) proposed similar three incongruity resolutions called "assimilation", "subtyping", and "activation", and Ozanne, Brucks, and Grewal (1992) analyzed the underlying mental activities of these resolution. Fleck and Maille (2010) added two alternative levels in incongruity treatment called

"ignore" and "assimilate 2" (**Figure 1.5**) without changing original incongruity treating structure in their theoretical review.

Note that Mandler's inference has been sufficiently adopted in past 30 years. Researchers have found enough evidences in appropriate context, moderate incongruity (incongruence) can generate more positive evaluation than those from either (extreme) congruity or extreme incongruity<sup>12</sup>, particularly that the incongruity information can be assimilated into current cognitive structure. The evidences can be found in the following studies made by Houston, Childers, and Heckler (1987), Lane (2000), Bosmans (2006), Wanke, Herrmann, and Schaffner (2007), Ozanne, Brucks, and Grewal (1992), Lee and Thorson (2008), Meyers-Levy and Tybout (1989).

This non-monotonic effect (or inverted-U) leads to a new question. Researchers may ask to what extent the moderate incongruity can result in more positive evaluation. The experimental data support the significantly positive effect perceived from moderate incongruity, but when several moderate incongruity states occur together, researchers have no clear idea about it (see **Figure 1.4**, p.54). Do these different moderate states exert the same effect, or is there a special moderate incongruity state existed that perceives most positive effect among all options? Note that the time course of "*schema activation and access is much faster in the range of 300-1000 milliseconds*" (Mandler 1982; p.23). It is impossible to know precisely which levels of cognitive process the subjects are now standing at. Furthermore, previous studies regarding moderate incongruity are inclined to use experimental comparative process where the moderate state is always compared to either congruity or extreme incongruity, lack of study take the ensemble of different moderate states into consideration. Accordingly, researchers have no idea about how to distinguish these possible moderate incongruity states.

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<sup>12</sup> The evidences can be found in the table listed at the end of this chapter where a column entitled "consequences of study" represents the results of evaluation regarding the comparison between congruence and incongruence in each study.

In summary, the previous congruence studies illustrated that (extreme) congruence state does not generate negative evaluation, whereas extreme incongruence state does not generate positive evaluation. Moderate incongruence state is regarded as an unstable situation since its definition is relevant to the extreme state. On one hand, moderate state can sometimes result in more positive evaluation than (extreme) congruent state while extreme incongruent state occurs at the same time. By far, researchers have not discussed about the situation whether several moderate congruence states are coexisting. Neither theoretical inference nor empirical evidence was studied to the complex incongruence situation.

## 6. THE MEASUREMENT OF PERCEIVED CONGRUENCE

Perceived congruence is often adopted in the studies of objects comparing, especially when the compared objects belong to different categories. From advertisement, sponsorship, endorsement, store attributes, product extension, to product brands, the congruence concept is usually found to be independent variable. As congruence judgment is a relative concept, the different extents of incongruence the subjects perceived depend on what the congruence is. Thus, in order to measure the incongruence, in many cases, researchers must fix a control point named (extreme) congruence or extreme incongruence. This explains why the most popular measurement of perceived congruence is manipulated through experimental design by the researchers.

Another benefit from experimental manipulation of congruence perception is that, this can reduce the interference against which the subjects' judgment may bias. As the discussion before, congruence evaluation is pervasive in daily life. Solomon, Ashmore, and Longo's (1992) study found that the subjects defined the beauty within various perspectives, a perfume product may match up with several parts of the subjects' expectation of beauty at the same time. If researchers directly ask the subjects whether the connotation of beauty in advertisement is fit for the products, different subjects may have different answers because they have their own definition on beauty. The between-subjects inconsistent viewpoints of beauty are very likely to reduce the experimental effort.

Undoubtedly, experimentally manipulated congruence design can help researchers pay more attention to the point which they really concern, and *a posteriori* validation offers a mechanism to ensure the effectiveness of experimental design. Nevertheless, Maille and Fleck (2011) criticized that *ex ante* congruence cells possess less effectiveness than the method called *ex post* congruence cells due to less explaining power of the former one in measuring moderate incongruent state. Instead, directly measuring the subjects'

congruence perception should be prevalent in congruence study.

One of the direct measures is the bi-dimensional structure proposed by Heckler and Childers (1992), which contains the questions regarding how to perceive relevance between the objects, and the extent of un-expectancy that the subjects perceive between the objects. Most of the researchers agree with the two constructed dimensions, however, not too much study adopted it. Apart from this, researchers prefer to develop their own scale to record the subjects' evaluation. For instance, Simonin and Ruth (1998) adopted two questions within semantic differential scale of "consistent/inconsistent" and "complementary/not complementary". Badrinarayanan, Becerra, Kim, and Madhavaram (2012) asked the subjects to judge the congruence between the channel stores with four questions anchored by "inconsistent / consistent", "different / similar", "unrepresentative / representative", and "atypical / typical" in their study.

In summary, by far, unlike the concepts like *satisfaction*, no measurement is widely accepted and adopted for congruence research. In many cases, measuring congruence depends on research conditions such as research object, marketing domain, what controllable context is, and who the participants are. It should be proposed that Heckler and Childers's (1992) bi-dimensional measurement is more enriched than all other single-item measuring structure. It theoretically combines two possible dimensions, which are usually measured individually, into one standard measurement. Consequently, this measurement should get more attention in the study of perceived congruence. Probably, combining the experimental manipulation design along with bi-dimensional measurement will be more effective than other measurement.

## **7. PERCEIVED CONGRUENCE APPLIED INTO MARKETING RESEARCH**

Unquestionably, studies in regards to congruence perception are widely used in advertisement and to its extension: endorsement and sponsorship. Researchers attempt to understand how consumers perceive the elements drawn from a piece of 20-second visual information or from an outdoor billboard. Beyond that, researchers also tend to know through what kind of combination among the advertising elements consumers are attracted and do recognize the advertiser's intention.

### **7.1 Advertisement Study**

Researchers usually make painstaking efforts to comprehend how incongruent content in the ad influences the subjects' cognitive process. One of the clear evidences is that several studies identify that incongruence state results in extensive elaborative process (Meyers-Levy and Sternthal 1993; Heckler and Childers 1992), enhances the memory retrieving (Russell 2002), and is easy to recalled, whereas congruence state enhances the persuasion (Russell 2002). On the other hand, congruence studies relate to audial and/or visual message is another research focus. For instance, some studies focus more on the congruence between music and message (Shen and Chen 2006; Kellaris, Cox, and Cox 1993; McInnis and Park 1991), music and brand (Lavack, Thakor, and Bottausci 2008), music and visual content (Hung 2000), and visual content and verbal message (Houston, Childers and Heckler 1987; Luna, Peracchio and Juan 2003). The outcome has shown that each extent of congruence (incongruence) has advantages.

### **7.2 Endorsement and Sponsorship Study**

Congruence studies in endorsement place extra emphasis on two perspectives. The first one is related to celebrity's image. For instance, Kamins and Gupta (1994) found that spokesperson's expertise represents the identification, which increases overall

believability towards the spokesperson. Lee and Throson (2008) indicated that a moderate incongruence between the image of celebrity and the image of brand produces more favorable response than those of congruity or extreme incongruity states.

The second one, some researchers tend to matchup the spokesperson (celebrity) and the attributes associated with the brand. Lynch and Schuler (1994) investigated the relationship between spokesperson and product. The results implied that the congruence can influence the schema towards the ad and successfully transfer the information from spokesperson to the product.

Another extension of ad study is sponsorship. Sponsorship usually links the company (brand) to the events. Like the studies of endorsement, researchers proposed to investigate the relationship between sponsor image and events (Gwinner 1997; Gwinner and Eaton 1999; Speed and Thompson 2000; Poon and Prendergast 2006; Wakefield, Becker-Olsen and Cornwell 2007 and etc.). These studies concerned the holistic perception that the sponsor fit with the brand it sponsors. Unlike the studies on endorsement, most of the sponsorship researches adopted direct measure (the *ex post* method as Maille and Fleck (2011) stated) instead of manipulated experimental congruence design. However, these (direct) measures are not the same throughout the studies. Another distinct point is that perceived congruence derived from sponsor and sponsored events results in the attitude towards sponsorship *per se*. This is to say that study on sponsorship focuses on the combination of both comparative objects, whereas study on endorsement underlines the transfer effect from one object (celebrity/spokesperson) to another one (brand/product).

### **7.3 Study Related To Brand and Product Conception**

Brand extension is another domain using perceived congruence. For marketers, expanding the boundary of successful brand is a straightforward strategy to maximize



the benefit of brand. It is like Gillette expanding from shaver to shaving cream, Ferrari making not only luxury cars but also produces apparels, Mcdonald establishing the coffee product. In many cases, researchers were inclined to ask the subjects to evaluate fit or similarity between current brand and new extension (Bidges, Keller, and Sood 2000; Loken and John 1993; McCarthy, Heath, and Milberg 2001; Ahluwalia and Gurhan-Canli 2000; Broniarczyk and Alba 1994). Other studies asked the subjects to evaluate the fit based on the characteristics or aspects of the extension of the brand (D'astous, Colbert and Fournier 2007; Klink and Smith 2001; Park, Milberg, and Lawson 1991; Gurhan-Canli and Maheswaran 1998)

Study regarding product conception means introducing new product to the current product line. It is likes adding fruit juice into carbonate beverage, or a new type of shampooing can directly change the color of hairs. The key point to judge the congruence is the extent of un-expectancy the subjects perceive. The extent of un-expectancy reflects the discrepancy from current stimuli to the subjects' prior schema. The moderate un-expectancy usually leads to more positive evaluation (Meyers-Levy and Tybout 1989; Stayman, Alden, and Smith 1992; Wirtz and Mattila 2001).

#### **7.4 Congruence Study on Retailing Stores**

Almost all congruence studies in retailing store relate to atmosphere, or ambient element. This ambient element is the odor or music. Researchers found that, if ambient odor or the music is appropriate to the objects (product) in the store, it can generate more favorable evaluation and result in behavioral intention (Mitchell, Kahn, and Knasko 1995; Bosmans 2006; Fiore, Yah, and Yoh 2000; Mattila and Wirtz 2001). It is worth mentioning that these ambient elements studying may get people confused with the study of S-O-R (Mehrabian and Russell 1974), because the latter model states that environmental stimuli can directly influence the subjects' affect. Thus, it is still controversial whether these ambient elements will cause positive evaluation through

cognitive congruence judgment. It needs clarification in future research.

The study that must be mentioned in retailing context is from Morales, Kahn, McAlister, and Broniarczyk (2005), since it is a unique example that is related to retailing assortment. These researchers investigated the relationship between the retailers' external layout (assortment) and the subjects' internal organization. Three experiments demonstrated very interesting results. First, researchers found that, a perceived congruence between consumers' prior schema and retailers' assortment layout can increase variety perception and satisfaction. Then, when consumers' schema is imposed by shopping goal, such congruence perception reduces the variety perception, but does not affect the satisfaction. Further, if researchers involved the filtrate to reduce product options, incongruence between such an external structure and the schema imposed by shopping goal also increases variety perception. These results revealed that consumers' variety perception is influenced by the degree of freedom imposed by internal organization and/or external organization. In summary, lessening the product option in the presentation may account for less variety perception.

### **7.5 To Perceive Congruence between Multichannel Stores**

It is surprising that there are few studies adopting congruence in multichannel context. Note that, to date, multichannel is the core strategy for retailers (Kilcourse and Rowen 2008; Grewal *et al.* 2010), two or more channels are appropriate for the comparison on congruence (incongruence).

Actually, in those existing literature, the fundamental of comparison is the image of different channel stores. Wang, Beatty, and Mothersbaugh's (2009) study shows that consumers perceived the web store is as good as physical store, and their attitude towards brick-and-mortar stores will be transferred to the current online stores. However, these researchers did not clarify what comparative factors the congruence is based on.

Christophe Bèzes (2010) elaborated in his doctoral thesis that, congruence perception based on multichannel store image (FNAC) will influence utility and hedonic effect, and reduce risk perception, which will in turn develop the consumers' favorable attitude towards the FNAC. Similar case was found in U.S retail market where congruence between online and offline based on seven store dimensions such as aesthetic appeal, navigation convenience, transaction convenience, atmosphere, service, price orientation, and security, can positively influence consumers' trust in online store (of multichannel retailer) (Badrinarayanan, Becerra, and Madhavaram 2014).

Still another study from Badrinarayanan, Becerra, Kim, and Madhavaram (2012) investigated the effect of congruence perception between online and offline store, as well as online store (belongs to multichannel) and prototype online store (like Amazon) in both South Korea and United States. This research found that between-channel congruence can influence the trust towards the multichannel, but will not transfer the attitude from one channel store to another. Though several other studies still focused on comparing different channel stores, or the interactive effect between the stores (Kwon and Lennon 2009; Verhoef, Neslin, and Vroomen 2007; Venkatesan, Kumar, and Ravishanker 2007), none of them were done on the process of congruence perception.

Apparently, compared to other domain, congruence study in multichannel context is sparse. As Maille and Fleck (2011) stated, even congruence study has lasted more than for 30 years, the main focal point is still on advertisement and its extensions – sponsorship and endorsement. Researchers should take sufficient attention to help the practitioners understand how two entirely different categories (objects) can be connected very well. The findings from the researches stated before show that both congruence and incongruence have their own advantages based on the relevant environmental context, and the comparative theme.

## 8. SUMMARY OF FINDINGS AND LIMITATION

This section is used to summarize the researches of perceived congruence. From social psychology and cognitive psychology to marketing research, perceived congruence offers the indispensable support to help researchers understand how the subjects bridge two (or more) objects in a given marketing environment. In the past 30 years, perceived congruence is widely applied into advertisement, sponsorship, endorsement, brand extension, product conception, retailing stores and other research domains, most of the researchers accept that:

- ✓ Perceived congruence means "two entities are going well together".
- ✓ Perceived congruence or incongruence is the outcome of cognitive process.
- ✓ The two entities should be comparative, or at least the subjects can find the cue to link them.
- ✓ It is complicated for the subjects to perceive whether two entities are going well, which may relate to categorization, the attributes and characteristics of entities, or holistic mental structure.
- ✓ In many cases, congruence judgment does not result in a negative evaluation, whereas extreme incongruence judgment does not result in a positive evaluation. Experimental evidences support that moderate incongruence can be more positively evaluated compared to the congruence state, particularly with the extreme incongruence state that exists simultaneously.
- ✓ Experimental manipulation is the only one pervasive measurement accepted by all researchers, through using which researchers can precisely develop the level of congruence (incongruence) with two experimental entities.
- ✓ Other measurements can be used depending on the research object and the research domain.

Even so, congruence study still leaves questions that need to be clarified in future research:

- ✧ The theoretical definition of perceived congruence is still blank. The term "two entities go well together" offers the general meaning of congruence, but does not offer the robust structure, or the concept boundary.
- ✧ The cognitive process is more complicated than what researchers can depict. We neither know which cognitive process consumers will adopt in any given context, nor do the details during the judgment.
- ✧ Perceived congruence may emerge from the comparison between any possible attributes of the entities, even if the comparative entities are fixed, researchers do not really ensure whether other factors do exert the effect on the subjects' evaluation except researchers' manipulation. For instance, subject perceive congruence from the partnership between Coca Cola and the Olympics, researcher can interpret that, this congruence perception may derive from the consistence of associated attributes from brand and event, or from the matchup between brand image and image of event. Maybe such congruence perception is also caused because the subjects like drinking Coca very much. Thus, a judgment of congruence between the entities is possibly influenced in different aspects.
- ✧ Lack of knowledge about the moderate incongruity (incongruence). Some researchers accept to define moderate incongruity by bi-dimensional structure (relevancy/expectancy) proposed by Heckler and Childers (1992). If this is correct, researchers yet do not know how to arrange two structures of the moderate incongruence state imposed from un-expectancy/relevancy combination and expectancy/irrelevancy combination on a congruence-incongruence continuum. In daily life, many states are perceived as moderate incongruence, some of which can be accepted and positively evaluated by consumers, while the others cannot. Unfortunately, rare studies respond to this phenomenon.
- ✧ No one explains why this concept is not adopted for research in multichannel context, especially for the comparison between different channel stores. Maybe someone will argue that different channel stores are too similar, or almost the same, but previous studies related to e-commerce indicated that the characteristics of online store are not the same as traditional physical store, consumers would like to

distinguish online store from offline store. Beyond that, retailers may completely adopt the overlapping strategy to manage their different channel stores, but this may account for the cannibalization between the channel stores.

- ✧ Finally, to some extent, expectancy dimension represents more effort on congruence judgment rather than relevancy dimension. Researchers are interested in whether expectancy dimension occupies the dominant position to relevancy dimension.

**9. TABLE: SUMMARY OF PERCEIVED CONGRUENCE STUDIES (Collected By the Author)**

<b>Author(s)</b>	<b>Journal</b>	<b>Research Object</b>	<b>Measure for Congruence (incongruence)</b>	<b>Measure Category</b>	<b>Research Domain</b>	<b>Consequence of Congruence</b>
<b>Arias-Bolzmann, Chakraborty, and Mowen (2000)</b>	<i>Journal of Advertising</i>	The authors attempt to understand how absurd content exposed in advertisement influences consumers' cognitive responses and attitude towards the ad and brand. The results showed that prior product category attitude works together with absurdity in ads that varies consumers' cognitive responses and attitude. In detail, prior negative attitude consumers generate more positive evaluation while they encounter absurd content in ad than that the time when they encounter non-absurd content in ad. As for prior positive attitude consumers, there is no difference exerted between absurd and non-absurd content ads.	The absurd content of ad in this study defined as incongruent content among the visual, audio, or semantic information. It is manipulated by authors but is determined from several pretests.	Manipulated	Advertisement	Advertising (incongruent is not bad, depends on other predictors)
<b>Heckler and Childers (1992)</b>	<i>Journal of Consumer Research</i>	Inspired by research findings of social cognition, the authors stressed an orthogonal structure of perceived congruence: relevancy + expectancy. Three experiments proved that, the elaborated process and recall is significantly apparent occurrence in the unexpected but relevant visual ad, and in the unexpected also irrelevant visual ad, which reveal that relevancy and expectancy are two dimensions that help researchers understand to what extent that incongruence occurs and exerts the influence	Researcher didn't use the scale for measure the congruence, but used the measures derived from the social cognition to verify whether the relevancy and unexpectedness dimensions can interpret perceived incongruence	bi-dimensional Structure	Advertisement	Irrelevant-Unexpectedness is least condition
<b>Houston, Childers, and Heckler (1987)</b>	<i>Journal of Marketing Research</i>	Incongruity between verbal and visual information in print ad interacted with brand name influences the subjects' overall memory network. It shows that the incongruence between interactive visual message and verbal meaning leads to more elaborative processing and resulting in a more extensive memory network for the ad.	Congruence/incongruence ads are decided from pre-test, and manipulated by researchers of the three experiments	Manipulated with Pre-test (expectation )	Advertisement	Incongruence ads enhance elaborative process and memory

**Table: Summary of Perceived Congruence Studies (Continued)**

Author(s)	Journal	Research Object	Measure for Congruence (incongruence)	Measure Category	Research Domain	Consequence of Congruence
<b>Hung (2000)</b>	<i>Journal of Advertising</i>	Music is an evoked factor that stimulates listeners to consider the meaning of ad particularly when the music can combine with other ad. Factors such as visual elements result in the evaluation of ad meaning. The study found that congruence between music and visual elements of ad enhances the cultural communication of advertisement, whereas incongruence between music and visual elements of ad leads participants into an alternative cultural meaning	The author regards the congruence as Brazilian music with Brazilian caféor cafémusic with cafébrand, otherwise it is incongruence	Manipulated	Advertisement	Each has advantage
<b>Lane (2000)</b>	<i>Journal of Marketing</i>	Repetition incongruent extension ad can stimulate different elaborative process. If the incongruence is extremely high, only those ads that evoked benefit brand association appears to have a greater ability to influence consumer responses with repeated exposure, those ads evoked peripheral associations doesn't. However this discrepancy does not occur in moderate incongruent extension ads. In latter context, repetition incongruent ads enhance positive evaluations, and usage intention.	The congruence / incongruence stimuli were defined through pre-test, but verified a posteriori under a structure between relevant and expectancy (one question asked the subjects to write down what they had seen, another manipulation-check the extents of expected/unexpected. Also all the subjects were asked to evaluate overall fit and consistency	Manipulated with <i>a posteriori</i> (include manipulation-check and overall fit/consistence evaluation)	Advertisement	Incongruence extensions can be attenuated and positively evaluated followed the repetition
<b>Lichtle (2002)</b>	<i>Recherche et Applications en marketing</i>	Use appropriate color for the products in advertisement is the key point influencing consumers' evaluation and attitude. If consumers perceive the congruence between color, particularly "lumineuse" dimension of color, and products from advertisement, they will generate more pleasure, preference and positive attitude, but reduce the arousal of importance towards the advertisement	The Blue and Orange are adopted for test with the products pretested (perfume and shoes), congruence measures adopted the proposition from Heckler and Childers (1992) focusing on "relevancy" and "expectancy" dimensions	bi-dimensional Structure	Advertisement	Congruence is better for affect and attitude evaluation



Table: Summary of Perceived Congruence Studies (Continued)

Author(s)	Journal	Research Object	Measure for Congruence (incongruence)	Measure Category	Research Domain	Consequence of Congruence
Lee and Mason (1999)	<i>Journal of Consumer Research</i>	This study applied Heckler and Childers's bi-dimensional structure to investigate how incongruent advertisement decides consumers' attitude evaluation. The results found that compared with irrelevant information, consumers' favorable evaluation is more positive in relevant situation. The incongruent ad which is unexpected but relevant receives highest favorable evaluation, whereas the unexpected and irrelevant ad gets most unfavorable evaluation.	Congruence/Incongruence ads are decided from pre-test, and manipulated by researchers during three experiments	Manipulated with Pre-test	Advertisement	Unexpected-irrelevant incongruence ad got most unfavorable evaluation, whereas Unexpected-relevant is award by consumers
Meyers-Levy (1988)	<i>Advances in Consumer Research</i>	There are two cognitive process people adopt for treating incongruity stimuli, one is called data driven process (DDP) and the other is conceptual driven process (CDP). Experimental study found that when people detect cue incongruity (unambiguously discrepant); they are motivated to engage in DDP. When discrepant information is not detected (weak) and is positioned as single units, people are encouraged to use CDP. The latter model is apparently used by male rather than female	Experimental manipulation with <i>ex ante</i> pretest is to distinguish three levels (low, moderate, high) of congruence stimuli. The contents are chosen from eight topical issues broadcasted by in-depth news program	Manipulated with Pre-test	Advertisement	No comparison between congruence and incongruence
Russell (2002)	<i>Journal of Consumer Research</i>	Tri-partial typology of product placement that the advertisement is exposed to base on either visual method or audial method, regardless of whether it is integrated into the narratives. These three elements are combined to vary consumers' memory and attitude based on its congruent or incongruent conditions. The results shown that incongruity improved the memory, but congruity enhanced the persuasion.	A videotaped screen play method (Theater Methodology) instead conventional quasi-experiment method is adopted in study. Congruity and incongruity between brand and plot connection are decided from pilot study.	Manipulated with Pre-test	Advertisement	Congruence persuasion // incongruence memory in advertising

**Table: Summary of Perceived Congruence Studies (Continued)**

<b>Author(s)</b>	<b>Journal</b>	<b>Research Object</b>	<b>Measure for Congruence (incongruence)</b>	<b>Measure Category</b>	<b>Research Domain</b>	<b>Consequence of Congruence</b>
<b>Meyers-Levy and Sternthal (1993)</b>	<i>Journal of Marketing Research</i>	In advertising message, two-factors can decide whether assimilation or contrast effect occurs when contextual cues encounter target objects. The degree of overlap between contextual cues (Herr 1989) and target objects is a factor determining whether elaboration about the target object focuses on its similarities or its differences with the contextual cue. Alternatively, people's engagement in elaboration (Martin 1986; Martin, Seta, and Crelia 1990) occurs only when there is both low contextual cue-target object overlap and when people devote substantial resources to the task. If the resources applied to the task are limited, and/or when overlap is high, people are more likely to elaborate on similarities and engaged in the less effortful judgment process of assimilation.	<p>This study is not investigated under the concept of congruence, but the cognitive process of assimilation or contrast effect is underlying to the study of congruence.</p> <p>In addition, the superficial similarity between contextual cue and target objects reduces the activation of cognitive resources during the judgment process.</p> <p>Such similarity (or un-similarity) is presented by experimental manipulations researchers organized among the current retailing store with previous store that are launched in the same place.</p>	Manipulated	Advertisement	Not applicable
<b>Solomon, Ashmore, and Longo (1992)</b>	<i>Journal of Advertising</i>	The beauty can be quantitated, and combined by several different dimensions. This study attempted to understand which dimensions are chosen by the subjects to decide the beauty. These dimensions gave the meaning to help researchers understand what good match-ups of beauty (product) are and what moderate and poor match-ups both perceived by consumers	The first study tended to decide all related factors to the beauty from consumers' perspectives. The results showed that 6 perspectives are distinguished : classic beauty/feminine; sensual/exotic; sex-Kitten; Trendy; Cute, and Girl-Next-Door	Manipulated with Pre-test	Advertisement	Consumers' evaluate perfume with their expectation of what type beauty they hope

Table: Summary of Perceived Congruence Studies (Continued)

Author(s)	Journal	Research Object	Measure for Congruence (incongruence)	Measure Category	Research Domain	Consequence of Congruence
<b>Lee and Thorson (2009)</b>	<i>Journal of Business Psychology</i>	The banner ads are very important for the website. The influence of whether banner ads are consistent with website <i>per se</i> is an interesting question. The results show that when consumers' cognitive styles match website style, the favorable attitude towards the banner ads and higher purchase intention arise. If it does not match, the negative effects will arise.	Congruence Manipulated by researcher with Pre-test	Manipulated with Pre-test	Advertisement (Website)	Congruence better than incongruent
<b>Beverland, Lim, Morrison, and Terziovski (2006)</b>	<i>Journal of Business Research</i>	A qualitative study. The Deep Interview is used with 20 consumers. Music is a very important factor influencing consumers' perception on brand. The fit of music-brand accounts for most positive evaluation towards brand image. If consumers hold previous experiences on brand, the fit enhances the evaluation, whereas fit can be a basis of judgment while consumers do not have any prior experience with the brand. Misfit is a double-blade sword, which can either dilute the brand power or increase it by repositioning. In any case, the volume of music is a moderator exerting the influence on judgment towards brand image	Qualitative study by deep interview.	Deep interview	Atmosphere	Fit enhances evaluation, whereas unfit can take either positive or negative results
<b>Fiore, Yah, and Yoh (2000)</b>	<i>Psychology &amp; Marketing</i>	Researchers found that product display with appropriate fragrance can partially enhance consumers' purchase intention and price perception, but the same effect was also found in the situation that product display with inappropriate fragrance.	Experimental manipulation through pretest, the authors did not measure the congruence perception, although they used the schema congruity (Mandler 1982) as theoretical basis in the study.	Manipulated (based on expectation)	Atmosphere	Congruent scent results in purchase intention

Table: Summary of Perceived Congruence Studies (Continued)

Author(s)	Journal	Research Object	Measure for Congruence (incongruence)	Measure Category	Research Domain	Consequence of Congruence
<b>Bosmans (2006)</b>	<i>Journal of Marketing</i>	Congruent scent influences consumers' product evaluation no matter it is salient or not, or how many motivations consumers involve into the process. Incongruent scent can also influence consumers' product evaluation while it is not salient or lack of consumers' processing motivation. As for extreme incongruent scent, consumers seem to be able to cope with their possible influence.	The scents are chosen by the author through pretest verified <i>a posteriori</i> measures by an answer of a 9-point scale ranging from "not at all appropriate" to "highly appropriate" (Morrin and Ratneshwar 2003)	Manipulated with <i>a posteriori</i> (one-item)	Atmosphere	Moderate incongruent scent better than the extreme one
<b>Mattila and Wirtz (2001)</b>	<i>Journal of Retailing</i>	Study concerns how the interactions between different atmospherics influence consumers' behavior. Based on the environmental psychology (Mehrabian and Russell 1974), people respond to the environmental factors holistically, and their behaviors are predicted through pleasure and arousal dimensions. The results show that if both scent and music are congruently perceived (either high arousal music matches scent or low arousal music matches scent), the positive behavioral results will be generated therefrom.	The scents and the music are chosen from previous studies, a 3 scents conditions (with no scent) * 3 music conditions (with no music) manipulated in field experiment. The congruence is defined as higher (lower) arousal scent with higher (lower) arousal music. consumers perceived it from manipulation. Otherwise, the incongruence occurs	Manipulated	Atmosphere	Scent and Music interactively congruent leads to positive behavior
<b>Morrin and Ratneshwar (2003)</b>	<i>Journal of Marketing Research</i>	If ambient scent can influence consumers' decision-making process, how does it work? By two experiments, congruent pleasant ambient scent can prolong the time stay of consumers, and improves the subjects' recall and recognition of brand names	The congruent odor is defined with the product category through two pretests. But during the experiment, no other measures are used for testing the extent of congruence	Manipulated with Pre-test	Atmosphere	Congruent scent better for recall and recognition of brand

**Table: Summary of Perceived Congruence Studies (Continued)**

<b>Author(s)</b>	<b>Journal</b>	<b>Research Object</b>	<b>Measure for Congruence (incongruence)</b>	<b>Measure Category</b>	<b>Research Domain</b>	<b>Consequence of Congruence</b>
<b>Mitchell, Kahn, and Knasko (1995)</b>	<i>Journal of Consumer Research</i>	Study found that pleasant odor has significant effects on consumer decision-making; the difference between congruent and incongruent is the outcome of cognitive processing, where congruent pleasant odor drives consumers more holistically processing rather than that incongruent pleasant odor. when the odor was congruent to the product class, the subjects will spend more time for data processing, use more holistic processing, and is more likely to go beyond the information given, will rely on inferences and self-references.	The odor of Chocolate and Floral are chosen in the experiments as the manipulation. Congruence (or incongruence) is defined through pretest with the product in which the participants award above two scents is most favorable.	Manipulated with Pre-test	Atmosphere	Congruent pleasant odor stimulates holistic processing
<b>Spangenberg, Sprott, Grohmann, and Tracy (2006)</b>	<i>Journal of Business Research</i>	Ambient scent can elicit cognitive elaboration, affective and evaluative responses to influence purchase intention, which accords with stimulus-organism-response paradigm. The authors attempt to know whether the congruity between a perceived gender of an ambient scent and a store's gender-based products (cloth) can influence consumers' purchasing intention through S-O-R mechanism.	Gender-based scents are pretested, based on 300 persons including students, staff, and faculty, and experimental manipulated by researchers in the field experiment.	Manipulated with Pre-test	Atmosphere	Store scent congruent with gender product stimulate positive affect
<b>Simonin and Ruth (1998)</b>	<i>Journal of Marketing Research</i>	The product fit and brand fit between two alliance brands influence consumers' attitude on brand alliance. Here, fit between product means similarity of product categories associated with an existing brand and its extensions, and the brand fit represents the consistence between the images of two brands	Semantic differential scale from Aaker and Keller (consistent/inconsistent; complementary/not complementary)	Measured directly	Brand Alliance	Both product fit and brand fit enhance attitude towards brand alliance

**Table: Summary of Perceived Congruence Studies (Continued)**

Author(s)	Journal	Research Object	Measure for Congruence (incongruence)	Measure Category	Research Domain	Consequence of Congruence
<b>Morales, Kahn, McAlister, and Broniarczyk (2005)</b>	<i>Journal of Retailing</i>	Three experiments investigate the effect of congruence between consumers' internal and retailers' external organization. The results showed that simple congruence between consumers' schema and retailers' assortment layout leads to more variety perception and satisfaction than incongruence situation. But when the internal and external organization are controlled respectively by shopping goal and external filters, variety perception will be reduced when they are congruent	Congruence manipulated and verified a posteriori by measured on 1-item (5 points)	Manipulated with a posteriori (one-item)	Store organization	1st exp. Congruence generates more variety, but in the 2nd and 3rd experiments, incongruence leads to more variety
<b>Haubl and Elrod (1999)</b>	<i>International Journal of Research in Marketing</i>	Researcher realized that the congruity between Brand and Country of Production (COP) exerts more effort on consumers' quality and attitude evaluation rather than the effect from sole Brand and COP, respectively. The more congruity between brand and COP, the more positive evaluation perceived by consumers	Congruity between brand and COP was derived from pilot study on skiing product in Austria. Then participants are assigned to different combination with brand and COP information. It is experimental manipulation.	Manipulated with Pre-test	Brand extension	Congruence Better
<b>Iyer, Banerjee, and Garber (2011)</b>	<i>International Journal of Management</i>	Depending on regression model, the authors investigated how consumers' attitude towards the original brand, the key brand-attributes, and the similarity between original brand and extension influences consumers' attitude towards the extension. All of the three independent variables give the effect on attitude determination in extensions.	Four pretests decided which attributes of the original brand were concerned by consumers when they evaluated the extensions. The authors then manipulated these attributes among the treatment conditions varying fit perceptions. The measures of similarity contains two parts, one is a semantic differential scale and the other is a single question "I can definitely foresee occasions where I would use these brands together for some particular purpose." on the extent of agree/disagree	Similarity Measure designed by Researchers	Brand extension	Brand attributes congruence increases attitude evaluation

Table: Summary of Perceived Congruence Studies (Continued)

Author(s)	Journal	Research Object	Measure for Congruence (incongruence)	Measure Category	Research Domain	Consequence of Congruence
<b>Wanke, Herrmann, and Schaffner (2007)</b>	<i>Psychology &amp; Marketing</i>	The name of hotel elicited quite pronounced expectations regarding the hotel's attributes. If hotel's attributes are inconsistent to the hotel's name, it may lead to change consumers' evaluation of hotel perception	The stimuli derived from real context and verified by consumers before studies	Manipulated with Pre-test	Brand Perception	Incongruence influence consumers' perception
<b>Spreng, MacKenzie, and Olshavsky (1996)</b>	<i>Journal of Marketing</i>	This article focuses on research of consumer satisfaction but proposes that congruence between consumer's desire and perceived performance, and congruence between consumers' expectation and perceived performance are the antecedents that determine consumer satisfaction	Participants are asked to measure their desires and expectations on detailed attributes of product. Then, all participants are randomly assigned to the experimental cells. After performing the relevant product, all participants are asked to answer the question of "In comparison to the level of each aspect that you desired, how big was the difference between what you wanted and what the camcorder actually provided?" followed with questions towards each attributes: "How good or bad was this difference?" Responses were recorded on a single-item scale (-5 to +5), with "very bad" and "very good" as the endpoints, and "neither bad nor good" as the midpoint. Congruency at the attribute level was operationalized by multiplying the "how different" measure by the evaluation of the difference	Measured regarding Expectation	Consumer Satisfaction	Congruence Better
<b>Voss, Parasuraman, and Grewal(1998)</b>	<i>Journal of Marketing</i>	Consistency between consumers' expectation of price or performance, and post-purchasing price perception and performance can moderate consumers' evaluation of satisfaction in service domain	Experimental Manipulation with algebraic function compared consumer's expectation at time t-1 and consumer's performance perception at time t by which researchers decided whether post-perception matches expectations	Manipulated (base on expectation)	Consumer Satisfaction	Congruence derives from Consumer expectation and confirmation in determining satisfaction

Table: Summary of Perceived Congruence Studies (Continued)

Author(s)	Journal	Research Object	Measure for Congruence (incongruence)	Measure Category	Research Domain	Consequence of Congruence
<b>Aaker and Sengupta (2000)</b>	<i>Journal of Consumer Psychology</i>	People having different cultural background attempt to treat the incongruity information (conflict) using different strategies, where the American rely on attributes information, the Chinese prefer to incorporate both source and attribute information. But this cognitive process is moderated by the involvement. That is the previous different mechanism that only occurs in low involvement condition. In the high elaboration condition, both Chinese and American are inclined to judge the incongruent information on diagnostic attributes information.	Participants were asked to provide congruity ratings on two 7-point scales {low congruity-high congruity, low consistency-high consistency; $r = .82$ ).	Semantic differential Scale 2-item	Elaborative process	Cross-Nation study, congruence moderated by involvement
<b>O'Brien and Myers (1985)</b>	<i>Journal of Experimental Psychology</i>	Test from Hastie model (1980), the authors examined how ease of comprehension influences participants' memory and recall. The study found that when the difficultly comprehended information derives from unpredictable information related to prior expectation, it would improve people's memory and recall	Incongruence is defined by subsequent predictable or unpredictable information related to prior expectation. The unpredictable information represents a more difficult level of comprehension that is regarded as incongruent with prior expectation	Manipulated (base on expectation)	Elaborative process	Relates to Recall and Memory
<b>Kamins (1989)</b>	<i>Journal of Advertising Research</i>	Compared to those non-celebrity ads, the believability is an important figure deciding the effort of celebrity advertising. The underlying mechanism is that consumer can perceive the consistence from the image or knowledge of celebrity to that of product, which is also called internalization (Kelman 1961)	Manipulated congruence and verified a posteriori. The subjects are asked to measure spokesperson's characteristics within semantic differential scale containing "attractive", "believable", "congruent", "familiar", "like".	Manipulated and verified a posteriori	Endorsement	Congruence Better



Table: Summary of Perceived Congruence Studies (Continued)

Author(s)	Journal	Research Object	Measure for Congruence (incongruence)	Measure Category	Research Domain	Consequence of Congruence
<b>Ozanne, Brucks, and Grewal (1992)</b>	<i>Journal of Consumer Research</i>	The author attempted to understand how consumer does information processing while they encountered discrepant information to their expected category. The results show that consumers' searching information is similar in breadth through all stimuli, but only increased the depth of information searching for discrepant stimulus. In case incongruence goes extremely strong, both breadth and depth of information searching will be reduced	The stimuli are designed by car comparison verified from Pre-test, manipulated by researchers	Manipulated with Pre-test	Elaborative process	Moderate incongruence receives highest level of information search and processing effort
<b>Ilicic and Webster (2013)</b>	<i>Journal of Business Research</i>	Not only the relevant information between celebrity and brand influences consumers' evaluation such as attitude and purchase intention, but irrelevant information does as well. According to the theory of brand dilution and match-up hypothesis, this study discovered that if irrelevant information is presented alone, it can result in more extreme prediction than the one within relevant information	Manipulated by Researchers, verified <i>a posteriori</i> . Three item semantic differential scale from Till and Busler's (2000) study that contains "does not belong with/belongs with"; "does not go together/goes together"; "does not fit together/fits together"	Manipulated and verified <i>a posteriori</i>	Endorsement	Both relevant and irrelevant can influence consumers' evaluation
<b>Lynch and Schuler (1994)</b>	<i>Psychology &amp; Marketing</i>	The authors reviewed the previous studies in regards to the congruence in advertisement, and then introduced the different formations of how matchup between the attribute of spokesperson and the attribute of product influences the schema towards the advertisement, also include information directly transferred from right spokesperson to the product	Stimuli were made by bodybuilding program which made three distinctive manipulation levels	Manipulated match up	Endorsement	Match-up influences the schema of advertisement

**Table: Summary of Perceived Congruence Studies (Continued)**

<b>Author(s)</b>	<b>Journal</b>	<b>Research Object</b>	<b>Measure for Congruence (incongruence)</b>	<b>Measure Category</b>	<b>Research Domain</b>	<b>Consequence of Congruence</b>
<b>Lee and Thorson (2008)</b>	<i>Journal of Advertising Research</i>	Based on Schema congruity framework, a moderate mismatch between the image of celebrity and the image of brand produced more favorable responses than the situation of complete match or extreme mismatch	Manipulated with pre-test. The extent of incongruence depends on the combination of same celebrity endorses different product categories	Manipulated with Pre-test	Endorsement	Moderate schema incongruity produces best favorable evaluation and purchase intention
<b>Misra and Beatty (1990)</b>	<i>J. of Business Research</i>	The subjects evaluate the case that a celebrity endorses the brand based on how the product information matches up their prior schemas regarding the celebrity. Study found that filtering process takes a prominent role in treating congruent information between celebrity characteristics and attributive information of the brand. Also the subjects' affect towards the prior schema positively transfer to the brand while both are matching up	Congruence and incongruence are defined by experimental manipulation, which are derived from the pretest. Researchers offer both congruent and incongruent celebrity for each brand, and organize a control group in which the same celebrities are completely irrelevant to the brand.	Manipulated with Pre-test	Endorsement	Congruence better than Incongruity
<b>Stayman, Alden, and Smith (1992)</b>	<i>Journal of Consumer Research</i>	Based on previous studies of Mandler (1982) and Meyers-levy and Tybout (1989), the authors combined the schema theory with expectation-disconfirmation mechanism to investigate how the subjects treat the situation when they perceive different schema congruity (incongruity). The results show that schema processing may influence consumer's evaluation and it also brings forward the invert-U effect of moderate schema incongruity proposed by Mandler (1982)	The stimuli were adopted and revised from the study of Meyers-Levy and Tybout (1989) with pre-test in regards to the beverage products	Manipulated with Pre-test	Product evaluation	This study explains the process of schema incongruity

**Table: Summary of Perceived Congruence Studies (Continued)**

Author(s)	Journal	Research Object	Measure for Congruence (incongruence)	Measure Category	Research Domain	Consequence of Congruence
<b>Badrinarayanan, Becerra, Kim, and Madhavaram (2012)</b>	<i>Journal of the Academic Marketing Sciences</i>	It is a comparative study on multichannel store images between Korea samples and U.S. samples. The study found that congruence image between online and offline store (belong to same multichannel retailer) can directly influence consumers' attitude and trust to the online store. Alternatively, congruence image between online store and prototype online store only influences consumers' attitude towards the online store, not on trust. Attitude and Trust can be two antecedents influencing purchasing intention	Measures of congruence are the 4-item semantic differential scale including: inconsistent /consistent"; "different/similar"; unrepresentative/ representative"; and "atypical/typical". This measure directly compares the differences between two types of stores, either online store vs. offline store, or online store vs. prototype online store.	Directly Measured (Similarity Measure 4-item)	Multi-channel	Multichannel congruence (only consider congruence)
<b>Wang, Beatty, and Mothersbaugh (2009)</b>	<i>Journal of Business Research</i>	Consumers' performance perception and attitude towards the online store may not independently rely on those factors such as information quality, privacy policy, and navigation performance, but also be influenced by the perceived congruity between prior attitude towards physical store and current online store. The results show that the more congruence consumers perceived on website as well as in prior physical store, the more categorized process consumers relied on. And the prior attitude towards physical store will then be transferred to the current online store	Directly measured with 2-item 7 point scale: (1) compared with the physical stores of [retailer name], its website does not match [mismatches] impression of its physical stores; (2) Compared with the physical stores of [retailer name], its website is dissimilar [very similar] with its physical stores.	Directly measured	Multi-channel	Congruence between channel stores results in categorization process and transferring the prior attitude
<b>Meyers-Levy and Tybout (1989)</b>	<i>Journal of Consumer Research</i>	Schema congruity between new product and product category influences information processing and product evaluation. An inverted-U effect was found for the moderate schema incongruity in which consumers evaluated more favorable attitude than those of congruity situation and extreme incongruity situation	Incongruence is manipulated	Manipulated congruence	Product extension	Inverted-U effect arises, moderate schema incongruity got more favorable evaluation

Table: Summary of Perceived Congruence Studies (Continued)

Author(s)	Journal	Research Object	Measure for Congruence (incongruence)	Measure Category	Research Domain	Consequence of Congruence
<b>Aggarwal and McGill (2007)</b>	<i>Journal of Consumer Research</i>	Anthropomorphizing is seeing the human in non-human forms and events, pervades human judgment (Guthrie 1993). This study put forward that the subjects are more likely to anthropomorphize the product when its features are congruent with an activated human schema. The more congruence perceived between human-like feature of product and activated schema, the more positive affect will be evaluated by the subjects	Manipulated by researchers with pre-test. All stimuli are presented by the comparative pictures (ads)	Manipulated with Pre-test	Product evaluation / advertisement	Schema-congruity determines the evaluation
<b>Sujan, Bettman, and Sujan (1986)</b>	<i>Journal of Marketing Research</i>	The study found that when consumers encounter a salesperson who matches the typical characteristics of salespersons, they resort to simple heuristics to form impressions and engage in information processing during the sales encountered. In contrast, which they encounter with an atypical salesperson, greater information processing will be triggered because consumers depend more on product-specific information presented by the salesperson to form impressions.	Congruence manipulated and verified <i>a posteriori</i> on 3 items (7 points): at what point the salesperson is "expected", "similar" and "typical"	Manipulated and verified <i>a posteriori</i>	Social relationship	Match is better
<b>Secord and Backman (1964)</b>	<i>Sociometry</i>	Perceived Similarity in attitude and Interpersonal Congruency are two different structures, but both are associated with the dyadic friendship.	It doesn't directly measure the congruency but involve a multidimensional scale on social needs that is developed by the authors in which researcher compares the measure results on 10 different social needs to determine the extent of congruence.	Indirectly Measured (scale of other theory)	Social Relationship	Similarity study in personal relationship

Table: Summary of Perceived Congruence Studies (Continued)

Author(s)	Journal	Research Object	Measure for Congruence (incongruence)	Measure Category	Research Domain	Consequence of Congruence
<b>Fleck and Quester (2007)</b>	<i>Psychology &amp; Marketing</i>	Previous studies in sponsorship adopted different definitions without unifying theoretical structure. The authors proposed to involve bi-dimensions of "expectancy" and "relevancy" in sponsorship study. They created the scale verified cross the nations and got the validation	The final scale for measuring sponsorship includes two dimensions, which are called "expectancy" and "relevancy", where the former contains 3-item and the latter contains 2-item. Those questions are listed hereinafter: E1(I am not surprised that this company sponsors this event); E2(One would expect this company to sponsor this event); E3(It was predictable that this company would sponsor this event); R1(That company sponsors this event tells me something about it); R2(When I hear of this sponsorship, I can understand (company/Brand X) better	Directly Measured	Sponsorship	This is a validation of new scale for sponsorship research
<b>Gwinner and Eaton (1999)</b>	<i>Journal of Advertising</i>	Study concerns the relationship between brand and sporting event. If brand and event personality components are perceived familiarity, the image of event can be transferred to the brand. When this congruence derived either from an image or on functional basis, the above transfer processing can then be enhanced.	The stimuli are developed from pre-test, and manipulated by researcher, verified <i>a posteriori</i> . The three items for function similarity are: (1) "It is likely that (participants) in the (event name) use (brand name) during the (event name)," (2) "When I watch the (event name), I often see (brand name) being (used)," and (3) "(Brand name) is not a product that (participants) in the (event name) would consider (using)." And the three items for image similarity are: (1) "The (event name) and (brand name) have a similar image," (2) "The ideas I associate with (brand name) are related to the ideas I associate with the (event name)," and (3) "My image of the (event name) is very different from the image I have of (brand name)."	Manipulated and verified <i>a posteriori</i>	Sponsorship	Image of sports be transferred to the brand when both are congruent.

Table: Summary of Perceived Congruence Studies (Continued)

Author(s)	Journal	Research Object	Measure for Congruence (incongruence)	Measure Category	Research Domain	Consequence of Congruence
<b>Gwinner, Larson, and Swanson (2009)</b>	<i>International Journal of Management and Marketing Research</i>	In sport events, the image between sponsor and event can be transferred when both images are fit. This research also found that the above effect can be more effective in those spectators who are the fans of sport team rather than those who are not. This implies that sponsor will not be able to do precise customer segmentation if their image is fit for the events	Directly measure the fit between event and sponsor within the question of "my image of ___ football is consistent with my image of [name of sponsor]" and "There is a logical connection between __ (football) and [name of sponsor]"	Directly measured	Sponsorship	Perceived fit between brand and event enhances the image transferring from one part to another.
<b>McDaniel (1999)</b>	<i>Psychology &amp; Marketing</i>	This study posed that a matchup between brand/product to a sponsored sport or event can positively impact sponsorship response. It is said that the authors found that if high involvement product and high involvement event is congruent, the subject's attitude evaluation towards the ad will be more positive than those incongruent combination between product and event. Furthermore, the effect is also moderated by media vehicle selection and gender.	Pretest-Posttest experiment, matchup is manipulated by researchers based on pre-test	Manipulated with Pre-test	Sponsorship	Matchup between brand and event leads to positive evaluation
<b>McDaniel and Heald (2000)</b>	<i>Sport Management Review</i>	Sponsorship ad is found to influence the subjects' ad schema, the congruence between sponsored events and sponsor enhances their attitude towards the sponsorship, but no effect arisen from discrepancy on purchase intention and brand attitude.	Pretest-Posttest experiment, congruence is manipulated by researchers based on pre-test, and verified <i>a posteriori</i> using the scale anchored by "poorly matched/well matched"; "very appropriate/inappropriate", "poorly suited/well suited" (cf. Misra and Beatty 1990)	Manipulated and verified <i>a posteriori</i>	Sponsorship	Congruence determines attitude towards the sponsorship

**Table: Summary of Perceived Congruence Studies (Continued)**

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<b>Olson and Thjomoe (2011)</b>	<i>Journal of Advertising</i>	Previous sponsor-brand studies attempted to understand how fit perception between sponsor and brand influence consumers' attitude towards the sponsorship from different perspectives. The authors speculated that the structure of judging fit perception is a multi-dimensional structure, instead of a simple relevant-expectancy structure. Three studies also found that different articulated attributes can influence overall fit perception, and also provide the reasons why similar articulation sometimes leads to contrast effect.	The authors constituted a multidimensional scale by which the overall fit perception can be measured separately. After test with Bank and Sport stores, three attributes called "Motivation importance", "Time importance", and "Activation Importance" are the key factor influenced overall fit perception but vary depending on the industries.	Directly Measured (multi-dimensions)	Sponsorship	Fit in Sponsorship
<b>Poon and Prendergast (2006)</b>	<i>International Journal of Advertising</i>	In sponsorship, there are two similarities should be considered by both academic world and practitioners. One is function-based similarity (Gwinner 1997) where the sponsor's brand matches the context of consumers' usage. Another is image-based similarity where sponsor's image is convergent with that of event (Gwinner & Eaton 1999). The authors proposed the interactive effect between two types of similarity decide the effort of sponsorship through cognitive, affective, and conative process	This is an outlook for future research.	Not Measured	Sponsorship	Sponsorship

**Table: Summary of Perceived Congruence Studies (Continued)**

Author(s)	Journal	Research Object	Measure for Congruence (incongruence)	Measure Category	Research Domain	Consequence of Congruence
<b>Rifon, Choi, Trimble, and Li (2004)</b>	<i>Journal of Advertising</i>	Another sponsorship study that focused on the sponsor and the reason why it sponsors the event. If consumers perceive fit between sponsor and the underlying motivation of sponsorship, it can enhance sponsor credibility and then influences the attitude towards the sponsor mediated by credibility	Congruence Manipulated based on pre-test and verified <i>a posteriori</i> (3-item of manipulation check that includes "not compatible/compatible, not a good fit/a good fit, congruent/not congruent)	Manipulated and verified <i>a posteriori</i> (include manipulation check and overall fit/consistence evaluation)	Sponsorship	Fit between sponsor and its motivation (for events) enhances the sponsor's credibility
<b>Speed and Thompson (2000)</b>	<i>Journal of the Academy of Marketing Science</i>	Following research on conditioning of attitudes, the hypotheses suggest that the response to a sponsorship will be affected by the consumers' attitude towards the sponsor, and the event, as well as by their perception of sponsor-event fit. Perceived fit between brand and event enhances the attitude evaluation.	Congruence is directly measured by 5-item Likert-scale that contains: (1) "there is a logical connection between the event and the sponsor"; (2) the image of the event and the image of the sponsor are similar; (3) the sponsor and the event fit together well; (4) the company and the event stand for similar things; (5) it makes sense to me that this company sponsors this event	Direct Measured	Sponsorship	Perceived fit between brand and event positively influence attitude towards sponsorship





## **Chapter 2 – LITERATURE REVIEW -- PRICE FAIRNESS**

## 1. WHY ARE PRICE AND ASSORTMENT CHOSEN?

Retailer's store is a window connecting retailers and consumers. For retailers, to attract the consumers visiting their stores and spending longer time in the stores is an element that guarantees the retailer's success. Similarly, consumers would like to start their shopping journey from their favorable store too. Corresponding to this situation, store attributes take very important roles. Not only single store attributes such as price, assortment, and service can influence consumers' perception, evaluation, judgment, and attitude, but in returns this effect could also be influenced by a combination of all store attributes. As Martineau (1958) stated "*Clearly there is a force operative in the determination of a store's customer body besides the obvious functional factor, .....this force is the store personality or image, ..., partly by its functional qualities and partly by an aura of psychological attributes.*" (Martineau 1958; pp: 47).

Study in the domain of store image found that relevant store attributes vary in forming store image among different type of stores (Kunkel and Berry 1968; Lindquist 1974; Mazursky and Jacoby 1986), and each attribute exerts different proportion in consumer decision process (Mazursky and Jacoby 1986). However, researchers treat the attributes as being equivalent. This situation becomes complicated once internet store is involved (Alba *et al.* 1997). Online store is seen as something of a mix between direct selling and advertising (Berthon *et al.* 1996), which offers an alternative to mass media communication (Hoffman *et al.* 1995). The cost of online store should be lower than the traditional store due to less of rental cost and employee cost. It seems online store has unlimited assortment because virtual shelf space can be infinite. Hopkins and Alford (2005) proposed a special store attribute combination within nine aspects, 28 items to explain e-retailer store image.

Comparing offline store and online store on their store image attributes, people can find that no matter how the main aspects are similar among different store (e-retailer) image scales, the practical contents are completely different. For instance, in the aspect of

atmosphere, the measurements focus on overall impression and background color used in online store, whereas the measurement of offline store test consumers' responses towards the ambient scent, auditory sense, visual sense, and tactile sense. The test of convenience aspect on online store is the easiness of navigation, whereas the same aspect for offline store is about the location, and opening time. Even in service aspect, consumers in online store concern more about return and refund policy, whereas consumers in offline store may not only concern about these policies, but also concern about the attitude of the store staff. These different items concerned separate the consumers' attention to the comparison between two channel stores. Consequently, those remaining same attribute items will stimulate between-channel stores comparison. The most similar store attributes in both online and offline stores are price and assortment.

Given a multichannel retailer who possesses online store and offline stores, consumers can easily and conveniently connect two types of stores. Logically, most of the consumers will directly compare the information based on the same store attributes. Price and assortment are the two most apparent, convenient, and effective elements for the comparison. This is the first reason why this research project chooses price and assortment as the base of study.

Moreover, price (Lichtenstein, Ridgwa, and Netemeyer 1993) and assortment (Simonson 1999; Stassen, Mittelstaedt, and Mittelstaedt 1999) are the two most important factors in conventional retailing market. Price is regarded as a diagnostic criterion for making a choice. The price information implies a natural order of choice alternatives (Chernev 2006). For retailers, price directly relates to the sales volume, particularly to the margin (Simon, von der Gathen, and Daus 2006; Janakiraman *et al.* 2010). Alternatively, consumers judge product quality and value perception through price when there is less relative product information (Monroe 1973).

Similarly, how to organize the most appropriate assortment is one of the most pivotal problems in retailing industry too (Mcintyre and Miller 1999). In research domain,

assortment is defined as “*the number of different items in a merchandise category*” (Levy and Weitz 1995), or as the number of products offered within a single product category (Broniarczyk 2008). Previous studies found that assortment perception positively relates to consumers’ attitude (Arnold, Oum, and Tigert 1983; Craig, Ghosh, and McLafferty 1984) and influences consumer’s evaluation towards the store (Kahn 1999).

Since internet commerce takes part in conventional distribution channel, store price has become more flexible but also more risky. Price difference is a very important element in multichannel retailing (Quint *et al.* 2013). Previous studies found that compared to the conventional store, retailers may keep the same price, reduced price, or increased price in their online stores (Lee *et al.* 2003; Chevalier and Goolsbee 2003; Goolsbee 2001; Xing, Yang, and Tang 2006; Clemons, Hann, and Hitt 2002; Morgan, Baye, and Scholten 2004; Bailey, Faraj, and Yao 2007; Ancarani and Shankar 2004). Unlike the fact that consumers are difficult to know whether the prices of the same product are diverse among the physical stores, any change of price in online store can be easily known and distinguished by the consumers. This phenomenon may catch consumers' attention if such confusion cannot be reasonably explained. In fact, the relevant research on price or assortment based on multichannel retailing environment is sparse. This reveals that it is necessary to conduct price and assortment research.

The third reason of choosing attributes of price and assortment is from the result of depth interview. The depth interview launched in Chinese multichannel consumers indicates that price and assortment are two primary concerns when Chinese consumers compare online stores with offline stores. The participants think price is a pivotal sign but not determinant to buy, even it can be a determinant for them to stop visiting. Participants hold the various viewpoints on price. Some insist that online price should be lower than that in offline, while others think online price must be equal to offline price. Still several participants report that they have seen the phenomenon that online price is higher than that of offline. These inconsistent answers indicate that there are still many

problems in multichannel pricing waiting to be researched.

In regards to multichannel assortment, participants recognize that online assortment possibly offers more options than that from offline, but they do not think the more is the better. Participants state that they do not feel well if online store assortment presents dominant product choices of offline store assortment in multichannel situation. However, participants agree that numerous product choices signify that the options lie in the consumers. The results of depth interview reveal that both multichannel price and multichannel assortment should get researcher's attractiveness significantly due to their dominant position during Chinese consumers shopping decision process. It is quite possible to increase the success of multichannel retailing if both academics and practitioners can better understand consumers' perception. Hence, the study on price and assortment may offer more managerial implication for practitioners relative to other store attributes.

Choosing price and assortment as study base does not mean to ignore other store attributes. Other store attributes also provide robust meaning to researchers. But, what is worth mentioning that, the power of comparative base becomes attenuated on other store attributes due to its difficult comparison in multichannel context. In conclusion, the attributes of price and assortment present the core value in multichannel research, this is why these two attributes are chosen in this study. In the following section, the relevant literature in regards to price fairness perception will be reviewed. Similar discussion related to variety perception will be launched in the next chapter too, which is relevant to the feeling of assortment and product option.

## 2. THE CONCEPT OF PRICE FAIRNESS

Fairness is a term which is normally used to describe social interaction (Walster, Walster, & Berscheid 1978). The dictionary meaning of the word "fairness" is "*the quality of treating people equally or in a way that is reasonable*" (Oxford Advanced Learner's Dictionary), usually refers to justice and equity. Equity Theory describes the relationship between an employee's motivation and his or her perception of equitable or inequitable treatment. Stated by Adams (1965), employees are going to maintain an equitable ration between the inputs they bring to the relationship and the outcomes they receive from it. Fairness can be regarded as one dimension of equity theory. The notion of "fairness" is almost synonymous with equity that explicitly implies a form of distributive justice (Cook and Messick 1983; Jasso 1980) whereby individuals get "what is right" or "what they deserve". Although equity theory was widely used in organizational behavioral researches, it did not get sufficient attention by marketing researchers until Huppertz and his coworkers adopted it in the research of buyer-seller exchange situations (Huppertz, Arenson, and Evans, 1978).

Alternatively, fairness has received considerable attention in economics. Akerlof (1979), for example, used the notion of fairness to explain the steadiness of wages in labor markets faced with high unemployment rates. Okun (1981) postulated that perceptions of fairness can also explain why consumer market fails to clear. Other two most important fairness literature were from Kahneman, Knetsch, and Thaler (1986a, 1986b) who assessed perceptions of fairness among consumers with respect to the behavior of wage and price setters.

In marketing area, researchers are interested in price fairness because this concept relates to retailers' price strategy, which can directly evoke consumers' evaluation to the retailers. Consumers do not always judge whether the presented price is fair. Dickson and Kalapurakal (1994) stated that consumers may not matter unless the prices are

judged to be unfair. Campbell's (1999) study focused on the antecedents and consequences of unfairness too, did not care about fairness. Xia *et al.* (2004) summarized that price fairness and price unfairness may be two different theoretical structures, and consumers are more articulate about what they perceive as unfair prices than about fair prices. It can be found that consumers prefer to do actions when unfairness perception occurs, and do nothing in fairness perception. The unfairness perception is possibly derived from the comparison between current price and past price, the competitor's price (Bolton, Warlop, and Alba 2003), or from the inferred motive (Campbell 1999) of why the current price is presented by retailers. Consequently, researches with respect to unfairness perception become more dominant than that to fairness perception.

Today, the concept of price fairness is often used in the cases with respect to retailing price, but not regarded as the most popular one. Although there are still some controversies about the mechanism of how consumers form the price fairness evaluation, the standard definition of price fairness is accepted by most of the researchers. Fairness is a judgment on whether an outcome and/or the process to reach an outcome are reasonable, acceptable, or just (Bolton, Warlop, and Alba 2003). Some researchers assert that the fairness and unfairness can be distinguished, yet none of them ever give any definitions, respectively, to these terms.

In summary, price fairness is the judgment from consumers' perspectives with respect to retailer's (seller) price presentation. It reflects consumers' psychological reactions to prices (Kahneman, Knetsch, and Thaler 1986a). In many cases, consumers are more sensitive to unfairness situation instead of the fairness situation.



### 3. HOW CONSUMERS PERCEIVE FAIRNESS OR UNFAIRNESS?

When consumers tend to decide whether the current price is fair or unfair, it is usually done through comparison. Comparison offers a way to efficiently use people's scarce cognitive resources (Taylor 1981) and helps to limit the range of information (Mussweiler and Epstude 2009) in the cognitive judgment task. A comparison between current price and other references, either tangible reference such as price of other product or intangible reference such as intrinsic standard (Xia, Monroe, and Cox 2004), the process of such comparison may be direct and simple or indirect and complicated. Consequently, several different evaluative mechanisms were proposed by the researchers. For instance, some researchers obtained the theoretical support from Social Comparison (Mussweiler 2003; Corcoran, Crusius, and Mussweiler 2011; Festinger 1954), while others explained it with Equity Theory (Adams 1965; van den Bos *et al.*, 1997). Still other researchers interpreted it from economic perspectives (Kahneman, Knetsch, and Thaler 1986a). Those theories reveal that the process of price fairness evaluation varies on different judging scenarios. It will be explained in the following sections.

#### 3.1 Social Comparison Perspectives

Social comparison, proposed by Festinger (1954), is a fundamental psychological mechanism influencing people's judgments, experiences, and behaviors (Corcoran, Crusius, and Mussweiler 2011). Although social comparison is usually adopted to explain the process how self compares to others, it also offers sufficient heuristic to understand many comparison processes.

There are three stages involved into comparative evaluation that are named as standard selection, target-standard comparison, and evaluation (Mussweiler 2003). The selection stage presents what inferences people choose as the comparative standard. Once inference is decided, this cognitive judgment process moves to comparison stage. To

carry out the comparison, judges have to obtain specific judgment-relevant information about the target and the standard (inference), which tests the possibility of whether the target is similar to the standard or not (Mussweiler 2003). If this assessment indicates that the target is similar to the standard, judges will engage in a process of similarity testing. Otherwise, a process of dissimilarity testing will occur. Whereas similarity testing may lead to an assimilation effect where comparative parties enhance the saliency of the outcome differences (Major 1994), dissimilarity testing drives people accessing information to support the dissimilarities that result in a contrast effect (Mussweiler 2003).

Xia, Monroe, and Cox (2004) asserted that above comparison process can be also applied to interpret price comparison. These researchers posited that an initial similarity judgment leads to the expectation that comparative transactions are equal, but the test of hypothesis indicates that the similarity cannot be validated because price discrepancy is found between two parties. Therefore, the assimilation effect drives the buyers to make an unfairness judgment eventually. In addition to it, if initial judgment is dissimilarity, a discrepancy of price can support the hypothetic test that the target is not similar to the standard. Consequently, the contrast effect may lead to fairness or less unfairness judgment.

Note that Mussweiler's (2003) interpretation provided convincing point for comprehending the comparative process, but the results of process are usually sensitive to the comparative reference that individuals choose. Three possible comparison criteria are proposed by the researchers, which are the similarity on critical dimension (Festinger 1954), similarity on related attributes (Goethals and Darley 1977), and the inferior standard. People are most likely to choose external comparison (e.g., others) as the comparative inference rather than those of intrapersonal comparison (self/self) (Major 1994). The similar expression of these inferences can be found in Bolton, Warlop, and Alba's (2003) study where the researchers compared the effects among the references of self, other customers, and different stores. A similar result is that the effect on price

fairness perception by the inference with other customer is greater than that with self-reference (Xia and Monroe 2004).

In summary, researchers regard the theory of social comparison as the fundamental of comparative process. It can be adopted in most retailing scenarios of person-to-person comparison, and also in price fairness comparison of one customer links other customers on price judgment. Unfortunately, the study which is connecting the social comparison and price fairness perception is sparse, probably only a few study based on equity theory were mentioned (Oliver, 1999). This may attribute to the facts in which the person-to-person comparison occupies a smaller ratio compared to the other price fairness judgment scenarios. In contrast, the effects of inference have been recognized to vary consumers' fairness judgment, and have gained attention in the research of price fairness perception.

### **3.2 Distributive Justice and Procedural Justice**

Other researchers acquired the theoretical support from Equity theory (Adams, 1965). Adams (1965) stated that employees are going to maintain an equitable ration between the inputs they bring to the relationship and the outcomes they receive from it. This judging process contains two parts, one is the subject's justice perception towards the outcome, and another is that the subject's justice perception refers to the process that leads to the outcome.

The first justice perception is called *distributive justice*, in which the subject perceives the fairness of whether rewards and costs are shared among (distributed across) group members For instance, an equal ratio of profits to investments between all parties involved in an exchange relationship results in fairness perception (Kukar-Kinney et al. 2007)

The second perception of justice is called *procedural justice*, in which the subject assesses whether the processes or procedures are based on prevailing norms and behaviors (Thibaut and Walker 1975). This process is usually determined by the perceived consistency, ethicality, and accuracy of information (Lind and Tyler 1988). As applied to prices, procedural justice concerns whether the retailer plays fairly in processing the price (Maxwell 2002).

To put it in an easier way, *distributive justice* corresponds to the norm of equality, whereas *procedural justice* is regarded as the norm of equity. The judgment of equality is regardless of the inputs, all group members should be given an equal share of rewards, while the judgment of equity is based on the subjects' inputs, the outcomes should correspond to how many resources that have been inputted.

In retailing market, consumers not only judge price fairness through the price they see, but also consider whether the price making process is justice for them. In other words, consumers concern the underlying reason why retailers make such price (Bolton *et al.* 2003) or out of what the inferred motive retailers fix the price (Campbell 1999; Kukar-Kinney *et al.* 2007). If retailers' pricing strategy is perceived as unreasonable or unacceptable, a procedural injustice may consequently occur which will lead to a distributive injustice judgment. In contrast, if the pricing strategy is perceived as acceptable, a distributive justice of price is possibly perceived too. That is to say the procedural justice is often the determinant to price fairness evaluation.

Nonetheless, the link from judging procedural justice to judging distributive justice does not always occur. Sometimes, consumers receive outcome information before process information. In that case, consumers can directly make decision of whether this price is fair or unfair depending on the outcome information only without exploring the underlying motive (van den Bos *et al.* 1997). In other words, distributive and procedural justice (fairness) can either function independently or dependently, yet researchers do not know under what situation two types of justice work together or separately.

In general, compared with Social Comparison, *distributive justice* and *procedural justice* offer the explanation at application level, which simplifies both academic and managerial operation. When consumers perceive pricing process as justice (procedural), they will tend to believe that the current price is fair (distributive justice), otherwise an unfairness occurs while consumers think retailer's pricing process is injustice. However, procedural justice is not a dispensable factor in price fairness judgment, particularly in the cases that consumers decide directly from the price (distributive justice only) without concerning the retailer's inferred motive.

### **3.3 Dual-Entitlement**

Kahneman, Knetsch, and Thaler (1986a, 1986b) first introduced "dual-entitlement" to interpret how consumers evaluate retailers' price fairness. The three authors posited that fairness-unfairness perception is a very relevant factor influences individual's attitude towards the dealer during economic exchange activities, but does not attract economists' attention. According to their findings, fairness judgment is evaluated from different perspectives that both buyers and sellers do. Buyers tend to give an unfair judgment to the seller in regards to cost driving price increase, unless the increase will be really justified. In addition, while cost is reduced, sellers can keep their selling price without receiving the same unfairness judgment from buyers. In fact, the buyers do not think it is indispensable that sellers must transfer these additional benefits to them.

The starting point of dual-entitlement is economic exchange related, in which researchers are interested in the relationship between inputs and outputs. This concerning also attracts the marketing researchers' eyeballs because both domains (economics and marketing) have similar initial assumption in which consumers (individuals) are rational decision makers (Fishbien and Ajzen 1975). In fact, George Homans (1961) early stated that "[A person's] rewards in exchange with other should be

*proportional to his investments*", which can be explained as:

$$(O_s / I_s) \sim (O_c / I_c) \quad (\text{Eq. 2.1})$$

Where, *O* means outcomes, *I* means input or investment, *s* means self, *c* is the comparison among person, group, or entity, and  $\sim$  is the proportional operator.

Oliver (2010) asserted that Homans's equation is not sufficient to interpret fairness, not only because the same measurement is used for outcomes, inputs and self, but also consumers usually have a sense of what is fair or right to them which is based on how they interpret the situation (Oliver 2010). Therefore, Oliver (2010) proposed two appropriate comparisons for equity (price fairness) judgment. The first one is person-to-person comparison in which individuals directly compare the current price to the past price, or to the competitor's price (Bolton *et al.* 2003) such as the discussion that has been depicted in section 3.1. The second one is person-to-merchant comparison. This contains two types. One type is purely individual-oriented whereby the consumers' interest is only to ensure that they get what they are paid for or what they deserved. Another type is about the merchant's role in equity which is the merchant's return – what the company gets from the consumer's purchase. There is a subtle distinction here among the consumer's price *per se*, the merchant's cost, and the merchant's profit (Oliver 2010).

Readers may argue that, to some extent, the price fairness judgment within dual-entitlement is close to the evaluation of procedural justice (discussed early), and the seller's justification for cost increase can be linked to inferred motive too (Campbell 1999). This can be true because Campbell's (1999) inferred motive is originated from dual-entitlement, and still big difference between two theoretical formations should be mentioned. Research related to distributive and procedural justice considers two different fairness evaluations: pricing fairness and price fairness. These two fairness evaluations can either work independently or dependently. If procedural justice occurs before outcome (distributive justice), the former one will positively influences the evaluation of the latter. If distributive justice (outcomes) occurs before procedural justice,

consumers may directly rely on the evaluation of distributive justice, less concerning the effect of procedural justice.

In contrast, the price fairness judgment with dual-entitlement interpretation regards the outcomes (price evaluation) and underlying reason as an entirety. In many cases, the underlying reason serves to the evaluation of current price, but is not evaluated independently. Furthermore, the distributive and the procedural justice can be widely applied into different price fairness judgment situations, while dual-entitlement focuses more on the relationship between cost and benefit. Actually, those two theoretical structures are always studied separately by researchers as well.

Note that dual-entitlement opened the door that attracted the researchers' interest in price fairness research. However, this theoretical structure only offers narrow perspective. The realistic meaning is that consumers' price evaluation is not equal to the sellers' (retailers) perspective. Not all additional profits will be judged as unfairness if the sellers can justify the price increase reason or if they can reduce their cost.

#### 4. THE CONSEQUENCES OF PRICE (UN)FAIRNESS PERCEPTION

The consequence of price fairness perception is consistent through the researches. Note that price fairness judgment is a comparative process between the subject's inputs and outputs in a given situation. Usually, the inputs can be directly related to monetary factor (or money) which the subject uses to pay for (Monroe 1979). To the consumers, a fairness perception means the outputs they get to match the inputs that they pay where perceived monetary sacrifice is significantly less compared to the reference others (Martins 1995). The value from fairness perception is regarded as acceptable and can enhance the value of a bargain (Darke and Dahl, 2003), whereas an unfairness perception results in a low value perception (Martins and Monroe 1994; Martins 1995).

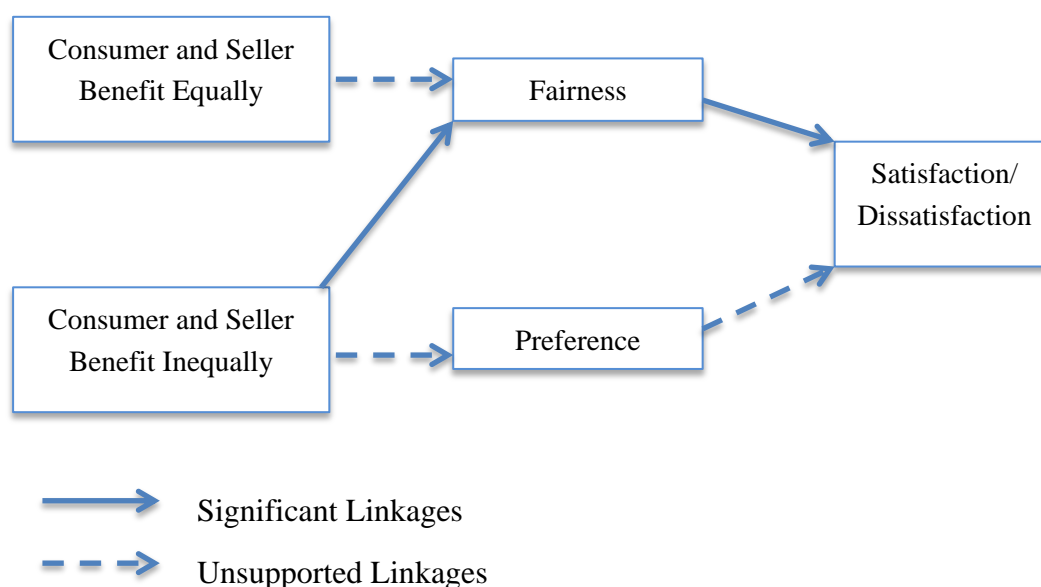
Moreover, previous studies showed that the perception of equality and inequality is the antecedent of satisfaction (Bagozzi 1974; Huppertz, Arenson, and Evans 1978; Mowen and Grove 1983). Equality theory is widely linked to consumer satisfaction research, including expectancy disconfirmation (Churchill and Surprenant 1982; Oliver 1980), norms (Woodruff, Cadotte, and Jenkins 1983), and attributions (Folkes 1984; Richins 1983).

In his book entitled “*Satisfaction*”, Oliver (2010) proposed an intervening approach to explain the causal effect how consumers' perceived equity influences satisfaction. He asserted that in most common sense, individuals hold the propensity that on one hand, they hope fairness or "proportional" equity, but on the other hand, they prefer to maximize their own outcomes (preference) relative to that of the others. Accordingly, Oliver and Swan (1989a, 1989b) investigated how equity/inequity causes satisfaction through fairness and preference (See **Figure 2.1** ). The results from two studies showed that positive inequity predicted fairness, and fairness, in turn, predicted satisfaction (Lapidus and Pinkerton 1995), whereas negative inequity resulted in unfairness perception so that dissatisfaction occurred. Although, Xia, Monroe, and Cox (2004)



proposed that unfairness perception may lead to negative emotion, no direct evidence supports this proposition due to lack of study investigating the relationship between unfairness perception and emotion.

**Figure 2.1: Consumer Equity Findings from Study of Oliver and Swan (1989)**  
[Source: "Satisfaction" (Oliver, 2010; pp.223)]



Some researchers investigated whether fairness judgment can directly influence purchasing intention. Except the study of Urbany, Madden, and Dickson (1989) around bank consumers, most of the results found that fairness judgment affected shopping intention (Campbell 1999; Oliver and Swan 1989a), influenced attitude towards the seller (Maxwell 2002), and demonstrated more cooperative behavior (Maxwell, Nye, and Maxwell 1999). In contrast, consumers' unfairness perception results in negative attitude, reduces the purchase intention towards the seller and negative word-of-mouth (Campbell 1999; Huppertz, Arenson, and Evans, 1978; Martins 1995). Xia, Monroe, and Cox (2004) summed up the negative behaviors in two parts: either a financial protection propensity or psychological coping strategy, but both actions are moderated by the cost.

In fact, researchers are more interested in the consequences of price unfairness rather than price fairness. Price fairness may not matter, if we do, the judgment often has no

impact on our behavior (Dickson and Kalapurakal 1994). This implies that perceived unfairness can stimulate more consumers' reactions than perceived fairness.

In addition, according to the Prospect Theory (Kahneman and Tversky, 1979), it is asymmetric when consumers react to the losses and gains. Generally, the reactive degree will be more intensive to the losses rather than to the gains. Losses can leave more salient impression in individual's mind than gains do. Therefore, compared with the fairness perception, unfairness perception would result in greater and more significant influences on consequence.

Except adopting semantic differential of fairness-unfairness, some researchers would like to use equity-inequity structure to observe consumers' reactions. According to the price comparison, there are three possibilities in equity-inequity structure: equity, advantage inequity, and disadvantage inequity (Xia, Monroe, and Cox, 2004). Inequity, like the disconfirmation process, is a bipolar concept where equity exists in a continuum bounded by negative inequity where outcomes are less than deserved, through equity where outcomes are justly deserved, to positive inequity where outcomes are greater than deserved (Weiss, Suckow, and Cropanzano 1999). Martins and Monroe (1994) found that disadvantage inequity can increase consumers' perception of monetary sacrifices, reduce value perception and willingness to pay, but advantage inequity may completely lead to the opposite effect.

However, an advantage inequality may lead to feelings of uneasiness or guilt, whereas a disadvantaged inequality may induce disappointment, anger, and outrage (Austin, McGinn, and Susmilch 1980), this conclusion does not get wide support from previous studies. For instance, Ordóñez, Connolly, and Coughlan's (2000) study found that both advantageous and disadvantageous inequity are perceived unfairness by consumers, but the extent of unfairness is stronger in the latter situation than that in the former situation. Recently, Xia and Monroe's (2010) study concluded that consumers' fairness perception in advantage inequity is less than that in equity situation, but more than that in

disadvantage inequity. However, the differences among three situations are subtle.

Up until now, the certain consequences among equity, advantage inequity, and disadvantage inequity are still controversial. Xia, Monroe, and Cox (2004) proposed three potential actions corresponded to different equity-inequity situations. They posited that "no action" will occur while buyers encounter advantage inequity or slight disadvantage inequity situation due to no significant influence of perceived unfairness or not worthwhile to take action. In the situation where disadvantage inequity is moderate, unacceptable, or regretful, consumers tend to execute the actions to "protect" themselves from being taken advantage of in the future. Finally, in extremely disadvantaged situation where consumers feel angry or outraged, it can be inferred that consumers have great likelihood to do the "revenge" actions. Such potential actions are inferred from the studies that negative emotions related to perception of unfairness (Bougie, Pieters, and Zeelenberg 2003; Raghunathan and Pham 1999), but still need to be validated in future study.

In summary, a concern for fairness is an important influence on negotiated outcomes (Maxwell, Ney, and Maxwell 1999). Consumers' fairness or equity perception usually results in positive consequence such as attitude of preference, satisfaction, and shopping intention, whereas consumers' unfairness or inequity perception can bring negative consequences such as reducing the perceived value, dissatisfaction to the retailers, stop and escape from the relationship with sellers. Note that unfairness is easier to stimulate consumers' intensive reaction than fairness perception. The latter sometimes does not actually change consumers' attitude and behavior.

## 5. MEASUREMENT OF PRICE (UN)FAIRNESS PERCEPTION

Although the proposition of price fairness perception influencing consumers was early proposed, it did not get enough concern until two economic studies of Kahneman, Knetsch, and Thaler (1986a, 1986b) were published. Within the past 30 years, price fairness research is one of the most important directions with regard to price in consumer behavior study. Unfortunately, there is no consolidated measuring scale accepted by all researchers due to needs of different measurement tools to realize different research objects. Some researches adopted direct measurement through which the subjects are asked to evaluate the level of fairness-unfairness to the situation they are encountering (Kahneman, Knetsch, and Thaler 1986a, 1986b; Campbell 1999; Sinha and Batra 1999; Darke and Dahl 2003; Xia, Kukar-Kinney, and Monroe 2010), while other research works used indirect measurement or experimental manipulation to observe the subjects' reactions (Maxwell, Nye, and Maxwell 1999).

None of researchers disagree that fairness-unfairness is a uni-dimensional structure. In many cases, the measuring questions in one direct measurement tool are no more than three that are presented with semantic differential scale. The simplest tool is that all the subjects are asked to respond their price fairness evaluation in different pre-defined scenarios (Kahneman, Knetsch, and Thaler 1986a, 1986b). The subjects can choose one answer from four options entitled "complete fair", "acceptable", "somewhat unfair", and "very unfair" as their fairness judgment. This measurement tool is very simple and effective so that it is often adopted in price fairness study by other researchers, particularly in the studies with regard to "dual entitlement" (Urbany, Madden, and Dickson 1989; Kalapurakal, Dickson, and Urbany 1991; Frey and Pommerehne 1993). For instance, Urbany, Madden, and Dickson (1989) used the same measurement to test consumers' price fairness perception when they hear that ATM service fee is increased. Frey and Pommerehne (1993) also used it in the first three studies, but found it was not well appropriate in the results. They, therefore, changed the measuring question to testing the extent of price acceptable in study 4 through study 7.

Except semantic differential scale, Oliver and Swan (1989a, 1989b) adopted Likert Scale to test how price fairness perception influences the effect of consumers' equity/inequity perception on their satisfaction towards the salesperson and retailers. The measurement contains three items in which participants are asked to choose an answer from "*fairly treated*", "*rightly treated*", and "*the deal is made fairly*" within a scale ranging from "strongly disagree" to "strongly agree" (The Cronbach's  $\alpha$  is greater than 0.8 in both two studies).

Campbell (1999) in his early study used a combined measure tool that contained a direct measure question plus a confirmation question within Likert Scale. The direct measure question is to ask the participants to evaluate on their fairness perception through a scale ranging from "very fair" to "very unfair". Campbell (1999) also asked the participants to evaluate whether the presented price is not fair. This is the first study that concerned more on unfair perception rather than fair perception.

Since Campbell's study (1999), researchers prefer to use measure tool which contains three semantic differential labeled "fair/unfair", "reasonable/unreasonable", "acceptable and unacceptable" (Xia and Monroe 2010; Xia, Kukar-Kinney, and Monroe 2010; Bolton, Warlop, and Alba 2003). This is because these three questions indicate three elements of price fairness definition in which it is defined as a judgment that relates to whether an outcome reaching to another outcome is reasonable, acceptable, or just (Bolton, Warlop, and Alba 2003; Xia, Monroe, and Cox 2004).

It should be noted that although the above measuring tool is widely adopted, there are still other measurements used in order to meet requirement of experiments. For instance, Bolton, Warlop, and Alba (2003) did not use fixed measurement in their ten experiments due to their intention of understanding which elements are really sensitive to the participants' fairness perception. The researchers either directly asked the participants to evaluate fairness perception or let the participants range the price, or test the fairness by

through scaled questions, or asked the participants to break the costs. All methods they adopted are served to deeply understand price fairness phenomenon from consumer's perspectives. Besides, other researchers attempted to expand participant's price fairness perception from current experimental stimuli to the potential retailing context. Gourville and Moon (2004) used a special 3-item semantic differential scale to investigate the subjects' fairness perception in the situation where two different segmented wine stores present overlapping or differentiation assortment strategy. Darke and Dahl (2003) used six adjectives "fair", "questionable", "justified", "honest", "unfair", and a "rip-off" instead of general three measures due to higher internal reliability on the effort. Moreover, researchers not only measure the price fairness but also manipulate it as an independent variable made according to experimental design (Maxwell, Nye, and Maxwell 1999).

In general, no permanent measuring tool exists for price fairness perception in previous evaluation. In most of the cases, researchers can adjust or modify the measurement in order to qualify their research targets. Usually, researchers will adopt at least an adjective of "fair/unfair" judgment into their studies, which may be direct, definite, and unambiguous for all participants. For better comprehension, a reference table of related literature is presented at the end of this chapter.

## 6. PRACTICAL APPLICATION AND LIMITATION OF FAIRNESS PERCEPTION

### 6.1 Practical Application of Fairness Perception

In retrospect, price fairness concept derives from Equity theory (Adams 1965). In back to the early 1970's, researchers had interest in fairness concept but without a definite norm. In marketing domain, mainstream research focused on the psychophysics of price, as well as building up conceptual and empirical support for the effect of various price perceptions on determinants of price acceptability, including price fairness (Kamen and Toman 1970), price-quality perceptions (Monroe 1973) and reference prices (Klein and Oglethorpe 1987). Although Kamen and Toman (1970) found support for the proposition that "*consumers have some preconceived ideas about what is a fair price for a given item and are (only) willing to pay this price or below...*" they did not examine the notion of what constitutes a 'fair' price to the consumers.

Equitable outcomes bring greater satisfaction and more positive feelings rather than inequitable outcomes (Adams 1965). Equity theory also suggests that perception of fairness is "*central to transaction utility and conceptually distinct from other price standards*" (Thaler 1985, p. 205). People having different characteristics can have different price fairness perceptions on the same product, but even to a single person, his /her price fairness perception will also vary when in different situation. Thaler (1985) noted that consumer judging price fairness relies on the mental accounting of the inferred costs of the seller.

After Kahneman, Knetsch, and Thaler's (1986a, 1986b) introduced dual-entitlement to interpret how consumers judge the cost-profit relationship with regard to the sellers, the concept of price fairness started attracting researchers' concern and was adopted into different retailing industries. The subjects were asked to evaluate their fairness perception through the survey about bank service (Urbany, Madden, and Dickson 1989),

automobile purchasing (Oliver and Swan 1989), and hotel pricing strategy (Kimes 1994). These results verified that, those price relevant factors such as cost, profit, discount, investment, and return can really influence consumers' fairness perception, which in turn will determine consumers' attitude and behavioral intention.

Another part of price fairness study is linked to satisfaction. Fairness, or justice, is often regarded as a dimension of Equity theory (Oliver 2010). Equity, particularly inequity, is known to affect the satisfaction and dissatisfaction of those who are sensitive to this phenomenon (Oliver 2010). Researchers found that price fairness occurs through an evaluation where buyer's outcome/input ratio of a comparative others, for example, merchant, is equivalent or exceeded (Oliver and Swan 1989b; Darke and Dahl 2003). Fairness perception is not equal to satisfaction (Ordonez, Connolly, and Coughlan 2000), but affects the satisfaction (Oliver and Swan 1989a; 1989b; Darke and Dahl 2003).

Researchers are interested in fairness study because this concept is one of the social norms for understanding consumer's transaction (Maxwell 1999; 2002). Consumer's transaction is a complicated process, which can be influenced by many elements. Thus, a big part of fairness studies focuses on the procedure or pricing fairness rather than price fairness. Consumers would like to rely on the reasons of why price increases or decreases to help them judge the fairness/unfairness. Campbell (1999) posed that inferred motive and relative profit are the two factors that determine fairness. Other studies found that demand increase is used for judge the acceptableness of price increase (Dickson and Kalapurakal 1994; Frey and Pommerehne 1993). However, the conclusions of these two studies were not consistent. Dural-entitlement (Kahneman, Knetsch, and Thaler 1986a) mentioned an unfairness judgment occurs while sellers does not justify their cost, but Kalapurakal, Dickson, and Urbany's (1991) study found cost-plus pricing got more fair evaluation from the subjects. Recent study found that cost-plus pricing regards fairness only in product price increasing, not in service price increasing (Bolton and Alba 2006). In fact, seller's pricing rule or inferred motive is an antecedent of fairness judgment (Xia, Kukar-Kinney, and Monroe 2010), but the same



pricing rule may be interpreted as different seller's motives in different transaction situations, which will then vary consumer's evaluation.

Although e-commerce becomes increasingly popular in recent years, there are still not too many studies presented in this domain. Suter and Hardesty (2005) studied C2C auction. The results showed that auction winner perceives fairer than the loser when bidding price is not started at low point, and loser's fairness perception depends on other bidders, with no relation to the auction seller. A similar article was related to dynamic pricing, in which the seller either uses price-posted mechanisms or price-discovery mechanisms (Haws and Bearden 2006). The former is traditional retailers who can dynamically set the price, whereas the latter includes retailers such as ebay whose consumers have input into setting the price. The result shows that consumers will evaluate negative fairness when they find they pay more than the others, but this effect can be reduced and go more positive in price-discovery mechanism than price-posted mechanisms (Haws and Bearden 2006). Huang, Chang, and Chen's (2005) launched a survey in the region of Taiwan in which the university students reported that online price should be lower than offline price, otherwise they are very possible to express an unfairness judgment to the retailer. The above studies opened a window to online commercial but barely examined fairness forming mechanism in this special channel, nor in the multichannel.

## **6.2 Limitation and Future Study**

The previous studies found that, consumers usually judge price fairness based on their net benefit compared with the others, retailers, or their selves (inherent), or rely on the inferred motive of the sellers. If consumers perceive fairness (positive), they may generate positive emotion, increase the value perception and behavioral intention, or at least none of negative affect and behavior occurs. In contrast, an unfairness perception (negative) usually reduces the value perception, results in negative affect and emotion,

which will in turn lead to the negative behavior.

Alternatively, previous studies also found that consumers' fairness judgment process are varied in different study, and the results are not keeping consistent in all situations. For instance, Urbany, Madden, and Dickson (1989) found cost-justified fee can increase fairness perception by banking consumers, but similar cost-justified price cannot influence consumers' fairness perception through another scenario study (Vaidyanathan and Aggarwal 2003). Similarly, a study found demand increase is a convincing reason for fairness perception with price increase (Frey and Pommerehne 1993), but the result in another study is completely reversing (Dickson and Kalapurakal 1994). These conflicting findings reveal that on one hand, researchers should expand the current results into other product domain, and on other hand, researchers should examine these results in more realistic situation.

Another point is that previous study focuses on single retailer, concerning about the product price between the current and the past, or from one subject to another. Fewer studies compared the price between two retailing stores. Bolton, Warlop, and Alba (2003) found that competitor's price is an important cue to determine fairness perception. Gourville and Moon (2004) attempted to compare the prices with different assortment strategies between two retailing stores through a scenario design, they found different assortment organizations can vary price fairness perception, which leads to price image and store choice. Unfortunately, these findings are not verified further, and are not examined in multichannel environment.

Similar drawback can also be found in the study related to e-commerce. Internet retailing did not attract enough attention from price fairness researchers. Note that one of most apparent changes brought by internet commerce to traditional store is the price changing, strongly and obviously. The reduced cost from rental and human resources make online store a dominant position against the traditional retailing stores. Therefore, whether online price is fair or unfair, or whether price is perceived fairly or unfairly in a

multichannel retailer's two different channels stores is deemed to be a critical question.

Almost everyone agrees that comparison between online store and offline store possessed by the same multichannel retailer is obviously different from the comparison between two physical stores in conventional situation. Two different channel stores of the same multichannel retailer are not only collaborators, but also competitors. When consumers visit these channel stores, they may automatically compare everything of both stores, such as price, assortment, style, and service. Therefore, price fairness may be a cue to vary consumers' evaluation towards the stores and the retailer. Alternatively, because two channel stores belong to the same retailer, it can be inferred that consumers will regard that the stores should be congruence perceived. If two type stores are not congruence perceived, consumers may get confused and suspect the retailer's motivation. Thus, results of perceived congruence can be a factor influencing store choice and attitude towards the retailer. Note that both price fairness and perceived congruence are the comparative processes in regards to the similarity, from which it can be deduced that two concepts may work together on attitude evaluation. But such deduction is not verified by former researches.

In fact, there is no current result to support the causal relationship between two concepts above while researchers involve them into the same study. None of study combines them in past, nor examines them in multichannel environment. Generally, perceived congruence is often adopted as an independent variable (Maille and Fleck 2011), but researchers in fairness study pay more attention to the factors that can result in fairness (or those factor that leads to unfairness). Moreover, (positive) fairness is regarded as a mediator transferring the effect from the subject's outcome/input calculation to satisfaction evaluation and subsequent behavioral intention, while the consequence of perceived congruence is not fixed. It can be inferred that consumer's perceived congruence in regards to multichannel stores may influence the price fairness perception towards the retailer, which will in turn affects consumer's attitude towards the retailer. This can be an interesting point in future study.



## 7. SUMMARY

Fairness perception runs through individual's daily life. People pursue fairness, justice or equity in different aspects of their lives, it is not only because of the economic effect (Kahneman, Knetsch, and Thaler 1986a; 1986b) but also because of the social effect (Adams 1965). Price fairness deriving from Equity theory (Adams 1965), is applied to understanding consumers' perception and behavioral intention in transaction. To date, fairness is defined as a judgment on whether an outcome and/or the process to reach an outcome are reasonable, acceptable, or just (Bolton, Warlop, and Alba 2003). Accordingly, consumers usually judge the price fairness either through referring to other person's price, competitor's price, and past price (Bolton, Warlop, and Alba 2003), or through understanding the underlying reason with regard to retailer's pricing motivation (Campbell 1999; Xia, Kukar-Kinney, and Monroe 2010). It should be noted that a goal of fair pricing does not mean a one-price policy for everyone, nor does it mean that customers do not accept price changes or price differences (Xia and Monroe 2004).

In many cases, researchers found that (positive) price fairness can increase consumers' value perception (Darke and Dahl 2003; Martins and Monroe 1994; Martins 1995), decide the satisfaction (Campbell 1999; Oliver and Swan 1989a) and increase the behavioral intention (Maxwell, Nye, and Maxwell 1999), whereas a price unfairness perception may lead to completely opposite consequences. However, these consequences vary in some cases.

Although price fairness concept has been adopted for many years, none of the consolidate measurements is accepted by all researchers. Instead, most of the researchers prefer to use simple question through which the subjects directly express their fairness judgment (Bolton, Warlop, and Alba 2003; Kahneman, Knetsch, and Thaler 1986a; Urbany, Madden, and Dickson 1989; Huang, Chang, and Chen 2005). Nevertheless, some researchers tend to use multi-item scale created by adopting the synonyms of

fairness. For instance, 3-item scale contains the anchors of "fair/unfair", "reasonable/unreasonable", and "acceptable/unacceptable" (Xia and Monroe 2010; Xia, Kukar-Kinney, and Monroe 2010), or 6-item scale from Darke and Dahl's (2003) study containing "fair", "questionable", "justified", "honest", "unfair", and "rip-off".

Today, price fairness has been widely used in marketing research. It has being involved in different product category, also being linked to other theory. However, there are yet some points waiting to be clarified in future study. A remarkable point is study absence in multichannel retailing environment. Not too many studies concerned price fairness in online commerce, nor did they attach attention to multichannel in online commerce. Furthermore, price fairness has been studied on the basis of Equity theory and satisfaction theory, but connection to other theories (concept) is still sparse. Researchers should fill these gaps in future study. At the end of this chapter, the following table is about the inference of previous price fairness research works presented with research objects and relevant measurements.

**8. TABLE: SUMMARY OF PRICE FAIRNESS PERCEPTION STUDY AND MEASUREMENT (Collected by the Author)**

Author(s)	Journal	Research Object	Measure for Price Fairness Perception
<b>Kahneman, Knetsch, and Thaler (1986a)</b>	<i>J. of Business</i>	Fairness perception can be an important point but connects individual's judgment to microeconomic models. This explorative study investigated how the subjects' fairness perceptions influence their decisions from economical perspectives	Did not use fairness measuring scale in first two studies, instead, the authors observed individuals' behavioral choices or asked them to make a decision which the individuals think is fairness perception. Last study, the authors asked individuals to evaluate the extents of fairness to the company's behavior through choosing from "complete fair", "acceptable", "somewhat unfair", and "very unfair"
<b>Kahneman, Knetsch, and Thaler (1986b)</b>	<i>The American Economic Review</i>	The authors proposed dual-entitlement mechanism that helps to understand respectively from the perspectives of transactors, individual and firms. They also gave advices on how to avoid unfairness perception by the consumers or the store staffs	Different questions on scenarios, based on retailing market context and labor market context. The participators (survey or phone survey) were asked to choose their judgment from the answering pools of "complete fair", "acceptable", "somewhat unfair", "very unfair"
<b>Urbany, Madden, and Dickson (1989)</b>	<i>Marketing Letters</i>	Adopt the dual-entitlement from Kahneman, Knetsch, and Thaler (1986b) to investigate individual's fairness/unfairness judgment towards Banker's service price rising. The results showed that individual perceived unfairness while banker raising their service fee without getting cost-justified, but the switching cost is the factor that decided whether individual will replace the bank service	Adopt the measurement from Kahneman, Knetsch, and Thaler (1986b) in pilot test, but might not be reliable due to confounding of fairness and acceptability. Thus, the authors revised the measure of fairness as "Would you characterize the 25-cent ATM fees as 'very unfair,' 'somewhat unfair,' 'somewhat fair,' or 'very fair.'"
<b>Kalapurakal, Dickson, and Urbany (1991)</b>	<i>Advances in Consumer Research</i>	The authors ensure the effort of dual-entitlement that forms the subjects' fairness perception towards the transactions, but also propose the additional rule which influences individual's fairness perception on price	The measurement was not specified but regarded as the same of Kahneman, Knetsch, and Thaler's (1986b) study that contained four extents of fairness perceptions "complete fair", "acceptable", "somewhat unfair", "very unfair".

**Table: Price Fairness Perception Measure of Previous Studies (Continuous)**

<b>Author(s)</b>	<b>Journal</b>	<b>Research Object</b>	<b>Measure for Price Fairness Perception</b>
<b>Frey and Pommerehne (1993)</b>	<i>J. of Economic Behavior and Organization</i>	The authors not only argued that individual perceived fairness does not rely on dual-entitlement concept, but also consider whether other allocations are available	In the first three scenario questions, the measurement was the same as the that of Kahneman, Knetsch, and Thaler's (1986b) study, but in the studies 4-7, the measurement was adopted by measuring the extents of "acceptable", which anchored "more acceptable", "equally acceptable", and "less acceptable"
<b>Campbell (1999)</b>	<i>J. of Marketing Research</i>	The author proposed a theoretical structure of price fairness concept derived from dual-entitlement and attribution theory. The principal article interpreted which factors, directly or indirectly, accounts for the unfairness perception and what the consequences are	Two experiments on scenarios, participators are asked to evaluate the fairness perception by 7-point semantic differential (1=very fair; 7=very unfair), but plus a statement of "this price is not fair" for which 1=strongly agree and 7=strongly disagree in the second experiment
<b>Oliver and Swan (1989a)</b>	<i>J. of Marketing</i>	Fairness perception is an intervening equity concept (dimension) that helps to judge the subjects' equity/inequity perception towards the seller, which in turn influences the subjects' satisfaction	3-item 7-point Likert Scale measures fairness perception towards the salesperson by participators, which includes 1) "I was treated fairly by my salesperson."; 2) "I did not get treated right by the salesperson (reversed)"; 3) "The deal I agreed on with the salesperson was fair" (Cronbach's $\alpha=.832$ )
<b>Oliver and Swan (1989b)</b>	<i>The J. of Consumer Research</i>	Equity and disconfirmation perception are the antecedents of consumers' satisfaction on merchant, wherein consumers' fairness perception towards the salesperson and dealer mediates the above causal effect	Measurement was adopted the same as another study that two authors published in the same year, which contains 3-item 7-point Likert Scale and measures fairness perception towards the salesperson and dealer by participators. Through the following question; 1) "I was treated fairly by my salesperson."; 2) "I did not get treated right by the salesperson (reversed)"; 3) "The deal I agreed on with the salesperson was fair" (Cronbach's $\alpha=.85$ )



**Table: Price Fairness Perception Measure of Previous Studies (Continuous)**

<b>Author(s)</b>	<b>Journal</b>	<b>Research Object</b>	<b>Measure for Price Fairness Perception</b>
<b>Maxwell, Nye, and Maxwell (1999)</b>	<i>Psychology &amp; Marketing</i>	Fairness-priming can be a pivotal factor that varies individual's expectation-disconfirmation construct in formulating satisfaction process and also on the behavior in the negotiation process.	Did not measure individual's fairness perception, but ask them to express the price range to what extent they think it is fair.
<b>Sinha and Batra (1999)</b>	<i>Inter. J. of Research in Marketing</i>	Individual's price unfairness perception of national brand product category is one of the three antecedents of consumer price-conscious perception, and price-conscious perception decides individual's intention on private label purchasing in western Europe context	7-point Likert scale anchored by 1="disagree strongly" and 7="agree strongly" contains 3-item questions that are not specified where it is cited from. The questions include: 1) The prices of national brands of (category) are really unfair; 2) The prices of national brands of (category) are unacceptably high; 3) The prices of national brands of (category) are "rip-offs".
<b>Bolton, Warlop, and Alba (2003)</b>	<i>J. of Consumer Research</i>	Several studies helped researchers to understand that under what conditions consumers were sensitive to perceive (un)fairness. The authors found that past prices, competitor price, and cost of goods are three elements resulting in fairness perception, but the effects of inflation and overall cost do not.	Total 10 experiments launched by scenarios method, no fixed measurement was adopted through the experiments. Instead, it depends on the researching orientation and relative conditions.
<b>Dickson and Kalapurakal (1994)</b>	<i>J. of Economic Psychology</i>	Price fairness perception depends on the pricing rules that retailers adopt in the market, and the extent of familiarity from rules demonstrated. Such pricing rule contains 4 cost-based pricing rules and 4 market-based pricing rules	Only one item measure price fairness perception within 7-point semantic differential ranging from "extremely unfair" to "extreme fair" (Neutral at midpoint)

**Table: Price Fairness Perception Measure of Previous Studies (Continuous)**

<b>Author(s)</b>	<b>Journal</b>	<b>Research Object</b>	<b>Measure for Price Fairness Perception</b>
<b>Darke and Dahl (2003)</b>	<i>J. of Consumer Psychology</i>	Two experiments proved that price fairness is an important, non-financial source of value for bargains, which confirms the most basic assertion of transaction utility theory (TUT). Otherwise, social cues are also important source of information about the price fairness perception. Price fairness can be a determinant of participants satisfaction evaluation	In the first experiment, there are two items measuring perceived fairness: a 6-point Likert scale ranging from -3(disagree) to 3(agree) measures an overall evaluation of fairness of the deal; another one is to ask participants to rate the price of what they paid being fair or not within a scale from 0-5. But in the second experiment, there is a 6-item questionnaire instead of the previous one, in which participants are asked to rate the price of what they paid being "fair", "questionable", "justified", "honest", "unfair", and a "rip-off". Each item is rated on the level of agreement using a 6-point Likert scale ranging from -3(disagree) to 3(agree). (Cronbach's $\alpha=.90$ )
<b>Gourville and Moon's (2004)</b>	<i>J. of Retailing</i>	Price fairness perception through overlapping assortment fosters a more favorable price image and subsequent store choice of high-end retailer	The participants were asked to evaluate price fairness perception on current stimuli and also imagine the possible fairness perception on price of other products between two experimental retailers base on the stimuli accordingly. Total three questions within 9-point Likert Scale ranging from "fairly priced in Store A" to "fairly priced in Store B"
<b>Maxwell, Nye, and Maxwell (2003)</b>	<i>J. of Business Research</i>	In negotiation context, "fairness-primed" would like to co-operate with the seller who adheres to the social norms and punish the seller who violates the norms in relative to those non-fairness-primed buyers.	The participants were asked to mark the range of price that they think it is fair as the experimental manipulation in the study.

**Table: Price Fairness Perception Measure of Previous Studies (Continuous)**

Author(s)	Journal	Research Object	Measure for Price Fairness Perception
<b>Xia and Monroe (2010)</b>	<i>J. of Economic Psychology</i>	The study investigated that, does a good deal increase participants' fairness perception? The results showed that although an advantage inequality leads to more fair perception than disadvantage inequality situation, but it is small. Furthermore, such advantage inequality results in less fair perception relative to equality situation.	Different measurements are adopted in the studies. Frist study: 3-item unfairness perceptions derived from the study of Campbell (1999, 2007), which is "fair", "unfair", and "unreasonable". Second study, <b>1)</b> semantic differential question of whether the price they paid is: "fair/unfair", "reasonable/unreasonable", and "acceptable/unacceptable" ( $\alpha=.94$ ); <b>2)</b> ask whether the other student paid is: "fair/unfair", "reasonable/unreasonable", and "acceptable/unacceptable" ( $\alpha=.97$ ); <b>3)</b> another 3-items measure fairness perception to the store and the purchase: "the online store is fair"; "I was treated right by the online store"; "the purchase I made from online store was fair" ( $\alpha=.90$ )
<b>Xia, Kukar-Kinney, and Monroe (2010)</b>	<i>J.of Retailing</i>	The authors investigated what factors influence consumers' price fairness perception in price promotion situation and found that fairness perception of promotion, feeling of entitlement, and inferred motive of retailer are three antecedents influencing the participants' price fairness	The measure of price fairness perception derived from the study of Campbell (1999) who proposed 3-items semantic differential measurement including "fair/unfair", "reasonable/unreasonable", and "acceptable/unacceptable" ( $\alpha > .90$ )
<b>Huang, Chang, and Chen (2005)</b>	<i>J. of Economic Psychology</i>	Survey in The Northern University of Taiwan, the researchers investigated how the subjects evaluate online hotel pricing mechanism. Through the scenarios with respect to marketing power, fair prices, pricing mechanism, and price discrimination, the subjects were asked to respond their perception of fairness in each scenario. The results showed that the same prices between online and offline store are evaluated as unfair	The methodology is following that of surveys conducted by Kahneman et al., 1986a. The measurement of fairness is a single-item 5-point scale from 1 (very fair) to 5 (very unfair)

**Table: Price Fairness Perception Measure of Previous Studies (Continuous)**

Author(s)	Journal	Research Object	Measure for Price Fairness Perception
<b>Martins and Monroe (1994)</b>	<i>Advances in Consumer Researcher</i>	The researchers reviewed the previous fairness study and proposed that consumer perceive the fairness of the retailer's pricing strategy can be decided by whether an advantageous price inequity perceiving. Furthermore, if consumers are difficult to judge the product quality through intrinsic attributes, the price – the extrinsic attribute (Monroe 1990) can be a symbol to evaluate the quality.	This is outlook and proposition for future study on how retailers use the weapon of price to develop consumers' perception on fairness, value, and willingness to buy.
<b>Suter and Hardesty (2005)</b>	<i>J. of Retailing</i>	An article concerned online C2C auction. The price of starting bid can be linked to the seller's earning from the auction by the buyers. In the same condition, the winners will perceive more fairness than the losers. But the latter results do not occur in the situation while bidding price is starting at low point. Moreover, the loser's fairness perception focuses on other bidders, not the auction seller	Perceived price fairness was measured as the sum of two 7-point scales proposed by Martins (1995). Those are: "The price (final selling price + shipping charge) paid by the winner of the DVD represents a fair price..." and "The price (final selling price + shipping charge) paid by the winner does NOT seem fair to me ...". The researchers formed 2 questions as a single composite variable in statistical calculation
<b>Maxwell (2002)</b>	<i>J. of Economic Psychology</i>	The researcher asserted that price fairness is not economic concern only, it is judged also based on the social rule. Therefore, consumers evaluate the price fairness not only based on the price per se, but also based on the pricing process. Two studies presented that both fair price and fair pricing influencing consumers' price perception, which positively influencing willingness to purchase. Moreover, the information of pricing practices takes pivotal role in determining price perception. If consumers cannot get the related information, they prefer to judge it as unfair.	The measurement of Fair Price contains two questions, that is: (1), "this is exactly the price I would expect to pay"; (2), "I deserve to pay this price". The measurement of fair pricing contains 3 questions derived from previous qualitative research in the airline industry, which are (1), "They base the fare on anticipated costs in the airline market"; (2)"They provide a choice of ticket prices based on cost of providing different levels of service"; (3)"They base the fare on lower costs they expect to have after gaining experience on a new route"

**Table: Price Fairness Perception Measure of Previous Studies (Continuous)**

Author(s)	Journal	Research Object	Measure for Price Fairness Perception
<b>Bolton and Alba (2006)</b>	<i>J. of Consumer Research</i>	Based on dual-entitlement aspect of price fairness perception, two researchers investigated the relationship between alignable cost and product price. The results showed that when product price increasing is linked to alignable (tangible) cost increasing, consumers bear the price increasing (fairness perception) of product relative to service. In contrast, if vendor costs are nonalignable, an increase in service price is perceived as fairer than that in good prices. Thus, alignable cost can be an antecedent of price fairness perception.	The measurement, based on the study of dual-entitlement and early study of Bolton, Warlop, and Alba (2003), is directly tested in one question. For instance, question in (Exp.1) is "as a consumer, which price option do you think is more fair?" and question in exp. 2 is "as a consumer, how fair do you think the pharmacy owner's new pricing policy is?" The scale is 7-point from "very unfair" to "very fair".
<b>Haws and Bearden (2006)</b>	<i>J. of Consumer Research</i>	Compared with Bolton et al., 's(2003) proposition of considering how consumers understand the relationship between the cost and the profit to the sellers, this article stressed that dynamic pricing may offer effective explanative power to understand consumers' fairness judgment process. Dynamic pricing is the pricing strategy in which prices vary with time, consumers and/or circumstances. The results found that fairness perception goes negative when consumers find themselves paid higher than others, but it goes positive in case price is determined through bidding instead of retailer.	The measurement of fairness derived from the study of Darke and Dahl (2003) and Xia and Monroe (2004) where there are 9 questions 7-point scale from 1 (Strongly disagree) to 7 (strongly agree)

**Chapter 3 – LITERATURE REVIEW --  
VARIETY PERCEPTION  
RELATED TO ASSORTMENT**

## 1. INTRODUCTION

Being an important determinant of store choice, satisfaction and sales (Kahn and Lehmann 1991; Kahn and McAlister 1997), variety perception becomes one of the considerations with respect to assortment. According to the Oxford dictionary, the noun "variety" not only expresses "*several different sorts of the same thing*", but also expresses "*the quality of not being the same or not doing the same thing all the time*". Therefore, the word "variety" signifies a range of many things that are very different from each other. In marketing research, variety perception explains that the extent of different-options choices that consumer recognizes from a given assortment (Broniarczyk *et al.* 1998).

In common sense, both researchers and practitioners agree that individual prefers variety because the richer the variety of products and services to consumers, the greater the likelihood that each consumer will find an offering will satisfies their specific tastes and preference, which will then increase the satisfaction and decrease the propensity of brand switching (Kahn & Lehmann 1991; Broniarczyk *et al.* 1998; Hoch, Bradlow and Wansink 1999; Chernev 2003b; Kim & Drolet 2003). According to the review of Simonson (1990), there are three possible factors to explain individual's propensity for pursuing variety: (1) the satiation (Ratner, Kahn, and Kahneman 1999) and the desire for balanced consumption over time, (2) the desire to maintain flexibility (Kahn and Lehmann 1991; Kreps 1979; Simonson 1990), and (3) avoid the need of identification stems from trade-off process (Read and Loewenstein 1995; Simonson 1990).

On the other hand, if variety presents a quantitative perception on product choices, large assortment should be more rewarded by consumers compared to the small assortment. It is a pity that the results are ambivalent on this topic. However positive evidences are found to support large assortment (Chernev 2003a; Iyengar and Lepper 2000; Schwartz 2004; Kahn and Lehmann 1991; Dreze, Hoch, and Purk 1994; McAlister and Pessemier 1982; Broniarczyk *et al.* 1998), still many negative evidences are identified from the

previous studies. For instance, large assortment can lead to cognitive overload (Hauser and Wernerfelt 1990; Huffman and Kahn 1998; Jacoby, Speller and Kohn 1974; Malhotra 1982), preference and confidence reduction (Chernev 2003b; Dhar 1997; Greenleaf and Lehmann 1995; Iyengar and Lepper 2000), and lower satisfaction (Diehl and Poynor 2010).

To date, we are living in the world filled with abundant amount of materials. As that e-commerce becomes the main retailing channel, individual's power of making free choices boost continuously. Therefore, variety perception still stands at core position in regards to assortment research in multichannel context.

In this chapter, the researcher attempts to review the previous achievement with respect to variety perception. It starts from review on why consumers prefer variety, followed by the processes that consumers use for evaluating on the extent of variety in the Section 3. The Section 4 is the discussion of variety perception consequences. After that, in the section 5, a brief review of variety measurement is presented. The theoretical limitation and overall summary are presented respectively at the last final two sections, 6 and 7.



## **2. THEORETICAL REFERENCES FOR UNDERSTANDING CONSUMERS' PREFERENCE ON VARIETY**

The discussion related to why consumers prefer variety can be traced back to the early 50s'. Dember (1956) posited that human beings have an innate variety drive. Individuals like to not only do information searching, but also intent to find the unexpected things or the novelty (Berlyne, 1950). Prior research suggests that individuals are more willing to choose among seemingly distinct options but are less likely to choose when the differences between the available options are minimal (Dhar 1997). Simonson (1990) attributed consumers' variety preference to three aspects: (1) the satiation (Ratner, Kahn, and Kahneman 1999) and the desire for balanced consumption over time related to variety-seeking behavior (McAlister and Pessemier, 1982), (2) the desire to maintain flexibility (Kahn and Lehmann 1991; Kreps 1979; Simonson 1990), (3) avoid the need of identification stems from trade-off process (Read and Loewenstein 1995; Simonson 1990). We will discuss these three aspects in detail.

### **2.1 Variety-Seeking Behavior**

Variety seeking is the tendency of seeking diversity in the choices of services or goods (Kahn 1995), which is often regarded as a key factor to understand consumer behavior in consumer research (Inman 2001). Variety seeking obtains researchers' attention because of its causal relationship to brand switching even in the situation where consumers confront their familiar products or brands (Bass, Pessemier, Lahmann 1972). Actually, in early phase, the stochastic model stood in the dominant position in understanding complex varied behavior (Huber and Reibstein 1978), and the subject's relative preferences dictated the proportion of time that each item is chosen (Bass 1974). But, the significant drawback of this model is that it yet cannot predict "when" consumers' switching behaviors occur (McAlister and Pessemier 1982).

Another relevant theoretical support derives from psychology literature in which Optimum-Stimulation-Level theory (OSL) (Berlyne, 1960) explains individual's variety seeking intention. OSL postulates that human behavior is partly a result of intrinsic motivation to achieve a certain preferred level of stimulation (Berlyne 1960; McReynolds 1971; Raju 1980). Every individual is seeking to achieve a certain level of stimulation which one feels to be optimal. In general, the preferred stimulation level is relatively constant over time as being rooted in the general attitudes of an individual. When external stimulation is too high or too low, individual tends to adjust his/her level to the most comfortable position (Steenkamp and Baumgartner 1992). Therefore, it infers that two different levels of stimulation can co-exist where one is the optimum level and another is the actual stimulation level (Wahlers and Etzel 1985). The difference between two stimulation levels is what "intrinsic motivation" tends to fix. According to Raju's (1980) postulation, variety seeking is one of the three exploratory tendencies<sup>13</sup> resulting from OSL theory. Therefore, intrinsic motivation can be used to explain consumers' variety seeking behavior.

Furthermore, some researchers were inclined to explain variety seeking by satiation Model (Farquhar and Rao 1976). The satiation is the effect whereby the more of a good one possess the less one is willing to give up in order getting more of it, which is usually caused by diminishing marginal utility. The model of choice criterion is based on the balance among the attributes of the subset's items. Depicted by Pessemier and Handelsman (1984), "*equibalancing attributes of the set are those for which homogeneity is preferred and counterbalancing attributes are those for which great diversity increases preference*" (pp: 436). Commonly, when the risk of switching brand is not high, consumers may feel boring on the brands that they often consume. This feeling can drive consumers to seek something new. Note that the aforementioned statements may contribute to variety seeking explanation, but each one cannot depict a whole picture of the theory.

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<sup>13</sup> The other two exploratory tendencies postulated by Raju (1980) are Risk taking and Curiosity-motivated behavior.

Moreover, many panel data-based studies (e.g., Givon 1984; Lattin and McAlister 1985) ignored the distinction between the effort of individual inherent factor and that of external situational factors (van Trijp, Hoyer, and Inman 1996). McAlister and Pessemier (1982) introduced an explicit variety-seeking model in which the varied behavior can be postulated by two variations: derived variation and direct variation. Derived varied behavior refers to behavior resulting from external or internal forces that have nothing to do with a preference for change in and of itself, while direct varied behavior refers to the subject's inherent motivation to do the change behavior that makes individual satisfied (McAlister and Pessemier 1982). Van Trijp, Hoyer, and Inman (1996) further stated that the distinction between derived variation and direct variation depends on whether it is intrinsically motivated or extrinsically motivated. As stated by the latter three authors, direct varied behavior can also be entitled as "true variety seeking" because it is attributed to the subjects' intrinsic motivation which drives varied behavior to pursue the curiosity (Sheth and Raju 1974), and to get the optimum level by change boring brand or attributes satiation (Zuckerman 1979).

To date, researchers have found that consumers would prefer to select variety when they are making multiple purchasing for future consumption compared to when they are making one purchase at a time (Simonson 1990; Ratner, Kahn, and Kahneman 1999). In sequential choice context, variety seeking is coped with repetitive boredom and prevents satiation (Ratner and Kahn 2002).

## **2.2 Desire to Maintain Flexibility**

Based on Simonson's (1990) point of view, the second reason to explain variety preference is the possibility of changing in tastes (Kahn and Lehmann 1991), and the selection of variety that reduces risk. As Simonson stated, consumers' tastes are not consistent over time. The propensity of changing tastes reflects the change in hedonic

preferences, personal needs or goals. Above all, changing future tastes is difficult to predict (Kahneman and Snell 1990). Therefore purchasing the same item for all periods is associated with a risk of disappointment. In contrast, selecting variety of acceptable items can reduce risk perception because different tastes can keep the likelihood of preference while not decrease through all periods. Here is a real example – when consumers tend to buy potato chips, they may choose different flavors of the same brand at a time to avoid the boredom of unique flavor that probably reduces consumers' preference to that brand in the future (Simonson 1990).

Considering that risk is highly related to uncertainty, Chernev (2008) expanded "risk-reduction" proposition to "the desire to maintain flexibility". That is to say consumers have desire to keep their options open to accommodate uncertainty (Kahn and Lehmann 1991; Walsh 1995). The inability to perceive differences among the available options may therefore thwart individuals' feelings of control from choosing, and then decrease the sense of self-determination that will result in lower satisfaction (Mogilner, Rudnick, and Iyengar 2008). The evidences from Simonson and Winer's (1992) study revealed that, consumers would like to present variety-seeking behavior and buy more unusual items along with the increasing number of items they are purchasing.

Chernev (2008) also asserted that the desire for flexibility is distinct from variety-seeking behavior. However, both of them encourage consumers to choose different options. The aim of variety-seeking is to avoid or to minimize satiation and it implies articulated preferences and the availability of an established ideal point. This does not occur in the desire for flexibility. In the latter term, consumers' preference is more subjective when they accommodate the uncertainty.

### **2.3 Avoidance of Conflict Derived From Trade-Off Process**

Choosers avoid relatively homogenous choice sets in order not to undergo the conflict of choosing among indistinguishable options in which the trade-offs are unclear (Tversky and Shafir 1992). Indeed, making decision of the product preference is sometimes very difficult as the requirement of much time and cognitive effort are needed to be involved for the comparison of the attractive aspects among the alternatives. In this case, a great variety can be a choice heuristic (Bettman 1979; Payne, Bettman, and Johnson 1988) to save time and effort and resolve decision conflict (Simonson 1990), which will avoid the identification to which single option is most preferred (Read and Loewenstein 1995; Simonson 1990).

Furthermore, Chernev (2008) gave a complementary perspective to heuristic evaluation. He asserted that consumer's requirement of large quantities purchasing are associated with a longer consumption horizon that raises uncertainty about the preference. Therefore, a larger different options assortment can be the heuristic that increases as the number of to-be-purchased items increased, but a similar options assortment would decrease individuals' perceived values and interests that are detracted from their enjoyment of the outcome (Deci and Ryan 1985; Ryan and Deci 2000).

In brief, all sections stated above contribute to the understanding of why consumers prefer assortment variation rather than assortment similarity. It implies that the subject's motives for variety seeking can be derived from the need for novelty and change to the notion of satiation. Moreover, consumers' intention to reduce the risk, desire to maintain flexibility, and conflict avoidance drives consumers to pursue assortment variety too. These intrinsic requirements reveal that variety gains more preference to influence consumers' decision process such as purchasing volume, brand choice, store choice, and satisfaction to the retailers. In next section, the discussion will move to how consumers evaluate the variety.



### **3. TO EVALUATE VARIETY THROUGH INTERNAL DECISION PROCESS AND EXTERNAL STRUCTURE**

According to the previous review, variety perception is usually used to judge the quantities of product choices with respect to retail assortment, but there is lack of study aiming to explain the variety perception process itself (Hoch, Bradlow, and Wansink 1999). Based on the study of Broniarczyk *et al.* (1998), variety perceptions process can be influenced by three factors: (1) total space devoted to the category; (2) number of distinct SKUs offered; and (3) whether the assortment includes the consumer's favorite brands. Following this proposition, it can be deduced that assortment size may be an important factor that varies consumers' perception of assortment variety. Logically, retailers organize a large assortment that could result in more opportunities for variety-seeking behavior (McAlister and Pessemier 1982; McAlister 1982; Inman 2001) and offer flexibility for uncertain preferences (Kahn and Lehmann 1991; Kreps 1979). This conclusion got relative support from empirical data. Van Herpen and Pieters (2002) found that assortment size contributes 3.4% of the variance in perceived variety when it is a single predictor. When researchers combined assortment size with other process structure, such as paired product similarity, the variety perception can still increase as assortment size rises unless large number of product options is disorganized presenting (Hoch, Bradlow, and Wansink 1999).

The above results imply that simply increase in the number of options may make the assortment more complex, but does not guarantee more variety perception consumers get. Thus, different perspectives are needed to explain the process of variety perception. Three possible parts that vary consumers' perception towards the assortment should be noted. The first part is related to heuristic cognitive processing. The second part is the perspective of assortment structures on categorical level, and the third part is the quantitative utility calculation derived from the second part but focusing on product and attributes levels.

### 3.1 Perceive Variety from Heuristic Cognitive Processing

Heuristic information processing, as opposed to systematic information processing, was first proposed by Chaiken (1980) to understand how individual cognitively cope with persuasion message, but now the ideas are applicable beyond the persuasion context (Chaiken, Liberman, and Eagly 1989). Compared to the comprehensive and analytic orientation in systematic processing, the heuristic processing presents a mode that demands much less cognitive effort and capacity. As Chaiken and her colleagues stated (Chaiken 1980; Chaiken, Liberman, and Eagly 1989; Chaiken and Maheswaran 1994) that "*people focus on that subset of available information that enables them to use simple inferential rules, schemata, or cognitive heuristics to formulate their judgments and decisions*" (Chaiken, Liberman, and Eagle 1989; pp: 213) when they do processing heuristically.

In assortment research, this information-processing model was found to be a suitable process to comprehend people's perception with respect to assortment. Valenzuela, Raghurir, and Mitakakis's (2013) study found that consumers prefer to use simple heuristics instead of more analytical processing to make inferences about product based on the options while their schemas about the meaning of position in shelf space layouts are consistent to current shelf layouts presentation. Similar results also drawn from the study of Morales *et al.* (2005) in which consumers' internal categorization structure (schema) matches external store layout that leads to higher variety perception, but the congruence between shopping goals and external store layout leads to less variety perception.

One possible reason to explain why consumers prefer to use heuristics processing may be related to the confusion and frustration that larger assortments exert to the consumers, because the larger number of attributes and/or attribute levels must be evaluated to form a preference and make a choice (Huffman and Kahn 1998; Chernev 2003a).



Chernev (2008) posited quantity-matching heuristic that simplifies the choice process by allowing the decision maker to avoid the trade-offs associated with specific option choosing. Although the quantity-matching heuristic does not typically determine the variety perception, consumers are more likely to do so when decision uncertainty is higher than when it is lower, and variety seekers are more likely to adopt the quantity-matching heuristic. The results from quantity-matching heuristic definitely match up the proposition that targeted preference uncertainty is a factor influencing variety seeking behavior (Simonson 1990; Kahn 1995).

A recent research compared the effects of different types of information depiction with assortment processing and perceived variety. The results showed that visual depiction produce greater variety perception than that of verbal depiction, particularly in large assortment condition (Townsend and Kahn 2014). By adopting eye-tracking technology, the same research reveals that the verbal presentation results in a piecemeal processing versus a gestalt processing consumers use for visual presentation. The latter cognitive processing offers an easy understanding; and heuristic evaluation model on product options that facilitate a fast scanning of the assortment compared to the scanning in a pattern similar to reading and skipping fewer options derived from piecemeal processing (Townsend and Kahn 2014). Therefore, when consumers encounter an assortment containing large amount of visual information, they are inclined to perceive more variety than that from a verbal information assortment.

In short, heuristic information processing stems from the theory of persuasion, and is used to understand consumers' variety perception process with regard to an assortment. The perception of ease as a driver of the heuristic motivates a facile approach (Townsend and Kahn 2014) that consumers adopt for assortment exploration when they should quickly decide the variety level for the product choices and consumption. Without accessing and scrutinizing all informational input for its relevance and importance to judgment task (Chaiken, Liberman, and Eagly 1989), heuristic processing often enhances the variety perception even though it may increase the negative

perception to the complexity ratings and choice overload (Townsend and Kahn 2014).

### **3.2 The Influence of General Assortment Structure**

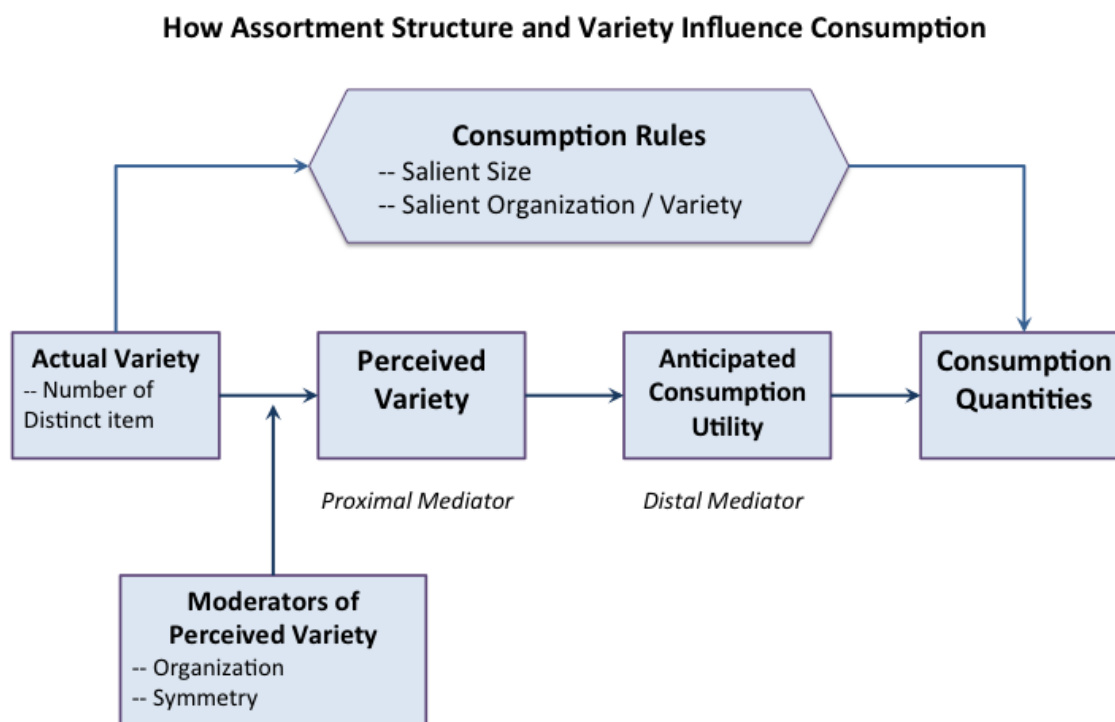
Heuristic processing offers the perspective of how consumers perceive the variety perception, but it weakens the impact from retailers' side. Note that it is retailer who decides how to manage and organize their assortments, so that it is necessary to understand what effects it will bring when the assortment structure influences the consumers' variety perception. Kahn and Wansink (2004) proposed a framework presented in **Figure 3.1** to present an overall understanding on assortment structure and variety perception. Based on their statement, actual variety presents physical differences by two components. One is the number of distinct options of distinct categories, and another is the number of category replicates. When consumers encounter an assortment, their perceptions with respect to the variety will be based on these actual differences, but moderated by the assortment organization (Hoch, Bradlow, and Wansink 1999) and the relative symmetry in the assortment (Young and Wasserman 2001).

Kahn and Wansink's (2004) study expounded that, consumers' perceived variety cannot only independently exist from the actual varieties, but influence the consumption as well even actual variety is not changed. Nevertheless, assortment structure can moderate the effect of actual variety on perceived variety. Particularly in great assortment, an organized presentation of actual product options can increase consumers' variety perception compared to disorganized product presentation.

In fact, Kahn and Wansink's (2004) proposition offers the general perspective to understand the relationship between the current assortment structure and variety perception. Researchers start to explore the effect of other relative factors of assortment structure. One of the several findings is the manipulation of display features, such as a cue of categorization, by which consumers' desire for variety can be appealed

(Broniarczyk *et al.* 1998; Hoch *et al.* 1999; Kahn and Wansink 2004). Previous linguistics research demonstrated that different classified words are perceived to be more dissimilar than that of the same classified words (Schmitt and Zhang 1998). It infers that product options grouped under the same category are likely to be perceived as more similar, but more dissimilar occurs when product options are labeled by different categories. Mogilner *et al.*'s (2008) investigation found that the presence of product categories takes a perceptual process in which consumers infer differences in the available options so that the great numbers of categories result in great variety perceptions, although the effort will attenuate when the total product options are greatly increased.

Figure 3.1: Source: Kahn and Wansink (2004)



Recently, Piris's (2013) study also supported the above framework where the researcher attempted to shed light on keeping variety perception in the case of assortment reduction through attributes control. He regarded the assortment as a combination product of

breadth and depth where the breadth of an assortment refers to the number of product families it contains, and the depth refers to the number of different items within a homogenous product family. The results showed that only assortment depth, which contained attributes such as brand, type of cooking, and weight, determined consumers' variety perception instead of assortment breadth. This result implies that perceived variety is not decided by overall assortment size but is influenced by some special product attributes (Sloot, Fok, and Verhoef 2006).

Actually, Kahn and Wansink's (2004) framework provides the theoretical implication of the relationship between actual variety and perceived variety, and the mediated role that perceived variety exerts to the relationship between actual assortment variety and consumption quantities. Following their proposition towards the moderators based on the product and attributes level, some researchers developed the quantitative utility model to verify the variety perception. The latter model will be discussed in the next section.

### **3.3 Evaluating Variety Based on Quantitative Utility Perception**

The general mathematical model of variety is proposed on the basis of Broniarczyk *et al.*'s (1998) statement of three variety related factors, and refined by Hoch, Bradlow, and Wansink (1999). Theoretically, the three factors are: (1) information structure of each assortment (the attribute level differences between objects); (2) level of organization of the objects and hence their relative spatial positions; and (3) task orientations, promoting either analytic or holistic processing. Based on these factors, traditionally, an overall variety judgment can be assumed as an integration of many pairwise comparison denoted by  $\Psi(f_i, f_j)$  based on the differences between multivariate features,  $f_i$  and  $f_j$ <sup>14</sup>. Hoch, Bradlow, and Wansink (1999) asserted this traditional variety judgment is not adequate due to its ignorance of the integrating psychological distance. Instead, their

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<sup>14</sup> For the detailed interpretation, please see the page 530 of Hoch, Bradlow, and Wansink's (1999) study.

perceived variety model (*HBW*) of an assortment  $A$  including the relevant spatial location is given by

$$V_k(A) = \alpha_k + \sum_u \Psi_k(u)n_u + \beta_k X_{kA}, \quad (\text{Eq. 3.1})$$

Where  $V_k(A)$  is the perceived variety of assortment  $A$  to person  $K=1, 2 \dots K$ ,  $\alpha_k$  is a heterogeneous specific intercept in variety perception,  $\Psi_k$  is a general psychological distance function, and the  $(u)$  is the distinction pattern between the two products where  $n_u$  presents the number of product pairs with a particular distinction pattern.  $\beta_k = (\beta_{k1}, \dots, \beta_{kp})$  is a vector of  $P$  covariate slopes, and  $X_{kA}$  is a set of covariates for assortment  $A$ .

The underlying meaning of Equation 3.1 is that a significant proportion of perceived variety can be explained by the objective information structure of the assortment. Such objective information structure is composed by objects attributes and its spatial position in the shelf. The *HBW* model adopted the Hamming measures (MacWilliams and Sloane 1977) to mark the distance between the two objects, which was used for encrypted binary codes reading during WWII. Accordingly, experimental results from *HBW*'s study identified that *HBW* model successfully seizes the differences on variety perception when different assortment organizations are presented. That is to say, more variety is perceived based on the occurrence of completely unique objects than those assortments within less unique objects (or duplicated products).

One of the drawbacks of *HBW* model is that it stresses the dispersion of attribute levels but ignores the dissociation between all unique pairs of attributes. Van Herpen and Pieters (2002) compared two mathematic approaches with regard to evaluate assortment variety, got a conclusion of better prediction that of attribute-based approach relative to *HBW*'s product-based approach. The attribute-based approach (Farquhar and Rao 1976; Bradlow and Rao 2000) is given by

$$V_k(A) = \alpha_k + \beta_1 \sum_{m=1}^M f(n_1, \dots, n_{L_m})$$

$$+ \beta_2 \sum_{m_1 < m_2}^M f(n_{11}, \dots, n_{L_{m_1} L_{m_2}}) \quad (\text{Eq. 3.2})$$

where  $m$  is the number of attributes ( $1, \dots, M$ ) with attribute levels  $l$  ( $1, \dots, L_m$ );  $n_1, \dots, n_{L_m}$  are marginal frequencies of attribute levels 1 to  $L_m$  for attribute  $m$ ,  $n_{11}, \dots, n_{L_{m_1} L_{m_2}}$  are joint frequencies of attribute levels for each pair of attributes ( $m_1, m_2$ ), and  $\alpha_k$  is a person-specific intercept.

According to the Eq. 3.2, assortment is varied to the extent that the attribute levels are dispersed, but also varied to the extent that the dissociation between each pair of attributes is higher. In order to measure between-attribute dispersion and between pair of attributes, respectively, van Herper and Pieters (2002) proposed to use *Entropy* (Kullback 1968) and *Lambda* (Goodman and Kruskal 1954). The relative algebraic equations could be given by

$$\text{Entropy}_m = - \sum_{l=1}^{L_m} p_l \ln p_l, \quad (\text{Eq. 3.3})$$

$$\text{Lambda}_{m_1 m_2} = \frac{\sum_{l=1}^{L_{m_1}} \max_c(n_{lc}) + \sum_{c=1}^{L_{m_2}} \max_l(n_{lc}) - \max_c(n_c) - \max_l(n_l)}{2N - \max_c(n_c) - \max_l(n_l)}, \quad (\text{Eq. 3.4})$$

In line with van Herpen and Pieter's (2002) statement in Eq. 3.3,  $p_l$  denotes the proportion of products in the assortment with attribute level  $l$  ( $n_l/N$ ). It is zero when only a single attribute level is present and the higher values of Entropy indicate the higher levels of variety in the assortment. On the other hand, Lambda is a measure with a simple probabilistic interpretation, which captures the extent to which information on one attribute reduces the error in predicting another attribute. In Eq. 3.4, where  $n_{lc}$  is the number of products with attribute levels  $l$  and  $c$  for attributes  $m_1$  and  $m_2$ ,  $n_l$  is the number of products with attribute level  $l$  for attribute  $m_1$  (marginal count),  $n_c$  is the number of products with attribute level  $c$  for attribute  $m_2$  (marginal count), and  $N$  is the number of products in the assortment. Lambda equals to 0 presenting no association between the pair of attributes, and equals to 1 means perfect association. Thus, it is adequate to use  $(1-\text{lambda})$  to interpret the extent to the dissociation of paired attributes.

Both Eq. 3.3 and 3.4 imply that the dispersions between attributes are independently presented from the dissociation of paired attributes.

In fact, van Herpen and Pieters (2002) did comparison of two variety models. The findings from their study indicated that both mathematic models can well predict consumers' variety perception. But Product-Based Approach (HBW) is more sensitive to the assortment size where attribute-based approach is not. That is to say, when assortment size quickly increases, the effort of measures will attenuate due to the increase of product pair, but this phenomenon does not occur in attribute-based model. Actually, the assortment level variances are robust when attribute-based approach is involved, no matter whether the assortment size and product-based approach are concurrent in the model or not.

Theoretically, it seems that the predictive coverage of attribute-based approach is more comprehensive and more adequate than the product-based approach. As a response to van Herpen and Pieters's study, Hoch, Bradlow, and Wansink (2002) re-tested both two mathematic models. They concluded that, both approaches contribute to perception process, and it is difficult to disentangle the effects of two approaches. Although consumers can pursue a pure product-based or a pure attribute-based approach to variety perception, it is difficult for the researchers to know when or under what situation one of the two approaches is chosen. Moreover, Hoch, Bradlow, and Wansink (2002) realized the importance of assortment size on variety perception once again. They asserted that size is probably a reasonable cue to the variety of an assortment, which is easily perceived and entered into variety perceptions as an additional covariate. To date, such debate still exists and the duplicate test is yet sparse. More than that, none of the researchers proposes the relevant mathematic approach for online store and/or multichannel assortment variety. It needs to be concerned in future study.

#### 4. DICHOTOMOUS CONSEQUENCES OF VARIETY PERCEPTION

When researchers talk about the consequences of variety perception, they usually refer to variety perception with regard to the assortment. According to the review in section 3.2, consumers prefer to make choices in a variety assortment (Reibstein, Youngblood, and Fromkin 1975) and often increase their consumption quantities from an assortment when both actual variety and perceived variety are increased (Kahn and Wansink 2004). Such variety preference behavior meets the needs of satiation (McAlister 1982; Ratner, Kahn, and Kahneman 1999) and the desire for balanced consumption over time (Lattin 1987).

Kahn and Wansink (2004) summarized the benefits of variety perception on both affective reaction and cognitive reaction. Previous research showed that variety is generally considered positive (Ratner and Kahn 2002) and may result in consumers feeling more positive. Such positive feeling may make consumers recall positive material (Isen *et al.* 1978), feel happy (Schwarz and Clore 1983), and anticipate a higher enjoyment of the items to be consumed. Moreover, the increase in variety elicits more attention (Kahneman 1973) and stimulates more elaborate network encoding in memory (Bradley *et al.* 1992), which can anticipate higher levels of consumption utility (Kahn and Wansink 2004) and greater likelihood of purchasing intention (Broniarczyk *et al.* 1998) from the high variance assortment.

The direct evidences for positive consequences can be found in the study in regards to large assortments. Encountering a large assortment can increase the likelihood of stimulating consumer's inherent desire to get optimal level (Berlyne 1960; Van Trijp, Hoyer and Inman 1996) and shopping pleasure (Babin, Darden, Griffin 1994; Botti and Iyengar 2006), draw greater in-store traffic, offer between-store advantage, increase the quantity of products consumed (Broniarczyk *et al.* 1998; Hoch *et al.* 1999; Iyengar and Lepper 2000; Kahn and Wansink 2004), perceive more opportunity for variety-seeking



(McAlister and Pessemier 1982; McAlister 1982; Inman 2001; Ratner, Kahn, and Kahneman 1999; Simonson 1990; van Herpen and Pieters 2002) and to offer flexibility for uncertain preferences (Kahn and Lehmann 1991; Kreps 1979; Kahneman, Wakker, and Sarin 1997).

Beyond that, the consequences of variety perception can be linked to satisfaction and store choice ratings. For instance, greater number of product variants with alignable attributes can increase consumers' satisfaction compared to non-alignable attributes in product variants (Herrmann *et al.* 2009). Similarly, study using mere categorization to simplify the presentation of different magazine in supermarket is found to increase variety perception, which in turn leads to greater self-determination and satisfaction (Mogilner *et al.* 2008). Morales *et al.*'s (2005) study found higher variety perception may not directly influence satisfaction, but lower variety perception can reduce the satisfaction definitely. The aforementioned results reveal that variety perception explains greater variance in satisfaction, but also exerts the mediation effect during the process of satisfaction evaluation (Hoch, Bradlow, and Wansink 1999).

Nevertheless, it must be noted that variety or great product options raise the negative concerns too. Maholtra (1982) stressed that large size of assortment relates to individual's cognitive information load (Jacoby, Speller, and Kohn 1974; Lehmann 1998; Keller and Staelin 1987; Lurie 2004) and complicates the decision process (Spassova and Isen 2013; Huffman and Kahn 1998) that cause consumer's confusion on choices (Huffman and Kahn 1998). For the consumers, to choose the preference from an option containing 24 hams products is more difficult than making choices from an option containing only 6 hams (Iyengar and Lepper 2000). Therefore, greater variety, or at least large assortment may reduce consumer's satisfaction of decision (Maholtra 1982), and increase the likelihood of deferring (Greenleaf and Lehmann 1995; Iyengar, Jiang, and Huberman 2004) and consumer's regret of product choice (Tsiros and Mittal 2000).

In short, in many cases, variety perception meets consumers' needs of satiation and

flexibility to choice decision, which often results in positive evaluation, affects, and satisfaction. Although, the case of cognitive overloading probably increases the difficulty of decision making, less variety perception usually does not receive the preference from consumers when they encounter an assortment.

## 5. MEASUREMENT OF VARIETY PERCEPTION

Seriously, variety perception is not an independent marketing theory but is parasitic on the theory of variety-seeking behavior or other relevant concepts. In many cases, variety perception is an instant evaluation when consumers are encountering an assortment or doing comparison among different assortments without an explicit comparative line to define what is more or what is less. Consequently, direct measurement of variety perception is more appropriate than other methods.

Except those studies in which researchers used manipulated large-small assortment to examine the influence of presumed variety perception on consumers' evaluations, not too much subjective variety perception measurements are used. Not like the measurement of variety-seeking behavior which is determined by different factors, almost all researchers agree such a theoretical dimensional perception. Moreover, in most cases, researchers prefer to use three questions in order to examine both positive and negative effort of the judgment regarding variety. The relevant questions usually contained the words such as "diverse", "more ways", "how different", "distinct from", and "how similar". Researchers often use average scores of all questions for statistical validation, however the Cronbach's alpha is not very high (between .60-.80) in most of multi-question measurements. **Table 3.1** lists the subjective variety perception measurement published in top-level journals.

**Table 3.1: Summary of Variety Perception Measurement**

<b>Authors</b>	<b>Journal</b>	<b>Main Objects</b>	<b>Measures of Variety</b>
Hoch, Bradlow, and Wansink (1999)	<i>Marketing Science</i>	The product-based approach evaluates consumers variety perception	<b>One-item 10-points semantic differential:</b> "How varied is the store's assortment of Jinkos?"

<b>Authors</b>	<b>Journal</b>	<b>Main Objects</b>	<b>Measures of Variety</b>
Van Herpen and Pieters (2002)	<i>Marketing Science</i>	An attribute-based approach proposed for variety perception evaluation	<b>3-questions 10-points response scale with "not at all" and "very much" at extreme point:</b> "Does this assortment of Jinkos offer Variety?" "Does this store offer a dull assortment of Jinkos?" "Does this store offer a diverse assortment of Jinkos?"
Kahn and Wansink (2004)	<i>Journal of Consumer Research</i>	How does overall assortment structure influence variety perception and consumption quantities?	<b>4-questions 9-point Likert scale (<math>\alpha=.81</math>):</b> "This assortment of jelly beans gives me a lot of variety for me to enjoy" "This assortment of jelly beans gives me at least one flavor I like" "This assortment of jelly beans offers more ways to enjoy it" "How much variety do you think there is in this assortment?"
Mogilner, Rudnick, and Iyengar (2008)	<i>Journal of Consumer Research</i>	How does the mere categorization influence perception of assortment variety and satisfaction	<b>3-items 10-point scale for Magazines: (<math>\alpha=.76</math>, anchors varied)</b> "How much choice do you feel you were offered in terms of the magazine selection?" "How much variety do you think there was in the magazine display?" "How similar do you think all of the magazines in the display are to each other?" <b>Another 3-item 7-point scales for Coffee (<math>\alpha=.71</math>)</b> "How different were the coffee options from each other?" "How similar were the coffee options to each other?" "To what extent do you feel that the coffee you chose is distinct from the other types of coffee you did not choose?"
Morales, Kahn, McAlister, Broniarczyk (2005)	<i>Journal of Retailing</i>	Variety perception and satisfaction can be varied by congruence/incongruence between consumers' internal structure and retailer's external organization (layout)	<b>1-questuion asked the participants to report their overall perceived variety</b> with 5-point scale where 1=low variety and 5= too much variety

<b>Authors</b>	<b>Journal</b>	<b>Main Objects</b>	<b>Measures of Variety</b>
Piris (2014)	<i>Recherche et Application Marketing</i>	Assortment breadth and depth are the structure that influences consumers' variety and satisfaction. Through this structure, it is possible to reduce assortment without getting the variety reduced	7-item scales without point specified: (Only first 5 questions are passed by CFA (AVE=.617)) <b>VARQ1:</b> you find that this department provides a large quantity of products. <b>VARA1:</b> You find that this department provides plenty of (product) varieties. <b>VARA2:</b> You find that this department does not provide enough different (product) types. <b>VARM1:</b> You find that this department provides many different brands. <b>VARM2:</b> You would like this department to provide more brands. <b>VARC1:</b> You think that there are few possible choices in this department. (item not retained) <b>VARC2:</b> You think that in this department there is (not enough choice, ..., too many choices). (item not retained)
Desai and Trivedi (2014)	<i>Journal of Business Research</i>	To find a way to reconcile objective measure of choice variety derived from scanner data and subjective consumer-based measure.	Using 10-item exploratory acquisition of product scale (with anchors strongly disagree-strongly agree) to measures the subject's intrinsic variety seeking trait (Baumgartner and Steenkamp, 1996) through which researchers investigate the extent of match-up to high-low seeking intention derived from scanner data
Townsend and Kahn (2014)	<i>Journal of Consumer Research</i>	Using visual depiction or verbal depiction can influence assortment processing and variety perception. The visual preference heuristic can lead to more variety perceptions than verbal depiction	<b>3-questions 9-point scales : (<math>\alpha=.71</math>)</b> "This assortment of crackers offers a lot of variety" "This assortment of crackers gives me at least one option I like", "How much variety do you think there is in this assortment?"
Redden and Hoch (2009)	<i>Journal of Consumer Research</i>	When other studies discuss the effect of variety on decision making, this study concerns variety effect on perception of quantity. The results showed that more variety presented can lower the subjects' perception on quantity from 5%-12%	Cause variety is independent variable in this study. It is the experimental manipulation presented in all the four experiments through adjusting the colors and geometrical shapes

<b>Authors</b>	<b>Journal</b>	<b>Main Objects</b>	<b>Measures of Variety</b>
Broniarczyk, Hoyer, and McAlister (1998)	<i>Journal of Marketing Research</i>	The study to identify which assortment elements can improve efficiency, and reduce the cost without influencing consumers' assortment perception (variety)	<p><b>In Study 1</b>, consumers were asked to assess their assortment perceptions by a 5-point scale that ranged from 1=very little variety to 5=excellent variety</p> <p><b>In study 2, total 7 questions to assess consumers' assortment perception:</b></p> <p>Q1, "rate the general relative assortment of microwavable popcorn offered at the stores" 9-point scale</p> <p>Q2-Q7: questions include total number of items, brands, package sizes, price ranges, flavor, and nutrition types offered (9-point scale where 1=1<sup>st</sup> store has many more than 2<sup>nd</sup> store, 5=1<sup>st</sup> and 2<sup>nd</sup> store have about the same, and 9=2<sup>nd</sup> store has many more than 1<sup>st</sup> one.</p>

## 6. THEORETICAL LIMITATION

Based on the aforementioned review, variety perception is an assortment related to evaluation that consumers assess the extent of product options. During the shopping trip, variety perception is a very important factor that will influence consumers' store choice and satisfaction. As stated before, consumers have preference to the variety perceived assortment which can satisfy their inherent motivation of satiation and increase the choices flexibility (McAlister and Pessemier 1982). However, too many product options may cause choice difficulty and negatively influences the consumers' shopping experiences.

Normally, the study related to variety perception concentrates on traditional market within grocery product. Variety perception is usually regarded as an extension of the researches with respect to assortment structure (Broniarczyk *et al.* 1998; Kahn and Wansink 2004). The interesting point is that few studies have concerned consumers' variety perception in online market. Theoretically, the assortment in online store can be infinitely demonstrated, a potential unlimited shelf space can be used to demonstrate whatever product options retailers want to. In this case, should we say variety perception is no longer a decisive factor to store choice or consumers' evaluation? The answer is still a blank.

Moreover, when retailers start multichannel strategies within online stores, the situation will be more complex. Except for the consideration of how many product options are presented, the between-channel assortment organization is another pivotal question. An intuitive question can be connected to the choice of overlapping assortment or differentiating assortment (Mittelstaedt and Stassen 1990; Stassen, Mittelstaedt, and Mittelstaedt 1999). Overlapping strategy may not only reduce consumer's confusion and improve efficiency, but also reduce the diversity of selection and lessens the shopping experiences. The latter negative effect will probably reduce the consumers' value

perception because of less variety evaluation, which may lead to negative evaluation. Consequently, researchers are supposed to pay more attention on the multichannel assortment structure and its variety perception.

Next, consumers like variety, but how consumers perceive the variety still needs to be refined. Previous researches showed that cognitively heuristic process is often adopted by consumers to evaluate the assortment (Chernev 2008; Townsend and Kahn 2014). Such heuristic cue is sometimes connected to consumers' internal schema, because consumers are inclined to use simple inferential or schemata to formulate their judgments and decisions when heuristic process is adopted (Chaiken, Liberman, and Eagle 1989). Some researchers have ascertained that, this propensity is somewhat dominant in the judgment that consumers internal schema connects to the perception of assortment (Morales *et al.* 2005; Valenzuela *et al.* 2013). Thus, it is still worth studying to see how people's internal schemas influence between-channel assortment variety evaluation.

Finally, variety perception study is often related to variety seeking behavior in grocery market. The extensive scanner data (panel data) provide abundant objective evidences to understand consumer behavioral pattern with regard to brand switching or consistent buying. Some researchers may argue that these scanner data are the accumulation result of long-term observation, but it will probably eliminate the decisive effect of instant subjective factors. For retailers, this instant psychological effect on purchasing decision cannot be ignored when consumers are visiting retail stores. This effect may probably be amplified in a multichannel context. Readers can imagine a scenario where consumers are intent to check the product options on online store when they are still visiting the offline store. Therefore, it needs to be known how consumer subjective perception in regards to multichannel assortment affects their evaluation towards the multichannel retailers.



## 7. SUMMARY

In this chapter, the discussion is focused on assortment variety. It starts from the interpretation of why consumers prefer variety and giving three relevant reasons discussed. Then the discussion moves to how consumers perceive variety or through what process consumers evaluate the variety. The previous studies proposed that consumers may rely on cognitive heuristic process due to its fast treatment and the effectiveness of the evaluation, but this process is more adequate in the small assortment relative to the large assortment (Townsend and Kahn 2014). Another factor related to variety process is the categorical level assortment structure (Kahn and Wansink 2004). The organization and symmetry of the assortment can be decisive elements that vary consumer evaluation. For instance, Mogilner *et al.*'s (2008) study found that the presence of product categorization to the consumers can influence assortment variety perception and satisfaction.

Other than the two factors stated above, Hoch et al. (1999) and van Herpen and Pieters (2002) proposed two quantitative models to explain consumers' mathematic evaluation of variety respectively through product- or attribute-levels, respectively. The statistical results indicated that both mathematic models can well predict consumers' variety evaluation, but the product-level model is more sensitive to the assortment size with less accuracy compared to the attribute-level model. However, in most of the cases, both models are impossible to be precisely distinguished by consumers. Nowadays, the process of perceiving variety can either be perceived by fast cognitive process or detailed utility calculation from the comparison, both of which are moderated by the situational assortment structure.

Concerning the consumers' preference of variety, one may infer that the positive consequences, which include shopping pleasure, satisfaction, and store choices ratings, are resulted from variety perception (Babin, Darden, Griffin 1994; Botti and Iyengar

2004; Herrmann et al. 2009; Hoch, Bradlow, and Wansink, 1999). In contrast, negative consequences probably occur when the cognitive process is overloaded or more cognitive resources are demanded, which will result in less satisfaction (Maholtra 1982), intention of deferring (Greenleaf and Lehmann 1995; Iyengar, Jiang, and Huberman 2004) and consumer's regret of product choice (Tsiros and Mittal 2000).

The measurement of variety perception is neither complicated nor controversial. This may attribute to the perception of "more" or "less" on the product options. Usually, researchers are inclined to directly ask consumes to report their variety perception in not more than three questions with respect to the extent of "variety", "diverse", "difference", or other synonyms. The effects of all these measurements seem undifferentiated.

The final section, the limitation of variety perception study is highlighted. Briefly, variety perception research is absent in both online retailing and multichannel retailing context. When retailer has online and offline stores, the between-channel assortment strategy is very possible to influence consumers' variety evaluation. It is a pity that none of previous studies has ever concerned about this topic. Furthermore, if heuristic cognitive process is often adopted by consumers to assess assortment, whether consumers' prior schemas with respect to the between-channel assortment organization influence variety evaluation can be a question consequently. Thereupon, these theoretical questions will be studied in this research project.



## **Chapter 4 – RESEARCH OBJECT AND METHODOLOGY**

## 1. THEORETICAL GAP AND RESEARCH OBJECTS

Starting from 1995, the development of both information technology and internet has really changed peoples' life. From the suspicion in the early time to the reliance, internet and its derivatives now are the essential part in person's daily life. People use it for searching, transferring, and exchanging the information, and use it for connecting and communicating with other persons, seeking the product, reserving the services, and making the deal. Now it can say that we are "interneting".

In the business world, particularly in marketing domain, integrating the web shop into current distribution system, or working with the traditional brick-and-mortar stores is the pervasive strategy throughout all leading retailers. In fact, the concept of Multi-channel (or multiple channels) is not new "creation", it has been already launched in the current market such as catalog channel, mail-order channel, and telemarketing channel. Not like the traditional multichannel strategy in which an enterprise contacts the customers base through the different channels such as using retailing stores for the local customers, using catalog for the remote clients, and using personal relationship for the VIP customers, the new multichannel strategy now we are talking includes the online store or e-commerce can change the power of the channel choices from the retailers to the consumers (Rangaswamy and Bruggen 2005). Such change of the channel choice can also influences the traditional retailers who have not the online stores, force them considering seriously on how to cope with the pressure transferred from the pure website retailers or from the multichannel retailers (Brynjolfsson and Smith 2000).

Obviously, online and offline channels differ in many respects (Chiang and Dholakia 2003) that lead to different channel valuations (Chu, Chintagunta, and Vilcassim 2007; Degeratu, Rangaswamy and Wu 2000). A series of articles on the studies of channel choices (Park, Chung, and Yoo 2009; Konuş, and Verhoef, and Neslin 2008; Verhoef, Neslin, Vroomen 2007; Verhoef and Donkers 2005; Venkatesan, Kumar, and Ravishanker 2007; Shankar, Smith, and Rangaswamy 2003), and how the traditional

channel evaluation is transferred to the online channel (Kwon and Lennon 2009; Dholakia, Zhao, and Dholakia 2005; Gupta, Su, and Walter 2004; Verhagen and Van Dolen 2007; Badrinarayanan *et al.* 2012) have been examined in much time. However, lack of evidence provides the sufficient information to teach the adequate operation for the retailers. For instance, Badrinarayanan *et al.*'s study (2012) compared the store image between the online store and the offline store in U.S. and South Korea, they found that congruence perceived from between-channel store images influences the transference of the trust belief from the offline store to the online store. This overall conclusion did not give the detailed store attributes that consumers probably used for evaluation, nor indicate whether consumers have tried to compare each store attributes in the study.

For retailers, given a conclusion of making the store image of two channel stores to be congruent is not enough for the daily operation. No one really knows whether the overall congruence perception of store image equals to the aggregation of the congruence which perceives from the each store attribute. Researchers are not sure whether the consequences of the congruence are the same from the different cross-channel store attributes. The last point is so meaningful which definitely relates to the retailers' operation and manipulation. Wolk and Ebling's (2010) study found that multichannel retailers have the motivation to engage in differentiating the multichannel price, but they did not answer about the relevant consumers' responses towards this strategy. Similarly, Morales *et al.*'s (2005) research considered the influence on variety perception by the congruence between subjects' internal schemas and external assortment layout, but such idea was not expanded into multichannel environment. As a result, how consumers' congruence-based evaluation in regards to the between-channel store attribute is yet a puzzle.

Consequently, this research project will make the focal point on the between-channel store attributes rather than the overall store comparison that has been raised in multichannel context. The object of this research project is twofold. First, the researcher

will investigate the Chinese consumers' overall attitude towards the multichannel, their shopping habits in the multichannel context, and explore the relevant store attributes that influence consumers' evaluative process in the multichannel context. Since recent consulting report has indicated that both China and U.S. are the two largest e-commerce markets, whose online sales volumes have reached 55% of total global internet retailing amount in 2014 (emarketer.com 2015). It is meaningful for the retailers to know what the Chinese consumers' habits are, and what the relevant store attributes that Chinese consumers used in prior during their shopping decision.

Second, to fill the gap of multichannel study, researcher will investigate how consumers' congruence perception regarding the store attributes affects the attitude towards the multichannel retailer. The multichannel price and multichannel assortment will be investigated in this project<sup>15</sup>. This is because these two store attributes are common in both channel stores, and are often recognized very quickly by the consumers. Price signifies the gain and the loss which is very sensitive to the human being, while assortment relates to the integration of brands, product categories, product types, and the quantity that retailers represent to the consumers. In the connection to the concept of price fairness and variety perception, respectively, researches can investigate the causal relation among the consumers' congruence perception, attribute-related evaluation, and consumers' attitude towards the retailer. More precisely, researcher will investigate does the cross-channel price policy influence consumers' congruence perception, which may affect the fairness perception on price and attitude towards the retailers. Another research model will investigate whether the congruity-incongruity, which is derived from the consumers' schema regarding the current cross-channel assortment influence the variety perception and the consumers' attitude. These two research models are represented separately in the **Figure 4.1**

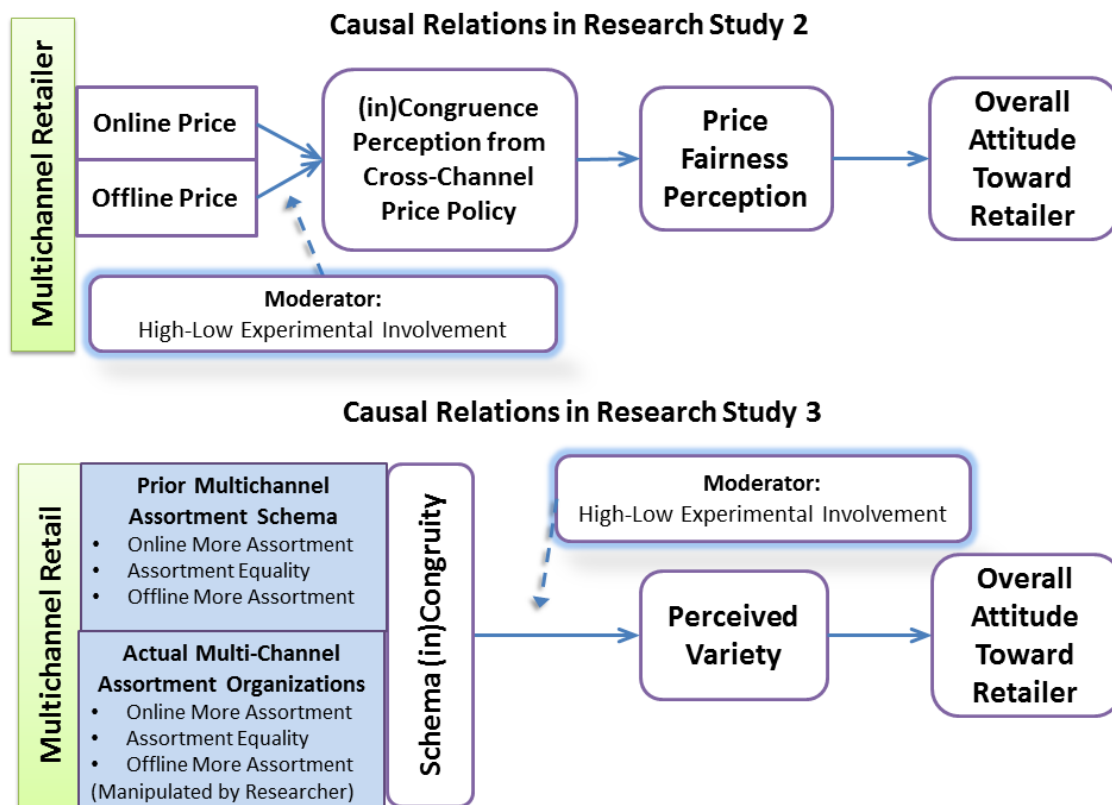
In order to achieve the objects that have stated above, the whole research project is

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<sup>15</sup> The relevant discussion of why price and assortment are chosen as researching objects is presented in section WHY ARE PRICE AND ASSORTMENT CHOSEN? (see chapter 2.1)

composed of three independent studies. Except for the literature review that have been introduced from Chapter 1 to Chapter 3, researcher will introduce the relevant research approaches that will be adopted in the research project in this chapter, of which the section 2 will present the different approaches and relevant techniques for statistical analysis; the section 3 will present the process of choosing the measurement for the experimental studies, and the section 4 will discuss the validation correspond to the mediation and moderation test. In the following Chapters 5, 6, and 7, each study will be presented one after another. Researcher will highlight the theoretical and managerial contribution, limitation, and the future research in the Chapter 8.

Figure 4.1: The Relevant Research Models



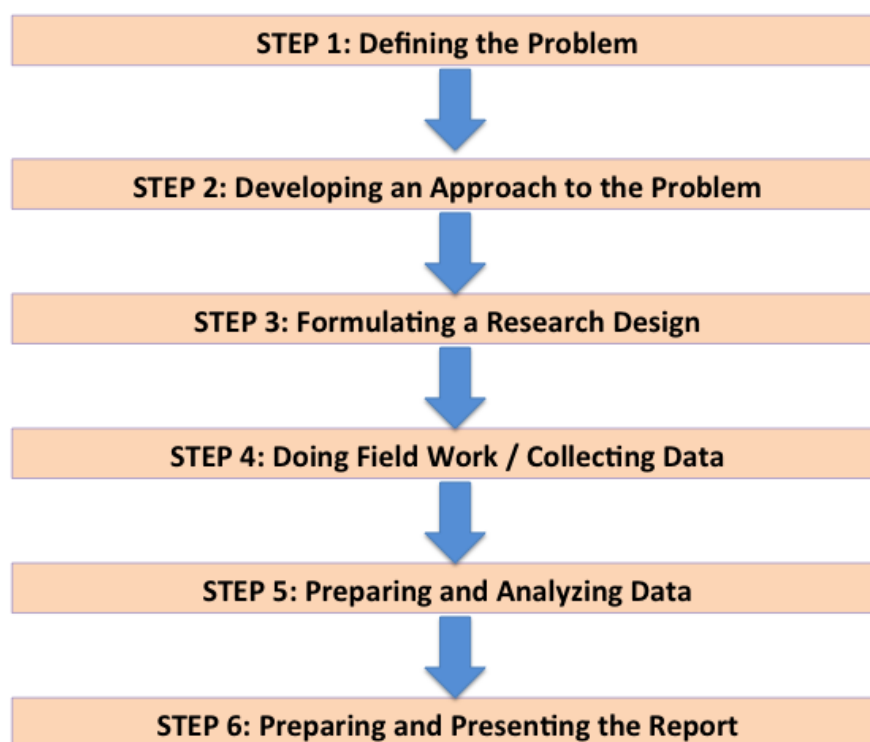


## 2. RESEARCH APPROACH

Marketing research is a kind of systematic and objective identifications, collections, analysis, disseminations, and uses of information for the purpose of improving decision making related to the identification and solution to problems and opportunities in marketing domain (Malhotra 2014). The global market has been changed very fast in the past 30 years, the process of marketing research has not. A 6-step structure of research process has been keeping accepted by most of researchers which is represented in the **Figure 4.2.**

**Figure 4.2: The Marketing Research Process**

(Source: <<Essential of Marketing Research>> Malhotra (pp.32; ed.2014))



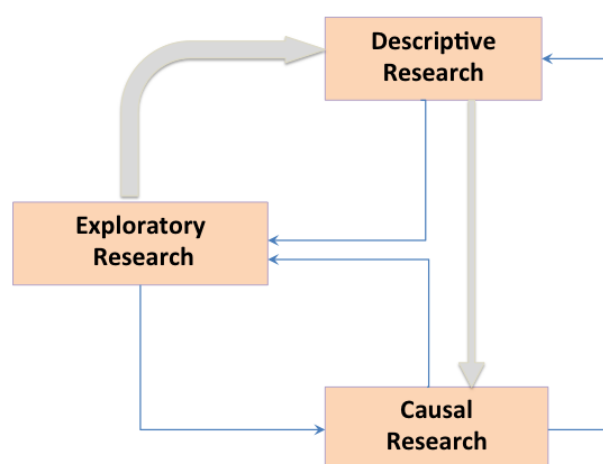
Compared to Malhotra's 6-steps process stated above, Churchill and Iacobucci (2005) also proposed a 6-step research process that is consist of "*formulate the problem, determine the research design, design the data collection method and forms, design the*

sample and collect data, analyze and interpret the data, and prepare the research report" (Churchill and Iacobucci 2005; pp.40). However, the terms that two processes used are not the same, their underlying meanings are consistent. Accordingly, the contents which have been introduced in the last section is the first step of "defining the problem" in the research process.

The second step is to determine the research design or to develop appropriate approach to the problem. Churchill and Iacobucci (2005) proposed three types of research designs and gave its inter-relationships which are represented in the **Figure 4.3**. These three types are "*exploratory research*", "*descriptive research*", and "*causal research*", respectively. The different types of design are usually used for the different objects. For instance, the explorative research is used for discover the ideas and insights, while the descriptive research considers the relationship among the variables, and the causal research is used to determine cause-and-effect relationship. Among the three types, the explorative research could be regards as the initial step (**Figure 4.3**) that helps to refine the questions for the other two research types (Churchill and Iacobucci 2005).

**Figure 4.3: Relationship among Research Designs**

(Source: <<Marketing Research>>, Churchill and Iacobucci (pp.75))



## 2.1 Depth Interview

The principle object of this research project is to understand the Chinese consumers' habits in the multichannel retail context, their attitude towards multichannel retailers and the relevant store attributes that the Chinese consumers used for concerning during their shopping decision. However, lack of the study in regards to the Chinese multichannel market has been reported. As a result, it is appropriate to choose the explorative research as the starting point of this research project. A qualitative method called Depth Interview is chosen for the explorative research.

Depth Interview is a one-to-one, face-to-face interview where the participants give their insightful responses based on the several question points that are pre-defined by the researcher. Compared to other qualitative method such like Focus Group, this method is a little bit expensive and more time consuming. However, Depth Interview has sufficient flexibility so that it is more suitable for the Chinese consumers who are sensitive to the social pressure when they are sitting in a box-room surrounded by the unfamiliar people. In fact, Depth interview provides the sufficient private space for the participants where the participants are assured to express their views freely.

The Depth Interview will be organized at three major cities that are Shanghai, Beijing and Nanjing, respectively. The interviewees are collected by a snowball method. The first three interviewees are randomly invited from the local universities. Then, they are asked to invite new participants in the next round, and so on. At the beginning of each interview, participants will be told that the duration of the interview may take one hour, more or less, and participants can decide at that moment whether he/she wants to continue. This guarantees that there is no time pressure for each interviewee. Moreover, the interview is organized at a coffee shop (such as Starbucks, Costa or the others) for the convenience. Every interviewee receives a cup of coffee (or tea) and a dessert for the gratitude. In order to avoid the information missing, an assistant is recruited to help record. The detailed report will be presented in the Chapter 5.

## 2.2 Experimentation

The Depth Interview is expected to provide more accurate information about the Chinese consumers' purchasing habits, the related process during the decision, the relevant store attributes that they are sensitive to, and their attitude while they are shopping in the multichannel context. Accordingly, some special store attributes are emerged for the following causal research. One of the adequate approaches of studying causal relationship is Experimentation.

Experimentation is often called "*causal research*". According to the definition of Kerlinger and Lee (2000), experimental design is *one in which the investigator manipulates at least one independent variable*. For instance, when researcher knows one of the store attributes that is more sensitive to the participants, the experimental factorial design could manipulate the extents of presentation on that store attribute so that it increases the likelihood of observation with regard to concomitant variation of subjects' evaluation to the manipulation extent of that store attribute.

Since multichannel context is more complicated than the single channel context, and consumers cannot visit offline and online stores at the same time<sup>16</sup>, a laboratory experiment is consequently appropriate. The computer-aid scenario is adopted for demonstrating both online store and offline store to the participants. The experimental process will be presented on a designated website that guarantees all participants are online experienced consumers. All participants are randomly assigned to the each experimental condition (manipulation) by the computer program. Then, their evaluation and responses depending on the manipulation that they confront will be recorded by the computer program. The detailed process of Experimentation is represented in the Chapter 6.

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<sup>16</sup> Today, supported by mobile application, consumers are possible to visit different channel stores in the same time. Particularly, young consumers prefer to search relevant information online through their mobile application when they are staying in the offline store. This phenomenon becomes popular, does not get sufficient concerns by the researchers yet.

The biggest merit of experimental method is its greater internal validity due to its greater control. Thus, the results get from the experiment are robust and convinced. An accurate design based on the appropriate stimuli supported by the precise measurements can eliminate the heterogeneous effects that usually derive from the individual's personal characteristics. This approach maximizes the researching effort within the limited resources that are required. In contrast, the shortcoming of Experimentation is about the external validity because a high-controlled experimental context does not equal to the real retailing context. It is questionable whether the experimental results can be generalized to the other populations and settings (Churchill and Iacobucci 2005).

### 2.3 Quasi-Experiment

Quasi-experiment is another approach used for the causal research, which has similar purpose to the "standard" experimentation. A distinguished difference between the quasi-experiment to the (standard) experimentation is that the former method releases the constraint of random assignment (Shadish, Cook, Campbell 2000) which is compulsory in latter method. Instead, the assignment to the conditions in Quasi-experiment can be done by the means of self-selection, by the unit that participants are treated, by the means of administrator selection, or any others decision between the participants and the treatment. The above conditions are supported by Campbell and Stanley (1963) who posited in their statement that in natural social settings, researchers cannot always fully control over the experimental stimuli<sup>17</sup>. It is the researchers who decide which alternative explanations are plausible, and then assess it to ensure whether such explanation explains any observed effect.

Someone can argue that the increasing alternative explanations induced from a nonrandom quasi-experiment will reduce the power of plausible effort that a quasi-experimental design contributes to the theories. This is reasonable but is not

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<sup>17</sup> Campbell and Stanley (1963) stated that research "lacks the full control over the scheduling of experimental stimuli (the when and to whom of exposure and the ability to randomize exposures) which makes a true experiment possible." (p.34)

unique for the Quasi-experiment. Even in the (standard) experimentation, the plausibility can also leave the resulting causal inference vulnerable to the discovery that an implausible-seeming alternative may later emerge as a likely causal agent (Shadish, Cook, and Campbell 2000). Nevertheless, it is true that Quasi-experiment has theoretical weakness relative to the (standard) experimentation, it can be regarded as falsificationist that requires the researchers to identify the causal claim and to examine plausible alternative explanations that might falsify the claim (Popper 1959).

Come back to this research study, subjects' congruence perception has been identified to link to the prior expectation that subjects held. Therefore, expectation can be an antecedent in forming congruence perception. Subjects' expectation is composed of subjects' prior experiences and their schema structure of knowledge. Researchers cannot know very clearly each subject's expectation until it is reported by the subject. In this case, separating the subjects based on their prior expectation and then observing their responses along with the different experimental stimuli can be very meaningful for understanding the process of congruence perception. Since each subject's expectation is not known at the beginning of the study, the subjects cannot be randomly assigned to each experiment manipulation in the strict sense. This is why such study is named as Quasi-experiment.

According to the discussion, the normal experimental manipulations are no longer an independent variable in the Quasi-experiment. Instead, it is the combination of subjects' expectation and experimental manipulations. More precisely, subjects perceive congruence only when the experimental stimuli match their expectations, otherwise incongruence will be perceived. The advantage of this method is that it evokes the real cognitive process on the judgment of congruence or incongruence, because forcing the participants report their expectation can make them do the evaluation of stimuli in conscious. Readers can find this approach and the details in the Chapter 7.

## 2.4 The relevant technique for statistical analysis

Once research designs have been justified, it must specify the nature of the data, the source, the type and the form (Dubois, Jolibert, and Mühlbacher 2007). In this research project, most data are the primary data collected from the subjects at one point in time. The underlying meaning of data is the relevant information that is presented on the variables. Hahn and Macé (2012) define two general types of statistical variable: qualitative variable and quantitative variable. The qualitative statistical variable is the variable which cannot be measured. The typical qualitative variable is nominal variable or ordinal variable. Alternatively, the quantitative statistical variable is corresponded to a set of value. The typical one is discrete quantitative variable or continuous quantitative variable. The characteristics of these variables are different, the meanings it transfers to are also diverse. When they are adopted into the research study, numerous analysis methods can be chosen. The appropriate technique is chosen must be depended on the measurement scale used and the number of variable to be linked (Dubois, Jolibert, and Mühlbacher 2007). Accordingly, both Hahn and Macé (2012), and Dubois, Jolibert, and Mühlbacher (2007) summarized the proper methods to which researchers must pay attention in the quantitative analysis. Of which, Hahn and Macé's (2012) proposal is based on their two types of statistical variable classification (**Figure 4.4**), while Dubois, Jolibert, and Mühlbacher (2007) give the advice based on the traditional variable classification and distinguish the differences of the relevant methods for single variable or for multiple variables (**Figure 4.5**).

**Figure 4.4: How to Choose Explicative Method**  
(Source: Hahn and Mac é2012, p.23, adapted by the author)

		Independent Variable (Predictor) - X		
		Nominal(s)	Quantitative(s)	Nominal & Quantitative(s)
Dependent Variable - Y	Nominal	Logistic Regression (Logit/Probit)	<ul style="list-style-type: none"> <li>Logistic regression</li> <li>Discriminant Analysis</li> </ul>	Logistic Regression
	Ordinal	<ul style="list-style-type: none"> <li>Conjoint Analysis</li> <li>Ordered Logit/Probit</li> </ul>	Ordered Logit/Probit	Ordered Logit/Probit
	Quantitative Discrete	Poisson Regression	Poisson Regression	Poisson Regression
	Quantitative contineous	Variance Analysis (ANOVA)	Simple regression or multiple regression	<ul style="list-style-type: none"> <li>Covariance Analysis(ANCOVA)</li> <li>Multiple Regression</li> </ul>

**Figure 4.5: Technique of Explanatory Methods**  
(Source: Dubois, Jolibert, and Mühlbacher 2007; p.195)

		Dependent Variable (Y)						
		Interval / Ratio		Ordinal		Nominal		
		1	+1	1	+1	1	+1	
Independent Variable (X)	Interval / Ratio	1	Simple Regression	Canonical Analysis	-	-	Discriminant Analysis	-
		+1	Multiple Regression	Canonical Analysis	-	-	Discriminant Analysis	-
	Ordinal	1	-	-	Non-Parametric Statistics	-	-	-
		+1	-	-	-	-	-	-
	Nominal	1	T-test One-way ANOVA	Multivariate analysis of variance	Non-Parametric Statistics / Conjoint Measurement	-	$X^2$ , logit, loglinear	$X^2$
		+1	ANOVA	Multivariate analysis of variance	Conjoint Measurement	-	$X^2$ , logit, loglinear	-

1= single variable; +1= multiple variables



### 3. THE RELEVANT MEASUREMENTS CHOSEN FOR STUDY

Based on the marketing research process (see section 4.2), researchers should decide the samples and collect the data (Step 4) after the design is fixed. The principal work of step 4 contains two parts, on one hand; researchers have to select a population group and its volunteers to complete the data collection. On the other hand, researchers should decide which measurement will be used in data collection. Due to each study has different goal supported by different researcher methods (design), the sample selection is obviously different among the three studies, and it will be discussed in each study (see the Chapter 6-8, respectively). In this section, researcher only introduces the relevant measurement which will be used in the research project.

The overall objective of this study is to understand how subjects' congruence (or incongruence) perception with regard to the store attribute(s) affects subjects' evaluation on price fairness, on variety perception, and on attitude towards the multichannel retailer. The researcher introduces the relevant measurement used for each variable hereinafter.

#### 3.1 Measurement of Perceived Congruence in Experimental Design and Relevant Treatment

According to the literature review and the summary demonstrated at the end of Chapter 2, one of the popular congruence measurements is experimental manipulation with *a posteriori* validation (Maille and Fleck 2011). This is because the *ex post* measurement on congruence evaluation is more convinced than the *ex ante* measurement that derives from the experimental manipulation *per se* only, the latter expands homogeneity-heterogeneity bias in total samples indeed (Maille and Fleck 2011).

In the experiment of this study (Study 2), the researcher adopts the similar measuring method. The manipulations are designed to distinguish the extents of congruence

(incongruence). Participants are asked to report their perceived congruence when they encounter the corresponded stimulus. It can infer that offline store and online store are inherently relevant and connected when both are belonging to the same multichannel retailer. Hence, the orthogonal structure measurement of congruence perception (Heckler and Childers 1992) is appropriate, wherein the “relevancy” dimension measures the extent of how one channel store is relevant to another channel store, and the “expectancy” dimension measures the extent of how current cross-channel price discrepancy is out of participant’s expectation.

This orthogonal measurement was first proposed by Heckler and Childers (1992), and then was adopted in many congruence studies (e.g., Lichtlé2002; Lee and Mason 1999). Compared to other congruence measurements, this is the unique one to examine both relevancy and expectancy dimensions. Other measurement either only keeping a watch on the linkage between the two entities, or only doing the judgment on the matching effect regarding the subjects' expectation. This is why such orthogonal measurement is the better choice

Heckler and Childers’s (1992) orthogonal measurement usually contains two questions within semantic differential scale anchored “irrelevant/relevant”, “unexpected/expected”, respectively, at the two extreme point:

- Q1.) Based on the illustration you have read, the prices of products between two channel stores are \_\_\_\_\_ (anchored “irrelevant” at 1 and “relevant” at 7)
- Q2.) Based on the illustration you have read, the prices of products between two channel stores are \_\_\_\_\_ (anchored “unexpected” at 1 and “expected” at 7)

This two single variables presenting in orthogonal structure may not be convenient in the statistical computation, it is necessary to do the mathematic treatment for the analysis. In order to calculate the congruence perception of each participant, two concerns are noted. First, it cannot directly calculate mean within two measures (questions) because these

two measures do not belong to the same dimension. Second, each participant perceives the extent of congruence depending on the stimulus that he/she encounters; different stimuli may produce different effects to the participants. Thus, a mathematic treatment based on the weighted standard deviations is introduced to the process that is used to convert the value of each question -- “relevancy” and “expectancy” – into a single variable.

In detail, participants are grouped into different stimulus. Given a situation that a participant encounters the first stimulus, his/her overall congruence perception could be regarded as a mathematic combination between the measurements of the “relevancy” and the “expectancy” that are adjusted through the ratio of weighted standard deviation ( $\sigma$ ) which is derived from the responses of the participants who are in the same experimental stimulus. Since, the standard deviation ( $\sigma$ ) reflects the measuring variation among the participants who are in the same manipulation group (stimulus). Each participant's ( $i=1, 2, \dots, n$ ) perceived congruence of encountering the stimulus  $j$  ( $j=1$  or  $2$  or  $3$ ) can be given as:

$$Congruence_{ij} = Rele_{ij} * \frac{\sigma_j^{rele}}{\sigma_j^{rele} + \sigma_j^{exp}} + Exp_{ij} * \frac{\sigma_j^{exp}}{\sigma_j^{rele} + \sigma_j^{exp}} \quad (\text{Eq. 4.1})$$

Where,  $Rele_{ij}$  and  $Exp_{ij}$  represent the participant  $i$  who measures the scores of "relevancy" and "expectancy" to the stimulus  $j$ , respectively.  $\sigma_j^{rele}$  and  $\sigma_j^{exp}$  respectively represent the standard deviation of the responses towards the “relevancy” and the “expectancy” in each experimental stimulus  $j$ . For any given participant, the measurement of congruence perception is the sum of weighted scores of the relevancy measurement and the expectancy measurement based on the standard deviation of each experimental manipulation. Through this method of conversion, the value of congruence perception in each manipulation can be more homogeneous, whereas the value between the manipulations can be more heterogeneous. This conversion accords with the fundamental principle of experimentation in which the differences of the effects between the experimental groups should be maximized and the effect in the same experimental

groups should be minimized.

### **3.2 Measurement of Perceived Congruence in Quasi-Experimental Design with Manipulation Check**

According to the interpretation in the section 4.2.3, subjects in the Quasi-experiment design are not randomly assigned to each manipulation condition. Subjects' expectations are measured at the beginning of the study, and then the values of expectation will be categorized and entitled as the different extents of subjects' expectation towards multichannel assortment. After that, these grouped participants will be assigned to the different experimental manipulations<sup>18</sup>. Therefore, the perceived congruence is not directly decided by the experimental manipulation, but by the combination in which the stimulus is subject to the participants' expectation. When experimental stimulus matches the participant's expectation, congruence will occur, otherwise, incongruence occurs. The question to measure the participant's prior expectation towards multichannel assortment is given as:

- Q1) Given a retailer who possesses both online store and offline store, from your viewpoint, please indicate what is your usual expected assortment between online store and offline stores?

(7-point scale that anchored "Offline Store offers more" at 1, anchored "Online Store offers more at 7, and anchored "Same Assortment" at 4)

Because congruence states are not fully controlled by the researchers, it must verify its significant difference among all the congruence/incongruence states. The manipulation-check questions should contain two parts. The first part is to verify the effectiveness of the experimental stimuli that the participants confront. The second part is to verify the participants' schema-congruity extent after their expectation confronts the

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<sup>18</sup> Quasi-experiment is still one of experimentation except for the non-randomization assignment. Often, it still contains the experimental manipulations which can help the researchers to simplify the test and interpretation in the causal study.

current experimental manipulation (stimulus). The experimental stimuli must be significantly distinguished by the participants through the first part of the manipulation check questions to guarantee that participants' congruence perception is really generated from the combination of participants' expectation and the researcher's experimental manipulation that is validated by the second part of the manipulation check questions.

This first part includes two questions. The first question is semantic differential anchored "completely Not same" at 1 and anchored "completely same" at 7, which simply asks subjects to judge whether the assortment of two channel stores are the same. The second question is to verify that which channel store offers more assortments, online or offline. The question is also 7-point scale anchored "more in offline" at 1, anchored "same product choices" at 4, and anchored "more in online" at 7.

- Q1.) Based on the two pictures you have seen; please state that in what extent do you think the product options are same or different between two channel stores?
- Q2.) Based on the two pictures you have seen; please state by which channel store do you think it offers more bicycle products?

The second part of the manipulation check question is a single-item question which is regarded as *a posteriori* verification often occurred in the Experimentation design. It is given as:

- 1) Please evaluate the extent of how is the **Multi-Channel Stores** assortments you have read consistent with your prior expectation?  
(7-point semantic differential anchored "Completely Inconsistent" at 1 and anchored "Completely Consistent" at 7).

### 3.3 Measurement of Price Fairness and Favorable Attitude

The measurement of price fairness perception includes the three-item questions with a

9-point semantic differential scale by which the participants judge the extent of fairness perception (unfair/fair) relying on the current cross-channel stimuli they have seen. The measurement also contains the questions to force participants imagining whether this retailer will fairly pricing the products that are not presented in the presenting stimuli. This measurement is proposed by the study of Gourville and Moon (2004) that tested the participants' price fairness between the stores of high-end retailer relative to the normal retailer.

However, Gourville and Moon's (2004) study did not focus on the multichannel retail context, their experimental design was as similar as this study: they presented two offline stores to the participants within the overlapping assortments, then the product price is manipulated by 1 US dollar increased or decreased between the two stores, in turn participants' responses are measured. In fact, Gourville and Moon's (2004) measurement not only concerned the prices of the products that were presented, but also considered the price perception of the products that were not presented. It could be inferred that consumer price perception strongly relies on the price that they have seen. It is as similar as the process in which consumers use past price experiences or relevant competitors' prices to judge whether the price is reasonable or just.

Compared to the measurements that are highlighted in the chapter of price fairness perception review (see the table in the Chapter 2.8, p.136), this measurement is more in line with this research project, and it seems that it is suitable for using in the multichannel context.

As same as the study of Gourville and Moon (2004), the measurement of attitude directly tests the participants' favorable attitude towards the retailers. A single-item 7-point semantic differential scale anchored by "dislike" and "like" is copied from the study of Gourville and Moon (2004). The single-item attitude measurement were often used and were effectively justified in many studies (Gourville and Moon 2004; Campbell 1999), it could definitely reduce the participant's burden. The all four

questions (both fairness and attitude) are as the following:

Q1.) Based on the page you have read, do you think the current chocolates in two channel stores are fairly priced?

Q2.) The two stores probably carry other chocolates that are the same. Do you think these other chocolates in two stores will be fairly priced?

Q3.) The two stores probably carry other chocolates that are different (carried by one store, but not by the other). Do you think these different chocolates in two stores will be fairly priced?

(All above three questions are 9-point scale anchored “completely unfair” at 1 and “completely fair” at 9)

Q4.) Assume all other conditions are same in these two stores, how do you evaluate the multichannel retailer who applies such pricing strategy between different channel stores? (7-point scale anchored “dislike” at 1 and “like” at 7)

### **3.4 Measurement of Variety Perception**

Variety perception is another object that will be measured in the research project. The variety perception measurement is inferred from Mogilner, Rudnick, and Iyengar’s (2008) study. The three researchers investigated how mere categorization effect influences subject’s perception of assortment variety. The mere category presentation means to show the products through the different titles which reflect the common characteristics of the products that are collected under the same title. For example, some retailers show the magazines depending on the categories: sport, automobile, household and so on which makes the customers quickly find their preferred magazine. The subtle difference of mere categorization is to give the category name only, not to really separate the magazines. To some extent, the mere category is similar to the perspective of

assortment breadth that Piris (2014) has used in his study, and both of them reveal how many product families are presented to the consumers. This measurement is suitable to this research project in which the assortment presentation is presented based on the different categories with the symbol of “mere categorization”.

As Mogilner, Rudnick, and Iyengar (2008) stated, this variety perception measurement also contains three questions with a 9-point scale. It has been already used and validated in the earlier studies (Broniarczyk *et al.* 1998; Hoch *et al.* 1999; Kahn and Wansink 2004), and its relative Cronbach  $\alpha$  was recorded from 0.76 to 0.79 depended on the studies.

- Q1.) How many choices do you feel when you were offered in terms of the bicycle selection from **both Channel Stores**? (anchored by “no choice at all” at 1 and “a lot of choice” at 9)
  
- Q2.) How much variety do you think there was in the bicycle display from **both Channel Stores**? (anchored by “very little variety” at 1 and “a lot of variety” at 9)
  
- Q3.) How similar do you think within all of the bicycles displayed of **both Channel Stores**? (anchored by “not at all similar” at 1 and “extremely similar” at 9)

### **3.5 Measurement of Experimental Involvement (Moderator)**

The measure of experimental involvement is adopted from Swinyard’s (1993) study where research used it to examine the level of involvement how subjects engage in current experiment. It is instead of the personal involvement that is usually adopted in other researches just because the experimental involvement reflects the subjects’ instant psychological intention engaged in the experiment, and the personal involvement is



more general that may be influenced by many factors such as product, situation, and internal status. It seems that the experimental involvement precisely reflects subjects' mental state during the experiment compared to the overall personal involvement.

According to the marketing scale handbook (Bruner II and Hensel 1996, Vol.2), this experimental involvement measure is composed of four items differential semantic anchored with reverse code in Q3) as bellow:

- Q1.) Not involved / Involved
- Q2.) Not Absorbed / Absorbed
- Q3.) Not stimulated / Stimulated
- Q4.) It was NOT personally relevant / it was personally relevant

### **3.6 Demographic Characteristics**

At the end of the experimentation, the demographic information including the Gender, the Age, and the monthly family incomes are collected as well. The extents of age have five options. For the participants who are between 18 to 36 years old, the interval is every six years as an option. The interval is every 10 years in the participants who are older than 36 years. This is because the youth do more internet shopping than the older so that a small age interval may reflect the heterogeneity more accurate than a big age interval ones. In addition, the intervals chosen for monthly family incomes are adjusted to the Chinese context.

#### 4. VALIDATION OF MEDIATION EFFECT AND MODERATION EFFECT

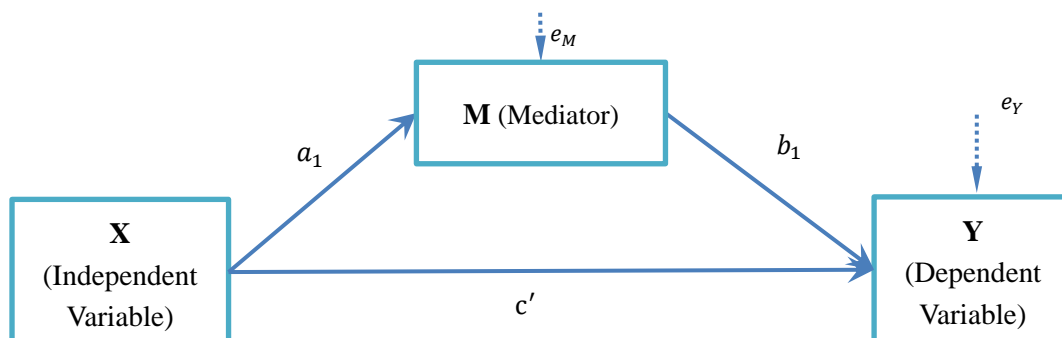
In the research world, researchers attempt to study whether variable X causes change to variable Y or in what extent variable X can influence variable Y. Although, in many cases, a simple causal relationship cannot precisely interpret the real world, such parsimonious model is the fundamental base that researchers usually used to explain the phenomena and to better understand the world. Beyond that, in order to strengthen explaining power, or to better simulate the real word, it must involve the third, the fourth or the more variables in the research mode altogether. These added variables are regarded as the mediator or the moderator in the causal research.

##### 4.1 Validation of Simple Mediation Model

Study of mediator or concerning the mediation effect became popular from the 1980s' where researchers started to consider how intervening effect influences original causal effect (McLeod and Reeves 1980). The methodology of mediation was then developed as the statistical criteria (Judd and Kenny 1981; Sobel 1982; Baron and Kenny 1986). To date, researches within the mediation mechanism are widely adopted in the field of social science.

**Figure 4.6: A Simple Mediator Model**

**Source: Hayes (2013)**



A simple mediation model is "any causal system in which at least one causal antecedent  $X$  variable is proposed as influencing an outcome  $Y$  through a single intervening variable  $M$ " (Hayes 2013, pp. 86). The original directly causal effect of  $X$  on  $Y$  is expressed as the aggregation of relative direct effect of  $X$  on  $Y$  while mediator  $M$  kept as constant and a relative indirect causal effect of  $X$  on  $Y$  through  $M$ . The **Figure 4.6** expresses this model where  $M$  is a mediator influences causal effect of  $X$  on  $Y$ , of which  $a_1$  expresses the direct effect of  $X$  on  $M$ , and  $b_1$  expresses the direct effect of  $M$  on  $Y$  while  $X$  is controlled.  $c'$  is the relative direct effect of  $X$  on  $Y$  keeping  $M$  as the constant. For easy understanding, path of product of a quantifying  $b$  represents the relative indirect effect of  $X$  on  $Y$  through  $M$ , it equals to the difference between total and relative direct effects of  $X$  on  $Y$ :  $ab = c - c'$ .

Based on Hayes's interpretation, the simple mediator model is most popular adopted in the social sciences and the psychological studies. To receive the statistical result of the mediate effect, the presenting model in **Figure 4.6** can be expressed as the following. First of all, the relevant algebraic equation of total effects  $IV$  on  $DV$  without mediator  $M$  can be written as:

$$Y = l_1 + cX + e_Y \quad (\text{Eq. 4.2})$$

Where,  $c$  expresses total effects derived from independent variable on dependent variable.  $l_1$  is the intercept in linear model, and  $e_Y$  is the standard error. While mediator ( $M$ ) involves, one direct linear mode transfers to a combination of two linear models that are given as:

$$Y^* = l_2 + c'X + b_1M + e_Y^* \quad (\text{Eq. 4.3})$$

$$M = l_3 + a_1X + e_{M1} \quad (\text{Eq. 4.4})$$

Where,  $c'$  expresses the relative direct effect of  $X$  on  $Y$  while keeping  $M$  as constant, and  $b_1$  expresses the direct effect transferred from  $M$  to  $Y$  while keeping  $X$  as constant. In equation 4.4,  $a_1$  expresses the coefficient of causal effect of  $X$  on  $M$ . The intercept and standard errors are presented by  $l_i$  and  $e$ , respectively, in both equations. The total explanation power from the combination of Eq.4.3 and Eq.4.4 is equivalent to the Eq.

4.2, because the total effect of X on Y in equation 4.2 is decomposed by two causal routes in which the indirect effect is transited from X to Y through M. Thus, we get:

$$c = c' + a_1b_1 \quad (\text{Eq. 4.5})$$

In order to assess the mediation effect, different researchers proposed the different strategies. From the causal steps strategy (Judd and Kenny 1981; Kenny, Kashy, Bolger 1998), to the partial correlation strategy (Olkin and Finn 1995), and the differences in coefficients strategy (Clogg, Petkova, and Shihadeh 1992), also the nested models strategy (Holmbeck 1997) and etc. These strategies either verify the differences between the effects  $c$  and  $c'$  or compare the differences from original causal model to the mediation model (after involving M). However, each strategy has its own pros and cons. For instance, one of the important rules in causal steps strategy is that any two variables should be correlated (Judd and Kenny 1981), but Bollen (1989) argued that "*correlation is neither a necessary nor a sufficient condition of causality*" in the causal chain within latent variable.

Except that, another statistical approach is focusing directly on the product of coefficients  $a$  and  $b$ . Preacher and Hayes (2008) summarized three relevant strategies that are the product of coefficients (MacKinnon, Warsi, and Dwyer 1995; Sobel 1982), distribution of the product (MacKinnon, Lockwood, and Hoffman 1998), and bootstrapping that quantify the indirect effect. Hayes (2013) asserted that bootstrapping strategy is the most suitable one among all three strategies, because the assumption of normality of the sampling distribution of product ( $ab$ ) in product of coefficient strategy is arbitrary and is not applicable in small size sample (MacKinnon, Warsi, and Dwyer 1995), and the strategy of distribution of the product is too complex to operate (Preacher and Hayes 2008). In contrast, bootstrapping strategy does not use normality assumption to infer confidential interval, but also does not subject to sample size. The criterion of judging indirect effect depends on the distribution constituted by repeatedly sampling from the original sample (raw data) (Efron and Tibshirani 1993), it is empirically not theoretically gotten and becomes most acceptable method for mediation test (Bollen and

Stine 1990; Preacher and Hayes 2004; MacKinnon, Lockwood, and Williams 2004). The significantly acceptable criteria of mediation effect (or indirect effect) contain two points:

- ✓ The probability of the coefficients in the regression calculation should be significant (e.g.,  $p < .05$ ).
- ✓ The confidential interval of the indirect effect gotten by bootstrapping sampling should not straddle zero.

Consequently, Hayes (2013) created an integrated macro, named "*process*", for SPSS and SAS users in which Hayes defined the computation for more than 70 mediation and moderation models. Such macro adopts bootstrapping technology to build the boundary of the confidential intervals that enhances the accuracy and the effectiveness of statistical analysis. Throughout this dissertation, the macro "*process*" will be adopted for the simple mediation test via predefined model No.4.

## 4.2 Validation of Multiple Mediators

### 4.2.1 Parallel Multiple Mediation Model

While researchers talk about several mediators, normally, there are two conceptual possibilities existing based on the correlation among the mediators. Hayes (2013) gave the name to the "parallel mediation model" in which all mediators (two or more) do not affect each other<sup>19</sup>, and gave the name to the "serial mediation model" in which the significant correlations exist among the mediators.

The **Figure 4.7** presents the parallel mediation model where each mediator independently mediates the effect of the independent variable (X) on the dependent variable (Y). No interaction or inter-correlation exists among the mediators in the model. The indirect effects of X on Y through several mediators are the aggregation of the results that each

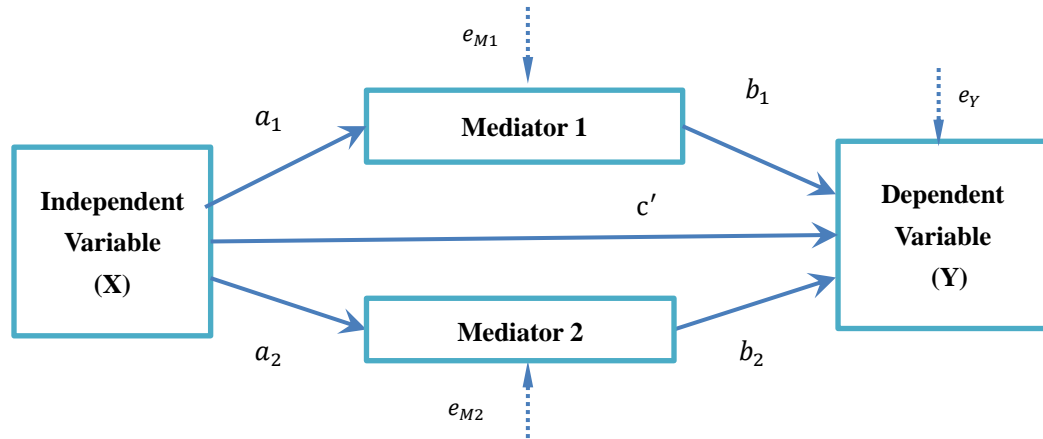
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<sup>19</sup> Also called "single-step multiple mediator" in the review of Preacher and Hayes (2008, pp.28)

effect of X on M multiplies the effect of M on Y. As Hayes (2013) stated, the parallel multiple mediators method had been adopted in many studies.

**Figure 4.7: Parallel Multiple Mediator Model**

Source: Hayes, (2013)



Accordingly, the relevant algebraic equation of parallel multiple mediators model can be represented as following. The total effect of X on Y without mediators is same as the one in the single mediation model, that is:

$$Y = l_1 + cX + e_Y \quad (\text{Eq. 4.6})$$

Where,  $c$  expresses the coefficient of total effect that independent variable influences on dependent variable.  $l_1$  is the intercept in linear model, and  $e_Y$  is the standard error. While the mediators ( $M$ ) involve, the quantity of relative indirect model equals to the quantity of mediator. Every mediator has a corresponded equation. For two mediators, they are:

$$Y^* = l_2 + c'X + b_1M_1 + b_2M_2 + e_Y^* \quad (\text{Eq. 4.7})$$

$$M_1 = l_3 + a_1X + e_{M1} \quad (\text{Eq. 4.8})$$

$$M_2 = l_4 + a_2X + e_{M2} \quad (\text{Eq. 4.9})$$

Where,  $c'$  expresses the relative direct effect of X on Y while both mediators M are involved and controlled, and  $b_1$  and  $b_2$  express the direct effect transferred from each mediator to Y, respectively, while X keeps constant. In Eq.4.8 & 4.9,  $a_1$  and  $a_2$  express the causal effect of X on each mediator. The intercept and standard errors are  $l_i$  and  $e$ ,

respectively in all equations. The total explanation power from the combination of three equations is equivalent to that of the original total effect presented in the equation 4.10.

$$c = c' + a_1b_1 + a_2b_2 \quad (\text{Eq. 4.10})$$

To verify the parallel mediation model, the macro "process" with bootstrapping technology is appropriate. Pre-defined model 4 could support the parallel multiple mediation model up to six mediators. The statistical criteria of parallel mediation model are completely the same as that in simple mediation test. Only those mediators with the significant coefficient probability and non-zero contained in the confidential intervals will be accepted.

#### 4.2.2 Serial Multiple Mediator Model

Alternatively, another multiple mediation model is called serial multiple mediator models in which the mediators not only influence the causal path of X on Y independently, but also have the effect each other. The **Figure 4.8** represents a type of serial multiple mediator models including three mediators, where each mediator not only influence the effect of X on Y individually (see path  $a_i$  and  $b_i$  in the figure, for all  $i=1,2,3$ ), but also intervenes mutually in the order (see path  $d_k$ ,  $k$  expresses the direction one mediator on another). The mediators are embedded one by others under this model.

Compared to the previous parallel multiple mediator model, serial mediator model may have less popular in analysis due to its complexity growing rapidly while the mediators increase (Hayes 2013). For instance, the **Figure 4.8** containing three mediators represents total eight distinct effects from X to Y, among them, seven indirect paths relates to the three mediators.

The complex paths mean complex algebraic equation. When three mediators are involved, the relative total effect from X to Y is composed of relative direct effect  $c'$  and all the effect of  $b_i$  as the following equation:

$$Y = l_1 + cX + e_Y \quad (\text{Eq.4.11})$$

$$Y^* = l_2 + c'X + b_1M_1 + b_2M_2 + b_3M_3 + e_Y^* \quad (\text{Eq.4.12})$$

Where,  $c'$  expresses the relative direct effect of X on Y while all mediators (M) are involved and controlled, and  $b_i$  expresses the direct effect transferred from each mediator to Y, respectively, while X keeps constant. The algebraic equation of each mediator is:

$$M_1 = l_3 + a_1X + e_{M1} \quad (\text{Eq.4.13})$$

$$M_2 = l_4 + a_2X + d_{21}M_1 + e_{M2} \quad (\text{Eq.4.14})$$

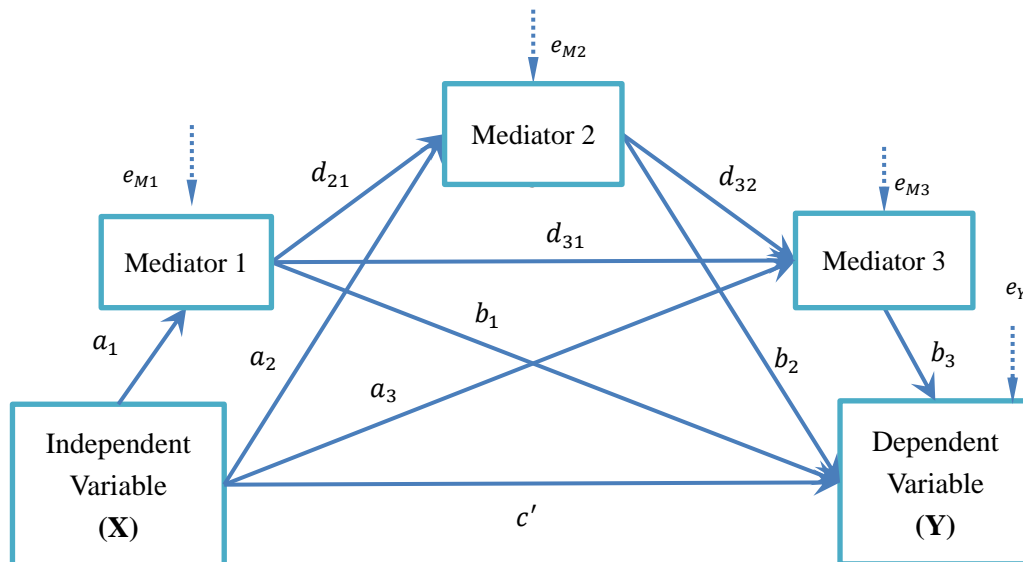
$$M_3 = l_5 + a_3X + d_{31}M_1 + d_{32}M_2 + e_{M3} \quad (\text{Eq.4.15})$$

Where,  $a_i$  presents the effect of X on each mediator, respectively, and  $d_k$  represents the effect one mediator exerts to another. Under this situation, the original total effect of X on Y equals to the combination of the relative direct effect and the indirect effect:

$$c = c' + a_1b_1 + a_2b_2 + a_3b_3 + a_1d_{21}b_2 + a_1d_{31}b_3 + a_2d_{32}b_3 + a_1d_{21}d_{32}b_3 \quad (\text{Eq.4.16})$$

**Figure 4.8: Serial Multiple Mediation Model with 3 Mediators**

Source: Hayes (2013)



Similarly, Hayes's (2013) macro "process" can help the researchers to conveniently compute the each causal path in serial multiple mediators model. By choosing model 6, all mediators can be calculated as the serial mediation model based on the order that they



are drop in the configuration. The criteria are that all the coefficient in regression computation should be significant and corresponded confidential intervals does not straddle zero. Based on the statistical calculation, the comparable indirect effects are presented for understanding the efforts of each mediator, and all insignificant paths should be removed from the model.

### 4.3 Validation of Moderator

Unlike the mediation, the core of the moderation effect is the influence derived from the interaction between the independent variable and the moderator which is exerted to the dependent variable. The moderate  $M^{20}$  of X's effect on Y is because the "*effect of X on some variable Y is moderated by M if its size, sign, or strength depends on or can be predicted by M*" (Hayes, 2013, p.208). For researchers, moderator helps to establish the boundary conditions of an effect, or the stimuli, or gender of people for which the effect can be large versus small, present versus absent, positive versus negative, and so forth (Hayes, 2013).

The moderator is not a predictor of dependent variable (Y). The moderation effect occurs, in many cases, is because the differences of effect every one unit changed on X transferring to Y is varied (either increase or decrease) by the interaction of X and moderator (M). This phenomenon is also called as conditional effect because the different values of moderator M are regarded as different conditions. For instance, higher personal involvement (M) moderates the effect of argument strength (X) on attitude change (Y), nor does in lower personal involvement (Petty and Cacioppo, 1986).

The **Figure 4.9** presents the simple moderator model in which the upper part is the conceptual structure, and the lower part presents the relevant statistical structure. The mathematic treatment of moderate effect is similar to the way of mediation, but the key

<sup>20</sup> If the causal model includes both mediation and moderation, researchers are inclined to use W, Z for the moderator which helps to avoid the confusion by using two "M" between the mediator and moderator.

element is the coefficient of interaction ( $X*M$ ). The algebraic equation of simple moderator model is:

$$Y^* = l_1 + b_1X + b_2M + b_3MX + e_Y^* \quad (\text{Eq.4.17})$$

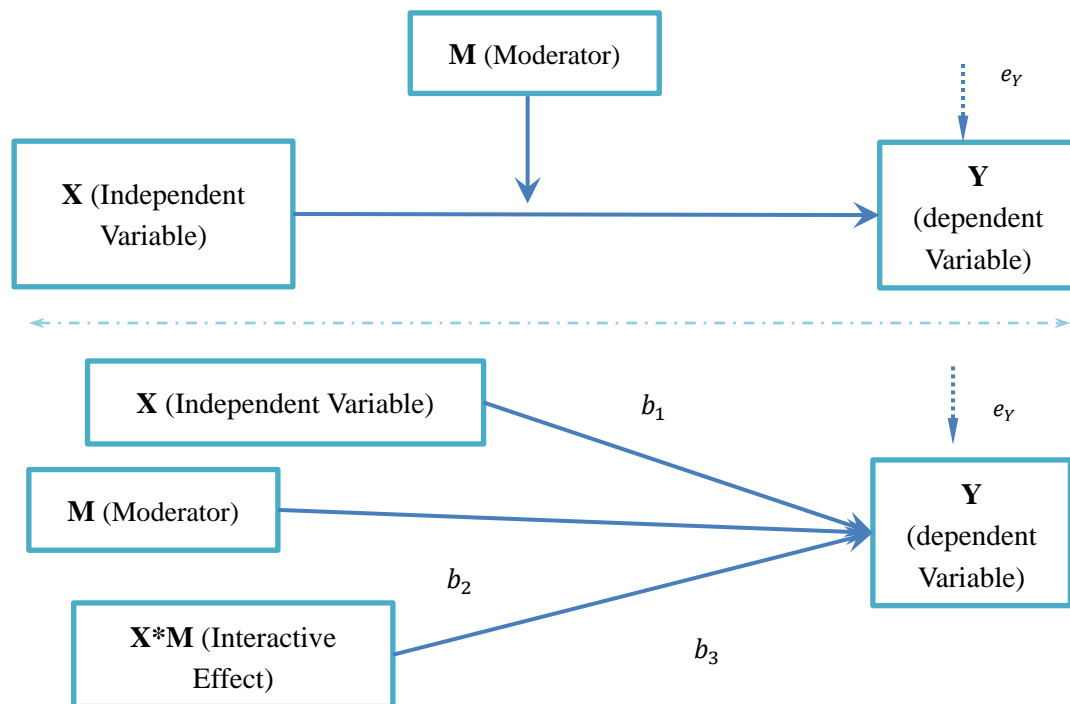
This equation can be converted as:

$$Y^* = l_1 + (b_1 + b_3M)X + b_2M + e_Y^* \quad (\text{Eq.4.18})$$

Where,  $b_1 + b_3M$  is the condition varies the original effect X on Y. Along with the changing of M, the effect from X will add  $b_3M$  units to Y.

**Figure 4.9: A simple Moderator Model**

Source: Hayes (2013)



Someone may argue that when M is a non-zero value, it can also exert significant influence on Y. This argument is correct only from the mathematic perspective. To some extent, the role of X and M can be changeable in Eq.4.18. But in the real research, this concern is not meaningful. Independent variable X is always defined before the moderator M because X is the pivotal that attracts the researcher's interesting. The Moderator, in many cases, is a categorical variable or nominal variable. Researchers focus more on its conditional effect not the direct effect. Probably, in some special case,

such categorical variables can directly determine the result on the dependent variable, it should be defined as another predictor instead of the moderator. Consequently, the coefficient  $b_3$  with regard to the interaction between X and M is only the determinant for assessing moderation effect. An acceptable  $b_3$  should be statistically different from the zero in the linear regression calculation.

Again, Hayes's macro "*process*" still offers convenient way to do validation. The model 1 of the macro "*process*" is designed for testing the simple moderation effect.

#### **4.4 Moderated Mediation and Mediated Moderation**

Previous sections discuss the influences from the different types of 3<sup>rd</sup> party exogenous variable. Whereas mediation exerts compulsive effect between the causal path X and Y and contributes the effort on Y, moderation only interacts with X but does not exert the effort on Y. Mediation and moderation represent different angles to help researchers understand the social phenomena. Due to different characteristics of two effects, researchers start to combine them in the studies.

The first resource of discussing combined moderation and mediation was from Baron and Kenny in 1986 who proposed two types of combined structure, one is called *moderated mediation* that is defined as a mediating effect is moderated by a third variable(s), whereas another model is called *mediated moderation* that is defined as a moderating effect is transmitted to dependent variable through a mediator (Baron and Kenny 1986). In operation, the former model can be presented by a predictor X on outcome Y through a mediator M that is contingent on a moderator variable W, and the latter model is like as an interaction between moderator W and predictor X on outcome Y but operates through a mediator M.

The approaches to analyze the combination of moderation and mediation are different,

and each has its own advantage and disadvantage. Baron and Kenny (1986) proposed the piecemeal approach in which moderation and mediation is analyzed in piecemeal fashion and then interpreted the results jointly (Baron and Kenny 1986). Another relevant approach is a subgroup approach that researcher splits the samples by different value of moderator variable and assess mediation within each subgroup (Rigdon, Schumaker, and Wothke 1998). Muller, Judd, and Yzerbyt (2005) proposed moderated causal steps approach by adding product terms to the regression equations involved in the causal steps procedure. Edwards and Lambert (2007) asserted that the approaches all above are not appropriate in the study of the combination between moderation and mediation due to suffering from the various methodological problems which seriously undermine their utility. Instead, the latter two authors proposed a new method that integrates the moderated regression analysis and the path analysis. For each model of one moderator variable interacts a simple mediation model, they infer to a reduced form equation for statistical computation<sup>21</sup>.

In fact, most of approaches do not distinguish the treatment between moderated mediation and mediated moderation. One reason is that both combined structures are similar essentially to add the confusion surrounding these terms (Muller *et al.* 2005). Theoretically, the focal point of moderated mediation is whether the indirect effect will be changed among the levels of moderator, whereas the focal point of mediated moderation is whether the effect of interaction between X and moderator M on Y is mediated. The differences on mathematical treatment between two terms are those predictable variables used in regression calculation. Whereas the original independent variable X is the predictor to validate the moderated mediation, researchers use the interaction between independent variable X and moderator W as the predictor to validate the mediated moderation<sup>22</sup> (Hayes 2013). Note that the above difference occurs only at

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<sup>21</sup> Edwards and Lambert (2007) gave seven general models in which the moderator influences on 3-variables mediation paths. The models include first stage moderation model ( $X \rightarrow M$ ), second stage moderation model ( $M \rightarrow Y$ ), direct effect model ( $X \rightarrow Y$ ), and total effect model (moderated all three paths). Each combination of moderation and mediation gets a relevant reduced form equation that reflects relevant direct, indirect, and total effect.

<sup>22</sup> Researchers make the interaction between X and moderator W as the predictor, but also involve X as covariate in overall regression computation.

the operational level, however, it does not change the statistical result of each effect (or coefficient).

Beyond that, Hayes (2013) asserted that mediated moderation is a meaningless term. Compare to the effect  $X$  uses to explain  $Y$ , the interaction  $X*W$  (moderation) has no substantive interpretation that could be transmitting to the relevant indirect effect. It is unnecessary to pay attention to the mediated moderation at all.

To date, although there are many approaches for testing the combination of mediation and moderation, only Hayes's (2013) macro "process" offers the convenience for researchers to simply do the validation. The relevant algebraic equations are similar to those in previous sections.<sup>23</sup> The macro "process" is designed for no more than three moderators in one model. The macro "process" not only returns the statistical coefficients of each interaction or indirect effect, but also let researchers choose the conditional point for convenient interpretation. For a moderator in the form of continuous variable, one standard deviation above and below the mean (Aiken and West 1991) can be chosen as the point for interpret the conditional effect. Another possible pick-up point for estimate the conditional effects is to choose 10<sup>th</sup>, 25<sup>th</sup>, 50<sup>th</sup>, 75<sup>th</sup>, 90<sup>th</sup> percentiles of the distribution (Hayes 2013), which offers more explaining power to understand the conditional effect. The criteria of the validation for both moderated mediation and mediated moderation are:

- ✓ The probability of the coefficient in each regression calculation should be significant (e.g.,  $p < .05$ ).
- ✓ The coefficient of the interaction effect between  $X$  and  $M$  must be statistically significant.
- ✓ The confidence intervals (bootstrapping) of conditional indirect effect does not straddle zero.

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<sup>23</sup> Different combination of mediation and moderation lead to different algebraic equation. The method is identical as representation in previous sections, in which one equation presents the causal paths regressed to the Mediator ( $M$ ), and another equation presents all relevant paths regressed to dependent variable ( $Y$ ).

#### 4.5 Validation for the Multi-Categorical Focal Predictor

According to the discussion of explanatory technique, one-way ANOVA or multivariate analysis of variance, not the regression model, is often used for the case of nominal variable(s) predict interval/ratio variables (Dubois, Jolibert, and Mühlbacher 2007; Hahn and Mac é 2012) due to the nominal predictor is categorized without the possibility to order from highest to lowest. Nonetheless, followed the development of statistic, Hayes and Preacher (2014) recently propose the statistical tool to help the researchers keep using regression model in the case of mutlicategorical predictor. This tool is first introduced by a new macro “MEDIATE”, but late it has been already combined into the newest version of the macro “PROCESS”<sup>24</sup>.

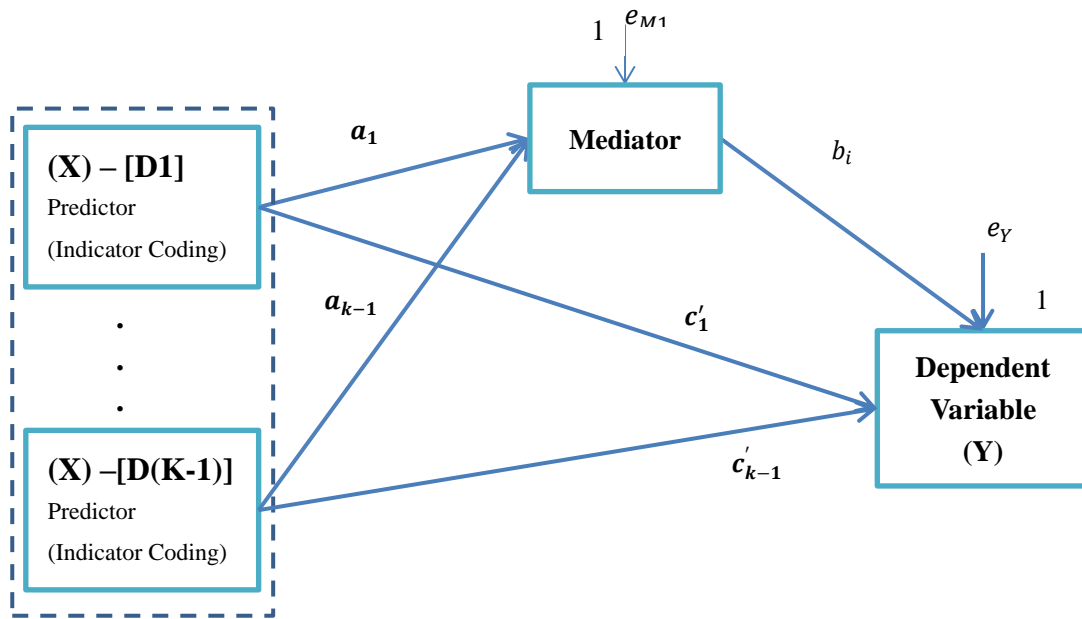
Be distinct from those continuous independent variables, Preacher and Hayes (2014) propose a general linear model by representing the groups with a set of  $k-1$  variables. There are four different coding methods to help treating the  $k-1$  variables. The most popular and recommended coding method is called “indicator coding”, also known as dummy coding. To dummy-code  $k$  groups,  $k-1$  dummy variables ( $D_i, i=1,2,3,\dots,k-1$ ) are constructed, with  $D_i$  set to 1 if a case in group  $I$ , and 0 otherwise. One group is not explicitly coded, meaning all  $k-1$  dummy variables are set to 0 for cases in that group (see **Figure 4.10**). Rely on these  $k-1$  groups, researchers can investigate the relative total effect ( $c$ ) derived from mean difference in  $Y$  between the groups coded with  $D_i$  and the reference group. When mediator  $M$  is introducing into model, such relative total effect ( $c$ ) can be interpreted as the sum of total indirect effect  $c'$ , derived from the effects that  $k-1$  independent dummy groups relate to  $Y$ , adds the relative mediated effect computed by a (effects from  $k-1$  groups to mediator  $M$ ) multiples  $b$  (effects from the mediator  $M$  to dependent variable  $Y$ ). The **Figure 4.11** represents the statistical diagram of indicator coding predictor used in mediation effect test.

<sup>24</sup> The latest version of macro “process” for SPSS is V2.15 released in Jan-10, 2016. All relevant statistical results reported in this dissertation have been validated via this latest version.

Figure 4.10: Indicator Coding of Multi-categorical X variable (K=3)

IV	D1	D2
Control Gr.	0	0
Moderate Gr.	1	0
Higher Gr.	0	1

Figure 4.11: The Statistical Diagram of Simple Mediation Model with Multi-categorical Predictor coded by Indicator Coding Technical



Accordingly, assume there are three different states of the independent variable. Through the coding method, two variables,  $D_1$  and  $D_2$  are gotten for the computation. The relevant algebraic equation presenting total effect of independent variable on dependent variable is written as:

$$Y = l_1 + c_1 D_1 + c_2 D_2 + e_Y \quad (\text{Eq.4.19})$$

Where,  $c_1$ , and  $c_2$  express relative total effects and indicate the mean difference in dependent variable between the different groups of independent variable, respectively, relates to the control group. That is to say, when both  $D_1$  and  $D_2$  equal to zero, the value of  $Y$  reflects the effect of  $X$  when  $X$  is in the reference state (Controlled group).

Similarly, the relative direct and indirect effect can be written as:

$$M = l_3 + a_1 D_1 + a_2 D_2 + e_M \quad (\text{Eq.4.20})$$

$$Y^* = l_2 + c'_1 D_1 + c'_2 D_2 + b M + e_M \quad (\text{Eq.4.21})$$

Where  $a_1$  and  $a_2$  express the causal effect of X on M between moderate group and higher group, respectively, relates to control group.  $c'_1$  and  $c'_2$  express the relative direct effect of different extent of X on Y while keeping mediator M as constant, and coefficient  $b$  means the effect of mediator on dependent variable while keeping X as constant. Here, the Equation 4.20 and 4.21 are equivalent to the Equation 4.19. Thus, it can get:

$$c_n = c'_n + a_n b \quad (n=1, 2, 3, \dots, n) \quad (\text{Eq. 4.11})$$

Where the coefficients of total effect of X on Y ( $c_n$ ) is equal to the aggregation of relative direct effect of X on Y while keeping M constant ( $c'_n$ ) and relative indirect effect of X on Y through M (path  $a_n$  multiples path  $b$ ).

Hayes and Preacher (2014) proposed two statistical inferences for total and direct effects, and relative indirect effects, respectively. The first inference is straightforward and uncontroversial that using standard errors to test the null hypothesis of no relative effect using level of significance  $\alpha$  to verify the significance for total and direct effect. The second inference for testing the validation of relative indirect effect is the asymmetric bootstrap CI in which the relative indirect effect is deemed statistically different from zero if the CI does not straddle zero.

Considering the independent variable is usually presented as nominal variable derived from the experimental design, such latest version of macro “process” can be applicable in the validation process.



## **5. SUMMARY**

Following the literature review, both theoretical gap and managerial requirement are discussed in the first section. That is, previous studies did not investigate the effect of how congruence-incongruence perception on cross-channel store attributes influences consumers' evaluation towards multichannel retailer. Unlike the conventional multi-channel context where retailers control everything to consumers, the new internet-based multichannel changes the power of negotiation from the retailers to the consumers. Now, it is the consumers who take the initiative of channel choice.

For practitioners, how to manage the store attributes between online store and offline stores to cope with the challenge from their competitors is an indispensable question which definitely decides the success of multichannel strategy. However, lack of the evidence offers the instructions to tell retailers how to do, nor gives the concrete suggestion on operation. Thus, in this study, by collecting the data from the Chinese market based on the different consuming products, the researcher attempts to investigate the synergy effect on the given store attributes between the different channel stores. The design of this research project is to compare consumers' evaluation resulted from the judgment of congruence-incongruence in regards to the cross-channel store attributes. The researcher expects to help the retailers making their multichannel strategy more effectively by increasing the synergy effect crossing the channel stores.

This research project will comply with the 6-steps process proposed by Churchill and Iacobucci (2005) (also see Churchill, 1979), operated by both qualitative and quantitative methods. In order to well understanding Chinese consumers' attitude towards multichannel strategy, a Depth Interview will be organized. This explorative study can help the author to determine which key points of multichannel store are prominent during the Chinese consumers' evaluation towards the multichannel retailers.

Furthermore, the laboratory experiment and the Quasi-experiment are the two quantitative approaches involved in the following studies. The advantages of these methods are that it reduces the interference from the other factors and insures the explanation power that is effective.

In order to precisely test the experimental hypotheses, the relevant measurements are chosen from the early researches. Since this is the first time that researcher examines the congruence/incongruence effect regarding multichannel store attributes on consumers' evaluation, the measurements are not too much choices from the previous studies. Only the measurement which has been used in similar design or which has reflected the closer meaning will be chosen in this research study. Moreover, researcher is inclined to adopt the simple measurement instead of complicated one in the study in order to alleviate the subjects' boredom during the test. No matter what methods used, the total amount of questions is limited to 18.

At the end of this chapter, how to treat moderation and mediation effect is discussed. Note that the different researchers adopted different methods to validate moderation and mediation effect, each has the pros and cons. Recently, Hayes and his colleague bring forward a series of methods to treat the moderation, mediation, and its combination (moderated mediation and mediated moderation) (Hayes 2013; Preacher and Hayes 2008; Preacher, Rucker, and Hayes 2007; Hayes and Preacher 2014; Preacher and Hayes 2004). These researchers proposed the macro "process" within bootstrapping distribution technology to determine confidence intervals for the validation. To date, Hayes's (2013) proposal has been accepted by many researchers and becomes the one of the most popular methods used to validate mediation and moderation effect in marketing domain.



## **Chapter 5 – STUDY 1 (QUALITATIVE STUDY) - DEPTH INTERVIEW**

## 1. RESEARCH OBJECT

In the past 10 years, e-commerce develops very fast in the Chinese market. Online shopping has been an indispensable consumption habits in China. According to the report of Nielsen<sup>25</sup> (2014), the total amount of online shopping in China was about 250 billion EUR in 2013, which got 29.5% increases compared to 2012. Consumers prefer to combine both online channel (95%) and offline channel (77%) for information searching when they are shopping. These data reveal that when online shopping becomes popular and is accepted by consumers, the multichannel strategy has already been the standard features for the Chinese retailers.

Note that, Chinese consumers may be different from the counterpart in Western society. And the retailing environment is also special. For example, the land surface of China is similar to Europe, but in many cases, the products bought from online store can be delivered to consumers less of 72 hours (including weekend). For some regions such as Yangtze Delta (around Shanghai), the delivery time is no more than 36 hours. Another different example relates to the payment. Except for the payment by credit card, more than 80% online shops accept Alipay (Alibaba holdings). This third-party payment institution offers assurance of security by which consumers do not feel anxious for their loss during the deal because this system promises that the seller will not receive the money until consumers accept the products or services.

Considering those China-based characteristics, it needs to understand what Chinese consumers concern in the multichannel retail market. This is why this exploratory study is put in the first play for studying. The object of this part is to know whether Chinese consumers are familiar to the multichannel retailing and retailers. In the same time, it also tends to explore the concrete store attributes that could gain the consumers' attention, influence the evaluation during their shopping journey in multichannel retailer.

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<sup>25</sup> <<Research of Online Shopping Behavior>> is made by Nielsen, the data is collected from 14 principle cities within more than 4500 samples in China. The report is published on Nielsen official Website [www.nielsen.com](http://www.nielsen.com), for the detail information, readers can contact Ms. Vivien Tu ([vivien.tu@nielsen.com](mailto:vivien.tu@nielsen.com))

## 2. DEPTH INTERVIEW

Depth Interview is adopted in this study. Depth Interview is a qualitative research method, usually is an unstructured, direct, personal interview in which a single respondent is questioned by the interviewer to uncover underlying motivations, beliefs, attitudes, and feelings on a topic (Malhotra, 2014). In common sense, Chinese people are not willingness to frankly talk about their own opinions when unfamiliar people are sitting surround them such like Focus Group method, the social pressure is very possible to restrain their responses. Therefore, Depth Interview is deemed as an approach more appropriate than other qualitative research method.

### 2.1 Basic Information of Participants

The interviews are organized at Shanghai, Beijing, and Nanjing, respectively, where the interviewees are collected through snowball method. All participants are told that the interview may take one hour, more or less. At that moment, all participants can make a decision to continue the interview or to refuse it. In order to make them feel convenience, the interviewees are offered a cup of coffee with small dessert for the gratitude.

The demographic information<sup>26</sup> of each participant is presented in the **Table 5.1**. Total of 14 participants (7 Females / 7 Males) are collected, whose age is ranged from 23 to 50 indicating a well distributive coverage through the samples. The education level and monthly incomes also seems average among the participants. According to the responses of their shopping frequencies, all the participants can be regarded as multichannel consumers. It seems all of them more rely on the online shopping rather than offline shopping (more frequently buy from online store).

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<sup>26</sup> The complete questions used in depth interview are presented in Appendix A

**Table 5.1: Demographic Information of Participants in Depth Interview**

	Name	City	Gender	Age	Education Level	Monthly Incoming (CNY)	(Average) Frequencies of Shopping (physical store)	(Average) Frequencies of Shopping (Online store)
Res_01	ZHANG Manyi	BJ <sup>a</sup>	F <sup>b</sup>	39	Undergraduate	12000-20000	Bimестrial	Often, maybe every 2-weeks
Res_02	HUANG Jian	SH	M	35	Undergraduate	12000-20000	Every 2-3 weeks	Weekly
Res_03	LI Diman	BJ	F	38	Post-graduate	>20000	Not fixed	Depends on products. Some times 2-3/week
Res_04	CHENG Jue	SH	F	40	Undergraduate	>20000	Seasonal	Twice a week
Res_05	LIU Yunsan	SH	M	26	Undergraduate	5000-12000	Every 2-3 weeks	Weekly
Res_06	JIN Yuzhu	SH	F	37	College	5000-12000	Monthly	Weekly
Res_07	YAN Tingting	NJ	F	25	College	<5000	Weekly	1-2/week
Res_08	ZHONG Qiuyin	NJ	F	50	Senior School	5000-12000	Seasonal	Weekly
Res_09	ZHANG Yuxiang	SH	M	32	Undergraduate	>20000	Not fixed	Weekly
Res_10	JIN Libin	NJ	M	23	College	<5000	Weekly	Every 2-3 weeks
Res_11	XU Shixiang	BJ	F	24	Post-graduate	5000-12000	Monthly	Every 1-2 weeks
Res_12	DU Qing	BJ	M	25	Post-graduate	5000-12000	Seasonal	Every week (or 2-3/per month)
Res_13	GAO Xinjie	SH	M	24	Post-graduate	<5000	Monthly	1-2/per month
Res_14	LIU Qiuhaohao	NJ	M	30	Undergraduate	5000-12000	Monthly	Every 1-2 weeks

Remark: (a): BJ=*Beijing*, SH=*Shanghai*, NJ=*Nanjing*; (b): F=*Female*, M=*Male*

Further, all participants are asked to answer what product categories they usually buy from online store<sup>27</sup>. The **Table 5.2** presents the results of those product categories. It reveals that the most popular categories that bought at online are digital products (10),

<sup>27</sup> By default, the author asserts that no difference existed among product categories on buying from offline stores.

apparels (9), foods (8) and books (8). Except that, the **Table 5.2** also reveals that consumers' online shopping habit expands to more product categories indicating that consumers are more dependent on the online stores.

**Table 5.2: Product Categories Bought from Online Mentioned by Participants**

<b>Product Categories</b>	<b>Times Mentioned by Participants</b>
Apparels	9
Shoes (dress shoes, causal, sportive)	7
Living goods (supplies)	7
Cooking utensil	3
Foods	8
Electronic Appliances	6
Digital Product	10
Books (CD, DVD)	8
Toys	3
Cosmetics	4
Services (Cinema Tickets, Groupon, Travelling, Hotel Reservation)	6
Accessories	1
Stationery	7
Sports products	5
Others (if it is difficult from physical store, try to search online)	2

## 2.2 Multichannel Familiarity

Remember that the first object is to know whether Chinese consumers are familiar to multichannel retailing and multichannel retailers. Therefore, the participants are asked to recall the multichannel retailer whom they know or they have bought from. The results are presented in the **Table 5.3**. The interesting thing is that consumers often do shopping in both online and offline stores, but it seems they are not easy to recall the multichannel stores (name) immediately. Most of participants cannot rapidly respond the retailer name until the researcher gives the cue. According to the **Table 5.3**, it shows that no any retailer is mentioned by more than half of the participants. One reason is that some participants visit only one type of channel store. For example:



"I prefer to do shopping online. I know Gome (a famous Chinese appliance product retailer), but my habits is searching and buying in online stores, such as Amazon, Dangdang, and JD, that are my prior choices. I'm not willingness to go to offline shop until I cannot find my requirement in online stores." [Res.01 - Mrs. ZHANG Manyi (Female / 39ans)]

"I know that Ikea is a retailer selling furniture and housewares, but I'm not sure whether this brand has online store. Oh, perhaps it has, but at least I never try. Similarly, I usually buy cosmetics product from the offline shops of Watson and Herborist, but I never try to know whether they have online stores" [Res.04--Mrs. CHENG Jue (Female / 39ans)]

**Table 5.3: Recall the Multichannel Retailer with whom Participants are familiar**

Multichannel Retailer (in China)	Product Category	Times Recalled by Participants
GOME	Appliance and digital Products (Offline)	3
	All product categories (Online)	
SUNING	Appliance and digital Products (Offline)	5
	All product categories (Online)	
Shuangan Mall	All product Categories (Online and Offline)	2
UNIQLO	Apparels (Online and Offline)	6
IKEA	Furniture & household (Online and Offline)	5
DECATHLON	Sports products (Online and Offline)	4
NongGongShang March	All products, Foods principle (Online and Offline)	1
WATSON	Cosmetics, Toiletries, Shampooing...(Online and offline)	3
Sephora	Cosmetics (Online and Offline)	3
APPLE	Digital Products (Online and Offline)	5
Samsung	Digital Product and Appliances (Online and Offline)	4
BleMall	General Merchandises (Online and Offline)	1
Philips	Lighting (Online and Offline)	1

Except those famous or global brands, Consumers also easily recall many single brands such like H&M, Zara, Nike, UGG, Esprit, or cosmetics brands such as Herborist, L'occitane, Vichy, Eau Thermale Avene; or shoe brands such as Geox, Ecco, Belle; Stationary brand- Staples, Deli Group, or Toys such as Lego, Barbie

Another reason is that the consumers do not care whether the retailer is single channel or multichannel. These participants think multichannel strategy brings convenience in deed, but it is not a determinant. For instance:

*"I do not care about whether the retailer is multichannel. Although I know that Ikea and Septwolves (apparel) have both online store and offline store, this is not the factor determines my buying decision."* [Res.08--Mrs. ZHONG Qiuyin (Female / 50ans)]

*"I do not pay attention to the 'multichannel' retailer, or attempt to search whether a store, either online or offline, has a counterpart in other channel ..... (After researcher gives cue), Oh, I think I know some multichannel retailers, for example, Decathlon is French sports product retailer. But I do not buy from either of its channel store "*[Res.11--Ms. XU sixiang (Female / 24ans)]

Compare to those feminine consumers, the masculine consumers can quickly give the responses on the name of multichannel retailers.

*"Suning is a big multichannel retailer who offers various appliance brands on both online and offline stores. UNIQLO, Decathlon, and Ikea, I can recognize these brands and know all of them have different channel stores. But, in fact, I did not buy item from their website. I know them because when I explore on their website, there are obvious link button point to "Buy Online."* [Res.02--Mr. HUANG Jian (Male / 35ans)]

*"I only remember the brands about apparels products, for example: Jack & Jones, Esprit, and UNIQLO. I bought these brands products from both online stores and offline stores."* [Res.12--Mr. DU Qing (Male / 25ans)]

*"Multichannel retailer? I think UNIQLO should be one. I did not buy from its online store, but I saw the advertisement promoting in its online store. Decathlon, I visited and bought in both channels. I also bought appliances in multichannel, sorry, I do not remember its name and give the information about this company. Ooh, Philips lightening, this is the company I bought from offline also from its online store. As I know, now, many offline stores also open the stores on Internet; it is common, normal, logic. We like online store, convenience, cheap, anytime, and saving time. But, I'm heard that some offline stores and*

*online stores are not managed by same retailer. I'm not sure about that, but I do not care if the price and policy are identical." [Res.09--Mr. ZHANG Yuxiang (Male / 32ans)]*

The aforementioned conversations indicate that multichannel strategy becomes pervasive in the market. However, participants do not quickly report the multichannel retailer's name, their memory can be retrieved after evoked by researcher's prompt. This reveals that the multichannel has integrated to traditional retailing distribution, being familiar and accepted by the participants. Furthermore, the fact of not quickly responses means participants should retrieve it from their long-term memory; this implies a fact in which participants do not rely on the fact whether retailer offers multichannel stores. In other words, the option of channel stores is not a determined factor during the purchasing decision.

### **2.3 How Participants Choose the Channel Stores? (Through Which Attributes)**

If retailers have different channel stores (online and offline), how consumers use it? The participants are asked to report their shopping habits and the points that they are concerning about when they are shopping in the multichannel stores. When the participants answer this question, they can highlight the product categories that they usually buy, or they can mention the multichannel retailer they familiarly visited before.

Most of the participants, confirm that channel choice should depend on what product category they intent to buy. Participants prefer to buy some products online such as digital products or standardized product. But participants prefer to buy apparels and shoes in offline store because they think the fitting process is indispensable for the decision.

*"To buy product, it depends on product category. Look, for example, the digital product, generally, if I require something, I will access to Internet, search the relevant information, brands, and its performance. And much possible I buy it in online. I do not go to offline*

*store. Because nothing needs to really compare, the brand is more important than the product itself. But I prefer to choose big retailer whom trust in. Big retailer can reduce the financial risk and protects privacy information. On the other hand, if the example is apparel, I will go to offline shop. Because I have to touch and to feel, it must do fitting in the store. In many cases, what see and fit process can help to ensure my buying decision."*

**[Res.13--Mr. GAO Xinjie (Male / 24ans)]**

*"I'm inclined to start from offline store, particularly for the foods and the cosmetics. I will buy them when I walk in store. For other categories, I will go to Internet to search and compare the price. The channel choice is decided by the price. But I like offline store, because I can feel directly, it makes me happy. Note that if I buy the product with cheap price in online store, it also makes me happy (maximize the benefit)."* **[Res.08--Mrs. ZHONG Qiuyin (Female / 50ans)]**

*"I think it relates to product category. For example, the apparel, go physical store first and buy the product if it is fit for me. The cosmetics product, I like to ask my friends, then go to test (in offline shop), decision depends on the testing effort. You may think I prefer to physical store, but actually I like more to online store. Because online price is cheap, that's very important, it makes me feel more satisfaction if my online price is lower than offline price."* **[Res.07--Ms. YAN Tingting (Female / 26ans)]**

*"I think product category is a determinant. Apparel and foods, I buy from offline due to fitting and psychological security (for foods). The valuables, such as high priced, presents, or something presents my image and myself, I will choose offline store in priority. Another point is the convenience; I usually take a look in the stores that are closed to my office."* **[Res.03--Mrs. Li Diman (Female / 37ans)]**

Except the influence of product category, several participants point out that go to offline store is not only for shopping but also it is a kind of social activities. Participants state that they would like to go out with their friends. However, the valuation of others may influence participants' perception, positive or negative, which participants normally do not mind.

*"I enjoy the time with my friends, not only for the shopping, but also for the conversation,*

*staying together. We (with friends and colleagues) often exchange views, share the tips. I will be satisfied even if nothing I buy.*" [Res.08--Mrs. ZHONG Qiuyin (Female / 50ans)]

*"The advantage of offline store is to be happy with my friends. It is not same thing comparing with single person shopping. However, I am satisfied when I go shopping individually, go to stores with familiar companions is another type of enjoyment, really. It is amazing. "* [Res.07--Ms. YAN Tingting (Female / 26ans)]

*"Shopping at street is a type of social activities (because lack of social contact in this participant's daily life). I think online shopping, sometimes, is like a robot, you do everything like a machine, search, compare, read the others' comments, then move the product into basket, confirm the order and pay it. Each action is setup in advance. It is virtual, lack of gratification. In contrast, shopping in physical store, go to street is real experience "*[Res.13--Mr. GAO Xinjie (Male / 24ans)]

Offline store links to affection or emotional feeling. Like as Ms. Yan says "it is amazing" (see above), or what Mr. Gao states offline store is "real experience". Participants regard traditional store as a location of relax. The relaxation can derive from the social activity, growing experience, or tension released.

*"I like this way, when you go to mall or department store, you can do shopping, eating, playing. This can release the pressure of daily work. For me, it is a kind of emotional relaxes. Beyond that, offline store has sensation of nostalgia. Because it is as same as I was young. I enjoy the communication with salesperson, special for those people respecting others."* [Res.12--Mr. DU Qing (Male / 25ans)]

*"I'm working in a company of motorway controlled, every day we need dispose many emergency cases. So, go to shopping is a good idea to relieve the tension. At that moment, when I go to offline store, I need "spend the money", yes, very impulsive (laugh). My meaning is that to spend a little amount of money as my wishes is very enjoyment, great satisfaction. I will not feel regret because not too much money. Thus, all the tension will vanish."* [Res.06--Mrs. JIN Yuzhu (Female / 37ans)]

A contradictory point is that when participants express their preference to the offline

store on one hand, but give the negative words to the offline store in the other hand. Some participants present their aversion to visit the offline shop.

*"I would like to offline store, but I disgust the passenger flow and "traffic". For example, I do not like the promotion season, too many consumers to make choice. I prefer comfortable context where is not too many people."* [Res.09--Mr. ZHANG Yuxiang (Male / 32ans)]

*"I must avoid the time of promotion, store anniversary or the holidays. Those days are not enjoyable, but a suffering. All are consumers, waiting for fitting, waiting for paying; several people want same products, the quality of air, the atmosphere, the mood, all are broken. It is the wrong time. Nothing leaves to me but both psychological and physical frustration."* [Res.07--Ms. YAN Tingting (Female / 26ans)]

In contrast to the offline store, online store generally is regarded as cheaper, infinite choices, convenience. The majority of the choices refers to the price because participants possess a standpoint that online price should be lower than offline store.

*"In many cases, I believe the cost in online store should be lower than offline store. It can find the apparent discrepancy on price between the channel stores."* [Res.03--Mrs. LI Diman (Female / 37ans)]

*"Online store offers cheap price, easy to compare. But now I find, not once only, offline price is cheaper than online. I do not know why, but I think this is not bad thing. It is very good for consumers to find cheaper product."* [Res.04--Mrs. CHENG Jue (Female / 39ans)]

*"Online store offers possibility to compare the price. For instance, I usually visit the stores during lunch break. I will use my mobile phone to check the price in online store if I find something. I like. Usually, it has big chance to find cheaper price in online store."* [Res.10--Mr. JIN Libin (Male / 23ans)]

Infinite choice is another significant point attracting the participants. This is an indispensable feature in online store. Participants express that if you cannot find what

you want in the offline store, try to the online store, but the opposite is not. In the offline store, usually the size, the color, or the style is often sold out or unavailable for the time being, this will not happen in the online store.

*"It cannot be accepted if online store does not have many choices. This is a premise of using online store for me. Otherwise, I prefer offline store. I cannot understand why retailers put less product choices in their website than their stores in the street."* [Res.01--Mrs. ZHANGD Manyi (Female / 38ans)]

*"If I have shopping target, I often start from online. Because if you cannot find interesting item online, less chance you can find from offline. At Internet, you can get the information such as size, color, style. It is opened for everyone and transparent."* [Res.11--Ms. XU Sixiang (Female / 24ans)]

*"The advantage of online store is assortment, many options. Some products are difficult to find in offline store, but very probably are found in online store. "* [Res.10--Mr. JIN Libin (Male / 23ans)]

Another concern of the online store is convenience. Whenever you want, just click the button. The online store can save the time. You buy the products in the night, and receive the product at next day. Products can be delivered to the consumers' home so that they can save the time for transportation, save the money for parking

*"Online store is more convenient. 7\*24 working hours, never stop. You can buy products from those online stores that are not located in same city, and you also can ask them to deliver the products to the location of 3<sup>rd</sup>-party. On the other hand, go to offline store should consider time cost and economic cost (gasoline, parking...)." [Res.04--Mrs. CHENG Jue (Female / 39ans)]*

*"I like online store because I'm occupied by work, and should take care of my daughter. So I do not have free time to go to offline store. Online store can save my time. If I want to buy something, I can do it after my daughter goes to bed (normally, offline store is closed at that moment). In addition, online store is often cheaper, more options. Nothing can let me*

*refuse it.*" [Res.06--Mrs. JIN Yuzhu (Female / 37ans)]

Although the participants offer great useful points, the researcher finds not too many participants mention the risk. When the interviewer points out this concern, the interviewees respond that they do not worry about this thing. In fact, the online payment has higher security than the offline store. Either participants choose Alipay (the 3<sup>rd</sup> party institutor introduced in the beginning of this chapter), or connect their credit card with dynamic passcode (before you pay via credit card online, it must input the code dynamically sent by the secure system). More than that, most of the Chinese big banks offer a series of services to protect credit card from the loss without additional charge.

*"I never worry about my credit card or online payment. Personally, I use saving account to pay so that to control the amount. Second, the banks offer the service to control the unauthorized credit in 24 hours. Third, I also use 3<sup>rd</sup> party payment service, that's great, it gives the assurance for any loss."* [Res.07--Ms. Yan Tingting (Female / 26ans)]

*"The security and the privacy, I do not concern more. I think in China, this is not a problem. For example, many online stores offer payment after arrivals (the delivery person has carry-on POS machine, people can do payment like they do in offline store when they get the products at their homes or offices). In addition, I choose to pick up what I bought in the nearest point (24 hours convenient store), this can protect my privacy."* [Res.02--Mr. HUANG Jian (Male / 35ans)]

After participants freely talk about their store choice and store experiences, the researcher ask all participants to highlight three key factors, respectively, which they are concerning in both online store and offline stores. The target of this question is to help the researcher focusing on those core points in the different channel stores.

From the **Table 5.4**, the most concerning factors for the online store are "price", "assortment", and "convenience"; whereas the most concerning factors for the offline store are "touch and fitting", "social activities", and "Purchasing gratification". Note that this question is answered for both online store and offline store in the general sense, it



may have bias from the strict multichannel definition. Therefore, the researcher asks another question: "if one retailer has both online store and offline stores, which between-store attributes are meaningful for you?" This question focuses on the point to force participants consider the importance of those between-channel attributes in multichannel retail market. The results are presented in the **Table 5.4**. The results will be explained in next section.

**Table 5.4: Key Factors Mentioned by Participants in Both Online and Offline Stores**

	Times Mentioned for Online Store	Times Mentioned for Offline Store
Cheap Price	11	3
Assortment	7	1
Quality	2	2
Touch and fitting		10
Social activities		5
Purchasing Gratification		5
Unimportant Products	1	
Convenience	5	1
Valuables	1	
Service	2	3
Deliver to Door	4	
Comments	4	
Personal feeling	1	1
Security of payment	1	
None of fake product	1	
Reputation of Retailer	1	1
Brand	2	2
Refund policy	1	

## 2.4 Three Aspects Must be Concerned in Multichannel Shopping

When researcher focuses on the combination of both channel stores and thinks such "combination" presented by a multichannel retailer. The answers can be categorized into

three primary aspects.

The first aspects, again, is price. Price is a direct, easily compared, intuitive element. Price involves direct comparison between channel stores of same multichannel retailer. For participants, same price encourages them to spend time on other product characteristics, but they hope a reasonable discrepancy at same time.

*"The price is considered primarily, then the cost of time, totally. I think price should be identical between online and offline stores. Otherwise, I will feel strange, and suspect retailer of earning irrational profit."* [Res.02--Mr. HUANG Jian (Male / 35ans)]

*"I think I will first compare the price. In common sense, price in online store is lower than offline stores. The latter is not easy to cut the cost as well as price. I have experience of offline price promotes more than online price. Normally, I do not trust this situation, I am skeptical about that. Fox example, when I buy a computer, offline store offers a lower price (relative to online) but asks for buy it in a menu. But I do not like the accessories what retailer combines to. In this case, I will tend to find another retailer."* [Res.09--Mr. ZHANG Yuxiang (Male / 35ans)]

The second aspect is between-channel assortments. Undoubtedly, participants commonly think product options are more in online store. Subject to the limited space and local consumer segmentation, offline store cannot, also unnecessary, present various product options. Thanks to the lower cost and the searching technology, the online store can unlimitedly present the products. In multichannel context, participants think the important thing is not which channel has more product options, but is the interrelationship of assortment between the channel stores. The assortment between channel stores can represent different relationship. It may be an entirety, or two correlated parts. It can be identical and overlapping, or be inconsistent and mismatched.

*"The assortment is my concerning, because online store has many choices than that in offline stores. It is convenient for shopping. I do not care whether both assortments are*

*identical. In fact, I hope they are not same so that I have more choices. I wish the option is in my hand, not in the retailer."* [Res.12--Mr. DU Qing (Male / 25ans)]

*"I think the options in different channel stores should be complementary. This contains two meaning. First, the product options are not completely overlapping. If products are same in both channel stores, it is very boring. Second, if I cannot find product (due to color, style or other reasons) in offline stores, it should be found in online store. That is to say the product options in online should cover the choices that listed in offline stores. That is real multichannel."* [Res.13--Mr. GAO Xinjie (Male / 24ans)]

*"Oh, assortment should be same between channel stores. Otherwise, (it is) too complicate for me. I need spend much time to compare the products, this will make me frustration. More than that, same assortments make price comparison easier. Thus, retailer does not dare to make different prices in different stores. This is good for people like me who has not too much free time in daily life."* [Res.13--Mr. JIN Yuzhu (Female / 37ans)]

The third aspect is the synergy between the channel stores. To some extent, the synergy contains the second aspect but can be widely applied. If someone argues that the price and the assortment are the tangible factors for the direct comparison; the advertisement, brand, information interchanging are the intangible factors that influence the consumers too. For instance, retailer can present the products in an order of brands and/or in an order of sub-category, it is easily exchangeable. But it does not occur in offline store. Moreover, not many retailers perceive the importance of exposing the relevant information in one channel store for its counterpart channel.

*"I like to watch ad. I will be influenced by ad. In online store, too many ads, whereas often none of ad in offline. I think the retailer should consider how to coordinate this situation. I am usually stimulated by ad, I would like to buy or possess if the ad evokes me. You know, usually you only see print ad, less of video ads in offline store. Right now, more and more brands prefer to make the ad like a story, broadcasting one scene after another, maybe the brand retailer can present different scenes in different stores."* [Res.11--Ms. Xu Sixiang (Female / 24ans)]

*"I like the retailer share the promotion information between the stores. I have experience*

*about UNIQLO, in their offline store, they usually proactively tell the consumers about the promotion in their online store. This indicates the retailer cares about their consumers. Rather than knowing that consumers attempt to compare the price between different channel stores, directly giving them what they want instead."* [Res.04--Mrs. CHEN Jue (Female / 39ans)]

The aforementioned contents reveal the consumers' expectation that the multichannel strategy should help the consumers to be more conveniently do shopping, not to impose restrictions on consumers. Let the consumers compare the price, give them more options of product, make the convenience by sharing information, all these actions are the pivotal points for satisfying the consumers.

## **2.5 Attitude towards Multichannel and towards Between-Channel Congruence**

The last question corresponds to our second object and the answers are focused on multichannel price, multichannel assortment and multichannel attributes synergy. Takes into account, the author has not asked the participants about their basic attitude towards the multichannel strategy, but he, raises two questions at the end of interview:

- (1) Based on your viewpoint, do you think whether it is important to organize multiple channel stores for the retailers? And why?
- (2) Do you think whether the different channel stores, for example, online store and offline store, should keep consistence (or same)? Or whether the differences between channel stores influence your purchasing decision?

The answer of first question is one-sided. Except one participant, all others give "yes" answer. The reasons can be summarized as:

- ✓ Easy comparison on price, assortment,
- ✓ Increase consumers' motivation, satisfy different consumers (different requirement),
- ✓ Save consumers' time and offers more freedom,
- ✓ Finally, more than one third participants say that comparing to traditional offline

store, online store is more meaningful for them.

For instance:

*"I cannot accept a retailer who does not have online store."* (Mrs. ZHANG Manyi) "

*"Online store can help consumers know about the offline store, get more information. Because you go to online store any time, nor does offline store."* (Mr. ZHANG Yuxiang)

*"If a retailer has offline stores only, I will feel uncomfortable. However, I'm not sure to check the price or buy online in this case. Conversely, if there is online store only, no offline store, I can accept, nothing will influence me."* (Mr. LIU Yunshan)

*"For example, when I am told about a new store from my friends or colleague, I will first search in its online store, get an initial impression to decide whether I should go or not."* (Mr. GAO Xinjie)

The second question does not want to restrict the participants' thinking about the special store attributes. The answer shows that more than half of participants hope the two channel stores should be as consistent as possible, not all participants can tolerate the subtle differences. A discrepancy participants can accept is the price, but the price in online store cannot be higher than that in offline store.

*"The differences between prices, I can accept. Or both prices are same. But I cannot accept the price is higher in online store relative to offline store."* (Mr. LIU Yunsan)

*"Personally, I do not care about multichannel retailer. If I know there are two different channel stores, I am greeting for that. The price is of course not same, but from my point of view, online price should ever be higher than offline store."* (Mr. JIN Yuzhu)

Another acceptable inconsistency relates to the product. For instance:

*"Two channel stores should be regarded as an entirety, not separated. They should be consistent each other. If not, I will doubt or reduce my trust in the retailer. Only the special case I can tolerate. For example, a limited version of product is sold in only one channel*

*store only, online or offline.*" (Mr. JIN Libin)

*"Not same? It depends on the situation. I do not care if products are not same, this is not a big problem. Because this only reduces the effect of other person's comments during my information searching."* (Mr. ZHANG Yuxiang)

*"From my viewpoint, the image of stores should be identical if both of them belong to same multichannel retailers; otherwise, this is a trouble. If I found one product presented in online store only, nor does in offline store, this leaves me an impression that the quality of online store will be lower than that in offline store. Because I think the product version for online store is a special one, the retailer (or the brand) maybe tried to jerry-built for cutting the selling price."* (Mr. LI Diman)

Except above responses, there are two participants whose answer in regards to the discrepancy between channel stores should be distinguished. Both of them assert that it is not necessary to make channel stores to be identical. Retailers can have different strategy managing their multichannel.

*"The retailers have different channel stores is not bad things, it can satisfy different consumers. However, this is not a key determinant for me. But I still greet it. I accept the difference between channel stores only when such difference is not big, e.g., after service policy is different or executes differently will result in losing trust. In fact, online store and offline store are inherently different. I think offline store, in the future, can be designed as showroom, possible for experiencing, which attracts consumers to touch and perceive. Online store, on the other hand, takes charge of dealing. Therefore, each store has its own function."* (Mr. CHENG Jue)

*"The multichannel is very important thing. I would like to use online store to know about the offline store. From my viewpoint, for apparel product, online store regards as a catalog or ad that attract consumers to go to offline store, while for electric product, just the opposite. At offline store, it is catalog or ad that attracts consumers to consume at online store. Consequently, I, certainly, agree that two stores should be different on price, category (assortment). Anyway, I think the experience in one channel store can be transferred to another one, because they are one retailing system."* (Mr. GAO Xinjie)

The last two responses reveal consumers' expectation of diversity. Logically, make channel stores consistent can reduce consumers' confusion, make the shopping process conveniently, but it also reduce the fun in shopping. Think about that if none of the online store exists, people must go to different offline stores to find their preference and the available products. Online store, on the one hand, reduces the burden of stroll, quickly locks the "target" and saves the consumers' time. While on the other hand, consumers are losing the fun of exploring many physical stores, catching the products like a "robot". To some extent, consumers may be not prepared to confront a scene of inconsistent two channel stores until they find the potential benefit can be higher from the channel inconsistency.

### 3. CONCLUSION

The object of this part is to know whether Chinese consumers are familiar with the multichannel retailing and retailers. In the same time, this exploratory study also tends to know which attributes are gained more attention from the consumers in the case of multichannel shopping. 14 participants provide the interesting points and imply the beneficial perspectives for the multichannel research in China.

In general, multichannel strategy and multichannel retailers are familiar to the participants. Using different channel stores in the daily life is to be common and indispensable. However, most of the participants do not easily recall the multichannel retailer's name. This can be attributed to the fact that consumers are already surrounded by the multichannel retailers. The Multichannel strategy expands and covers to the most of the product categories that consumers usually buy or purchase. The **Table 5.3** gives the support to this conclusion.

Consumers welcome the different channel stores, but give the different focal point on each channel stores. The **Table 5.4** represents that price, assortment, and convenience are attributes considered for online store, followed by other consumers' comments and delivery policy, whereas touching and fitting, social activities, and purchasing gratification are those attributes considered for the offline stores. This result indicates that consumers recognize the characteristics of each channel stores, and the stores are positioned depending on their functional characteristics. This result also implies the relationship between the online store and the offline store can be either competitive (e.g., price and assortment) or complementary (e.g., utility function plus hedonic function).

When all participants are forced to consider their concerning points regarding multichannel retailer, it seems that between-channel price and between-channel product category representation are given to the high priority. One reason explains this fact is



that these two attributes are conveniently compared. It is intuitive and quick that is easily perceived by the consumers. More than that, the participants report that they would like to tolerate the discrepancies on the price and the product category if the gap is reasonable and justified. This implies that it is an opportunity for the retailers if they attempt to differentiate their stores.

The responses from the interview only shows that consumers tolerate the discrepancy on the price and the assortment (product category), it does not know by what extent they are keeping tolerate. Furthermore, the participants only say if the discrepancy is big, it can stimulate the sensation of doubt. But the research does not know consumers' reaction they go along with the extent of big discrepancy. In next two studies, the researcher will separately investigate the relationship between multichannel price and multichannel assortment, respectively, and subsequent evaluation related to multichannel retailer.

**Chapter 6 – STUDY 2**  
**(QUANTITATIVE STUDY)**  
**EXPERIMENTAL METHOD --**  
**CONGRUENCE ON**  
**MULTICHANNEL PRICE**

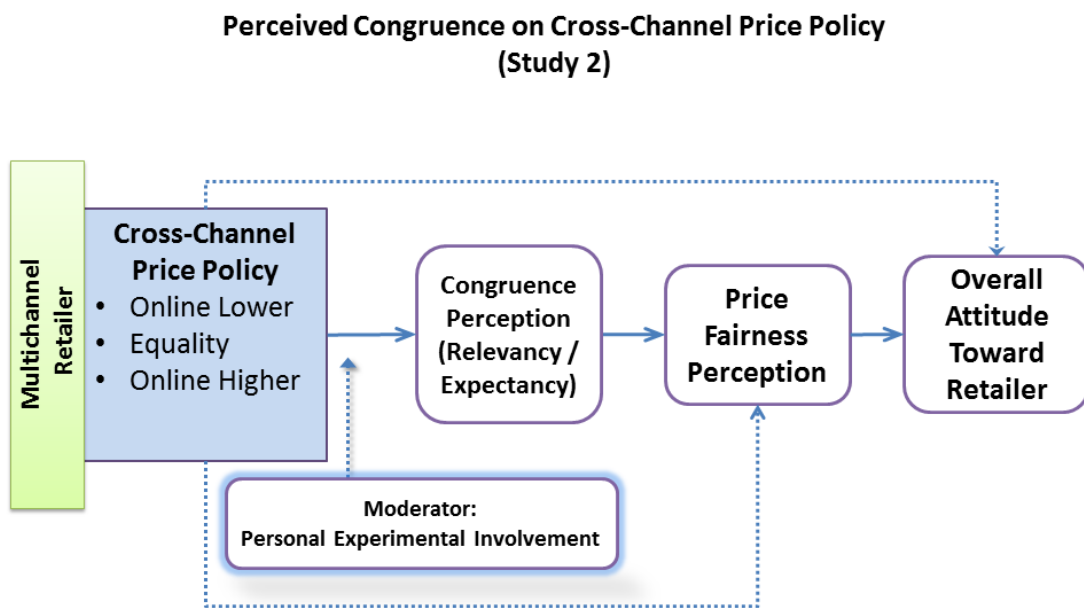
## **1. INTRODUCTION**

In the Chapter 5, a Depth Interview is launched to comprehend how Chinese consumers generate overall attitude towards multichannel strategy, and what factors of multichannel stores influence consumers' judgment and evaluation towards the retailers. The results reveal that consumers prefer the between-channel congruence, but also tolerate the discrepancies on the cross-channel attributes, price and assortment. Such conflicting desires reveals that consumers wish to maximize their benefits from multichannel strategy, and they clearly know the merits and the drawbacks of each channel store. As a result, price and assortment will be put into examination in the research study.

In this Chapter, the target of research study is to examine whether cross-channel the congruence/incongruence on price influences consumers' price fairness judgment and attitude towards the retailer. That is to say, consumers' attitude and evaluation are observed through the manipulation of one unit change on cross-channel price. As the **Figure 6.1** shows, consumers' congruence perception, price fairness perception, and attitude will be measured based on the different cross-channel price policy that consumers encounter. A laboratory experiment is adopted for this target. Participants will take part in the experiments through a specified website.

The structure of this chapter is organized as: the relevant hypotheses are inferred in the section 2. The followed section 3 will introduce the experiment process, stimuli design, and pretest. After that, the statistical results are presented and interpreted in the section 4 including the main effect, the mediation effect, and the moderation effect. Finally, a long discussion will be given in the section 5.

Figure 6.1: The Model of Experiment (Study 2)



## 2. THEORETICAL HYPOTHESES

In real retail market, adding online store (or internet commerce) into current channel system is a big challenge for most retailers. Based on the lower cost and easy using, online system provides an opportunity that consumers could decide where they can get the information, which shop they can choose, at which time they are shopping. It is undoubted that consumers can maximize their benefits from the internet based channel system. Not only retailers lose their controls on the channel choices, but also very possible lose their customers when e-commerce enters into the retailing world. In fact, involving the internet shop means open a room where consumers are very convenient to do the comparison between online store and offline store as they can. Intuitively, product price is the most comparable attribute in the multichannel context.

At the early stage of internet commerce, the question in regards to price discrepancies attracted researchers' interesting (Thomas and Sullivan 2004; Tang and Xing 2001; Ancarani and Shankar 2004, Pan *et al.* 2002). However, the prices were found more or less cheaper in online store relative to that in offline store, most of the retailers still prefer to present same cross-channel price instead of differentiating them (Thomas and Sullivan 2004; Tang and Xing 2001). Presenting the same price in both channel stores can reduce the consumers' confusion with regard to retailers' strategy, but it also causes the problems. First, when retailers make the cross-channel prices to be the same, it means that retailers should also make the price be the same in all the offline stores. This result may reduce the competitive ability of the traditional stores in some special retailing regions. Second, in a short term, same crossing channel price reduces the consumers' intention to buy from the online store because consumers must bear the financial risk, as well as the psychological risk until they receive the products. Third, consumers' shopping enjoyment and experiences are attenuated along with the execution of uniform price strategy. Due to no potential benefit could be continuously gotten from the price comparison (Stigler 1961), consumers probably either replace the retailer or

spend more from the offline store compared to that in the online store. In brief, the same cross-channel price may weaken retailers' competence and flexibility.

In contrast, differentiation price strategy can make more profits up to 30% (Khan and Jain 2005) than same price strategy. It seems the differentiation strategy is more appropriate in multichannel context rather than same prices strategy (Iyer 1998; Cavero, Cebollada, and Salas 1998; Dulleck and Kerschbamer 2005; Dzienziol, Eberhardt, Renz and Schackmann 2002).

According to the stimulus-response model, price can trigger consumer's perception process (Berkowitz and Walton 1980; Lichtenstein, Bloch, and Black 1988; Monroe and Lee 1999). When cross-channel prices are identical, it is easy to justify a consistency between prices that reduces consumer's confusion, weakens the cognitive effort (Heider 1946) and help consumer easily understanding and memorizing (Rosch and Mervis 1975). In contrast, when consumer perceives the inconsistency from the cross-channel price discrepancy, it may account for increasing confusion, anger, and irritation, also consumers will generate an unfairness perception towards the price (Neslin *et al.* 2006). In multichannel context, this perception may apparently occur when consumers find one same product has different prices in two relevant channel stores, online and offline. Consumers will certainly think the reason why retailers pricing it differently.

Someone may argue the logical connection why congruence perception in regards to between-channel price perception decides price fairness judgment. It can be two reasons. First, both perceived congruence and price fairness perception are derived from the similar process of psychological comparison. Congruence perception depends on a comparison of one entity relative to another entity (Maille and Fleck 2011), while price fairness derives from a process that consumers use other prices (past prices, competitor prices and etc.) as a reference point for the comparison.

Second, based on the social comparison theory (Major 1994; Mussweiler 2003), two

entities can be compared is because both of them contain similar characteristics – the more similarity, the easier they are compared. Individuals usually pay more attentions on the similar parts when they do comparison between two objects, which accounts for assimilation effect (Mussweiler 2003). Such assimilation effect enhances the salience of the outcome differences that leads to a strong feeling of entitlement (Major 1994; Major and Testa 1989). In contrast, when dissimilarity occurs, it accounts for a contrast effect (Mussweiler 2003). That is to say if the comparative transactions or parties are not similar, it can offer a natural explanation for the perceived price differences. In other words, it is difficult to find appropriate information that could explain the price discrepancy when the compared objects are apparently similar. In this case, assimilation effect should drive individuals to hold a perspective of these two objects should be equivalent, but not. Therefore, individuals label unfairness to between-objects price discrepancy due to unreasonable inequality occurs (Xia *et al.* 2004).

Since congruence/incongruence perception of multichannel prices can theoretically link to the judgment of price fairness, what are the results? According to the literature review in Chapter 2, the consequence of fair price perception can influence consumer satisfaction (Oliver and Swan 1989a) and increases consumers' purchasing intention (Campbell 1999), whereas an unfair price perception leads to keep away from the store, disseminating negative Word-of-Mouth, or other behaviors that may damage the retailers (Campbell 1999; Xia, Monroe, and Cox 2004; Martins 1995).

Move the above finding into multichannel context, when products prices are same in both online store and offline store, it is in line with the general judgment of that all things are equal. It is not necessary to involve many information resources and psychological disposition. Consumers are prone to express a neutral or a positive attitude under this perception. Reciprocally, when same products are priced differently in both channels, consumers are forced to find the reason why retailer presents such distinct prices. This drives consumers into information processing or to do mental loading to help them judge the situation. Thus, it can be hypothesized that consumers are prone to

express a negative attitude eventually towards the retailer. Therefore, the more fairness consumers perceive from the multichannel price, the more favorable attitude they award the retailers.

In summary, consumers' congruence or incongruence perception derived from the comparison of product price between online store and offline store can determine the price fairness judgment. That is to say, more congruence is perceived from the cross-channel price, more fairness perception will be generated, which in turn more favorable attitude towards the retailer is expressed. Conversely, consumers perceive incongruence from the cross-channel prices will lead to unfairness judgment that results in an unfavorable attitude. It seems that price fairness takes the mediation effect transmitting the effect of congruence perception on attitude. Accordingly, the hypotheses are:

**H1:** *Subjects' congruence perception can mediate the effect of cross-channel price (Equality VS. Non Equality) on price fairness perception:*

**H1a:** *Compare to the situation of non-equal cross-channel price, subjects who encounter equal cross-channel price will perceive more congruence perception.*

**H1b:** *Higher the congruence perceived from cross-channel prices, higher the price fairness perceived too.*

**H2:** *Subjects' fairness perception can mediate the effect of congruence perception on overall attitude towards the retailers:*

**H2a:** *Subjects' congruence perception positively influences price fairness perception.<sup>28</sup>*

**H2b:** *Higher price fairness perception leads to more favorable attitude towards the retailer.*

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<sup>28</sup> It is necessary to mention that hypothesis H2a is essentially same as hypothesis H1b, but it is appropriate to state separately due to convenient comprehension of two mediators.



**H3:** *Both congruence perception and fairness perception serially mediate the effect of cross-channel price (Equality VS. non-Equality) on participants' attitude. Higher the perception of congruence is concerning cross-channel prices, higher price fairness perception, in turn, and higher favorable attitude will be expressed by participants.*

Personal involvement refers to a motivational state of mind of a person with regard to an object or activity that reveals itself as the level of interest in that object or activity (Mittal 1982). This definition represents the relationship among individual, object and environmental situation. In consumer research, personal involvement reflects individual's mental state evoked by stimulus to the object (Laaksonen 1994). Some studies have reported when consumers are involved in a situation or product and attend to know more information about the shopping situation, they may produce more elaborate meanings and inferences about it (Swinyard 1993; Celsi and Olson 1988; Ray *et al.* 1973).

Based on the Elaboration Likelihood Model of Persuasion (Petty and Cacioppo 1984, 1986), involved people "*are more motivated to devote cognitive effort required to evaluate the true merits of an issue or product*" within *in-processing promotional messages*" (Petty, Cacioppo, and Schumann 1983, p. 137). Therefore, compared to uninvolved people, involved people are thus expected both to process relevant information and to process more of it (Swinyard 1993). This viewpoint is consistent with the recommendation from previous congruence studies (Fleck and Maille 2010; Aaker and Sengupta 2000; Campbell and Goodstein 2001) in which the researchers pointed out to pay attention to understand the moderation effect of subjects' motivation on treating incongruence. Fleck and Maille (2010) concluded that subjects' involvement reflects their willingness to solve the incongruent state.

Note that the different efforts are significantly presented in the situation within incongruence relative to congruence between the high- and the low-involvements

subjects. When high involved subjects are exposed to different cross-channel price conditions, they devote the more cognitive effort and prefer to process the relevant information about multichannel prices, which can quickly find the discrepancy of price and judge the congruence-incongruence. As a result, high-involved subjects perceive significant lower congruence to the condition of non-equality versus equality. In contrast, low involved subjects will not be evoked by the stimuli, also would not like to devote the cognitive effort, and are not sensitive to the price discrepancies, which in turn leads to no significant difference on congruence perception when they are exposed the same cross-channel price conditions (non-equality vs. equality).

Note that researchers usually used the product involvement (Lee and Thorson 2008; De Pelsmacker, Geuens, and Anckaert 2002; Shamdasani, Stanaland, and Tan 2001) instead of using individual's experiment involvement previously (Swinyard 1993). It can assert that the latter one is more persuasive than the former one because it examines people's actual mental intention during the experiments. This is more similar to the real situation that subjects go to shopping and find something not congruent in the store. Thus, adopt experimental involvement may be more appreciated in this study compared to other terms of involvement.

***H4 :** Whereas the highly involved subjects perceive significantly lower congruence while they are exposed to different cross-channel price conditions (non-equality vs. equality), the lowly involved subjects will not perceive congruence differently between the different conditions of cross-channel price policy.*

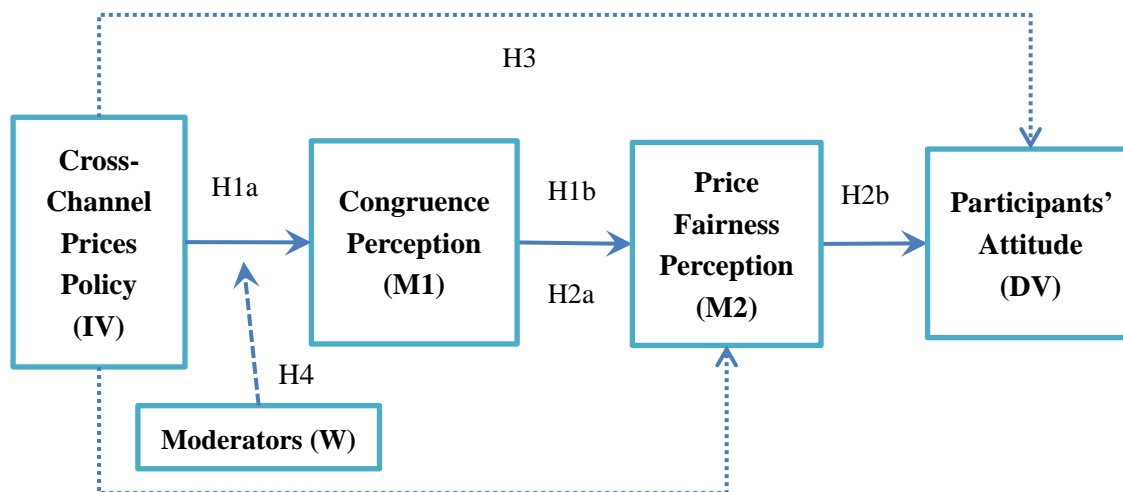
In summary, this experiment will help to know whether different product prices between channel stores varies consumers' congruence/incongruence perception, then determines the fairness perception and attitude towards the retailer. The author hypothesizes that price fairness perception may take the role mediates the effect of congruence perception on attitude expression. Further, subjects' high-low experimental involvement will be examined, which is supposed to moderate the congruence perception. The **Figure 6.2**

represents the statistical diagram of this experiment, and the **Table 6.1** lists all relevant hypotheses.

**Table 6.1: List of Hypotheses in Experiment (Study 2)**

Number	Hypotheses
<b>H1</b>	<p><i>Subjects' congruence perception can mediate the effect of cross-channel price (Equality VS. Non Equality) on price fairness perception:</i></p> <p><b>H1a:</b> <i>Compare to the situation of non-equal cross-channel price, subjects who encounter equal cross-channel price will perceive more congruence perception.</i></p> <p><b>H1b:</b> <i>Higher the congruence perceived from cross-channel prices, higher the price fairness perceived too.</i></p>
<b>H2</b>	<p><i>Subjects' fairness perception can mediate the effect of congruence perception on overall attitude towards the retailers:</i></p> <p><b>H2a:</b> <i>Subjects' congruence perception positively influences price fairness perception.</i></p> <p><b>H2b:</b> <i>Higher price fairness perception leads to more favorable attitude towards the retailer.</i></p>
<b>H3</b>	<p><i>Both congruence perception and fairness perception serially mediate the effect of cross-channel price (Equality VS. non-Equality) on participants' attitude. Higher the perception of congruence is concerning cross-channel prices, higher price fairness perception, in turn, and higher favorable attitude will be expressed by participants.</i></p>
<b>H4</b>	<p><i>Whereas the highly involved subjects perceive significantly lower congruence while they are exposed to different cross-channel price conditions (non-equality vs. equality), the lowly involved subjects will not perceive congruence differently between the different conditions of cross-channel price policy.</i></p>

Figure 6.2: Hypotheses of Congruence and Price Fairness Study



### 3. EXPERIMENTAL PREPARATION

#### 3.1 Experimental Design

In the section of hypotheses design, two multichannel price strategies, identical prices and differentiation prices have been discussed. One of the simplest ways to make cross-channel price differently is to lower the price in one channel relative to the other one. Previous studies found that, no matter in what country, product prices in pure online store are 3%-16% lower, depending on the product categories such like books, CDs, DVD players, Health Beauty products, Home Garden product, respectively, than those in the both of pure physical stores and multichannel stores (Ancarani and Shankar 2004; Bock, Lee, and Li 2007; Jallat and Ancarani 2005; Pan, Ratchford, and Shankar 2002; Tang and Xing 2001; Brynjolfsson and Smith 2000; Morton, Zettelmeyer, and Risso 2001). Kacen (2003) compared the prices between the multiple channel stores, it is found that an 8-22% price premium is existed in the offline store compared to the online store in the service domain or in the non-durable goods. These findings imply that it is pervasive to make the price lower in online store relative to the offline store in retailing world.

However, some researchers argue to the contrary. Wolk and Ebling (2010) posited that along with the apparent decrease of offline stores, consumers are difficult to visit the traditional store that offers a great likelihood for retailers to launch price differentiation strategy between the channels. In addition, online stores hold very strong competitive abilities so that it is not necessary to make the price lower indeed in online stores (Clay *et al.* 2002; Erevelles, Rolland, and Srinivasan 2001). So, it can find that multichannel retailers make the price higher in their online store rather than in offline store. Because pricing higher in online store can be deemed as a reference point, then, retailers present the lower price in offline store to attract consumer's visiting. Since consumers wish actually pay lower price than their expectation (reference price presenting at online store), getting lower price enhances subject's positive disconfirmation, and in turn

increase consumer's satisfaction (Oliver 2010).

These conflicting opinions reveal that price differentiation strategy launched between online store and offline store is not monotonic, retailers can make higher price in no matter what channel they like. Follow that, three stimuli in terms of multichannel product prices are created. Each stimulus contains two types of stores, online store and offline store, presented with a distinct heading to same products. In first stimulus, the prices of all products are same in both stores. In other two stimuli, the prices have 10% discrepancies in the two stores<sup>29</sup> but mutually reversely priced. That is to say, in the second stimulus, online prices are 10% higher than that in offline store, but in the third stimulus, prices are 10% higher in offline store than that in online. As the **Table 6.2** states, price discrepancies are not presented between all products, only 50% of total products are different in the two incongruence stimuli (the last two lines). Moreover, price discrepancies do not occur in the extreme price side, because extreme price can increase the sensitivity of price perception, and varies subjects' price image (Hamilton and Chernev 2010; Alba and Marmorstein 1987; Cox and Cox 1990). Therefore, all the price differences only occur on the products that are moderate-pricing.

**Table 6.2: Experimental Manipulation in Study 2**

Experimental Manipulation	Experimental Design	Congruence Design
Price Equality in Both Channels	Same Products, Same Prices	Congruence
Price 10% Higher in Online Store	Half of products are presented with 10% higher Price in Online Store, <i>ceteris paribus</i>	Incongruence (A)
Price 10% Higher in Offline Store	Half of products are presented with 10% higher Price in Offline Store, <i>ceteris paribus</i>	Incongruence (B)

In addition, according to the expression from the Depth Interview, consumers usually start shopping journey from one type of shop. Some of them prefer to start from online store because it is easy for searching the information, whereas others like to visit

<sup>29</sup> The author will explain the reason for choosing 10% discrepancies in next section.

physical store at first because they can look and touch the products. These two practice models probably reveal the different shopping traits. Considering this visiting order reflects consumers' preference in the shopping on online or on offline, it could be inferred that the visiting order may bias consumers' evaluation. Therefore, the visiting order will be an experimental element to be added into the study. Accordingly, this experimental study is a 3 (congruence states) \* 2 (Visiting Order) all factorial between-subjects experiment. The study is organized on the website where the computer system can simulate two types of channel stores. This approach guarantees that all participants visit both channel stores at the same time.

### **3.2 Experiment Stimuli**

Three stimuli are designed for presenting equality cross-channel prices and non-equality cross-channel prices, respectively. In those price differentiation stimuli, 10% discrepancies are set for same products between the two channel stores. Because 10% price discrepancies represent an average difference that is found in different retailing channels from previous researches. In general, 10% price discrepancies are not a big amount that will confuse the consumers. This proportion is a moderate range that is suitable for using in both channel stores. It means that no matter which channel store, offline or online, has 10% price premium on the products will not be judged as the incomprehensible pricing strategy.

The imported chocolate products are chosen as the sample in the experimentation. The food is usually selected as the stimuli in consumer behavior research, and it is mentioned by the participants in the Depth Interview. Chocolate is regarded as a type of popular foods in daily life. In this experiment, all chocolate products are the standard products that are made in EU (Belgium, France, or Swiss). They are bought from the French supermarkets. The prices of these chocolate products are higher than Chinese local products (chocolate), and it is supposed to be novel for most of the participants. The lack of experience on these imported chocolate may reduce the participants' bias during the

study. Beside this, the chocolates are only presented by the picture without any possible to touch, to smell, and to taste.

The products in each channel store are presented with one webpage. The **Figure 6.3** and **Figure 6.4**<sup>30</sup> give the examples presenting the products in offline store and in online store, respectively. A title “***Please Come in and Taste Chocolate in our Offline store***” (in bold) on the top of the **Figure 6.3**, and another title “***Anytime, Anywhere, Buy Chocolate from our Online store***” presented at the same place of the **Figure 6.4**, both help the participants to distinguish channel store that they are looking to. Each figure contains 16 types of chocolate products listed in two tiers with colorful thumbnails, names, principal flavors, and the prices. Except for the prices, all other elements of products are identical through the stimuli.

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<sup>30</sup> The stimuli of all three groups are presented in Appendix B



Figure 6.3: Illustration of Chocolate entitled “Please Come in and Taste Chocolate in our offline store”

请到我们的巧克力店来实地品尝

大果粒巧克力 杏仁 200g 42.00 元	大果粒巧克力 榛子 200g 35.00 元	大果粒巧克力 焦糖着色开心果 200g 37.00 元	夹心巧克力 椰子风味 150g 41.00 元	夹心巧克力 焦糖风味 150g 41.00 元	夹心巧克力 牛轧糖风味 150g 48.00 元	夹心巧克力 薄荷风味 150g 42.00 元	巧克力 牛奶姜饼 200g 38.00 元
巧克力 牛奶榛子 200g 32.00 元	巧克力 牛奶油酥饼 200g 32.00 元	巧克力 牛奶黑葡萄榛子 200g 36.00 元	纯黑巧克力 70% 可可脂 100g 26.00 元	纯黑巧克力 开心果 120g 27.00 元	纯黑巧克力 柑橘 100g 26.00 元	纯黑巧克力 柠檬生姜 120g 26.00 元	纯黑巧克力 芝麻 100g 26.00 元

Figure 6.4: Illustration entitled “Anytime, Anywhere, Buy Chocolate from our Online store”

您随时随地的巧克力在线商店

大果粒巧克力 杏仁 200g 42.00 元	大果粒巧克力 榛子 200g 39.00 元	大果粒巧克力 焦糖着色开心果 200g 37.00 元	夹心巧克力 椰子风味 150g 45.00 元	夹心巧克力 焦糖风味 150g 45.00 元	夹心巧克力 牛轧糖风味 150g 48.00 元	夹心巧克力 薄荷风味 150g 42.00 元	巧克力 牛奶姜饼 200g 38.00 元
巧克力 牛奶榛子 200g 36.00 元	巧克力 牛奶油酥饼 200g 35.00 元	巧克力 牛奶黑葡萄榛子 200g 36.00 元	纯黑巧克力 70% 可可脂 100g 26.00 元	纯黑巧克力 开心果 120g 27.00 元	纯黑巧克力 柑橘 100g 26.00 元	纯黑巧克力 柠檬生姜 120g 29.00 元	纯黑巧克力 芝麻 100g 29.00 元

### 3.3 Pre-Test

Before launching standard experiment, it needs to verify the significant effort of the stimuli. As stated above, a symmetrical design is used for three stimuli where prices in one stimulus are equally presented, and prices in another two stimuli are reciprocally presented. When readers look at figure 6.3 and 6.4, it can easily find that the difference between two figures is the product prices (see precedent page). It seems that the prices in figure 6.4 are a little bit higher than that in figure 6.3. Therefore, by replacing the title of each figure, researcher can manipulate which channel store presents higher price relative to the counterpart. For the stimulus where cross-channel prices are equally presented, figure 6.3 is chosen for both channel stores (with entitlement respectively).

Two small pretests within above figures are organized. In first pretest, participants are asked to compare two figures directly, then, report the price in which figure is perceived higher. Total of 28 undergraduates are recruited to be randomly assign into two groups. Participants read the same illustration in both groups. A 5-point scale is adopted which anchored “price is higher in Illustration 1”<sup>31</sup> at 1 and “price is higher in illustration 2” at 5. To avoid the bias with regard to different channel store price level, none of the channel store information is presented in both illustrations.

The null hypothesis is that the price perception has not significant difference between two groups. The results from the independent t-test indicate that the mean value of perceived higher in Group 1 is 3.917 (N=12), and gets 4.0 in Group 2 (N=16). This reveals that participants in both groups perceive that the price is higher in illustration 2 relative to that in illustration 1. The relevant statistical result ( $F=.339$ ;  $t(26) = -.271$ , 2-tailed  $sig = .789$ ) implies that the null hypothesis cannot be rejected.

In the first pretest, participants in both groups read the same two illustration, and identified that price in illustration 2 is higher perceived than that in illustration 1. In the

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<sup>31</sup> Figure 6.3 is temporally defined as illustration 1, and figure 6.4 is defined as illustration 2.

second pretest, participants will read different illustrations between the groups. That is to say, the participants in group 1 will read different product prices in two illustrations such like those in the first pretest. But, the participants in group 2 will read completely same product prices in two illustrations. This scenario is close to real experimentation where consumers encounter the equality cross-channel prices versus non-equality cross-channel prices. The hypothesis in the pretest 2 is that participants' price perception has significant difference between two groups.

Total of 37 undergraduates participate the test, and still be randomly assigned to two groups. Non-equality prices are presented in the group 1, whereas equality prices are presented in the group 2. A 7-point scale is adopted which anchored "Price is higher in illustration 1" at 1, and "price is higher in illustration 2" at 7, and "no difference" at 4.

The results show that participants' price perception in group 1 records 5.611 (N=18) indicating that the price is higher in illustration 2 than that in illustration 1. The price perception in group 2 gets 4.00 (N=19) indicating that the participants judge the prices are same between two illustrations. The result of ANOVA supports the hypothesis ( $F(1,35) = 81.704, sig.=.000$ ) that the price perception is significantly different between two test groups.

### 3.4 Experimental Process

The participants are chosen from a mail list offered by a consulting company. We randomly chose about 1200 participants from the list, and sent an email to them within a brief instruction and the link (website) for questionnaire is noted in the same mail. After two weeks, another notification letter is sent to the same subjects in order to remind them. Directly click the link noted in the email can go to the entrance of the experiment<sup>32</sup>. The language used is Chinese. The incentive is the chance to win digital

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<sup>32</sup> The address of Experiment is at [www.boaoconsulting.cn/questionnaire/index.php](http://www.boaoconsulting.cn/questionnaire/index.php)

product such like digital recorders and Bluetooth speakers. At the starting point, participants read a page entitled “Study for Consumer Behavior in Multichannel Retailing Context” with a brief introduction, that is:

**Thanks for helping us to complete this research. Our object is to understand consumers' attitude perception towards the discrepancy between channel stores in multichannel retailing environment. This is not an intelligence test; the answers are nothing about correct or wrong. You just answer it according to your own ideas. The whole process may take 8 minutes, more or less. If you are ready, please click the "start" button. Thanks.**

Followed the introduction, there is a "start" button leads to the scenario. First of all, a story is presented to all participants:

**The company “Dreaming-Chocolate” is a multichannel retailer, established in Bretagne France, who sells European Chocolates products worldwide. Now they start their business in China and hope to introduce cheerful, pure European flavor chocolates to Chinese consumers. Their first physical store is in decoration and will be opened in next month in the region of east China. At the same time, an online store is under preparing and will be managed by “Dreaming-Chocolate” itself.**

**Now you are invited to find out part of their chocolate products that will be sold in both physical store and online store. The following two illustrations list the on shelf chocolate samples, respectively. Please click the following button to take a look of these chocolate.**

After reading that, participants will see the figures of each channel. Note that the participants are randomly allocated into one of six manipulations conditions (3\*2). The channel store stimuli and the presenting order are randomly represented to the subjects. Each figure (store) is fully occupied a whole screen page to ensure that each time only one store could be seen. During the experiment, participants are possible to recall the figures they have seen. After that, all participants are taken into the questionnaire. There

are total 17 questions presented in four screen pages. The measurement has explained in the Chapter 4.3, the detailed question list is presented in the Appendix C. A processing bar used as indicator on the top of screen page. There is no time pressure for completing the questionnaire.

The questions are arranged in the reverse order. It starts from the question about the attitude evaluation and the price fairness perception, followed by the questions of the involvement test. After that, participants are asked to evaluate their congruence perception and answer the question of the manipulation check. In the end, it is the demographic information. In order to avoid the missing answers, the system could automatically detect whether there is the questions that are not answered, a message window therefore will be pop-up to force the participants complete it. Only those participants who complete answers to all questions can take part in the lottery after the experimentation.

Finally, there are totally 221 responses received in the experiment, of which 202 responses meet the requirement. The statistical result will be reported in the next section.

#### 4. STATISTICAL RESULTS

Based on 1200 invitations, total of 221 responses are returned. The recovery rate of the questionnaire is 18.42%. After check the completion, 19 responses should be removed from the samples. Then, results are calculated by SPSS 20.0 based on the total of 202 responses.

First of all, the descriptive information indicates that the gender mix was approximately 50-50 (103 males / 99 females), and most of participants are from the age range of 25-30 (95 subjects, 47%) and of 31-36 (43 subjects, 21.3%). The sample of monthly family income is distributed evenly too. The **Figure 6.5** to the **Figure 6.7** presents the descriptive information in graphic of all three variables, respectively.

ANOVA<sup>33</sup> tests in terms of three control variables, respectively, indicate that no significant differences exist among the manipulation groups with regard to the three variables (Almost all the probability of F-value are greater than 0.05). For interpret the result conveniently, the author entitles “Group Higher Online” to those subjects who encounter the stimulus of "price 10% higher in Online", entitles "Group Equality" to those subjects who encounter the stimulus of "price equality", and entitles "Group Lower Online" to those subjects who encounter the stimulus of "price 10% higher in Offline", respectively (**Table 6.3**).

**Table 6.3: Definition of Cross-Channel Price Policy**

<b>Experimental Manipulation</b>	<b>Manipulation of Congruence</b>	<b>Group Labels</b>
Price 10% Higher in Online Store	Incongruence (A)	<b>Higher Online</b>
Price Equality in Both Channels	Congruence	<b>Equality</b>
Price 10% Higher in Offline Store	Incongruence (B)	<b>Lower Online</b>

<sup>33</sup> All results in this document are executed by SPSS 20.0 multi-language version

Figure 6.5: Distribution of Gender throughout Samples

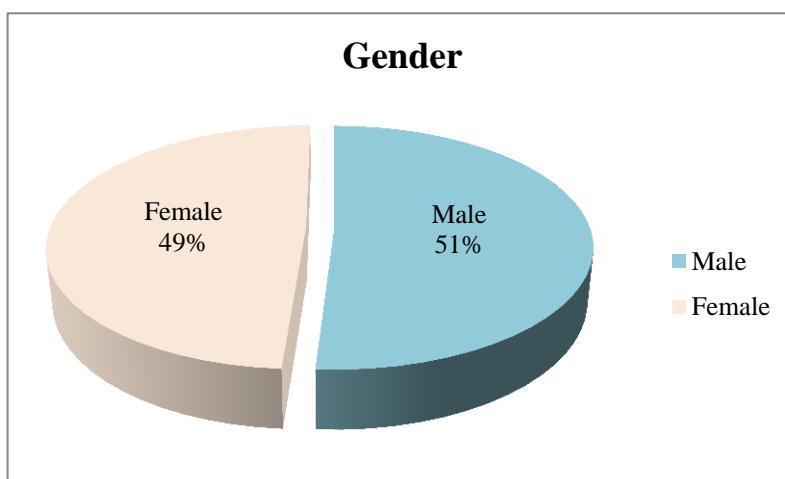


Figure 6.6: Distribution of Age throughout Samples

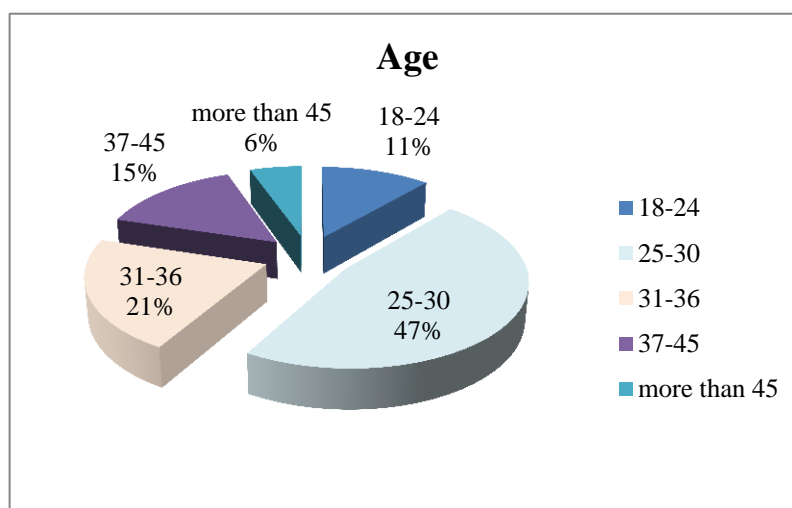
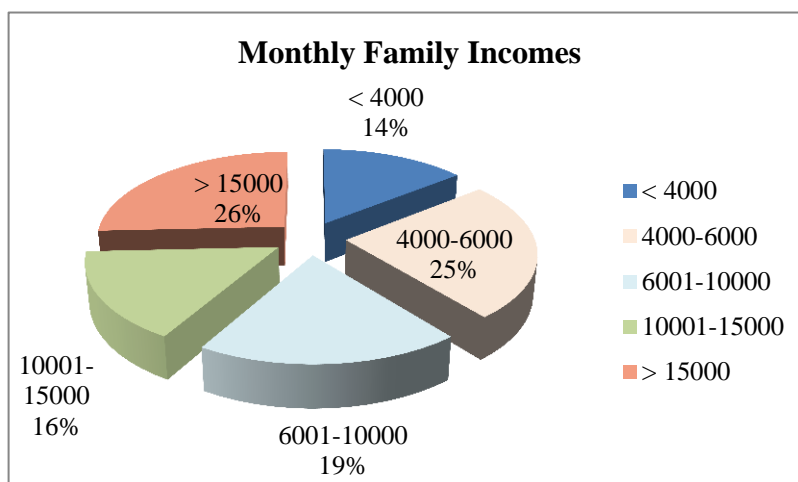


Figure 6.7: Distribution of Monthly Family Incomes (Chinese Yuan) throughout Samples

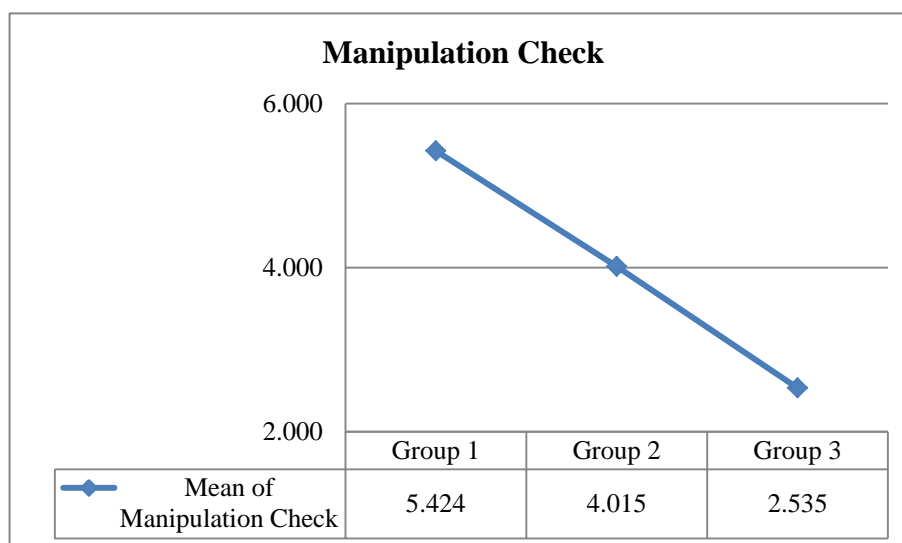


#### 4.1 Manipulation Check Test

First of all, the author checks the manipulation to ensure the effort of experimental design. The question is “Based on what you read, please rate the price level in which channel store you perceive higher?” within 7-point scale anchored “Offline higher” at 1, anchored “Online higher” at 7, and “No differences” at midpoint 4.

The ANOVA results show that the measurements of cross-channel price level are significantly different between the three stimuli (**Figure 6.8**). Mean of the question records 5.424 ( $sd = 1.0386$ ) in the Group “Higher Online” (group 1), 4.015 ( $sd = .4143$ ) in the Group “Equality” (group 2), and 2.535 ( $sd = .9076$ ) in the Group “Lower Online” (group 3), respectively. It reveals that the participants in Group “Higher Online” perceive online store presenting higher price than offline, whereas the participants in Group “Lower Online” perceive the price that is higher in the offline store. And the Group “Equality”, the evaluation of cross-channel price level is extremely closed to the midpoint indicating the equal price is perceived. These results accords to the experimental design. Post-hoc test statistically supports the effectiveness of manipulation (**Table 6.4**). In addition, homogeneous subsets test supports the analysis of variance method (**Table 6.5**).

**Figure 6.8: Between-Group Differences in Graphic based on Manipulation-check**





**Table 6.4: Results from Pairwise Test on Manipulation Check Question**

(I) Experimental Groups			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Games-Ho well	Group “Higher Online”	Group “Equality”	1.4089*	0.1378	.000	1.08	1.738
		Group “Lower Online”	2.8890*	0.1672	.000	2.493	3.285
	Group “Equality”	Group “Higher Online”	-1.4089*	0.1378	.000	-1.738	-1.08
		Group “Lower Online”	1.4802*	0.1193	.000	1.196	1.764
	Group “Lower Online”	Group “Higher Online”	-2.8890*	0.1672	.000	-3.285	-2.493
		Group “Equality”	-1.4802*	0.1193	.000	-1.764	-1.196

Remark: Level of confidence for all outputs is 95%

**Table 6.5: Results of Between-Group Homogeneous Subsets Test**

Manipulation check: Based on what you read, please rate the price level in which channel store you perceive higher?

Experimental Group		N	Subset for alpha = 0.05		
			1	2	3
Scheffe <sup>a,b</sup>	Group “Lower Online”	71	2.535		
	Group “Equality”	65		4.015	
	Group “Higher Online”	66			5.424
	Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 67.233.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

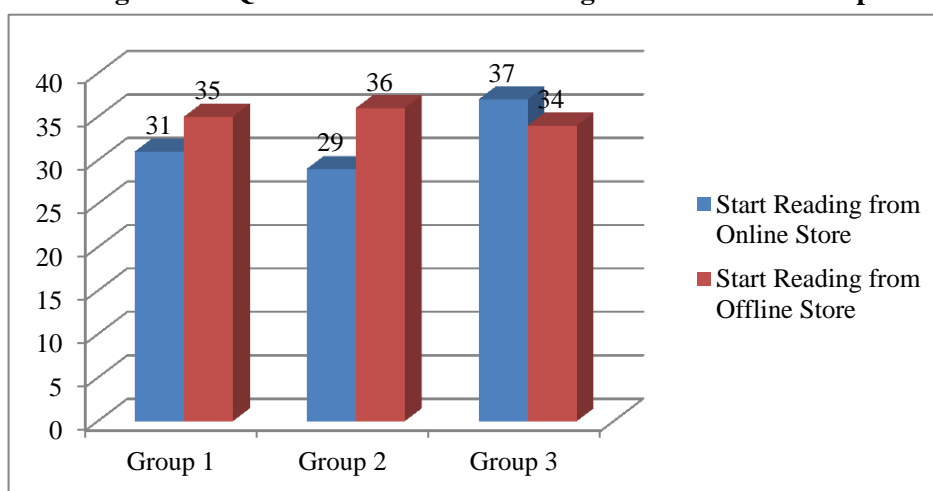
## 4.2 Results of Visiting Order

According to the design, some participants start their reading from the online store, whereas the others start the reading from the offline store. This process is randomly controlled by the computer program. The target is to know whether the visiting order

will make consumer’s perception different.

First, the descriptive information indicates that the participants in each manipulation group are 66, 65, and 71, respectively (Table 6.6). The ratio of “start reading from Online” relative to “start reading from Offline” is 31 vs. 35 in the Group “Higher Online”, 29 vs. 36 in the Group “Equality”, and 37 vs. 34 in the Group “Lower Online”, respectively (Figure 6.9).

**Figure 6.9: Quantities Based on Reading Order in Each Group**



**Table 6.6: Quantities of Participants in Each Group**

	Group “Higher Online” (1)	Group “Equality” (2)	Group “Lower Online” (3)
Start Reading on Online Store	31	29	37
Start Reading on Offline Store	35	36	34
Total Samples	66	65	71

Results from ANOVA test show that participants' visiting order has no significant influence on the responses of all tested variables (Table 6.7). The relative statistical probabilities on all other variables are greater than 0.05 indicating that there are no significantly differences influenced by reading order. Based on the results of above two validations, the following tests will be executed depending on three manipulation groups directly.

**Table 6.7: Results by ANOVA in regard of Store Reading-Order**

Principle Variables	Statistical Test on Reading-Order (F value)		
	Group “Higher Online”	Group “Equality”	Group “Lower Online”
Price relevant	F(1,64)=0.17, <i>p</i> <0.896	F(1,63)=3.194, <i>p</i> <0.079	F(1,69)=0.387, <i>p</i> <0.536
Price expectation	F(1,64)=1.061, <i>p</i> <0.307	F(1,63)=0.616, <i>p</i> <0.436	F(1,69)=0.419, <i>p</i> <0.519
Fairness on Stimuli	F(1,64)=1.486, <i>p</i> <0.227	F(1,63)=1.561, <i>p</i> <0.216	F(1,69)=1.904, <i>p</i> <0.172
Fairness for Other Same Products	F(1,64)=0.851, <i>p</i> <0.360	F(1,63)=0.401, <i>p</i> <0.529	F(1,69)=0.000, <i>p</i> <0.986
Fairness for Other Different Products	F(1,64)=2.989, <i>p</i> <0.089	F(1,63)=0.008, <i>p</i> <0.929	F(1,69)=0.911, <i>p</i> <0.343
Favorable Attitude	F(1,64)=3.530, <i>p</i> <0.065	F(1,63)=0.135, <i>p</i> <0.715	F(1,69)=0.197, <i>p</i> <0.659

Remark: Level of confidence for all outputs is 95%

### 4.3 Main Effects and Mediation Effects

According to the results of manipulation check and validation of reading order, all three manipulation-stimuli are significantly distinct. They represent three different cross-channel pricing strategies and are regarded as the independent variable for testing main effects. Considering the research model of this study contains two mediators, it is better to do the analysis in two parts. In the first part, the mediator of congruence perception will be validated based on the cause effect of cross-channel price policy influencing price fairness perception. In the second part, the focal point is the mediation effect of price fairness perception.

Before the presentation of the results of above two parts, it must calculate the value of each subject's congruence perception. The measure of subjects' congruence perception includes two orthogonal questions – "relevancy" and "expectancy". It needs the

mathematic treatment to combine two questions as one variable.

### 4.3.1 Calculating value of congruence perception

First of all, the **Table 6.8** represents the Mean and standard deviation ( $\sigma$ ) of "relevancy" and "expectancy" of each experimental group (stimulus). Follow the method introduced in the Chapter 4, these two measurements should be converted into one integrated variable. The equation to convert the perceived congruence for participant  $i$  ( $i=1,2,\dots,n$ ) encountering stimulus  $j$  ( $j=1$  or  $2$  or  $3$ ) can be computed as:

$$\text{Congruence}_{ij} = \text{Rele}_{ij} * \frac{\sigma_j^{\text{rele}}}{\sigma_j^{\text{rele}} + \sigma_j^{\text{exp}}} + \text{Exp}_{ij} * \frac{\sigma_j^{\text{exp}}}{\sigma_j^{\text{rele}} + \sigma_j^{\text{exp}}}$$

Where,  $\text{Rele}_{ij}$  and  $\text{Exp}_{ij}$  represent respectively the measurement of "relevancy" and "expectancy" perception when the participant  $i$  encounters the stimulus  $j$ .  $\sigma_j^{\text{rele}}$  and  $\sigma_j^{\text{exp}}$  are the standard deviation in each experimental stimulus  $j$ , respectively. For any given participant, the measurement of congruence perception is the sum of weighted scores of the relevancy measurement and the expectancy measurement based on the standard deviation of each experimental manipulation.

**Table 6.8: Standard Deviation of "Relevancy" and "Expectancy" in each group**

	N	Mean of Relevancy	Std. Deviation (Relevancy)	Mean of Expectancy	Std. Deviation (Expectancy)
Group "Higher Online"	66	4.68	2.128	3.58	2.12
Group "Equality"	65	4.75	1.581	4.4	1.712
Group "Lower Online"	71	4.99	1.703	5.11	1.399
Total	202	4.81	1.813	4.38	1.863

Accordingly, an integrated variable "congruence" is computed follow above equation given to each participant. It is still 7-point scale anchored "congruence" at 7 and anchored "incongruence" at 1. The **Table 6.9** and the **Figure 6.10** represent the descriptive information of new congruence variable group by group.

The result from the **Table 6.9** shows that mean of consumer's perceived congruence in

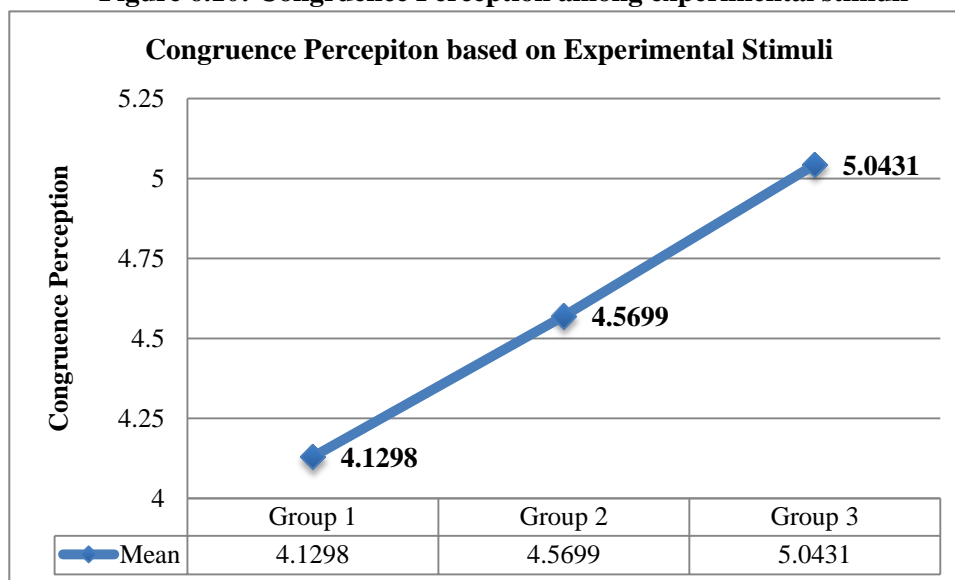
the experimental Group “Higher Online” records 4.1298 indicating the least congruence perceived by the subjects. In contrast, the congruence perception in the Groups “Lower online” records 5.0431 which indicates the most congruence that evaluated among all three stimuli. To the participants who encounter the stimulus of equal cross-channel prices, the mean records 4.5699 indicating a moderate state between the Group “Higher Online” and the Group “Lower online”.

**Table 6.9: Participant's congruence perception based on the sum of weighted "relevancy" and "expectancy" measurement**

Congruence combined weighted standard deviation

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Group “Higher Online”	66	4.1298	1.64156	0.20206	3.7263	4.5334
Group “Equality”	65	4.5699	1.28557	0.15946	4.2513	4.8884
Group “Lower Online”	71	5.0431	1.38197	0.16401	4.716	5.3702
Total	202	4.5924	1.48491	0.10448	4.3864	4.7984

**Figure 6.10: Congruence Perception among experimental stimuli**



The results of congruence perception among three groups are significantly validated by ANOVA test ( $F(2,199)=6.858, p<.001$ ), and the Post-Hoc test (Table 6.10) indicates the congruence perception is significantly different between the Group “Higher Online” and

the Group “Lower Online” ( $p < .000$ ), but are marginally different between the Group “Equality” and the Group “Lower Online” ( $p < .058$ ), and between the Group “Higher Online” and the Group “Equality” ( $p < .083$ ).

**Table 6.10: Post-Hoc Test among Three Experimental Groups**

	(I) Experimental Group based on Manipulation	(J) Experimental Group based on Manipulation	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
LSD	Group “Higher Online”	Group “Equality”	-.44006	0.25223	<b>.083</b>	-0.9375	0.0573
		Group “Lower Online”	-.91326*	0.24681	<b>.000</b>	-1.3999	-0.4266
	Group “Equality”	Group “Higher Online”	.44006	0.25223	<b>.083</b>	-0.0573	0.9375
		Group “Lower Online”	-.4732	0.24779	<b>.058</b>	-0.9618	0.0154
	Group “Lower Online”	Group “Higher Online”	.91326*	0.24681	<b>.000</b>	0.4266	1.3999
		Group “Equality”	.4732	0.24779	<b>.058</b>	-0.0154	0.9618

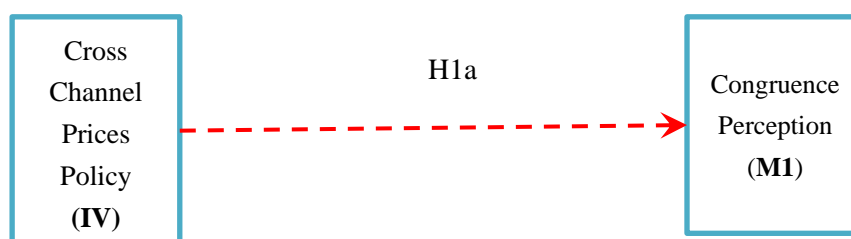
Remark: Level of confidence for all outputs is 95%

This result implies that the subjects evaluate the stimulus of 10% lower in online price (Group “Lower online”) as more congruence, but evaluate the stimulus 10% higher in online price (Group “Higher Online”) as the least congruence (or moderate incongruence). The stimulus of equal cross-channel price (Group “Equality”) gets less congruence evaluation compared to the result of Group “Lower Online”, but is more positive than the Group “Higher Online” (see **Table 6.11**).

The statistical results are out of the prediction where subjects in equality scenario should perceive more congruence than those subjects in non-equality scenarios. Instead, only the situation of making online prices to be lower is congruent with the consumers’ expectation. It should be also noted that the mean of congruence perception in all three groups are greater than the middle point of 3.5, this reveals that participants think that cross-channel prices strategy and higher priced in online strategy are regarded as less congruence with their expectation, but are not judged as the incongruence at all.

**Result of HYPOTHESIS**

Number	Hypotheses	Result
<b>H1a</b>	Compare to the situation of non-equal cross-channel price, subjects who encounter equal cross-channel price will perceive more congruence perception.	<b>Rejected</b>

**Figure 6.11: Statistical Result for Hypothesis 1**

Theoretically, this result rejects the hypothesis H1a. The advantage of this consequence is to imply that participants' perception is not simply equal to the research manipulation conditions, which implies the importance of instantly measuring participants' congruence perception rather than relying on researcher's experimental design. Accordingly, subjects' congruence perception should be redirected to that in the **Table 6.11**.

The table 6.11 represents that subjects in the group "lower online" present the congruence situation because the stimulus is perceived as relevant and expected, whereas two other groups, "higher online" and "equality", present moderate incongruence situation due to the relevant but unexpected stimulus subjects encounter. Someone may argue why it occurs. The answer can be found in the initial congruence perception measurement of "relevancy" and "expectancy". The **Figure 6.12** presents mean of two original variables depending on the groups. In a 7-point scale system (for both dimensions), the measuring scores of "relevancy" among three groups (stimuli) are not apparently different ( $\overline{M}_{rele} = 4.68$  (Group "Higher Online", G1), 4.75 (Group "Equality", G2), and 4.99 (Group "Lower Online, G3), respectively), and the overall

difference is not statistically supported ( $F(2,199)=0.528, p<0.591$ ).

**Table 6.11: Subject's Congruence Perception towards each cross-channel price policy**

Groups	Group “Higher Online”	Group “Equality”	Group “Lower Online”
<b>Cross-Channel Prices Manipulation (stimuli)</b>	Online price 10% > Offline Price	Channel Price Equality	Online price 10% < Offline Price
<b>Experimental Definition</b>	Incongruence A	Congruence	Incongruence B
<b>Congruence Perception</b>	<b>4.1298</b>	<b>4.5699</b>	<b>5.0431</b>
<b>Dimensions Based on Statistical Result</b>	Relevant And Moderate Unexpected	Relevant And Moderate Expected	Relevant And Expected
<b>Subject's Congruence Perception (<i>ex post</i>)</b>	<b>Moderate Incongruence</b>	<b>Moderate Incongruence (lightly)</b>	<b>Congruence</b>

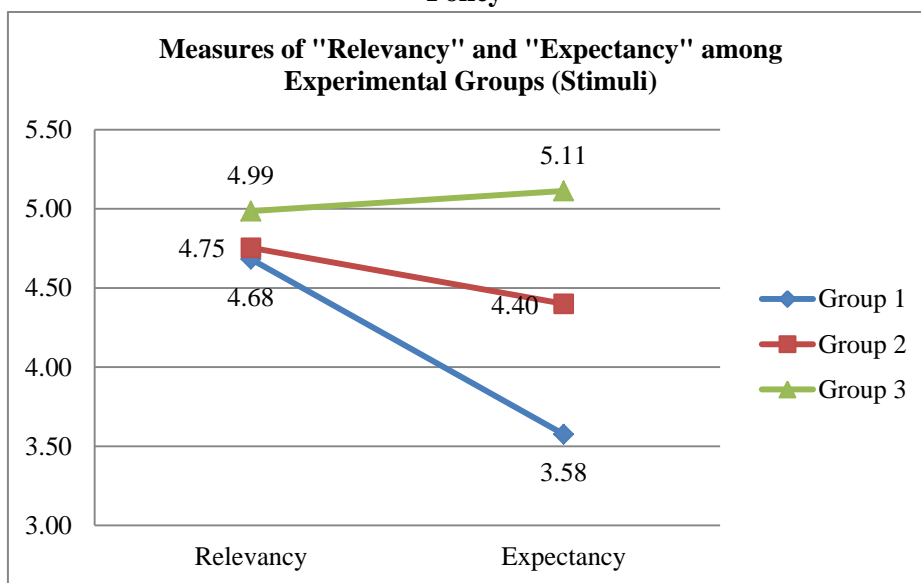
On the other hand, the main differences among three groups occur in the measurement of "expectancy". Whereas subjects in the Group “Higher Online” (Group 1) record the lowest mean score of the expectation ( $\overline{M}_{exp}=3.58$ ), subjects in the Group “Lower Online” (Group3) record the score as very expected ( $\overline{M}_{exp}=5.11$ ). The expectancy in the Group “Equality” (Group 2) reaches the value 4.40, which is less expected than the Group “Lower Online”, but is more expected than the subjects in the Group “Higher Online”. The ANOVA test identifies that the discrepancies of expectancy are significant among three groups (stimuli) ( $F(2,199) =13.039, p<0.000$ ). The Post-Hoc test also provides significant evidences that all pairwise comparisons on “expectancy” variable are effective under 95% confidential intervals (**Table 6.12**).

Consequently, the statistical results imply that the extent of cross-channel price policy matches subjects' expectation is the determinant to the congruence perception. From participants' viewpoint, a multichannel retailer should make price lower in its online



store comparing to its offline stores, otherwise, a negative judgment to the retailer will be emerged. These results also imply that consumers' congruence evaluation is not simply decided by physical consistence between the channel stores, but decided by the extent of how subjects' expectation is matched.

**Figure 6.12: Measures of "Relevancy" and "Expectancy" among Multichannel Price Policy**



**Table 6.12: Results of Post-Hoc on "Expectancy" among multichannel prices policy**

(I) Experimental Groups			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Games -Howe ll	Group "Higher Online"	Group "Equality"	-.824*	.336	.041	-1.62	-.03
		Group "Lower Online"	-1.537*	.309	.000	-2.27	-.80
	Group "Equality"	Group "Higher Online"	.824*	.336	.041	.03	1.62
		Group "Lower Online"	-.713*	.270	.025	-1.35	-.07
	Group "Lower Online"	Group "Higher Online"	1.537*	.309	.000	-.80	-2.27
		Group "Equality"	.713*	.270	.025	-.07	-1.35

Remark: Level of confidence for all outputs is 95%

### 4.3.2 The mediation effect of congruence perception

The previous section identifies that subjects' congruence perception is significantly different among the different cross-channel price strategies. In this part, the object is to validate the mediation effect of congruence perception on the causal influence from the cross-channel price policy to the price fairness perception.

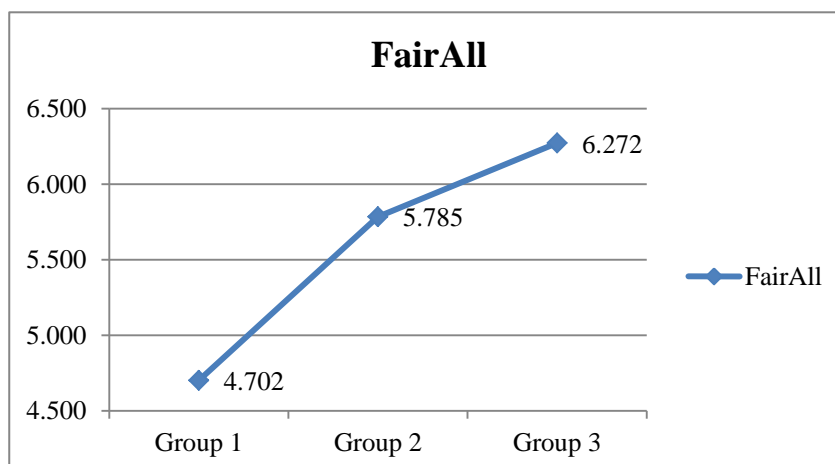
The measurement of price fairness perception contains three questions by which participants evaluate the fairness not only relies on the visible product price, but also relies on the imagination of other invisible price which is derived from the current visible price. Cronbach's alpha gotten from internal consistency test is .799 among three questions, which indicating a high degree of internal consistency. Test of principle component factor analysis reveals the between-question correlations are in the range from 0.482 to 0.725, all are statistically significant. Test of Eigenvalues confirms only one factor covers all three questions, which explains 71.867% of total variance<sup>34</sup>.

All three initial items are converted into a new single variable "Price Fairness", with high ratings (9) indicating greater fairness perception between online store and offline store. The **Figure 6.13** demonstrates the descriptive information of "Price Fairness" among the groups. The mean values of the price fairness are 4.702 ( $sd=1.8547$ ) in the Group1 "Higher Online", 5.785 ( $sd=1.6785$ ) in the Group2 "Equality", and 6.272 ( $sd=1.4889$ ) in the Group3 "Lower Online", respectively. Based on the experimental design, the price fairness perception are significantly different among the groups ( $F(2,199)=15.577, p<.000$ ), and except for one pairwise comparison (Group "equality" and Group "Lower online") all other pairwise comparisons are supported in 99% confidential intervals through the *Post-Hoc* test (**Table 6.13**)

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<sup>34</sup> The detailed statistical report is presented at Appendix F

**Figure 6.13: Mean Plot of Variable "Price Fairness" among the groups:**



**Table 6.13: Pairwise Comparison of "Price Fairness" among Multichannel Price Policy**

DV:Fairness	(I) Experimental Group based on Manipulation	(J) Experimental Group based on Manipulation	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
						LSD	Group "Higher Online"
		Group "Lower Online"	-1.5703*	.2866	.000	-2.1350	-1.0050
	Group "Equality"	Group "Higher Online"	1.0826*	.2929	.000	.5050	1.6600
		Group "Lower Online"	-.4877	.2877	.092	-1.0550	.0800
	Group "Lower Online"	Group "Higher Online"	1.5703*	.2866	.000	1.0050	2.1350
		Group "Equality"	.4877	.2877	.092	-.0800	1.0550

Remark: Level of confidence for all outputs is 95%

Before the validation of mediation effect, it should check whether subjects' congruence perception is the antecedent of price fairness. The univariate test with covariates of "gender" and "age" is adopted for validation. Results from the **Table 6.14** reveals only congruence perception variable significantly influences the participants' price fairness

perception ( $F=2.571, p<.000$ ), not the covariates. The effect of congruence perception on fairness equals to .604 ( $t=8.159, p<.000$ ) indicating every one unit increased in congruence perception will lead to .604 units increased in fairness perception (Table 6.15). This result supports Hypothesis H1b in which the higher congruence perceived, the higher price fairness perception evaluated.

**Table 6.14: Regression Test of Congruence on Price Fairness Perception (DV)**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	387.815 <sup>a</sup>	75	5.1710	2.5180	.000
Intercept	164.4190	1	164.4190	80.0520	.000
Gender	5.8630	1	5.8630	2.8540	.094
Age	0.7770	1	0.7770	0.3780	.540
<b>CongW_sd</b>	<b>385.5520</b>	<b>73</b>	<b>5.2820</b>	<b>2.5710</b>	<b>.000</b>
Error	258.7930	126	2.0540		
Total	6986.5560	202			
Corrected Total	646.6080	201			

a R Squared = .600 (Adjusted R Squared = .362)

Remark: Level of confidence for all outputs is 95%

**Table 6.15: Coefficient of Congruence Perception on Fairness (w/o covariates)**

R	R Square	Adjusted R Square	Std. Error of the Estimate	df1/df2	F	Sig.
.500	.250	.246	1.5575	1 / 200	66.5680	.000 <sup>b</sup>

Coefficients<sup>a</sup>

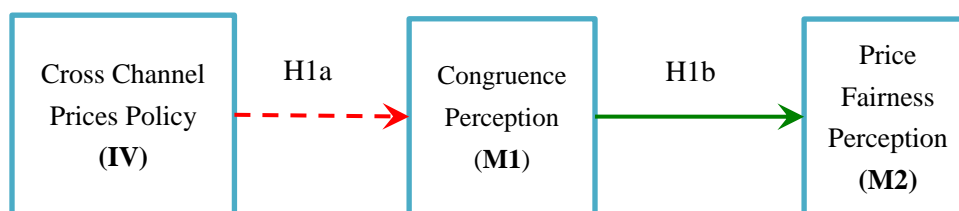
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.830	.357		7.928	.000
<b>Congruence</b>	<b>.604</b>	.074	0.500	<b>8.159</b>	<b>.000</b>

Remark: Level of confidence for all outputs is 95%

**Result of HYPOTHESIS**

Number	Hypotheses	Result
<b>H1b</b>	Higher the congruence perceived from cross-channel prices, higher the price fairness perceived too.	<b>Supported</b>

**Figure 6.14: Statistical Result of Hypothesis H1a & H1b**

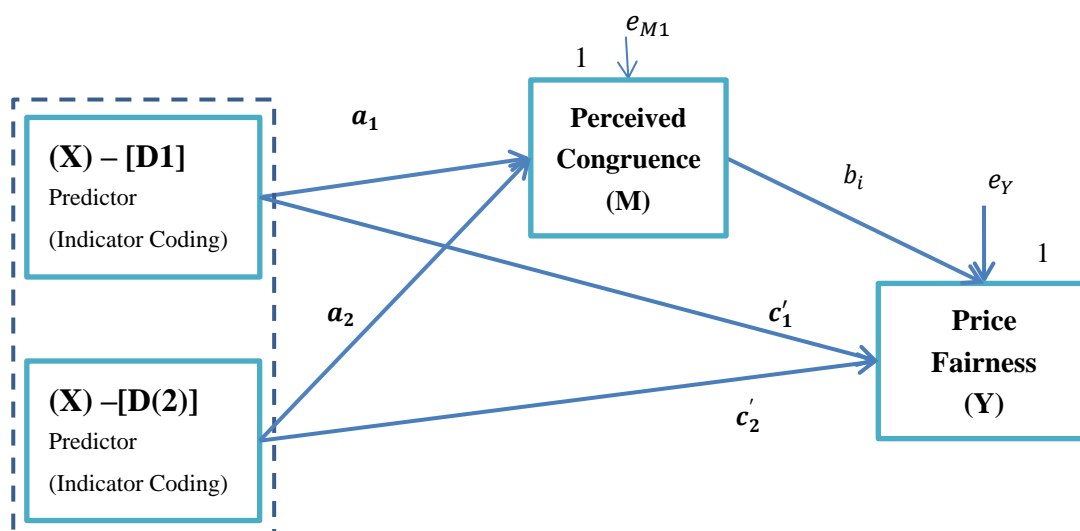


The validation of mediation effect is executed through model 4 of macro “process” (Hayes 2013) with bootstrapping samples 10000. It must be noted that that independent variable is a multi-categorical predictor in this mediation model (Figure 6.15). According to the interpretation in Chapter 4.4.5, the single nominal variable (IV) is converted into K-1 variables used for macro “process” calculation (Hayes and Preacher 2014). The indicator coding (dummy) method is chosen (Table 6.16).

**Table 6.16: Indicator Coding of Multi-categorical variable X**

Independent Variable	D1	D2
<i>Control Gr. (Group Online Price Higher)</i>	0	0
<i>Moderate Gr. (Group Equality)</i>	1	0
<i>Higher Gr. (Group Offline price Higher)</i>	0	1

**Figure 6.15: Mediation Model of Perceived Congruence based on Indicator Coding of Multi-categorical Predictor**



**Table 6.17** presents the statistical results in which all paths are significant in 90% confidential intervals. The  $R^2$  of regression is promoted from .1354 in the total effect model to .3140 in the mediation effect model, which implies that the participants' congruence perception can enhance the explanation on the variance of price fairness perception. The relative indirect effect through congruence perception depends on coding value of  $a_1$  and  $a_2$ , respectively:

$$a_1b_1 = .4401 * .5279 = .2323$$

$$\text{Or } a_2b_1 = .9133 * .5279 = .4821$$

The confidence intervals of D2 indirect effects does not straddle zero, nor does D1 (**Table 6.18**). All coefficients are positively presented reveal that more congruence perceived from cross-channel prices leads to more price fairness judgment except the subjects in the Group “Equality”. Subjects’ congruence perception takes the mediation role in a partial mediation model due to both relevant direct effects ( $c'_1=.8503, p<.0015$ ;  $c'_2=1.0882, p<.0001$ ) are significant. The statistically revised model is presented in the **Figure 6.16**. Thus, the overall hypothesis 1 is supported.

**Table 6.17: Mediation effect Test of Congruence Perception via macro “process”**

	Cong. Perception (M)		Price Fairness (DV)			
		Coefficient (Sig.)	Coefficient (Sig.)	Coefficient (Sig.)		
<b>Constant</b>	$l_3$	<b>4.1298</b> <.0000	$l_1$	<b>4.7020</b> <.0000	$l_2$	<b>2.5221</b> <.0000
<b>D1 (IV)</b>	$a_1$	<b>.4401</b> <.0826*	$c_1$	<b>1.0826</b> <.0003	$c'_1$	<b>.8503</b> <.0015
<b>D2 (IV)</b>	$a_2$	<b>.9133</b> <.0003	$c_2$	<b>1.5703</b> <.0000	$c'_2$	<b>1.0882</b> <.0001
<b>M (Cong. Per.)</b>					$b_1$	<b>.5279</b> <.0000
		$R^2=.0645$		$R^2=.1354$		$R^2=.3140$
		F(2,199)=6.8577, $p<.0013$		F(2,199)=15.5770, $p<.0000$		F(3,198)=30.2131 , $p<.0000$

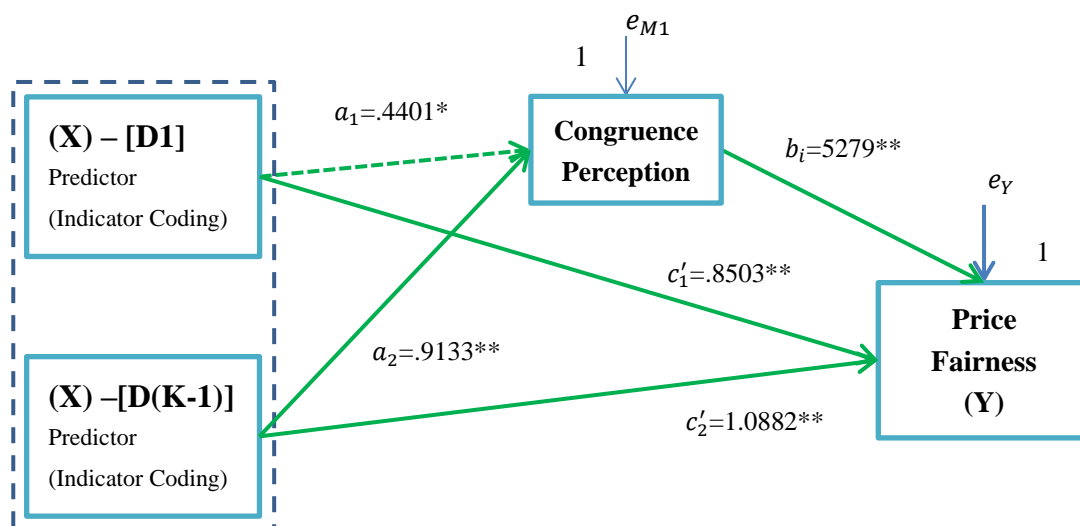
Remark: Level of confidence for all outputs is 95%

**Table 6.18: Total, Direct, and Indirect effect of Cross-Channel Price Policy on Fairness through Congruence Perception**

Relative Total Effect of X on Y						
	coeff	SE(boot)	t	p	LLCI	ULCI
D1	1.0826	.2929	3.6961	.0003	.5050	1.6602
D2	1.5703	.2866	5.4791	.0000	1.0051	2.1354
Relative Direct Effect of X on Y						
	coeff	SE(boot)	t	p	LLCI	ULCI
D1	.8503	.2635	3.2265	.0015	.3306	1.3700
D2	1.0882	.2646	4.1131	.0001	.5665	1.6100
Omnibus Test of Direct effect of X on Y						
	R-sq.	F	df1	df2	p	
	.0643	9.2797	2	198	.0001	
Relative Indirect EFFECTS of X on Y through Congruence						
	Effect	SE(boot)	LLCI	ULCI		
D1	.2323	.1390	-.0213*	.5254		
D2	.4821	.1559	.2128	.8275		
Omnibus	.0291	.0193	.0014	.0713		

Remark: Level of confidence for all outputs is 95%

**Figure 6.16: Statistical Results of Price Fairness mediator (revised)**



\*=10% probability;

\*\*=5% probability

**RESULT of HYPOTHESIS 1**

<b>Number</b>	<b>Hypotheses</b>	<b>Result</b>
<b>H1</b>	Subjects' congruence perception can mediate the effect of cross-channel price (Equality VS. Non Equality) on price fairness perception	Supported
	<b>H1a:</b> Compare to the situation of non-equal cross-channel price, subjects who encounter equal cross-channel price will perceive more congruence perception.	Rejected
	<b>H1b:</b> Higher the congruence perceived from cross-channel prices, higher the price fairness perceived too.	Supported

**4.3.3 The mediation effect of price fairness perception**

As similar as the precedent mediation test, the object of this part is to validate the mediation effect of the price fairness perception influencing the effect of subjects' congruence perception on attitude towards the multichannel retailer. Note that the causal relation of subjects' perceived congruence on price fairness perception has been identified in the last section. Consequently, the statistical result of hypothesis H2a should be equal to that of H1b. Considering the two mediators are to be validated separately, the hypothesis H2a will be verified again in this section. The variables of congruence perception and price fairness perception are the same as the one used in last section.

First of all, the mean of attitude based on experimental group is presented in the **Table 6.19** where subjects' attitude are 4.23, 5.17, and 5.75, respectively, in the Group "Higher Online", Group "Equality", and the Group "Lower Online", which indicates the participants in Group "Lower Online" express more favorable attitude rather than that in other two Groups (F-value=8.205;  $p < .000$ ). The results from *Post-Hoc* test marginally identify the statistical difference of attitude among three groups (**Table 6.20**).



**Table 6.19: Description of Variable “Attitude” among the multichannel price policies**

	N	Mean	Std. Deviation	Std. Error
Group “Higher Online”	66	4.23	2.682	.330
Group “Equality”	65	5.17	2.088	.259
Group “Lower Online”	71	5.75	1.787	.212
Total	202	5.06	2.286	.161

**Table 6.20: Pairwise Comparison of "Attitude" among multichannel price policies**

	(I) Experimental Group based on Manipulation	(J) Experimental Group based on Manipulation	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Games- Howell	Group “Higher Online”	Group “Equality”	-.9420	.4200	<b>.068</b>	-1.9400	.0500
		Group “Lower Online”	-1.519*	.3920	<b>.001</b>	-2.4500	-.5900
	Group “Equality”	Group “Higher Online”	.9420	.4200	<b>.068</b>	-.0500	1.9400
		Group “Lower Online”	-.5770	.3350	<b>.200</b>	-1.3700	.2200
	Group “Lower Online”	Group “Higher Online”	1.519*	0.3920	<b>.001</b>	.5900	2.4500
		Group “Equality”	.5770	.3350	<b>.200</b>	-.2200	1.3700

Remark: Level of confidence for all outputs is 95%

General linear method is adopted for test the relation of price fairness on attitude. Once again, the variables “Gender” and “Age” are used for covariates, and the results show that only congruence perception variable positively influences participants' attitude expression ( $F=8.079$ ,  $p<.000$ ), nor do the covariates (**Table 6.21**).

Similarly, Hayes’s (2013) macro “Process” is adopted for examining the mediation effect. In this section, the predictor is subjects’ congruence perception – a scaled variable, the

dependent variable is subjects’ attitude, and the mediator is price fairness perception. The study diagram is presented in **Figure 6.17**.

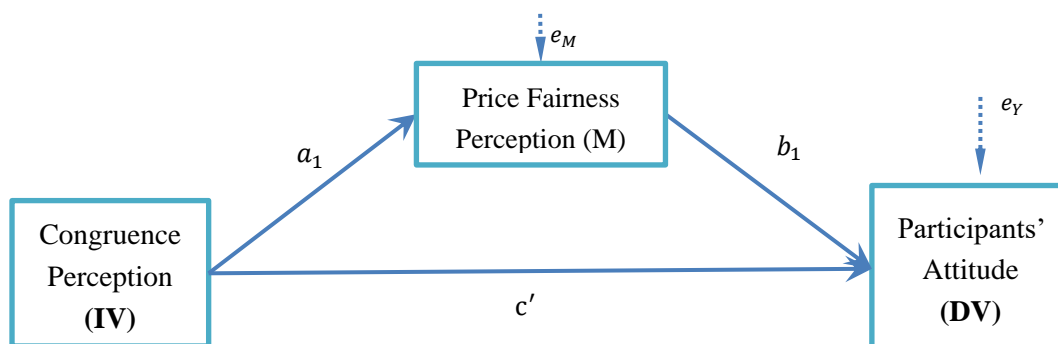
**Table 6.21: Regression Test of Fairness on Attitude (DV)**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	542.7138 <sup>a</sup>	25	21.709	7.529	0.000
Intercept	197.921	1	197.921	68.645	0.000
Gender	.909	1	.909	.315	.575
Age	1.915	1	1.915	.664	.416
<b>Fairness</b>	<b>535.730</b>	<b>23</b>	<b>23.293</b>	<b>8.079</b>	<b>.000</b>
Error	507.450	176	2.883		
Total	6231.000	202			
Corrected Total	1050.1630	201.0000			

a R Squared = .517 (Adjusted R Squared = .448)

Remark: Level of confidence for all outputs is 95%

**Figure 6.17: Research Diagram for testing Mediation Effect of Price Fairness Perception**



The statistical results are demonstrated in the **Table 6.22** via Model 4 of macro “Process” with bootstrapping samples 10000. All regression paths are significant. The  $R^2$  of regression is promoted from .2496 in the total effect model to .4990 in the mediation effect model, which implies that involving price fairness can enhance the effort of congruence perception on attitude. The relevant indirect effect through price fairness is:

$$a_1 b_1 = 0.6036 \times 0.7347 = 0.4435,$$

Which Indicating every one unit increased in congruence perception can lead to .4435 units increased on favorable attitude towards the retailer. The confidence intervals of relevant indirect effect based on the bootstrapping does not straddle zero (**Table 6.23**). This supports both H2a & H2b.

**Table 6.22: Mediation effect Test of Price Fairness via macro “Process”**

	Price Fairness (M)		Attitude (DV)			
		Coefficient (Sig.)		Coefficient (Sig.)	Coefficient (Sig.)	
<b>Constant</b>	$l_3$	<b>2.8303</b> <.0000	$l_1$	<b>1.5323</b> <.0009	$l_2$	<b>-.5471</b> <.2019
<b>(IV)Congruence</b>	$a_1$	<b>.6036</b> <.0000	$c$	<b>.7691</b> <.0000	$c'$	<b>.3256</b> <.0003
<b>M (Fairness)</b>					$b_1$	<b>.7347</b> <.0000
		$R^2=.2497$		$R^2=.2496$		$R^2=.4990$
		F(1,200)=66.5681, $p<.0000$		F(1,200)=66.5375, $p<.0000$		F(2,199)=99.0984, $p<.0000$

**Table 6.23: Total, Direct, and Indirect effect of Congruence on Attitude through Fairness**

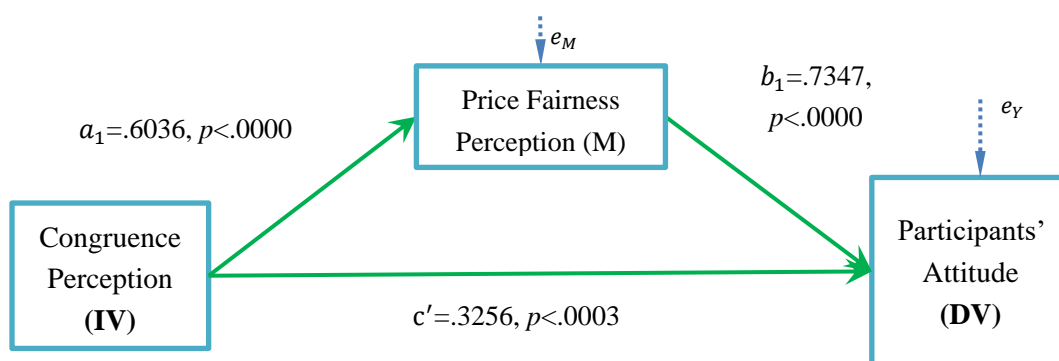
<b>Total Effect of X on Y</b>						
	Effect	SE(boot)	$t$	$p$	LLCI	ULCI
	.7691	.9043	8.1571	.0000	.5832	.9550
<b>Direct Effect of X on Y</b>						
	Effect	SE(boot)	$t$	$p$	LLCI	ULCI
	.3256	.0892	3.6519	.0003	.1498	.5015
<b>Indirect EFFECTS of X on Y</b>						
	Effect	SE(boot)			LLCI	ULCI
Fairness	.4435	.0755			.3103	.6089

Remark: Level of confidence for all outputs is 95%

The test of this section implies that subjects' attitude towards the retailer can be directly influenced by the subjects' congruence perception in regards to the multichannel prices policy, but also is indirectly influenced through the price fairness perception. Both mediation effects of congruence perception and of price fairness perception are validated, respectively. Since the hypothesis H1b is theoretically equal to the hypothesis H2a, the results of two hypotheses can be directly connected. When readers look at the Figure

6.19, a relevant question will emerge: shall we regard the two mediators as an overall serial multiple mediator model? Whether the effect of cross-channel price policy influences subjects' attitude will be serially mediated by the congruence perception and the price fairness perception? For researchers, also for retailers, it is necessary to examine such serial multiple mediator effect within all four variables. The detailed report will be presented in the section 4.4.

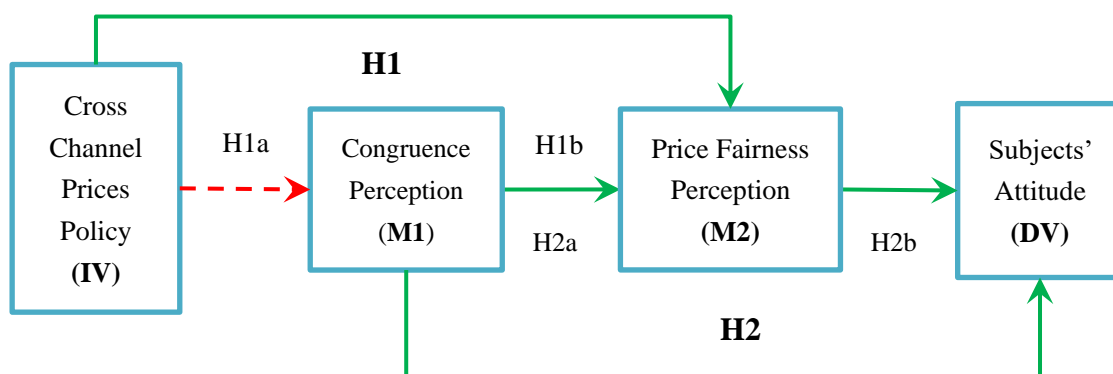
**Figure 6.18: Statistical Results of the mediator “price fairness”**



**RESULT of HYPOTHESIS 1**

Number	Hypotheses	Result
<b>H2</b>	Subjects' fairness perception can mediate the effect of congruence perception on overall attitude towards the retailers:	Supported
	<b>H2a:</b> Subjects' congruence perception positively influences price fairness perception.	Supported
	<b>H2b:</b> Higher price fairness perception leads to more favorable attitude towards the retailer.	Supported

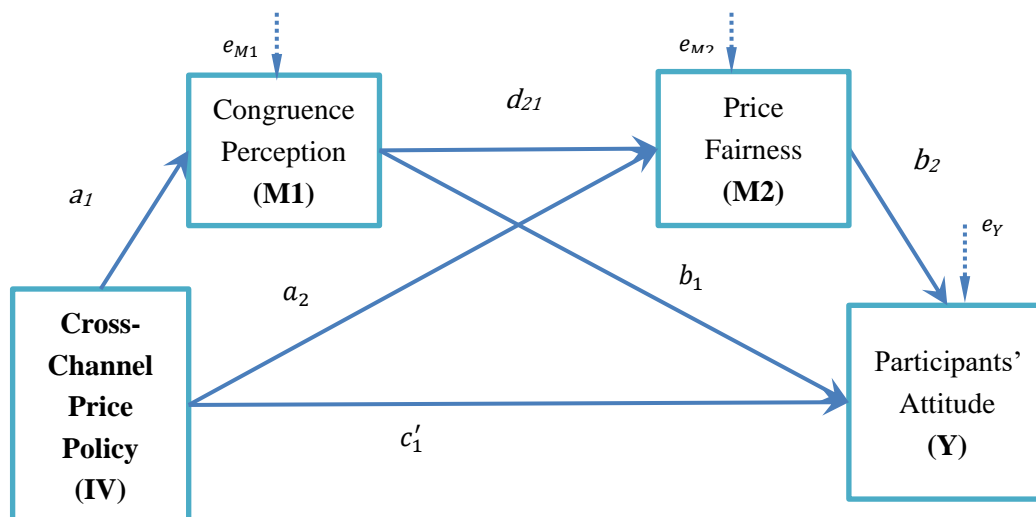
**Figure 6.19: Combined Statistical Results of Hypotheses 1 & 2**



#### 4.4 Test of Serial Multiple Mediation Effects

According to the Hayes's (2013) proposition, the **Figure 6.20** demonstrates the statistical model of basic serial multiple mediator effects including two mediators. Totally, there are one relevant direct link and three relevant indirect links in the model. Model 6 of macro “process” is particularly used for examining the serial mediation effects. The relevant algebraic equation has been shown at the methodology chapter.

**Figure 6.20: Serial Multiple Mediators of Price study**



The results show that participants' attitude is influenced by multichannel prices policy only through the serial multiple mediators. The relevant direct effect of multichannel prices policy on subjects' attitude becomes not significant (see the red part in the **Table 6.24**) when two mediators are involved, and the  $R^2$  equals to .4992 implies that 49% of

variances on attitude result from the serial multiple mediator model (**Table 6.24**). Moreover, all three indirect paths are significant under 95% bootstrapping confidence intervals, and do not straddle zero at all (IND1, 2, and 3 in the Table 6.25). Indirect effect (path 1) passes through congruence perception to attitude is .1478, and indirect path 2 sequentially passes through congruence perception and price fairness perception equals to .1756. The third indirect path solely passes through the mediator of fairness perception which records the effect of .3942 (Table 6.25). These results indicate that the indirect path 3 contributes more than half of total mediation effort on the attitude compared to the other indirect paths (IND1 and IND2), which implies that fairness perception is a pivotal factor to decide participants’ attitude while subjects encounter the multichannel prices policy.

**Table 6.24: Results of Serial Multiple Mediators Model via macro “Process”**

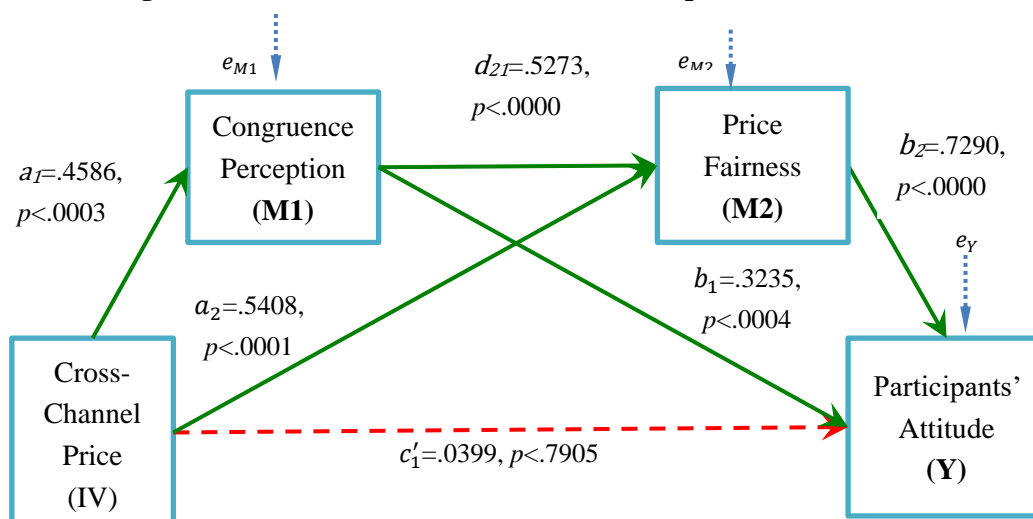
	Congruence (M1)		Price Fairness (M2)		Attitude (DV)			
	Coefficient		Coefficient		Coefficient		Coefficient	
	(Sig.)		(Sig.)		(Sig.)		(Sig.)	
Constant	$l_3$	<b>3.6675</b>	$l_4$	<b>2.0858</b>	$l_1$	<b>3.5307</b>	$l_2$	<b>-.5859</b>
		<.0000		<.0000		<.0000		<.1986
IV	$a_1$	<b>.4568</b>	$a_2$	<b>.5408</b>	$c_1$	<b>.7575</b>	$c'_1$	<b>.0399</b>
		<.0003		<.0001		<.0001		<.7905
M1			$d_{21}$	<b>.5273</b>			$b_1$	<b>.3235</b>
				<.0000				<.0004
M2							$b_2$	<b>.7290</b>
								<.0000
	$R^2=.0645$		$R^2=.3076$		$R^2=.0748$		$R^2=.4992$	
	F(1,200)=13.7781		F(2,199)=44.2099		F(1,200)=16.1650		F(3,198)=65.7807	
	$p<.0003$		$p<.0000$		$p<.0001$		$p<.0000$	

**Table 6.25: Total, Direct, and Indirect effect on Attitude through Serial Multiple Mediators via Macro “process”**

Total Effect of IV on DV						
	Effect	SE(boot)	<i>t</i>	<i>p</i>	LLCI	ULCI
	.7575	.1884	4.0206	.0001	.3860	1.1290
Direct Effect of IV on DV						
	Effect	SE(boot)	<i>t</i>	<i>p</i>	LLCI	ULCI
	.0399	.1499	.2660	.7905	-.2558	.3355
Indirect EFFECTS of IV on DV						
	Effect	SE(boot)	LLCI	ULCI		
Total:	.7176	.1436	.4491	1.0127		
Ind1:	.1478	.0704	.0411	.3256		
Ind2:	.1756	.0594	.0775	.3169		
Ind3:	.3942	.1096	.2010	.6318		
Indirect Effects Key (direction)						
Ind1:	ExpGroup ----> Congruence ----> Attitude					
Ind2:	ExpGroup ----> Congruence ----> Fairness ----> Attitude					
Ind3:	ExpGroup ----> Fairness ----> Attitude					

Remark: Level of confidence for all outputs is 95%

**Figure 6.21: Statistical Results of Serial Multiple Mediators Model**



The above results identify that both congruence perception and price fairness effectively mediate the effect of multichannel price policy on attitude towards the retailer. Such dual-mediators are presented in a complete serial multiple mediator model (Hayes 2013; Baron and Kenny 1986), however, the cross-channel price doesn't directly influence the attitude. Consequently, the hypothesis 3 is completely supported.

#### Result of HYPOTHESIS

Number	Hypotheses	Result
<b>H3</b>	Both congruence perception and fairness perception serially mediate the effect of cross-channel price (Equality VS. non-Equality) on participants' attitude. Higher the perception of congruence is concerning cross-channel prices, higher price fairness perception, in turn, and higher favorable attitude will be expressed by participants.	<b>Supported</b>

In brief, three validation tests delineate the overall relationship among the variables. That is, the presentation of multichannel prices does not directly influence consumers' attitude towards the retailers, but the effects are transmitted sequentially through the congruence perception and the price fairness perception. While consumers perceive more (positive) congruence from the multichannel prices policy, they also appraise it as more (positive) fairness, in turn results in more favorable attitude. It can easily find the indirect effect through fairness to attitude is most prominent ( $b_2 = .7290, p < .0000$ ) among all the paths in the **Figure 6.21**, which implies that price fairness perception takes the most important role in determining the attitude expression. For the retailers, make the consumers feel to be treated fairly is the key to gain consumer's appreciation, even if the congruence perception is probably weak.

#### 4.5 Moderation Effects

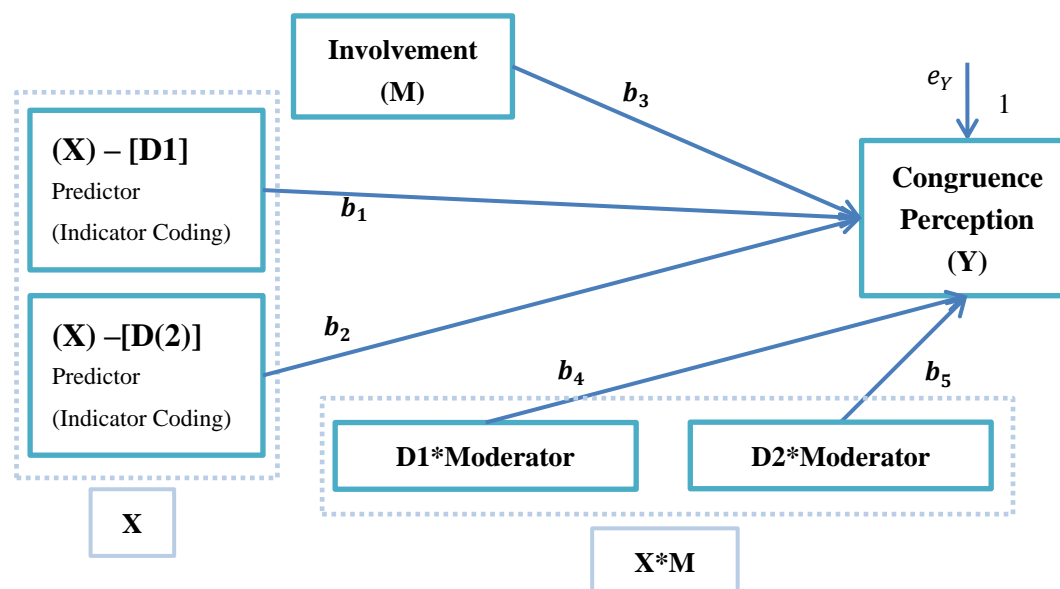
The hypothesis of moderation effect focuses on whether personal experimental involvement can moderate the effect of multichannel price policy on congruency



perception. In short words, do high involved subjects reduce their congruence perception? The Hayes's (2013) macro "process" for SPSS is adopted for the examination within indicator coding of multi-categorical predictor. In this case, the independent variable "multichannel price policy" has three categories. Then, it is converted to two variables: D1 and D2 through indicator coding method (please see **Table 6.16** at pp.258). The statistical diagram is presented in the **Figure 6.22**.

The measurement of experimental involvement contains four questions with a 6-point semantic differential scale. Results from the internal reliability test show that the Cronbach's  $\alpha$  among the four questions is 0.828, indicating a very high degree of internal consistence, and all between-question correlation is in the range from .448 to .663. The Principle component factor analysis identifies that KMO test of 4-questions is .797, and Bartlett's test is also significant ( $\chi^2 = 294.898, p=.000$ ). Only one component factor is executed leads to explain 66.082% of total variance<sup>35</sup>.

**Figure 6.22: Statistical Diagram of Moderation Effect with Multi-categorical Predictor**



Consequently, the inter-relationship among four items is robust through the statistical test. All four items are constructed to a single variable that is converted by calculating

<sup>35</sup> The relevant statistical report is presented at Appendix J

the mean value of four items. The new single variable named “Involve” in which the point 6 demonstrates high involvement, and the point 1 demonstrates low involvement.

The model 1 of Hayes's (2013) macro "process" with bootstrapping samples 10000 is used for regression calculation, the conditioning pick-a-point is decided by mean plus and minus one *standard deviation*.

The **Table 6.26** shows that the interaction effect of any coding value is not significant ( $coe_{M*D1} = .1219$ ;  $p < .5467$ ;  $coe_{M*D2} = .2249$ ;  $p < .2697$ ). The increased  $R^2 = .0056$  ( $F(2,196) = .6144$ ,  $p < .5420$ ), which is not significant. This indicates that adding the moderator involvement does not increase the explanation on variance of congruence perception. Therefore, the hypothesis 4 should be rejected (**Figure 6.24** demonstrates revised model based on the statistical result).

In fact, the visualization of moderate effect (**Figure 6.23**) indicates an opposite of prediction in regards to high-involved subjects. It seems that high involved subjects increase, not reduce, the congruence perception when they are exposed to the different cross-channel price policy. The **figure 6.23** also implies that in each multichannel price condition, congruence is always highly perceived by the high-involved subjects compared to the low-involved subjects. Further, both high-involved subjects and low-involved subjects perceive more congruence from the Group “online lower price” compared to all other two groups. Such phenomenon will be discussed in the conclusion section.

#### Result of HYPOTHESIS

Number	Hypotheses	Result
<b>H4</b>	Whereas the highly involved subjects perceive significantly lower congruence while they are exposed to different cross-channel price conditions (non-equality vs. equality), the lowly involved subjects will not perceive congruence differently between the different conditions of cross-channel price policy.	<b>Rejected</b>

**Table 6.26: Results of Moderation effect of Experimental Involvement**

		Congruence (Y)	
		Coefficient (Sig.)	
Constant	$l_1$	<b>3.7711</b>	<.0000
D1 (IV)	$b_1$	-.0281	<.9724
D2 (IV)	$b_2$	-.0113	<.9892
Involvement(M)	$b_3$	.0940	<.5122
M*D1(INT 1)	$b_4$	<b>.1219</b>	<b>&lt;.5467</b>
M*D2(INT 2)	$b_5$	<b>.2249</b>	<b>&lt;.2697</b>
		$R^2=.0995$	
		F(5,196)=4.3298, $p<.0009$	
<b><math>R^2</math> Change=.0056</b>		<b>F(2,196)=.6144, <math>p&lt;.5420</math></b>	

Remark: Level of confidence for all outputs is 95%

**Figure 6.23: Visualization of Moderation Effect on Congruence Perception**

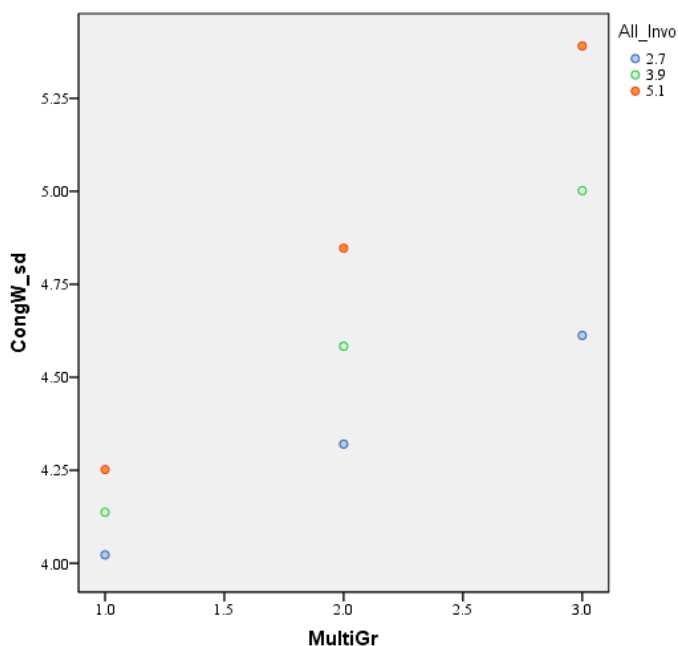
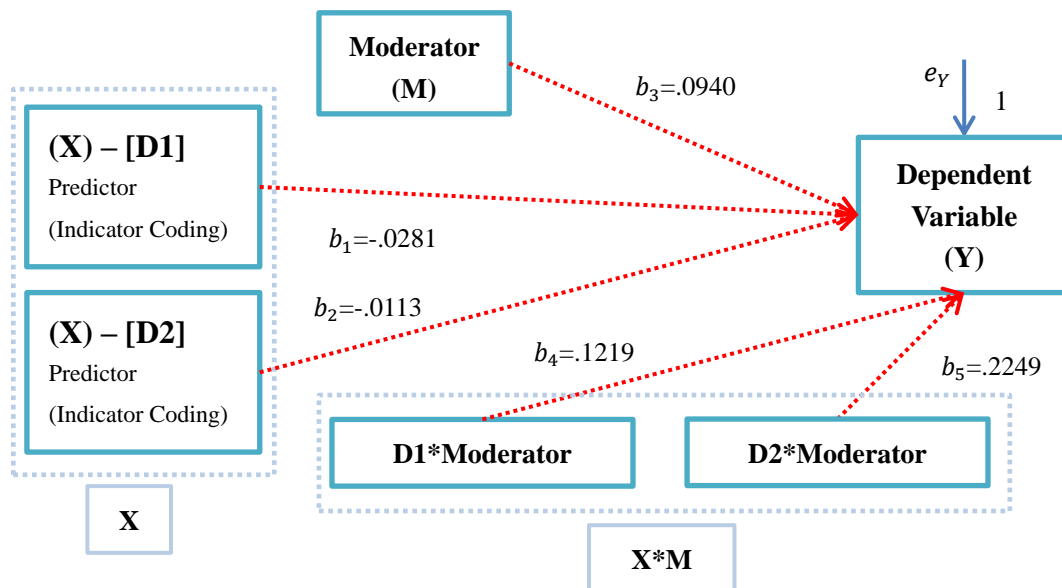


Figure 6.24: Statistical Result of conditional process effect of Experimental Involvement



## **5. DISCUSSION AND CONCLUSION**

This study attempts to understand how multichannel price strategy influences consumers' congruence perception, price fairness perception and attitude towards retailer. The results show that participants' congruence perception with regard to multichannel prices definitely determines participants' price fairness perception. However, the congruence perception is not consistent with the prediction of cross-channel prices situations. Furthermore, retailer's multichannel price strategy does not directly influence participants' attitude expression, but influence through congruence perception and price fairness perception. More congruence perceived from the multichannel price strategy, leads to the more price fairness judgment, which results in the more favorable attitude expression.

These conclusions result in some meaningful implications. First, in common sense, two different channel stores present same price for same product should be deemed as complete congruence and complete fairness. But the results of this study do not support this proposition. In fact, participants regard the lower online price scenario as more congruence evaluation, and lower the congruence perception to the equal multichannel price scenario. The strategy of higher online price (relative to offline) is perceived as least congruent condition. The underlying reason is because lower online price matches consumers' expectation rather than that of equal multichannel price strategy. This result can be interpreted by dual-entitlement (Kahneman, Knetsch, and Thaler 1986a, 1986b) where retailers make online price equals to offline price is perceived as that retailers attempt to get unreasonable margins from the strategy. Consumers hold the perspectives of that online store should offer lower price due to its native lower cost such like reduced staff cost and rental cost. Therefore, it is necessary for multichannel retailers to review its simply equal price strategy indeed which mismatches consumers' expectation very possible.

Second, this study supports Heckler and Childers's (1992) dual-dimension congruence structure. As the author hypothesized, online store and offline store are perceived as the “twins” that are inherently relevant each other. It can infer that an extreme incongruence composed by two irrelevant and unexpected entities will not occur in such multichannel context. All the measurement scores of congruence perception are higher than 3.5 in a 7-point scale, which indicates none of the experimental stimulus is judged as extreme incongruence. Moreover, results from Heckler and Childers's congruence measurement show that the measuring scores of "relevancy" are indifferent among three stimuli, but the measuring scores of "expectancy" are significantly distinguished. This identifies that participants' congruence perception are decided by the combination either "relevancy + expectancy" or "relevancy + unexpectedness".

Third, this study identifies the importance of Fleck and Maille's (2010) proposal with regard to use *ex post* measurement of congruence perception instead of *ex ante* measurement. Thanks to separate the independent variable of price stimuli from congruence perception variable, it can find that the *ex ante* experimental manipulation stimuli do not accurately reflect participants' evaluation of congruence, so it is hazardous for researchers to deduce that participants' subjective judgment is relied on some pre-defined experimental stimuli. Moreover, the statistical results reveal that it is subjects' congruence perception rather than pre-defined experimental design decides participants' price fairness and subsequent attitude expression. Thus, to measure participants' real congruence perception becomes indispensable in the future research.

Except all above contents, both mediation test and moderation test also contribute to fill the theoretical gap. A serial mediation effect test implies the relationships among the variables. The results are consistent with researcher's inference that the congruence perception can cause the fairness judgment and the attitude. The fact of indirect path through price fairness is identified to exert prominent effect to attitude expression that confirms the conclusion of previous studies in which fairness perception results in positive consequences. But this study cannot support another inference in which the

moderate incongruence is deduced to exert to more positive consequence rather than that of congruence. Xia, Monroe, and Cox (2004) stated that there are three different judgments from price comparison: equality, advantage inequality, and disadvantage inequality. Although subjects' measurements of expectation in the Group "Equality" and the Group "Higher Online" measure higher unexpectancy (less expected) than the Group "Higher Offline", they do not perceive the more potential advantage from these unexpected situations. Therefore, the moderate incongruence perception in this case leads to a disadvantage inequality judgment and reduces the favorable attitude expression.

Unfortunately, experimental involvement variable does not pass through the test. Generally, involvement expresses subjects' motivation and solving problem intention, it is deduced to influence the cognitive loading during subjects' processing. According to this researcher's viewpoint, there are several reasons causing this non-hypothetical result. First, this may be related to the product category chosen in the study. Chocolate product often seems like very normal grocery product that is easily gotten without much expenditure. Second, the discrepancies of congruence perception among three stimuli are probably not strong. This may attribute to that the cognitive task is not difficult to solve (the price discrepancy is not too big). Third, the comparison between congruence subjects and incongruence subjects is not balanced. As expected, congruence perception should derive from the stimulus of price equality, but the result doesn't support this. It seems that subjects evaluate less congruence to the equal price situation, and the assessment score is really lower than that of lower price in online store. The last point maybe relates to subtle difference in cognitive process. Involvement is usually posited as an important part in treating incongruence condition. When it is used in the case of manipulated congruence research study, involvement may directly interact with experimental design. In that case, judging whether two entities go well and evaluating the consequence based on congruity-incongruity perception is an integrated process. In contrast, the experimental stimuli are not composed of an independent variable presenting congruence-incongruence states directly. All participants are asked to

measure their perception on the extent of congruence and price fairness perception separately. Thus, in this study, involvement is examined in the process of perception, not the process of the resolution for treating incongruence. This point may attract researchers' attention to verify it in future study.

For multichannel retailers, this study offers clear message that it must seriously consider the price strategy between online store and offline store. At least, traditional equality price strategy may not be appropriate in Chinese multichannel market. A superficial fairness such like equal multichannel prices does not mean a real price fairness perceived by consumers. Similar consequence was gotten from the survey in Taiwan (Huang, Chang, and Chen, 2005) too. Consumer's inherent propensity of get good product without pay much money drives them to judge whether the presenting price contains unreasonable and unacceptable margins. To make consumers feel fairness is the key point to make success in multichannel environment.

Next, the price fairness measurement reveals that the impression of visible product prices is the reference to help consumers judge other products in the same retailers' shop. Certainly, if retailers present correctly comparable prices to their consumers, it can result in a fairness impression by the consumers, otherwise, retailers will suffer from a wrong price representation. Such double-edged sword effects remind retailers must seriously decide their pricing strategy to the public.

One drawback of the experimental design should be mentioned hereafter. Since both types of channel stores are presented on the same website, the initial design must make clear distinction between them. Except using the title with the words of “offline store” and “online store”, respectively, a phrase “taste the chocolate” is chosen for traditional store too. In some contexts, chocolate product possibly connects to romantic scene or sweet memory. The word “taste” can evoke the memory related to gustatory sense or other emotional expression. To some extent, this instant intangible feeling may, either consciously or unconsciously, bias subjects' assessment on cross-channel comparison.



Finally, the cognitive process of congruence perception is complex, and it should be gotten sufficient attention. It needs to know that the extents of multichannel price combination can lead to congruence perception. Retailers attempt to adopt other price strategy to probe consumers' reaction. If retailers tend to give some surprising point to the consumers on the multichannel price, it must ensure these unexpected perceptions can be interpreted as advantage inequality that can lead to the possible positive judgment. At the end of discussion, the results of all hypotheses are reviewed in the **Table 6.27**.

**Table 6.27: The Conclusion of Hypotheses based on Statistical Results of Study 2**

<b>Number</b>	<b>Hypotheses</b>	<b>Conclusion</b>
<b>H1</b>	Subjects' congruence perception can mediate the effect of cross-channel price (Equality VS. Non Equality) on price fairness perception:	<b>Supported</b>
	<b>H1a:</b> Compare to the situation of non-equal cross-channel price, subjects who encounter equal cross-channel price will perceive more congruence perception.	Rejected
	<b>H1b:</b> Higher the congruence perceived from cross-channel prices, higher the price fairness perceived too.	<b>Supported</b>
<b>H2</b>	Subjects' fairness perception can mediate the effect of congruence perception on overall attitude towards the retailers:	<b>Supported</b>
	<b>H2a:</b> Subjects' congruence perception positively influences price fairness perception.	<b>Supported</b>
	<b>H2b:</b> Higher price fairness perception leads to more favorable attitude towards the retailer.	<b>Supported</b>
<b>H3</b>	Both congruence perception and fairness perception serially mediate the effect of cross-channel price (Equality VS. non-Equality) on participants' attitude. Higher the perception of congruence is concerning cross-channel prices, higher price fairness perception, in turn, and higher favorable attitude will be expressed by participants.	<b>Supported</b>
<b>H4</b>	Whereas the highly involved subjects perceive significantly lower congruence while they are exposed to different cross-channel price conditions (non-equality vs. equality), the lowly involved subjects will not perceive congruence differently between the different conditions of cross-channel price policy.	Rejected



**Chapter 7 - STUDY 3**  
**(QUANTITATIVE STUDY)**  
**QUASI-EXPERIMENT**  
**SCHEMA-CONGRUITY ON**  
**MULTICHANNEL ASSORTMENT**

## **1. INTRODUCTION**

The previous chapter has examined how consumers' congruence perception in regards to the different multichannel price strategy influences price fairness perception and attitude. In this chapter, the study point will move to the store attribute of Multichannel assortment. Variety perception becomes the relevant consequence that will be studied in this chapter. Similarly, the objective is to know whether congruence perception in terms of multichannel assortment influences participants' variety perception and relevant attitude. Inspired by the previous study, in order to avoid the situation that researcher's design doesn't match subjects' evaluation, a quasi-experiment method will be introduced in this chapter. Furthermore, the extent of how stimuli match the participants' expectation is identified to be a pivotal factor determines participants' congruence perception. This study will adopt the instant congruence perception as the predictor.

Participants' prior expectation is often interpreted as schema. Researchers involve the term schema-congruity into the studies of consumers' evaluation in terms of the product and brand extension study. Previous research found that moderate schema-incongruity leads to more positive consequence than the one from schema-congruity (Meyers-Levy and Tybout 1989). An overall inverse U-shape effect (Fleck and Maille 2010) can occur due to the moderate incongruity may enhance the memory activities and cognitive processing relative to the congruity state (Hastie and Kumar 1979; Hastie 1980).

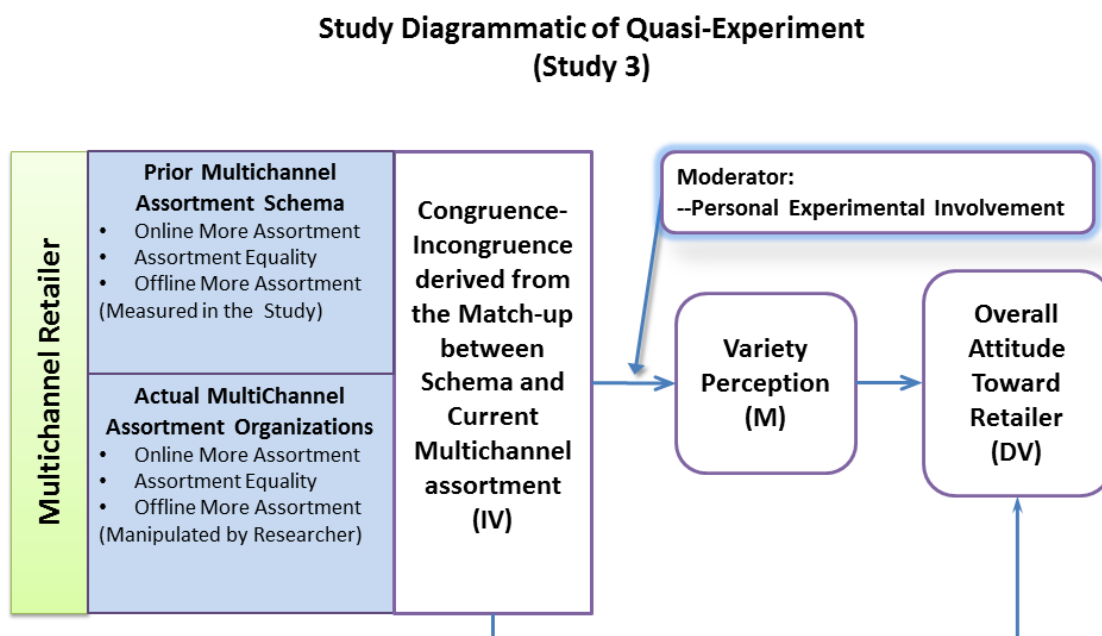
Moreover, if congruity-incongruity is regarded as a continuum, theoretically there can be numerous moderate incongruity states coexisted on the same continuum. Does any moderate incongruity state have similar stronger effect than that of congruity state, or whether the effects of these moderate incongruity states are the same? This is a question which did not get enough attention in the previous studies.

The **Figure 7.1** presents the research model of study 3 where congruity-incongruity perception is determined by the extent of how multichannel assortment organization

encounters participants' prior expectation (schema). As stated before, the term congruity-incongruity is one of the members in the synonyms family of congruence-incongruence. Although their meaning may be not the same in a strict sense, previous studies did not distinguish them compulsorily in the different research domains, and sometimes they are interchanged in the study. However, researchers usually prefer to use congruity-incongruity instead of congruence-incongruence in the study with regard to schema. Following other researchers' preference, the term congruity-incongruity will be used in this Quasi-experiment. It must be noticed that the term congruity and the term congruence are homologous, at least in this part.

The structure of this study is as similar as the study 2. It starts from the relevant hypotheses discussed in the section 2, followed by the introduction of quasi-experiment design and process given in the section 3. The Section 4 and the section 5 present the statistical results and discussion respectively.

Figure 7.1: Research Model of Quasi-Experiment



## 2. THEORETICAL HYPOTHESES

Generally, assortment is one of the most important attributes influencing retailing strategy (Simonson 1999; Stassen, Mittelstaedt, and Mittelstaedt 1999), which affects consumers' variety perception (Hoch, Bradlow, and Wansink 1999) and variety seeking behavior (Townsend and Kahn 2014). Different elements with regard to assortment are identified to influence the variety perception such as price (McIntyre and Miller 1999), shelf space (Broniarczyk *et al.* 1998), brands and flavor (Boatwright and Nunes 2001), the product quantities presented in homogenous product family (Piris 2013), or probably just rely on heuristic processing towards the assortment (Valenzuela, Raghurir, and Mitakakis 2013; Chernev 2008). For retailers, it is still intractable on how to operate the assortment organization in the context of integrating Internet retailing, from which the buying process, perception, and processing decision are alternative (Kahn 1999) when it compares to the conventional distribution system.

In multichannel environment, adding an online store seems a double-edge sword that either to be an effective part to improve the current retailing system, or to be a terminator of its predecessor due to its infinitely virtual shelf space, lower searching and comparing cost. This twofold effect may bring two key points to retailer's assortment organization. The first point relates to which multichannel assortment strategy will be appropriate, overlapping or differentiating (Mittelstaedt and Stassen 1990; Stassen, Mittelstaedt, and Mittelstaedt 1999). While overlapping strategy interprets that all assortments are same presented throughout the channel stores, differentiation strategy implies a unique value proposition (Dubois, Jolibert, and Mühlbacher 2007) from which sophisticated retailers can get due to a potential "new" market may be developed. It seems that the differentiating strategy on assortment presentation probably increase the variety perception, the overlapping strategy can obviously reduce consumers' confusion.

The second point relates to what will happen if multichannel retailer's assortment

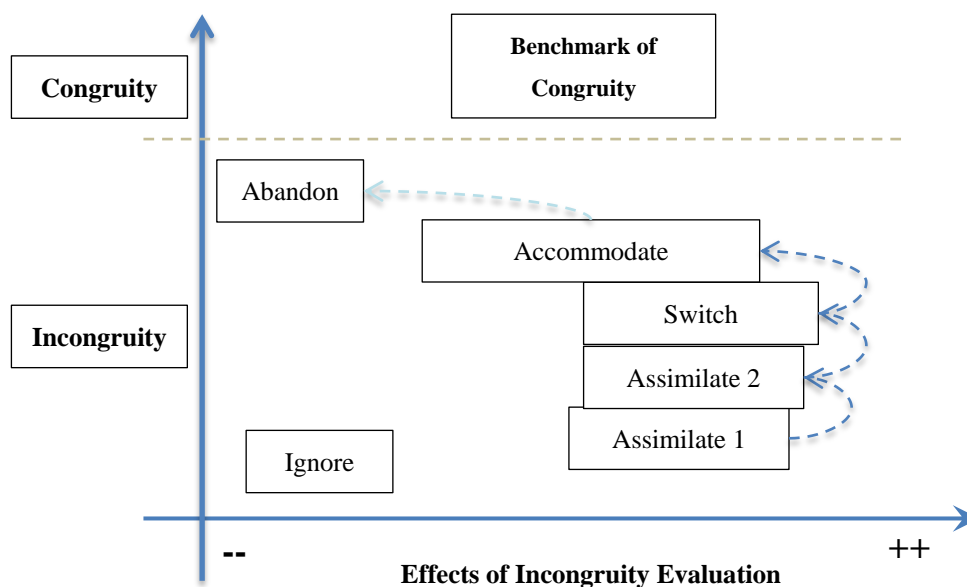
strategy does not match consumers' expectation. Consumers may expect the product representation is more in online store than that in offline store, but they may find the current multichannel assortment does not match the expectation. This is very common in today's retail market where retailers do not simply make product options to be less in one channel store compared to other one, because it reduces the attractiveness of the channel store and further leads to damage the synergy effect between channel stores. However the incongruity derives from the discrepancy between prior expectation and current condition occurs inevitably, the researchers have no idea about what consequence will happen at all.

## **2.1 The Consequences of Schema Congruity**

The above two points evoke the importance of studying the relevant topic in respect to the cross-channel assortment. The object of this study is to investigate the effects of how well consumers' direct perception from the comparison of overall assortment between online store and offline store matches consumers' prior expectation in regards to the between-channel assortment. Whether an object matches a person's expectation can be involved into the scope of schema congruity study. According to Mandler's (1982) statement, whereas the positive value is along with the occurrence of a perfect "fit" in congruity condition between schema and current stimulus, the emotional intensity in incongruity condition is decided by how well the discrepancy is solved through cognitive process. Consumers will keep evaluating positive affect when their existing schemas can incorporate the new information w/o the structural changes (see **Figure 7.2**), but feel "helplessness" when both assimilation, switch and accommodation are failure that results in a very negative value at all (Mandler 1982). The explanation of these procedures is sometimes called inverse U-effect of schema-congruity (Fleck and Maille 2010; Meyers-Levy and Tybout 1989).



**Figure 7.2: The theoretical Mental Process How Consumer Perceives Incongruent Information**  
 (Draw by author based on the proposition of Fleck and Maille (2010) and Mandler's (1982))



Previous studies attempted to investigate the relevant effect influenced by relationship between consumers' schemas and retailers' assortment shelf. These studies found that consumers hold schemas such like popular products are usually demonstrated at the center of shelf (Valenzuela and Raghurir 2009), or the two ends of the shelf are often reserved for the promotion (Valenzuela, Raghurir, and Mitakakis 2013). Morales *et al.*'s (2005) study found that incongruence between retailers' external physical shelf structure and consumers' schema can increase variety perception when retailer used to filter the product options. Nevertheless, none of the study either investigated schema effect in multichannel context, or examined the condition of several schema-incongruity states that are coexisted.

According to the findings from Morales *et al.*'s (2005) study and the fundamentally resolving mechanism of schema-incongruity concept, it can infer that when unexpectedness is perceived from the condition where current cross-channel assortment organization does not match consumers' expectation, the perception of schema incongruity will raise, which drives the consumers involving more cognitive resources in

treating incongruity. It can assume that such incongruity in regards to the cross-channel assortment is not difficult to be incorporated into existing schemas w/o the structural changes. This may lead consumers to keep perceiving many product choices based on the cross-channel assortment. Compared to the consumers who are in congruity state, the intensity of perceiving many product choices is stronger in the consumers within incongruity perception.

Readers may challenge why more incongruity perceived can result in more variety perception. This can be explained from two aspects. First, consumers usually regard different channel stores (belong to one retailer) as a whole entity -- different types of channel stores are naturally considered. The previous experiment has supported this idea where online store price is regarded as relevant to the offline store price. To some extent, consumers may be inclined to explain the discrepancy of between-channel assortment as an intention of offering more product options. Second, unlike fairness perception, variety perception is a state relates to the quantity. It can convert to the positive perception – satisfies consumers' needs of variety, or to the negative perception – too many choices for making decision. Therefore, there is a great possibility to get a more variety evaluation.

In brief, schema incongruity perception stimulates consumers load more cognitive resources in mental consideration. The incongruity perceived consumers will perceive more product options than that congruity perceived consumers. Consequently, the hypotheses are proposed as:

*H5: Consumers' variety perception on multichannel assortment can mediate the effect of cross-channel assortment related schema incongruity on overall attitude towards the retailer.*

*H5a: Compared to that of schema congruity, schema incongruity perceived from the cross-channel assortment leads to more variety perception.*

## 2.2 The Consequence of Variety Perception

Assortment is usually regarded as a two-layer hierarchical decision process: consumers usually choose the most attractive assortment from all options in first step, then decide the product(s) from the assortment they have chosen (Kahn and Lehmann 1991; Kahn, Moore, and Glazer 1987; Sood, Rottenstreich, and Brenner 2004). Therefore, unlike the price, assortment is not a decisive factor directly influences consumers' attitude, but it assumes that it could indirectly influence the attitude through variety perception.

Previous studies found that variety perception is a significantly positive factor relates to consumer purchasing behavior (McAlister 1982; Ratner, Kahn, and Kahneman 1999; Broniarczyk *et al.* 1998; Kahn and Wansink, 2004; Bayus and Putsis 1999; Hoch *et al.* 1999), which offered sufficient freedom in decision process (Reibstein, Youngblood, and Fromkin 1975) and positively influenced the quality perception (Berger and Draganska 2005). When individual perceives more variety, its affective effect will be generated more than that of less variety perceived subjects (Ratner and Kahn, 2002). It can infer that variety perception will positively influence subjects' attitude.

*H5b: Subjects' variety perception positively influences their attitude towards the multichannel retailer.*

## 2.3 Moderation of Experimental Involvement

In the Chapter 6, experimental involvement does not moderate the effect of cross-channel prices on price fairness probably due to the products and the stimuli design. In this quasi-experiment, these two potential reasons are different from the previous study.

Most of researchers agree that congruity state is understood at once (Mandler 1982), but for incongruence, it becomes more complicated. Fleck and Maille (2011) proposed that

whether an incongruence state can be well solved that is very possible moderated by three factors: individual's motivation and ability to process the incongruence and his predispositions with regard to it. In this case, involvement exerts its moderation effect more in incongruity state rather than in the congruity state.

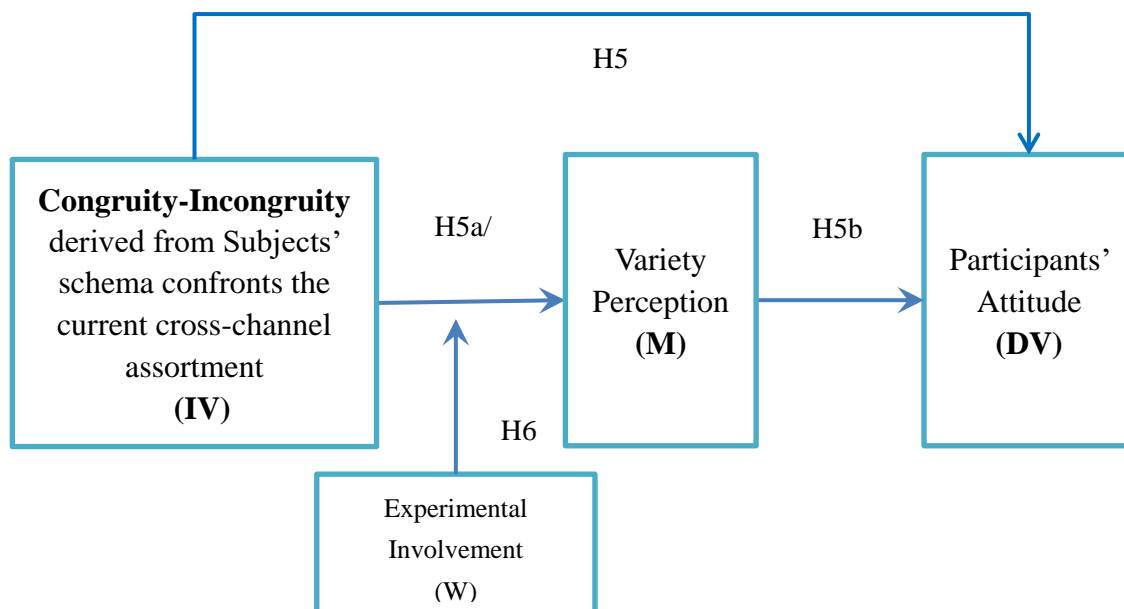
Logically, the highly-involved subjects have more motivation to resolve the incongruity condition than the lowly-involved subjects. While subjects perceive more incongruity from the current stimuli to their schemas, highly-involved subjects rely on informational processing (Chaiken 1980) and tend to produce more elaborative meanings (Swinyard 1993; Celsi and Olson 1988; Ray *et al.* 1973) than those of lowly-involved subjects. More cognitive resources are involved into solving the incongruity can increase the likelihood to incorporate the current information into existing schema or assimilate it successfully. As a result, more incongruity perceived can lead to more variety perceived for the highly-involved subjects compared to the low-involved subjects, but no significant difference on variety perception in the case of congruity perception between the high-involved subjects and low-involved subjects. The hypothesis is:

*H6: While subjects perceive congruity-incongruity in regards to current cross-channel assortment, more variety will be perceived in the case of incongruity by the high-involved subjects compared to the low-involved subjects, but no significant difference on variety perception in the case of congruity between the high-involved subjects and the low-involved subjects.*

In brief, this study will investigate the influence of schema (in)congruity on variety perception and attitude based on subjects' prior schema in regards to cross-channel assortment confronts the different multichannel assortments. It can hypothesize that the perceived schema incongruity increases the variety perception on cross-channel assortment and favorable attitude towards the retailer. Variety perception is assumed to be a mediator deciding the attitude influenced by congruity-incongruity perception.

Further, Experimental involvement is hypothesized to take moderation effect interacted with schema congruity-incongruity on variety perception. The **Figure 7.3** shows the diagram with the hypotheses of study 3.

**Figure 7.3: Research Diagram of Quasi-Experiment**



**Table 7.1: List of Hypotheses in Study 3**

Number	Hypotheses
<b>H5</b>	<i>Consumers' variety perception on multichannel assortment can mediate the effect of cross-channel assortment related schema incongruity on overall attitude towards the retailer.</i>
	<i><b>H5a:</b> Compared to that of schema congruity, schema incongruity perceived from cross-channel assortment leads to more variety perception.</i>
	<i><b>H5b:</b> Subjects' variety perception positively influences their attitude towards the multichannel retailer.</i>
<b>H6</b>	<i>While subjects perceive congruity-incongruity in regards to current cross-channel assortment, more variety will be perceived in the case of incongruity state by high-involved subjects compared to low-involved subjects, but no significant difference on variety perception in the case of congruity situation between high-involved subjects and low-involved subjects.</i>

### **3. QUASI-EXPERIMENTAL PREPARATION**

#### **3.1 Study Design**

Let's recall the **Figure 7.1**, in which readers can find that subjects' schema congruity (incongruity) is decided by two factors which are subject's prior schema (expectation) , and current multichannel assortment that same subject confront. Subjects' schemas towards the cross-channel assortment are the personal expectation which cannot be predicted in advance. It must be measured at the time when participants are starting this research. Hence, the participants cannot be randomly allocated into predefined experimental conditions until their prior schemas (expectation) are known. This is why the study 3 is called as Quasi-experiment method.

The basic process is that each subject is asked to report their expectation in regards to multichannel assortment. Then, subjects will be regrouped within similar responses depending on its responses of expectation. In this study, it will be three schema groups. After that, subjects in each schema group will be randomly assigned to the conditions predefined by the researcher.

Ordinarily, in multichannel retail, one tendency is intuitively compare the two channel stores based on those comparable store attributes. This has been supported in the depth interview presented in Chapter 5. Within assortment attribute, this comparison can be easily linked to the overall quantity each channel store offers. Accordingly, it will ask the subjects to answer the question as "Given a multichannel retailer who has online store and offline store, which store you think it offers more product options?" This question reflects an overall subjective impression that participants hold in their mind with regard to the cross-channel assortment. All participants should give their answers on a 7-point scale, in which the answer of "offline store offers more" and "Online store offers more" at point 1 and 7, respectively, and the answer of "same in both store" at 4.

The responses of the question above can be recognized to the three different schemas:

Schema of Offline offers more, Schema of Online offers more (or offline offers less), and Schema of equality. Therefore, all responses can be classified based on their responses. To put it simply, the responses between 1 and 3 are classified as the schema group “offline more”, the responses between 5 and 7 are classified as the schema group “online more”, and the rest, those responses equal to “4”, are classified as the schema group “equality” (see **Table 7.2**).

**Table 7.2: Classification of Schema States depending on Measurement**

Group	Prior Schema States	Responses for Grouping
A	Offline offers more	Answer from 1 to 3
B	Same options in both	4
C	Online offers more	Answer from 5 to 7

In order to form experimental congruity-incongruity effects, three homographic manipulation conditions are designed, which are named stimulus of “More assortment Online”, “More assortment Offline”, and “Equal Assortment”, respectively. The logic is that the congruity will occur when experimental stimulus matches participants’ prior schema, otherwise, incongruity should emerge. For instance, a participant holds a schema of online store offers more assortment (than does offline store), then be assigned to the condition of more assortment in online store. This participant should perceive congruity definitely. If he holds a schema of equal assortment but encounters the condition of more assortments in offline store, it is explicitly incongruity perceived.

Three different schema states randomly encounter three different cross-channel assortment stimuli, which form a 3\*3 all factorial quasi-experiment. The whole nine congruity-incongruity conditions are presented in the **Table 7.3**. For the congruity states, it is easily recognized (see the cells with white color) – what participants encounter matches what they expect. For the incongruity states, it is complicated.

It can be found that in the **Table 7.3**, three incongruity situations could be generated from

six incongruity manipulations depending on their intensity. It can suppose that the intensity of *Type I* Schema-Incongruity (presented in yellow) is strongest among all incongruity states, because subjects encounter the stimulus that is completely opposite to their prior schema in this condition. Next, the *Type II* Schema-Incongruity (the blue cells) occurs while subjects expect an equal cross-channel assortment but encounter the condition of that cross-channel assortment is not equal. Finally, the *Type III* Schema-Incongruity (presented in purple) is that subjects expect non-equal cross-channel assortments but confront an equal cross-channel assortment condition. It can be inferred that the intensity of the late two types of incongruity (*Type II & III*) should be weaker than that of the *Type I* Incongruity, and the effect of *Type III* Incongruity should be assumed as weakest intensity due to encounter an equal cross-channel assortment stimulus is not unacceptable.

**Table 7.3: Congruity-Incongruity Design derived from Subjects' schemas encountering Cross-Channel assortment**

		Manipulated Multi-channel Assortment Stimuli		
		Online Offers More (Stimulus 1)	Channel Equality (Stimulus 2)	Offline Offers More (Stimulus 3)
Subject's Schema regarding Multi-Channel Assortment	Offline Offers more (Group A within Scores 1-3)	<b>(Type I) Schema-Incongruity</b>	<b>(Type III) Schema-Incongruity</b>	Schema-Congruity
	Channel equality (Group B within Score 4)	<b>(Type II) Schema-Incongruity</b>	Schema-Congruity	<b>(Type II) Schema-Incongruity</b>
	Online Offers More (Group C within Scores 5-7)	Schema-Congruity	<b>(Type III) Schema-Incongruity</b>	<b>(Type I) Schema-Incongruity</b>



People may ask why the intensity of these incongruity states is different evaluated. One reason is from the result of price fairness study in which subjects evaluated their congruence perception differently in the case of presenting equal cross-channel prices relative to the case of presenting higher online price. It identified that the intensity of incongruence perception can vary depending on the stimulus to which participants are exposed. Another reason relates to the measurement of schema. The scale reflects the difference between any two adjacent points is continuous. It is the degree expression on intensity of expectation. Thus, from the point “1” to the point “7” presents the largest psychological distance of the measurement. Accordingly, the psychological distance will be so far while a subject holds a schema of “Online offers more” (point 7 on schema measurement) confronts an opposite condition of “Offline offers more”.

Moreover, readers may still argue the reason of why split the *Type II* Schema-Incongruity from the *Type III* Schema-Incongruity. It seems that these two types of incongruity are similar at operational level. The reason is that subjects in *Type III* Schema-Incongruity condition will confront a stimulus presenting equal cross-channel assortment. Equal cross-channel assortment means all product options are same. It is a standard, acceptable, appropriate cross-channel assortment strategy in general thinking, and it can reduce the explorative experience and lessens the effects of between-channel comparison. More importantly, it can be inferred that less of cognition is needed for resolution in the case of *Type III* Incongruity.

According to the aforementioned discussion and theoretical hypotheses, it can be deduced that subjects will perceive more variety from the cross-channel assortment in all three types of Schema-Incongruity conditions compared to the congruity condition, of which variety perception will be the greatest in *Type I* incongruity condition, be moderate in *Type II* incongruity condition, and be lowest in *Type III* incongruity condition when all of them are compared to the congruity condition. The **Table 7.4** expresses the degrees of intensity for each congruity-incongruity states.

**Table 7.4: Intensity of Evaluation among Incongruity States Compared to Congruity State**

Type of Schema-Incongruity	Intensity of Schema-Incongruity	Intensity of Variety Perception
Type I Schema-Incongruity	- - -	+++
Type II Schema-Incongruity	- -	++
Type III Schema-Incongruity	-	+
Schema-Congruity (Benchmark)	Benchmark	Benchmark

Remarks: "-" presents the extent of negative compares to benchmark;

"+" presents the extent of positive compares to benchmark

### 3.2 Developing the Stimuli

As stated in design section, three cross-channel stimuli will be developed including two reciprocal non-equality cross-channel assortments and one equality cross-channel assortment. There are two points should be concerned in the process. The one is the choice of product category, and another is the detailed manipulation used in multichannel assortment.

Bicycle products will be chosen instead of imported chocolate in study 3. The advantages of using bicycle contain the following several points. First, since bicycle is a familiar product for Chinese, most Chinese have the riding experiences during their adolescence. Second, bicycle is a more practicable product rather than the chocolate. People can use bicycle in daily life or also use it to make a fun (like as a kind of extreme sports), but mostly bicycle is regarded as a tool of transportation. This can reduce the influence from potential affective factors. Third, the selling price of bicycle is explicitly higher than the chocolate product. The lowest bicycle price in Chinese market is around 50 Euros and the average price in same market gets around 120-150 Euros. Compared to chocolate product, bicycle has great likelihood to be thought as a valued product which can attract the participants' attention. Fourth, bicycle is not a grocery product. Subjects often possess their bicycles for a long time. This means that subjects know this product very well but lack of purchasing experiences by which it can minimize the bias effect

from the previous buying experience. Finally, bicycle belongs to sport product category which is mentioned in the depth interview that Chinese consumers often buy it via either offline or online store.

After deciding the product category, it should determine the detailed manipulation used in cross-channel assortment. Inspired by Piris's (2013) study in which French consumers' variety perception regarding the supermarket was found to be influenced by the assortment breadth and depth that are shown in the shelf. Given a product category, the assortment breadth means how many subcategories exist, and the assortment depth means how many product types are presented in each subcategory. For instance, the "racing bicycle", "all-terrain bicycle", "city bicycle", and "women bicycle" are those subcategories of bicycle product that present the assortment breadth, while the color and the wheel sizes are regarded as the assortment depth.

Consequently, the three multichannel assortment stimuli can be developed by presenting 30 products or 20 products depending on the combination of assortment breadth and depth. Look at the **Table 7.5**, the first stimulus is "more assortment in online" in which total of 30 bicycle products are presented in the online store contains 5 subcategories within 6 products in each, and total of 20 products are presented in the offline store contains 4 subcategories within 5 products in each. The third stimulus, entitled "more assortments in Offline", is the reciprocal presentation of the first stimulus in which 30 bicycles are presented in the offline store and 20 bicycles are in the online store. The second stimulus is named "equal assortment" in which 20 same bicycle products are presented in both channel stores.

Maximizing the presentation only within 30 products in one channel store is due to the findings of previous study in which the researchers found that too many choices can result in cognitive overloading and complexity (Maholtra 1982; Scheibehenne, Greifeneder, and Todd 2010). Although consumers may prefer many choice options, most of them are difficult to distinguish the differences from a set of more than 24

options (Iyengar and Lepper 2000; Spassova and Isen 2013). Further, the proportion of discrepancies between the two channel stores (30 vs. 20) is bigger than 30%, which is over the 25% threshold of effective stimulation in the assortment study proposed by Broniarczyk, Hoyer, and McAlister's (1998).

**Table 7.5: Product Quantity used in Multichannel Assortment as the Experimental Stimuli in Study 3**

S	Manipulation design	Online Assortment			Offline Assortment		
		Breadth	Depth	Total	Breadth	Depth	Total
1	More Assortment in Online	5	6	30	4	5	20
2	Equal Assortment in Both	4	5	20	4	5	20
3	More Assortment in Offline	4	5	20	5	6	30

Like the price fairness study, all bicycles are represented to the participants with the thumbnails, names, and brief introduction, but without any of price information. In other words, participants do not know the price in any of experimental conditions. Price can bias the evaluation process rather than do the assortment.

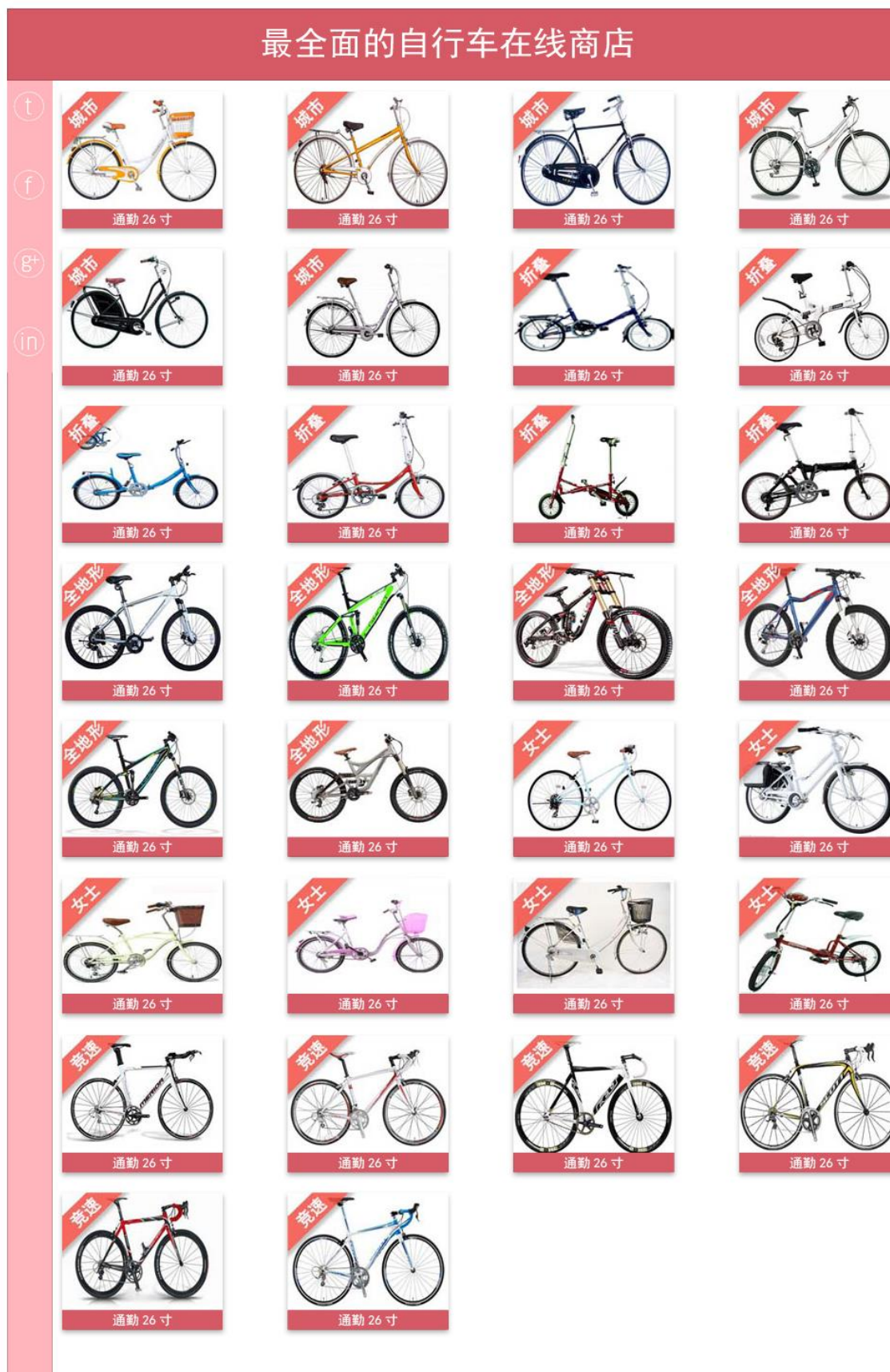
One of the actual cross-channel assortments is demonstrated in **Figure 7.4** and **7.5**, in which the **Figure 7.4** entitled “*Physical Store, Try and Ride*” contains 20 bicycles, and the **Figure 7.5** entitled “*The best Online Bicycle Store You Explore*” that contains 30 bicycles. In each illustration, subcategory is presented at left upper corner and the brief expression is presented at the bottom of each thumbnail. In addition, some indicators special for the website such as “Facebook”, “twitter”, “google+” are listed in the left column on online store only, which helps to enhance the distinction between online store and offline store.

Figure 7.4<sup>36</sup>: Sample of Stimulus of Physical Bicycle Store in Study 3



<sup>36</sup> Other Stimulus are presented in Appendix D

Figure 7.5: Sample of Stimulus of Online Bicycle Store in Study 3



### 3.3 Pre-Test

The pretest for cross-channel assortment stimuli is to guarantee the effort in forming schema (in)congruity. Total of 84 undergraduate students are recruited to complete the pretest. All of them are randomly assigned to three stimuli and are asked to answer two questions about the stimuli they read. The questions are:

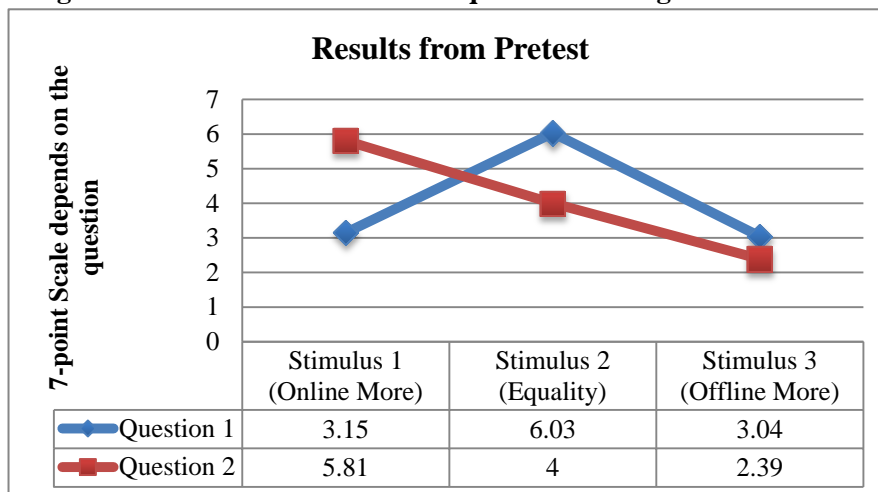
Q1.) Based on the two pictures you see, please indicate that in what extent do you think the products demonstrated in both channel stores are same or different?

Q2.) Based on the two pictures you see, please indicate by which channel store do you think it offers more bicycle products?

Where, the first question is semantic differential anchored "completely not same" at 1 and anchored "completely same" at 7, which simply asks the subjects to judge whether the assortment of two channel stores are identical. The second question is to verify which channel store is perceived to offer more assortments in general, online or offline. The second question is also 7-point scale anchored "more in offline" at 1, anchored "same product choices" at 4, and anchored "more in online" at 7.

The **Figure 7.6** presents the results, in which the different channel store assortments are perceived as more similar in the stimulus 2 ( $M=6.03$ ) in the responses of first question, it is apparently different to the value of Stimulus 1 ( $M=3.15$ ) and stimulus 3 ( $M=3.04$ ). Moreover, the results of second question show that the subjects obviously distinguish all three stimuli (5.81 (S1) vs. 4.00 (S2) vs. 2.39 (S3)). ANOVA shows that the differences in both questions are statistically significant:  $F_{Q1}(2, 81) = 79.262, p < .000$  and  $F_{Q2}(2, 81) = 64.508, p < .000$ , respectively. The Post-Hoc test of first question indicates that the perception is not significantly different between the stimulus 1 and the stimulus 3 ( $p < .674$ ), but both are significantly different from the stimulus 2 ( $p < .000$ ) (**Table 7.6**). This supports the prediction that the assortments of channel stores are perceived as same only in the stimulus 2. The Post-Hoc test of the second question indicates the responses of all three stimuli are statistically distinguished each other (**Table 7.7**). Therefore, all three stimuli are effective for the formal study.

**Figure 7.6: The Line Chart of two questions among three stimuli**



**Table 7.6: Post-Hoc test of "Question 1" among Three Assortment Stimuli**

	(I) Experimental Group based on Manipulation	(J) Experimental Group based on Manipulation	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
LSD	Online More	Equality	-2.879*	0.275	<b>0.000</b>	-3.430	-2.330
		Offline More	0.118	0.280	0.674	-0.440	0.670
	Equality	Online More	2.879*	0.275	<b>0.000</b>	2.330	3.430
		Offline More	2.998*	0.270	<b>0.000</b>	2.460	3.530
	Offline More	Online More	-0.118	0.280	0.674	-0.670	0.440
		Equality	-2.998*	0.270	<b>0.000</b>	-3.530	-2.460

Remark: Level of confidence for all outputs is 95%

**Table 7.7: Post-Hoc test of "Question 2" among Three Assortment Stimuli**

	(I) Experimental Group based on Manipulation	(J) Experimental Group based on Manipulation	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
LSD	Online More	Equality	1.808*	0.296	0.000	1.220	2.400
		Offline More	3.415*	0.301	0.000	2.820	4.010
	Equality	Online More	-1.808*	0.296	0.000	-2.400	-1.220
		Offline More	1.607*	0.290	0.000	1.030	2.180
	Offline More	Online More	-3.415*	0.301	0.000	-4.010	-2.820
		Equality	-1.607*	0.290	0.000	-2.180	-1.030



### 3.4 Study Procedure

The participants are collected from the clients list of a counseling agency who usually consults the service in psychology. The clients are invited to join the study with a chance to win the lotto such as Internet TV-Box, Bluetooth speaker, and other digital souvenirs if they completely finish the questionnaire. Like the price fairness study, it is still organized through the website, and the accessing address is [www.boaoconsulting.cn/questionnaire/question2.html](http://www.boaoconsulting.cn/questionnaire/question2.html).

At the starting point, all participants read a page entitled “Study for Consumer Behavior in Multichannel Retailing Context” with a brief introduction, that is:

**Thanks for helping us to complete this research. Our object is to understand consumers' attitude towards the discrepancy between channel stores in multichannel retailing environment. This is not an intelligence test; the answers are nothing about right and wrong. You just answer it following your own ideas. The whole process may take 8 minutes, more or less. If you are ready, please click the "start" button. Thanks.**

Followed the introduction there is a "start" button located at the bottom of the page. While the participants click it, the first question related to prior expectation towards multichannel assortment will be presented:

Q1) Given a retailer who possesses both online store and offline store, from your point of view, please tell us what is your expected assortment between online store and offline store?

This question is to measure consumers' prior expectation towards the multichannel assortment. It is a 7-point scale which anchored "Offline Store offers more" at 1, anchored "Online Store offers more" at 7, and anchored "Same Assortment" at 4. Based on the responses, all participants will be automatically categorized into different schema

groups that are verified by the system.<sup>37</sup>

After that, by click the "continue" button, participants will encounter one of the three experimental conditions (stimuli) just following a hypothetical scenario presentation:

**《Golden-Wheel Expert》 is a famous multichannel retailer established in Europe. The company devotes itself to provide high-quality multi-types of bicycle products and valuable services to the consumers around the world. More than that, the company has good relationship with the most famous worldwide bicycle races such as “La Tour de France”, “Giro d’Italia” and so on. With the improvement of living standards in China, more and more Chinese people are interested in cycling activities. 《Golden-Wheel Expert》 always innovates and diversifies its bicycle products and promote more available types of bicycles for China market, such as racing cycle, folding bicycle, and all-terrain bicycle, etc.**

**《Golden-Wheel Expert》 monthly updates its available bicycle products and publicizes it to the consumers via printing brochure or regular newsletter. The following two pages you read are the available bicycle products in both Offline Store and Online Store, wish you enjoy reading it.**

Participants then read a couple of pictures one after another as similar as the one that has been presented in the **Figure 7.4** and the **Figure 7.5**. Each figure presents full of the screen to ensure no one can see both figures in the same time. The reading order of the two figures is randomly decided by system. In order to increase the effectiveness of responses and to make participants convenient, the figures can be recalled in any time by clicking the buttons that are located at the top of each questionnaire page, anchored “online bicycle store” and “offline bicycle store”.

After that, all participants are taken into the questionnaire. The detailed question form is

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<sup>37</sup> This process is intangible, participants do not know they are regrouped into different schema states in the following procedure.

presented in Appendix E. In addition, a processing bar mentions the progress of the questionnaire on each page. There is no time pressure for completing the experiment.

The questions are in the reverse order. It starts from the question with regard to attitude evaluation and variety perception, followed by the questions of involvement test. After that, participants are asked to verify their schema congruence perception and answer the question of manipulation check. In the end, the questions come for collecting the demographic information. To avoid the blank answer, the system will automatically remind the participants to complete all questions if it finds the blank answer when participants click the "terminate" button. Only those participants who complete all questions can take part in the lottery at the end of the experiment.

### **3.5 The Manipulation-Check Questions**

The manipulation check questions are composed of two parts. On the one hand, the three assortment stimuli are manipulated and taken to verify its effort like that in the pretest. On the other hand, the different schema incongruity states are decided by a combination in which subjects' prior schemas encounter different multichannel assortment stimuli, which should be verified too.

For the first part, the questions are as same as that used in pretest. There are two questions of which one question is semantic differential anchored "completely not same" at 1 and anchored "completely same" at 7, which simply asks subjects to judge whether the assortments in two channel stores are same. Another question is to verify which channel store is perceived to offer more assortments, online or offline. It focuses on the differences of judgment between stimulus 1 and stimulus 3. The question is also 7-point scale anchored "more in offline" at 1, anchored "same product choices" at 4, and anchored "more in online" at 7.

Q1.) Based on the two figures you see, please indicate that in what extent do you think the products listed in both channel stores are same or different?

Q2.) Based on the two figures you see, please indicate by which channel store do you think it offers more bicycle products?

The second part of manipulation check is to verify the effort of schema-incongruity (congruity). It is *a posteriori* verification to the incongruity perception. According to the interpretation in section 3.1, four different congruity-incongruity states (see **Table 7.3**, p.293) are determined by the combination in which the prior expectation encounters the experimental stimulus. The schema congruity concept interprets that the extent of incongruity is depended on the discrepancies how current stimulus matches the prior expectation. Thus, the question is presented as:

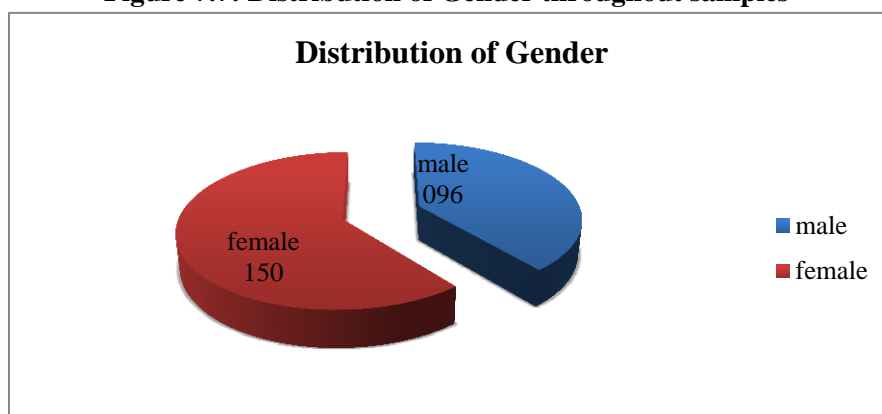
Q3.) Please evaluate the extent of how these **Multi-Channel Stores** assortments you read are consistent with your prior expectancy? (7-point semantic differential anchored “Completely Inconsistent” at 1 and anchored “Completely Consistent” at 7).

All three questions are used for check the effectiveness of both manipulated assortment stimuli and induced schema incongruity, and the statistical results are presented in next section.

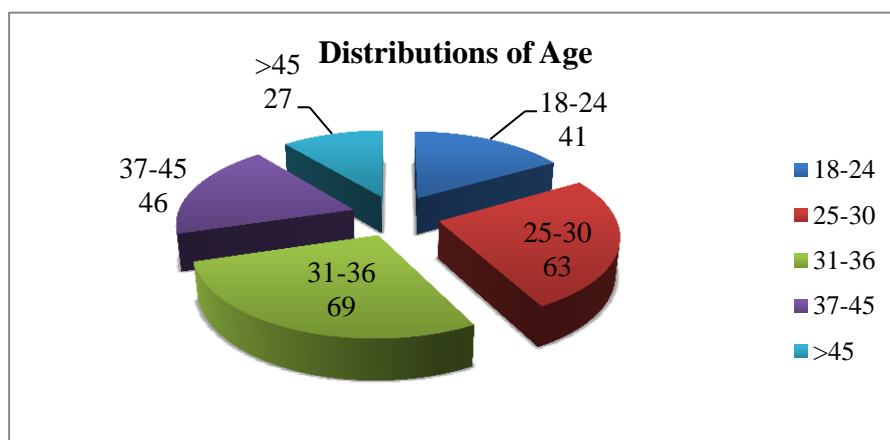
#### 4. STATISTICAL RESULTS

Total of 262 responses are gotten in the study 3, of which 16 responses do not complete the experiment<sup>38</sup>. Therefore, total of 246 responses are put into the statistical test (93.8%). The gender mix of the sample is approximately 40% vs. 60% (96 males / 150 females); most of the participants' age is in the interval of 31-36 (69 subjects, 28%) and the interval of 25-30 (63 subjects, 25.6%). The monthly family incomes are adequately distributed throughout the sample. The **Figure 7.7** to the **Figure 7.9** presents this information in graphics.

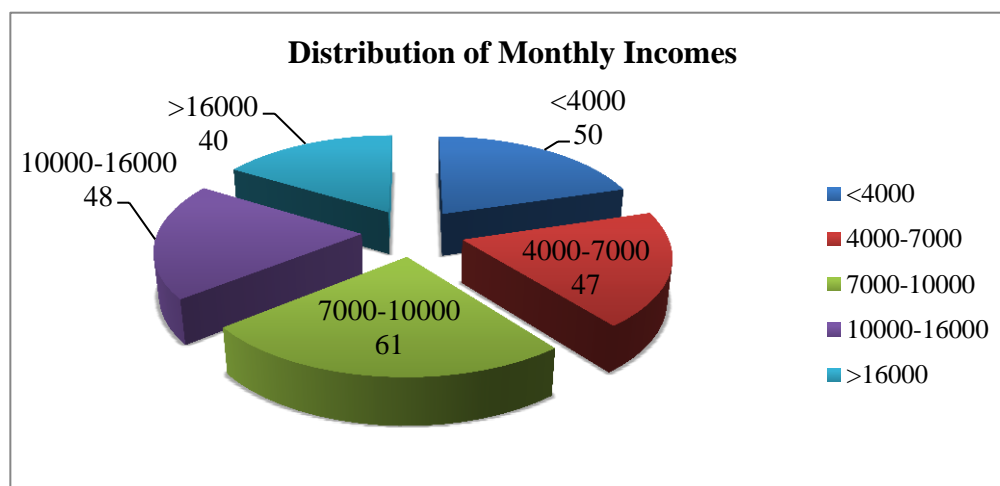
**Figure 7.7: Distribution of Gender throughout samples**



**Figure 7.8: Distribution of Age throughout samples**



<sup>38</sup> Although the system will automatically mention the participants to complete the question, but the questionnaire can be directly closed in any time. This may explain why still 16 responses do not complete the test.

**Figure 7.9: Distribution of Monthly Family Incomes (Chinese Yuan) throughout samples**

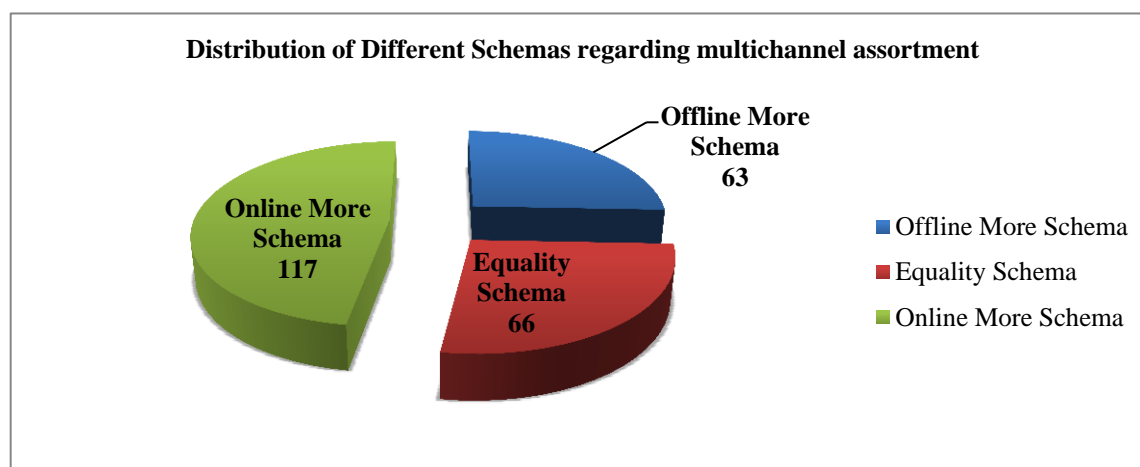
#### 4.1 Participants' Schemas (Expectation)

The researcher measures each participant's prior expectation in regards to the comparison of the channel store assortment. This is a single measurement using a 7-point scale where digit 4 is the midpoint indicating that assortment in two type channel stores is expected to be same. According to the statement in study design section (Chapter 7.3.1), subjects' responses fallen in the range from 1 to 3 will be categorized into the schema group entitled "offline more options", whereas subjects' responses fallen in the range from 5 to 7 will be categorized into another schema group entitled "Online more options". The rest of the responses whose answer are equal to 4 will be categorized into the third schema group entitled "Equality".

Three prior schema groups are presented in the **Figure 7.10**, of which the group "offline more option" contains 63 subjects, and the group "equality" contains 66 subjects. Around 48% of the participants (117 subjects) expect online store offers more product options that are categorized into the schema group "online more option". It seems that subjects' expectation with regard to multichannel assortment is not evenly distributed, but the proportion reflects a general view of the real retail market where more and more consumers hold a schema that online store often provides more product choices than conventional offline store. Subjects in these different schema groups will then randomly

allocate to the one of the three cross-channel assortment stimuli conditions.

**Figure 7.10: Regroup into Three Schema Groups depends on the measurement**



#### 4.2 Results of Manipulation-Check Test

Before clarifying the participants' schema congruity-incongruity states, three manipulation stimuli must be validated. The first question is to verify the perception of similarity between two channel stores regarding assortment among three stimuli. It can find that there are 81, 76, and 89 subjects who respectively confront the each assortment stimulus within different prior schemas. Next, subjects in equality stimulus perceive more similar between two channel stores ( $M_{S2}=5.14$ ) than those subjects in other two non-equality stimuli ( $M_{S1}= 4.01$ ;  $M_{S3}=3.73$ ). One-way ANOVA presents a significant difference among three stimuli ( $F(2,243)=15.887$ ,  $p<.000$ ), and Post-Hoc test identifies that both stimuli 1 and 3 are significantly different from stimulus 2, but are not significant mutually ( $p<.550$ ) (See **Table 7.8** & **Table 7.9**). This implies that assortment in two channel stores are similar occurred only in stimulus 2, but not in stimulus 1 and 3.

The second manipulation check is to decide which channel offers more assortments in each stimulus. A 7-point scale of which 7 means more in online and 1 means more in offline. The mean is measured 5.80 in the stimulus of online offers more (Stimulus 1), and is measured at 2.58 in the stimulus of offline offers more (stimulus 3). The equality

stimulus (stimulus 2) records at 4.04. These results match research’s prediction. Results from ANOVA give the statistical support among all three stimuli ( $F(2,243)=106.942$ ,  $p<.000$ ), all pairwise comparisons are significant through Post-Hoc test indicating the significantly distinguished among the stimuli. (See **Table 7.10** & **Table 7.11**)

**Table 7.8: Descriptive information of 1<sup>st</sup> Manipulation-check among the stimuli**

Experimental Stimuli	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
1, Online more	81	4.01	1.743	.194	3.63	4.40
2, Equal Stimulus	76	5.14	1.614	.185	4.78	5.51
3, Offline more	89	3.73	1.670	.177	3.38	4.08
Total	246	4.26	1.777	.113	4.04	4.48

**Table 7.9: Post-Hoc test of 1<sup>st</sup> Manipulation-check among the stimuli**

	(I) Experimental Group based on Manipulation	(J) Experimental Group based on Manipulation	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
LSD	Online more	Equality	-1.132*	0.268	0.000	-1.660	-0.600
		Offline more	0.282	0.258	0.275	-0.230	0.790
	Equality	Online more	1.132*	0.268	0.000	0.600	1.660
		Offline more	1.414*	0.262	0.000	0.900	1.930
	Offline more	Online more	-0.282	0.258	0.275	-0.790	0.230
		Equality	-1.414*	0.262	0.000	-1.930	-0.900

Remark: Level of confidence for all outputs is 95%

**Table 7.10: Descriptive information of 2<sup>nd</sup> manipulation-check among the stimuli**

Experimental Stimulus	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
1, Online more	81	5.80	1.584	.176	5.45	6.15
2, Equal Stimulus	76	4.04	.855	.098	3.84	4.23
3, Offline more	89	2.58	1.664	.176	2.23	2.93
Total	246	4.09	1.958	.125	3.85	4.34



**Table 7.11: Post-Hoc test of 2<sup>nd</sup> Manipulation-check among the stimuli**

	(I) Experimental Group based on Manipulation	(J) Experimental Group based on Manipulation	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
LSD	Online more	Equality	1.763*	0.229	0.000	1.310	2.210
		Offline more	3.218*	0.220	0.000	2.780	3.650
	Equality	Online more	-1.763*	0.229	0.000	-2.210	-1.310
		Offline more	1.455*	0.224	0.000	1.010	1.900
	Offline more	Online more	-3.218*	0.220	0.000	-3.650	-2.780
		Equality	-1.455*	0.224	0.000	-1.900	-1.010

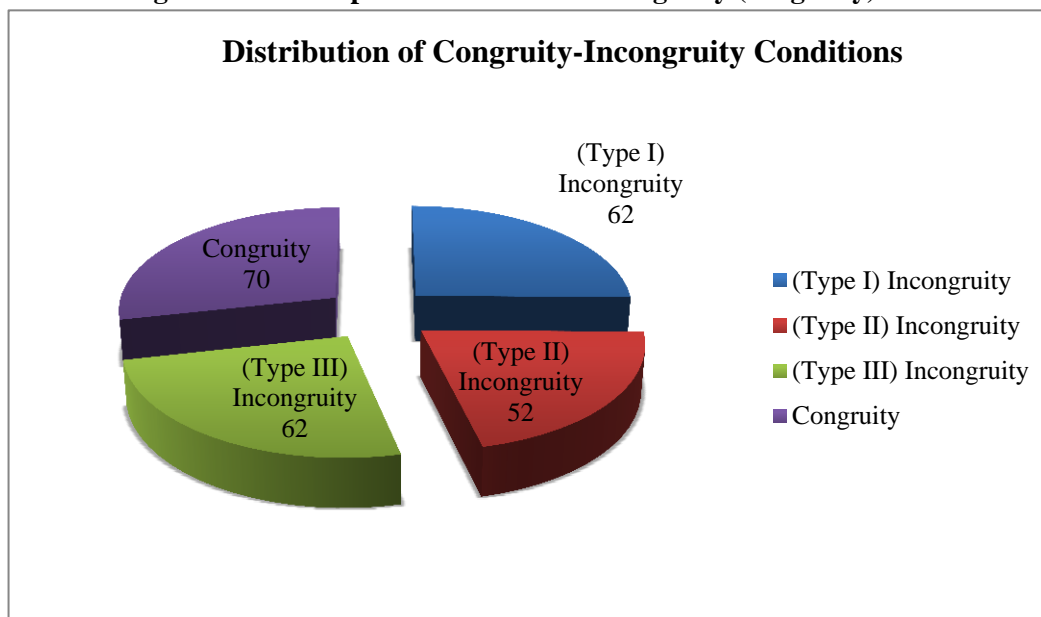
Remark: Level of confidence for all outputs is 95%

### 4.3 Decide Schema Incongruity

Based on the measured participants' expectation and validated cross-channel assortment stimuli, the different congruity-incongruity states can be categorized. As stated before, a 3 (schemas) \* 3 (stimuli) combination could be presented to classify the states of schema-incongruity. The **Table 7.12** presents the quantity of subjects that occur in all the conditions in which each prior schema group confronts one of the three assortment stimuli. The table shows that the participants in each schema group are evenly assigned to the three cross-channel assortment stimuli. The crosstab test identifies that the null hypothesis cannot be rejected ( $\chi^2=6.924$  ( $p<.14$ )), which indicating that there is no significant relationships existed between the subjects' schemas and the assortment stimuli.

**Table 7.12: Cross-table between Subjects' Schemas and Manipulated Assortment Stimuli**

			3 types of Assortment stimuli			Total
			Online more	Equality	Offline more	
Subjects' Schemas	Schema Offline More	Count	24	19	20	63
		% of Total	9.80%	7.70%	8.10%	25.60%
	Schema Equality	Count	21	14	31	66
		% of Total	8.50%	5.70%	12.60%	26.80%
	Schema Online More	Count	36	43	38	117
		% of Total	14.60%	17.50%	15.40%	47.60%
Total		Count	81	76	89	246
		% of Total	32.90%	30.90%	36.20%	100.00%

**Figure 7.11: Groups of each schema-incongruity (congruity) states**

According to the results in the **Table 7.12**, all subjects can be categorized into four congruity-incongruity conditions. For easy understanding, it is recommended to read the **Table 7.12** combined with the **Table 7.3** (p.293). Consequently, it can be that there are 62 subjects classified as the *Type I* schema-incongruity condition (aggregation of yellow cells), 52 subjects classified as the *Type II* schema-incongruity condition (aggregation of blue cells), 62 subjects into the *Type III* schema-incongruity (aggregation of purple cells), and 70 subjects classified as the congruity condition (the white cells), respectively (**Figure 7.11**).

**Table 7.13: Schema-Incongruity classified based on Manipulation Check Question**

					95% Confidence Interval for Mean	
	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound
<i>(Type I) Incongruity</i>	62	3.00	1.131	.144	2.71	3.29
<i>(Type II) Incongruity</i>	52	3.81	1.373	.190	3.43	4.19
<i>(Type III) Incongruity</i>	62	4.19	1.458	.185	3.82	4.56
<b>Congruity</b>	70	5.11	1.611	.193	4.73	5.50
<b>Total</b>	246	4.07	1.610	.103	3.87	4.28

In order to ensure the distinguished effect existing among four states of congruity-incongruity perception, the third manipulation-check question is used for confirm. The question is to ask subjects to evaluate their perception of how well the current stimulus matches their schema. A 7-point semantic differential scale anchored inconsistency-consistency at the extreme points. The **Table 7.13** presents the results where the intensity of schema incongruity is strongest in the *Type I* incongruity state ( $M=3.00$ ), followed by the *Type II* incongruity state ( $M=3.81$ ) and the *Type III* incongruity state ( $M=4.19$ ), respectively. Subjects in congruity condition report the value of 5.11 indicating an apparent congruity perceived among all four states. ANOVA result supports the overall significant differences existed among four congruity-incongruity states ( $F(3,242)=25.368$ ,  $p<.000$ ). Post-Hoc test (**Table 7.14**) reveals that except the pairwise comparison between the *Type II* and the *Type III* incongruity conditions ( $p<.148$ ), all others are significant in 95% confidence intervals. This is an interesting result. On the one hand, it almost matches researcher's prediction. On the other hand, it seems to answer other person's query in regards to no needs to split the *Type II* incongruity from the *Type III* incongruity.

In common sense, the *Type II* incongruity conditions is that the subject holds a schema of equality cross-channel assortment but encounters the non-equality cross-channel assortment stimulus, while the *Type III* incongruity is in the opposite side, in which the subject holds a schema of one channel store always has more assortment than its counterpart but encounters the an equality cross-channel assortment stimulus. From the perspective of mathematic, the psychological distance of these two types of incongruity is the same. However, the subsequent mental processes are completely different. The cognitive process in the *Type III* incongruity condition will attenuate rapidly. Finding two assortments (of two channel stores) are same means nothing needed to fix in regards to the multichannel assortment. No risk, no discrepancy, no potential benefit, also no potential loss will be found. Although, subjects may not like this situation and have great likelihood to express less positive attitude, the equality cross-channel assortment can be accepted eventually. In contrast, subjects in the *Type II* incongruity state have the

equality schema but are forced to understand such cognitive discrepancy, which probably drives them to gain the benefit. *A posteriori* validation indicates that the discrepancy on mean between the two incongruity states definitely exists. However, it is not statistically significant. Based on researcher's viewpoint, it is still meaningful to keep separating them in the following validation. Certainly, this is a big limitation in the study 3.

**Table 7.14: Post-Hoc Test on Congruity-Incongruity Perception**

	(I) Type of Manipulated Congruence	(J) Type of Manipulated Congruence	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
<b>LSD</b>	<i>Type I</i> Incongruity	<i>Type II</i> Incongruity	-.808*	0.266	0.003	-1.330	-0.280
		<i>Type III</i> Incongruity	-1.194*	0.254	0.000	-1.690	-0.690
		Congruity	-2.114*	0.246	0.000	-2.600	-1.630
	<i>Type II</i> Incongruity	<i>Type I</i> Incongruity	.808*	0.266	0.003	0.280	1.330
		<i>Type III</i> Incongruity	-0.386	0.266	<b>0.148</b>	-0.910	0.140
		Congruity	-1.307*	0.259	0.000	-1.820	-0.800
	<i>Type III</i> Incongruity	<i>Type I</i> Incongruity	1.194*	0.254	0.000	0.690	1.690
		<i>Type II</i> Incongruity	0.386	0.266	<b>0.148</b>	-0.140	0.910
		Congruity	-.921*	0.246	0.000	-1.410	-0.440
	Congruity	<i>Type I</i> Incongruity	2.114*	0.246	0.000	1.630	2.600
		<i>Type II</i> Incongruity	1.307*	0.259	0.000	0.800	1.820
		<i>Type III</i> Incongruity	.921*	0.246	0.000	0.440	1.410

Remark: Level of confidence for all outputs is 95%

In brief, in this part, researcher validates the effectiveness of different congruity-incongruity states. The quasi-experiment method helps the researcher to well know about the realistic situation when subject's schema encounters the

consistent-inconsistent stimuli. Although, the results lose a little bit statistic power, the initial value still supports the research design. Therefore, all four schema congruity-incongruity states will be adopted in the next stage. Therefore, the researcher will move to validate the relationship between schema-(in)congruity and variety perception.

#### 4.4 Variety Perception

The measurement of variety perception contains three questions which investigate three aspects of variety perception, respectively. They are “selectivity”, “variation”, and “similarity”. Results from the internal reliability test show that Cronbach’s  $\alpha$  is 0.797, indicating a very high degree of internal consistence, and all between-question correlations are from .411 and .782 and to be statistically significant. Principle component factor analysis identifies Bartlett's test is significant ( $\chi^2= 302.824, p=.000$ ). Only one component factor is extracted which explains 71.694% of total variance<sup>39</sup>. The three measuring questions can be converted to a new variable based on mean value of all three items within the higher score indicates the “More Variety” perception.

The new variable is named as “Variety”. The **Table 7.15** shows the descriptive of “Variety” among the four congruity-incongruity states. It is shown that subjects in the *Type I* incongruity condition evaluate the highest score of variety perception to 5.253, whereas subjects in the *Type III* incongruity state evaluate the lowest score of variety perception at 3.602. The other two states record mean at 4.897 (*Type II*) and 4.019 (Congruity), respectively, which indicate moderate variety perception between the *Type I* and the *Type III* incongruity states.

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<sup>39</sup> The internal reliability test and factor analysis are presented at Appendix L

**Table 7.15: Mean of Variety among All Congruity-Incongruity Conditions**

					95% Confidence Interval for Mean	
	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound
<i>Type I</i> Incongruity	62	5.253	1.3586	.1725	4.908	5.598
<i>Type II</i> Incongruity	52	4.897	1.3011	.1804	4.535	5.260
<i>Type III</i> Incongruity	62	3.602	1.4990	.1904	3.221	3.983
<b>Congruity</b>	70	4.019	1.5014	.1794	3.661	4.377
<b>Total</b>	246	4.411	1.5637	.0997	4.214	4.607

**Table 7.16: Post-Hoc test Among Congruity-Incongruity Conditions on Variety**

	(I) Type of Manipulated Congruence	(J) Type of Manipulated Congruence	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
<b>LSD</b>	<i>Type I</i> Incongruity	<i>Type II</i> Incongruity	0.355	0.268	<b>0.186</b>	-0.173	0.883
		<i>Type III</i> Incongruity	1.6505*	0.256	0.000	1.146	2.155
		Congruity	1.2336*	0.249	0.000	0.744	1.723
	<i>Type II</i> Incongruity	<i>Type I</i> Incongruity	-0.355	0.268	<b>0.186</b>	-0.883	0.173
		<i>Type III</i> Incongruity	1.2953*	0.268	0.000	0.767	1.823
		Congruity	.8784*	0.261	0.001	0.364	1.392
	<i>Type III</i> Incongruity	<i>Type I</i> Incongruity	-1.6505*	0.256	0.000	-2.155	-1.146
		<i>Type II</i> Incongruity	-1.2953*	0.268	0.000	-1.823	-0.767
		Congruity	-0.417	0.249	<b>0.095</b>	-0.906	0.073
	Congruity	<i>Type I</i> Incongruity	-1.2336*	0.249	0.000	-1.723	-0.744
		<i>Type II</i> Incongruity	-.8784*	0.261	0.001	-1.392	-0.364
		<i>Type III</i> Incongruity	0.417	0.249	<b>0.095</b>	-0.073	0.906

Remark: Level of confidence for all outputs is 95%

Moreover, ANOVA test shows that F-value equals to 17.649 ( $df=(3,242)$ ,  $p<.000$ ). Post-Hoc test presents the results in the **Table 7.16**. Readers can find that the mean of variety perception in the *Type I* & the *Type II* incongruity states respectively hold 1.2336 ( $p<.000$ ) and .8784 ( $p<.001$ ) positive difference compared to that in the congruity state.

In contrast, subjects in *Type III* incongruity state only perceive 3.602 variety regarding the multichannel assortment, which is less than the subjects in congruity state ( $M_{cong}=4.019$ ). This statistical difference is only supported in 90% confidential intervals ( $p<.095$ ). The latter result indicates such less perceived variety (compared to the congruity state) cannot be supported, which supports the hypothesis 5a in which incongruity states perceive more variety perception than the congruity state. Nonetheless, the phenomenon of less variety occurred in Type III incongruity state is very interesting and should be considered carefully. This point will be discussed in the last section. Anyway, Hypothesis H5a gets the support.

**Result of HYPOTHESIS**

<b>Number</b>	<b>Hypotheses</b>	<b>Conclusion</b>
<b>H5a</b>	<i>Compared to that of schema congruity, schema incongruity perceived from cross-channel assortment leads to more variety perception.</i>	<b>Partially Supported</b>

**4.5 Attitude**

The variety perception is predicted to positively influence attitude expression. That is to say more variety perceived leads to more favorable attitude. To validate this, the researcher adopts linear regression test. The results present in the **Table 7.17** where single linear regression is significant ( $F(1,244)=23.235$ ,  $p<.000$ ), *adjusted R* square equals to .087, the coefficient of variety perception regressed to attitude is positive 0.253 ( $t=4.811$ ,  $p<.000$ ), which indicates every one unit increase on variety perception will result in .253 units increasing on favorable attitude. This supports the Hypothesis H5b.

**Table 7.17: The Linear Regression test of Variety perception on Attitude**

ANOVA(a)

Model		Sum of Squares	df	Mean Square	F	Sig.
1.000	Regression	38.052	1.000	38.052	23.1455	.000b
	Residual	401.151	244.000	1.644		
	Total	439.203	245.000			

a Dependent Variable: Attitude

b Predictors: (Constant), Variety Perception

Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1.000	(Constant)	2.940	0.246		11.951	0.000
	Variety	0.253	0.053	0.294	4.811	0.000

a Dependent Variable: Attitude

Remark: Level of confidence for all outputs is 95%

**Result of HYPOTHESIS**

Number	Hypotheses	Conclusion
H5c	<i>Subjects' variety perception positively influences their attitude towards the multichannel retailer.</i>	<b>Supported</b>

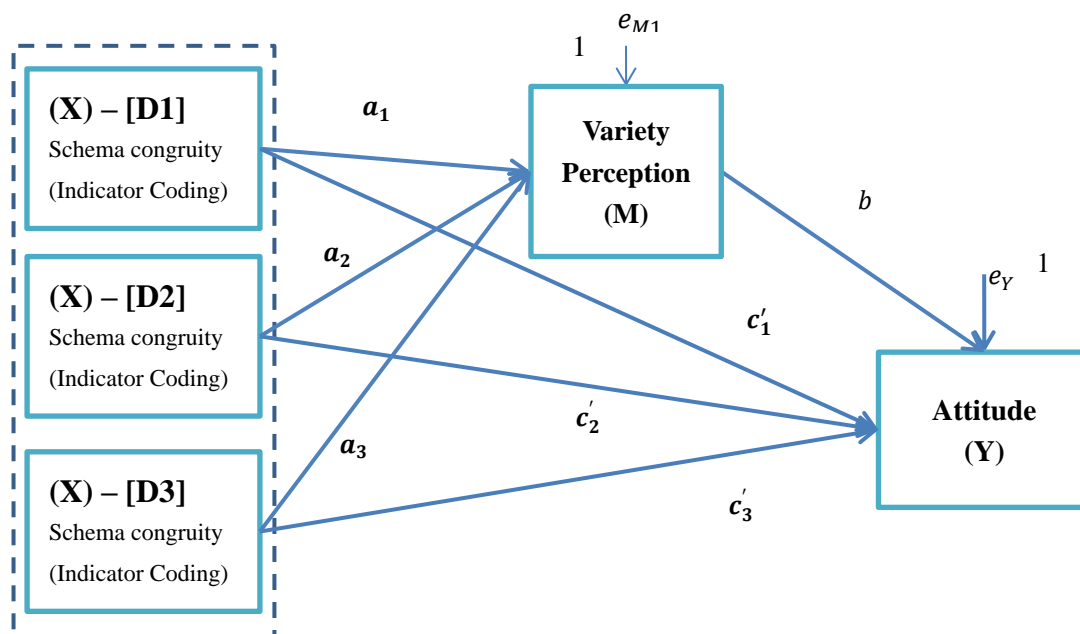
**Table 7.18: Coding of Categorical X variable for Analysis**

ConDef4	D1	D2	D3
<i>Type I</i>	0	0	0
<i>Type II</i>	1	0	0
<i>Type III</i>	0	1	0
Congruity	0	0	1

Since the variety perception positively influences the subjects' attitude towards the retailer, it should know whether variety perception holds the mediation effect influencing the causal effect of (in)congruity on attitude. The mediation model is presented in the **Figure 7.12**, and the predictor is a multi-categorical variable within four states. Indicator coding method is adopted to regroup the independent variable into 3 groups (see **Table 7.18**). The *Type I* incongruity is regarded as control group in which the  $D_1$ ,  $D_2$ , and the  $D_3$  are equal to zero.



**Figure 7.12: Researcher Diagram of Mediation effect Model based on Categorical X with Indicator Coding**



Model 4 of macro "Process" (Hayes 2013) with 10000 bootstrapping samples is used for mediation effect test. Statistical results present in the **Table 7.19**. The total effect model, and relative direct and indirect model, all are significant in regression test. Compared to control group of Type I incongruity, Type II incongruity is not significantly change the value on variety perception ( $a_1=-.3768$ ;  $p<.1585$ ), but all other two congruity states (Type III and congruity) significantly influence the variety perception. When mediator "variety" is introduced into the effect of congruity on attitude, the relative direct effects of all three independent variables D1, D2, and D3 are not significant supported in the regression test (see the red mark in rightest column), only variety positively influences the attitude ( $b_1=.2334$ ,  $p<.0001$ ).

Moreover, compared to *Type I* incongruity, both *Type III* incongruity and congruity states significantly influence the attitude through the variety perception, and two indirect effects do not straddle zero (see **Table 7.20**). However, the indirect effect does not support the *Type II* incongruity in which the boundary of bootstrapping confidential

intervals apparently straddles zero (-.2429 to .0111). Therefore, variety perception is a complete mediator influences the effect of schema congruity-incongruity on attitude, which supports the hypothesis H5.

**Result of HYPOTHESIS**

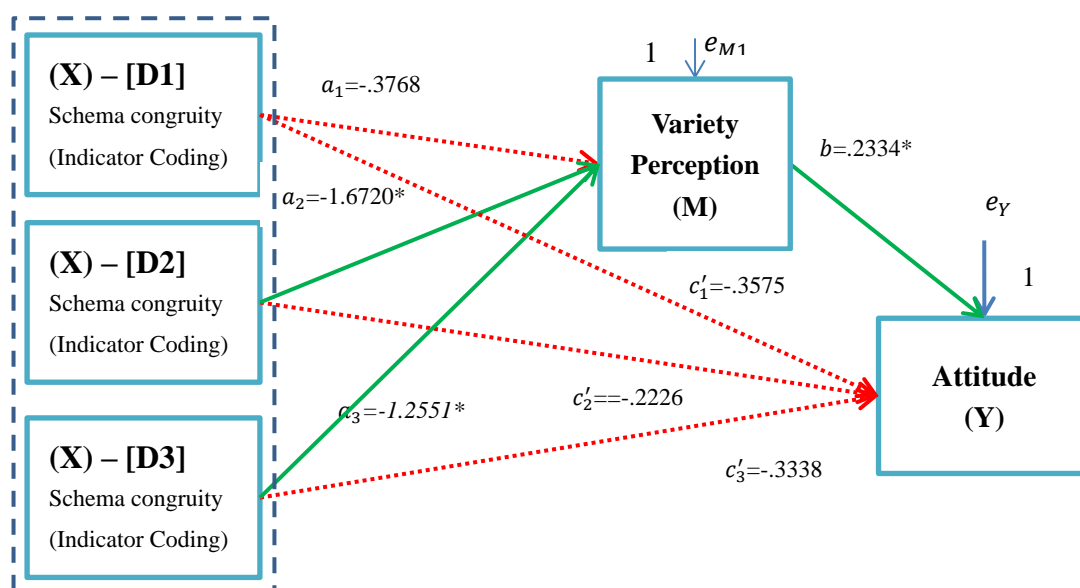
Number	Hypotheses	Conclusion
<b>H5</b>	<i>Consumers' variety perception on multichannel assortment can mediate the effect of cross-channel assortment related schema incongruity on overall attitude towards the retailer.</i>	<b>Supported</b>

**Table 7.19: Mediation effect Test of Variety perception via macro “process” with indicator coding for Multi-categorical Predictor X**

	Variety (M)		Attitude (DV)			
		Coefficient (Sig.)		Coefficient (Sig.)	Coefficient (Sig.)	
<b>Constant</b>	$l_3$	<b>5.2742</b> <.0000	$l_1$	<b>4.4839</b> <.0000	$l_2$	<b>3.2528</b> <.0000
<b>D1 (IV)</b>	$a_1$	<b>-.3768</b> <.1585	$c_1$	<b>-.4454</b> <.0744	$c'_1$	<b>-.3575</b> <.1412
<b>D2 (IV)</b>	$a_2$	<b>-1.6720</b> <.0000	$c_2$	<b>-.6129</b> <.0104	$c'_2$	<b>-.2226</b> <.3742
<b>D3 (IV)</b>	$a_3$	<b>-1.2551</b> <.0000	$c_3$	<b>-.6267</b> <.0070	$c'_3$	<b>-.3338</b> <.1574
<b>M (Variety)</b>					$b_1$	<b>.2334</b> <.0001
		$R^2=.1845$		$R^2=.0370$		$R^2=.0972$
		F(3,242)=18.2450, $p<.0000$		F(3,242)=3.1007, $p<.0274$		F(4,241)=6.4895, $p<.0001$

Remark: Level of confidence for all outputs is 95%

Figure 7.13: Revised Mediation effect Model of Variety Perception



\*: level of confidence at 99%

Table 7.20: Total, Direct, and Indirect effect of Congruity on Attitude through Variety

Relative Total Effect of X on Y						
	coeff	SE(boot)	t	p	LLCI	ULCI
D1	-.4454	.2486	-1.7917	.0744	-.9351	.0443
D2	-.6129	.2374	-2.5813	.0104	-1.0806	-.1452
D3	-.6267	.2306	-2.7183	.0070	-1.0809	-.1726
Relative Direct Effect of X on Y						
	coeff	SE(boot)	t	p	LLCI	ULCI
D1	-.3575	.2422	-1.4760	.1412	-.8345	.1196
D2	-.2226	.2501	-.8902	.3742	-.7153	.2700
D3	-.3338	.2353	-1.4183	.1574	-.7973	.1298
Omnibus Test of Direct effect of X on Y						
	R-sq	F	df1	df2	p	
	.0106	.9431	3	241	.4204	
Relative Indirect EFFECTS of X on Y through Variety						
	Effect	SE(boot)	LLCI	ULCI		
D1	.0879	.0617	-.2429	.0111		
D2	-.3903	.1202	-.6644	-.1865		
D3	-.2930	.1010	-.5317	-.1318		
Omnibus	.0407	.0159	.0163	.0781		

Remark: Level of confidence for all outputs is 95%

#### 4.6 Moderate Effects of Experimental Involvement

Experimental involvement is regarded as a moderator influences the effort of subjects' cognitive process in different conditions of schema congruity-incongruity. As stated before, this moderation effect usually exerts more effects by the high involved subjects relative to the low involved subjects. Although Hayes and Preacher (2014) have proposed the macro “process” to support multi-categorical predictor, the results relies on the changes of mean in regards to the mediator and dependent variable are yet controversial. Thus, using scaled variable to substitute the initial nominal variable is probably more appropriate in the regression calculation.

To recall the *a posteriori* verification by the measurement of consistence subjects have responded towards congruity-incongruity states. Such verification is a single measurement within a 7-point semantic differential scale. To some extent, such scale reflects subjects' congruity-incongruity perception to the cross-channel assortment. In the moderation test, this scale will be adopted as independent variable.

Before the test, the measurement of involvement must be validated as same as that used in the price fairness study. Results from the internal reliability test show the Cronbach's  $\alpha$  is 0.803, indicating a very high degree of internal consistence, and all between-question correlation is in the range from .279 and .631, and all are significant in 95% confidential intervals. Principle component factor analysis identifies Bartlett's test is significant ( $\chi^2 = 333.487, p = .000$ ). Only one component factor is extracted to explain 62.937% of total variance<sup>40</sup>. The four measuring questions can be computed to a new variable based on mean of all four items within the higher score indicating the “high-involvement” perception (7-point scale). The new single variable is created and entitles as "Involve" with mean equals to 4.4643 ( $\pm 1.3994$ ).

This is a simple moderation effect model, model 1 of macro “process” with

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<sup>40</sup> The results of internal reliability and factor analysis is presented at Appendix O

bootstrapping samples 10000 is executed. Based on the statistical result (**Table 7.21**), the equation of simple moderation model is:

$$Y^* = 3.7726 + (.0180 - .0504M)X + .3323M + e_Y^*$$

Where, the coefficient of interaction between X & M is not significant ( $p < .1903$ ), and the  $R^2$  Change is also not significant when moderator is added to the initial total effect model ( $F(1,242)=1.7250, p < .1903$ ). Therefore, the hypothesis of moderation effect should be rejected in statistics. One interesting thing can be found from the conditional effect based on the pick point of mean  $\pm 1$ sd (**Table 7.22**) where involvement is not a significant moderator in low involved state ( $t=-1.6063, p < .1095$ , Bootstrapping CI (-.3038 to .0309)). Supported by macro “process”, the graphic moderation effect based on choosing pick-up point at mean  $\pm 1$ sd for involvement (**Table 7.23**), is presented in the **Figure 7.14** based on the crosstab of congruity and variety.

**Table 7.21: Results from Process macro with Moderator of Involvement**

	Variety (M)	
		Coefficient (Sig.)
Constant	$l_3$	<b>3.7726</b> <.0000
Congruity	$a_1$	<b>.0180</b> <.9236
Involvement	$a_2$	<b>.3323</b> <.0502
Int_1(X*W) (Indirect)	$a_3$	<b>-.0504</b> <b>&lt;.1903</b>
		$R^2=.0712$
		$F(3,242)=6.1864, p < .0005$
<b><math>R^2</math> Change=.0066</b>		<b><math>F(1,242)=1.7250, p &lt; .1903</math></b>

**Table 7.22: Conditional effect of the moderator**

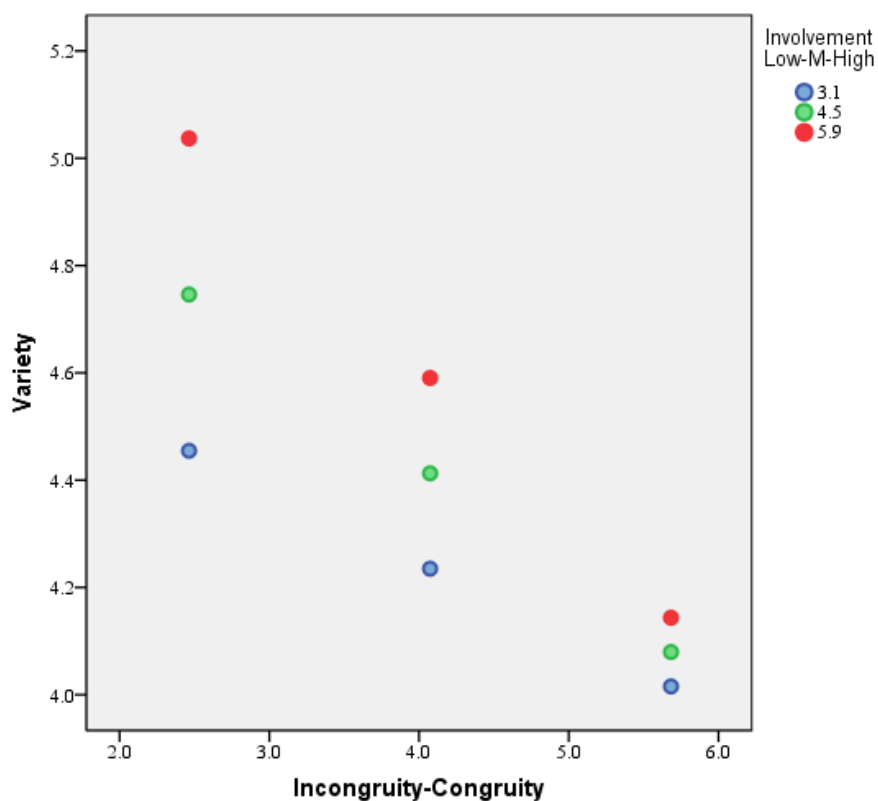
Conditional effect(s) of Congruity on Variety at values of the moderator(s)

Involvement	Effect	SE(boot)	t	p	LLCI	ULCI
3.0640	-.1365	.0850	-1.6063	.1095	-.3038	.0309
4.4634	-.2070	.0604	-3.4294	.0007	-.3259	-.0881
5.8628	-.2776	.0764	-3.6318	.0003	-.4281	-.1270

**Table 7.23: Conditional Effect depends on the pick-up value of Involvement (Mean ± sd)**

Conditional Effect at pick-up point of Mean ± 1sd	Congruity	Variety
Low-involvement (3.0640)	2.4637	4.5446
Low- involvement (3.0640)	4.0732	4.235
Low- involvement (3.0640)	5.6827	4.0154
Moderate- involvement (4.4634)	2.4637	4.7459
Moderate- involvement (4.4634)	4.0732	4.4127
Moderate- involvement (4.4634)	5.6827	4.0795
High- involvement (5.8628)	2.4637	5.0371
High- involvement (5.8628)	4.0732	4.5904
High- involvement (5.8628)	5.6827	4.1436

**Figure 7.14: The Moderation Effect of Involvement in Visualization**



It can find that although statistical results cannot support the moderation effect of experimental involvement interacting with congruity-incongruity perception on variety perception, the graphic indicates the slope of different involvement states are not same. According to the **Figure 7.14**, it seems that the differences on variety perception between the high involved subjects and the low involved subjects are greater in incongruity situation than in congruity situation. Such result will be discussed in the following section.

**Result of HYPOTHESIS**

<b>Number</b>	<b>Hypotheses</b>	<b>Conclusion</b>
<b>H6</b>	<i>While subjects perceive congruity-incongruity in regards to current cross-channel assortment, more variety will be perceived in the case of incongruity by the high-involved subjects compared to the low-involved subjects, but no significant difference on variety perception in the case of congruity between the high-involved subjects and the low-involved subjects.</i>	<b>Rejected</b>

## 5. DISCUSSION AND CONCLUSION

Assortment is one of the most important factors in retailing context. It determines, to a great extent, retailer's success. Previous research studies told how importance retailing assortment influences individual's purchasing decision in traditional context, but the investigation on how cross-channel assortment organization influences individual's decision process was really sparse. This study is the first try that contributes to the relevant subjects who have great concern about multichannel assortment.

The results from the statistic tests show that subjects' incongruity perception based on how well current multichannel assortment stimuli matches the prior schema can influence the variety perception on cross-channel assortment, which in turn affects subjects' attitude towards the multichannel retailers. While current multichannel assortment does not match consumers' schema (expectation), it evokes a necessary cognitive information process to stimulate subjects to compare the cross-channel assortments directly. As a result, the more variety will be definitely perceived from the incongruity states than that from the congruity condition. These results are similar to the previous findings of Morales *et al.* (2005) who identified that consumers will perceive more variety when external layout organization does not match consumers' internal structure imposed by shopping goal.

To be different from the price fairness study, subjects' perceived congruity does not rely on the simple measurement but through the quasi-experimental design. Each participant is asked to report its expectation regarding the cross-channel assortment, then, participant's encounter the assortment stimulus either matches or mismatches their expectations. It is supposed that participant's congruity perception is a function of the real expectation. This design avoids the mismatch between researcher's definition in regards to the congruence-incongruence and the subjects' real thinking about the congruence evaluation. It further proves the subject's expectation is a pivotal antecedent



determines congruence perception. Both price fairness study and assortment variety study identify that subject judges the congruence (or congruity) relies on the extents of unexpected stimuli bring. The result of this study encourages the retailers to avoid demonstrating completely same assortment in its different channel stores; it should develop the surprises which may increase the attractiveness of both channel stores.

Whether experimental stimulus is consistent with subject's expectation can result in the judgment of congruity or incongruity. Theoretically, the degrees of incongruity vary among the subjects. That is to say, while congruity state is always unique, incongruity states are not. In this study, there are three incongruity states, entitled *Type I*, *Type II*, and *Type III*, respectively, are proposed.

The *Type I* incongruity condition occurs in the case of that subjects expect one channel store should offer more assortment than its counterpart but confront the cross-channel assortment that is completely reciprocal. Logically, this discrepancy is too strong to be easily assimilated; it is often resolved by finding an alternative schema or changing the mental structure to accommodate it. Subjects may find that the current assortment stimulus can still satisfy their needs of variety (because of the product quantity), and they regard this as either retailer attempts to attract consumers to buy bicycle in its offline store (if offline offers more) or retailer attempts to promote its online store (if online offers more). As Mandler (1982) stated, this cognitive process will involve arousal and therefore produces intense affective states. Thus, subjects in *Type I* incongruity perceive more variety than all the other congruity-incongruity conditions.

The *Type II* incongruity condition is that holding a schema of equality cross-channel assortment confronts a non-equal multichannel assortment. Subjects in this condition can easily find there are other product options occurring in one of the two channels only. It is not difficult to assimilate the discrepancy because there are still the same products presented in the same stimulus. The additional product options can be understood for the contingently special purpose. Consequently, the variety perception is also more than that

from the congruity condition.

The third incongruity is that expecting non-equal cross-channel assortment confronts an equal cross-channel assortment. It is named as *Type III* incongruity state. An equal cross-channel assortment not only indicates that there is none variation existed between the channel store assortments, but also constrains subjects' intention to process the incongruity. This situation could be assumed to that of “ignore” action proposed by previous studies (Mandler 1982; Fleck and Maille 2010), which probably explains why variety perception in this state is significantly lower than that in congruity condition.

Such three incongruity states imply that congruity study, particularly incongruity study, is more complicated over researchers' imagination. In fact, the results from this study are not consistent with the prediction of schema-congruity concept. The consequences are evaluated as the most positive one from the most incongruity state, and the consequences of moderate incongruity states are dichotomy. These results leave a question that whether simply use the term extreme-moderate is appropriate to distinguish the different incongruity states. Obviously, term extreme-moderate leads to convenient recognition or comprehension, but it may give incorrect implication. In this study, if the *Type I* incongruity is defined as “extreme incongruity”, both the *Type II* and *III* incongruity should be defined as “moderate incongruity”. The consequences do not accord with theoretical prediction in which “moderate extent” should be better than “extreme extent”. From a different angle, if we agree the conclusion that online store and offline store are naturally relevant, then based on bi-dimensional congruence structure, all three incongruity states are composed of “relevancy” plus “unexpectedness”. Hence, the *Type I*, *II*, and *III* incongruity should be deemed as the strongest, average and weakest moderate incongruity, respectively. This latter interpretation not only indicates the co-existence of different moderate incongruity states, but also implies the effects of these moderate incongruity states cannot always be more positive than that congruity state.

The precious interpretation reveals the risk to simply use the term “extreme-moderate” to indicate the extents of incongruity. To recall Mandler’s (1982) proposition, the consequences and its intensity of each incongruity state are decided by how well the incongruity perception is solved through the mental process. An incongruity state is decided as extreme incongruity is because the cognitive process cannot resolve it, not the other way round. Hence, researchers should consider a new naming rule to distinguish the extents of incongruity. For instance, a rule derives from the level of cognitive process proposed by Mandler (1982) and Fleck and Maille (2010).

In fact, it can be supposed that the reason of why variety perception in *Type III* incongruity is significantly lower than the congruity state is related to the condition of constrained cognitive process that occurs. Given a situation that the identical assortments between the channel stores are presented to the participants, it does not require too much cognitive process to treat the incongruity when current assortment organization does not match participants’ schema. Instead, the same cross-channel assortment means nothing different, neither potential benefit nor potential loss. It could be assumed that identical assortment is an obstacle which prevents the participants from doing cognitive process for the resolution. However, this assumption has not verified in this study, it still illustrates the possible mental process that works on incongruity treatment.

Based on the discussion above, researcher attempts to give the corresponding cognitive process to each incongruity state of this study. It cannot posit that such classifications in the table 7.24 are perfect, but it illustrates the relevant concerning with regard to the occurrence of different incongruity states, particularly different moderate incongruity states, should be gained attention by the research world.

**Table 7.24: Description of different types of Congruity-Incongruity in Study 3**

Types of the (In)Congruity	Potential connection to the Cognitive Process	The Possible Mental Activities	Results
<b>Type I Incongruity</b>	Switch or Accommodate	Many product options, the new schema can attract consumers to try bicycle in offline stores, or to promote online store at all.	Positive ++
<b>Type II Incongruity</b>	Assimilate	Still many product options are same, additional product options are for contingent purpose	Positive +
<b>Type III Incongruity</b>	Ignored / Cognitive Process is probably constrained	The process is constrained, and no potential variety exists	Negative --
<b>Congruity</b>	Congruity	---	The benchmark

Except for the discussion of congruity-incongruity perception, the mediation test reveals that variety perception negatively mediates the effect of schema incongruity on attitude (the products of all three indirect effects ( $a_i b$ ) are negative). That is to say, more incongruity perceived on cross-channel assortment results in more variety perception, which in turn, leads to more favorable attitude towards the retailer. The complete mediation result identifies that variety perception is a very important antecedent on attitude in the multichannel environment, and it also partially supports the two-layer hierarchical assortment structure on attitude forming due to the complete mediation effect is observed.

Once again, the moderation effect does not get statistical support yet. The coefficient of interaction is not validated in 95% confidential intervals. This result probably attributes to two reasons. The first reason is the quantity of participants in each congruity-incongruity state. Due to quasi-experimental design, it cannot predict participants' expectation before the test so that the quantities of the participants within different expectations are not balanced in the sample. This probably influences all statistical tests. Another reason may be relevant to multichannel assortment design.

Maximally 30 products presented in each channel stores, most of them are indifferent. The demonstration of stimuli is absolutely less than that in real multichannel retail market. It is neither a difficult task, nor has the influence by environmental factors. Subjects' involvement only reflects their intention to the participation of the study; this may reduce the moderation effort on the evaluation of variety.

Although statistical result does not support the hypothesis, the scatterplot of moderation effect implies a great possibility that moderation effect exists from the interaction with experimental involvement. It seems that the variety perception is a little bit greater between high and low involved subjects when they are exposed to incongruity state compared to that when they are exposed to congruity state. The slopes of different involvement extents visualize the potential cross effects converged at congruity state. Future study should keep exploring the moderation effect with the variable involvement.

One point should be noted in moderation test. The coefficient of involvement is marginal significant in regression test ( $p < .0502$ ). Involvement is a psychological factor usually regarded as a decisive part in cognitive process. There is a great likelihood that involvement itself exerts the effect during cognitive process. Therefore, it probably assumes that involvement is a predictor affects the variety perception. It implies that academic researchers should pay more attention to the relationships between congruence perception and involvement in the future research study. For instance, if involvement is a predictor of variety perception, verify the mediation effect of congruence on variety through involvement must be concerned probably.

At the end of this chapter, it is necessary to review the conclusions of each hypothesis (**Table 7.25**).

**Table 7.25: Statistic Conclusion of all hypotheses in Study 3**

<b>Number</b>	<b>Contents of Hypotheses</b>	<b>Conclusion</b>
<b>H5</b>	<i>Consumers' variety perception on multichannel assortment can mediate the effect of cross-channel assortment related schema incongruity on overall attitude towards the retailer.</i>	<b>Partially Supported</b>
<b>H5a</b>	<i>Compared to that of schema congruity, schema incongruity perceived from cross-channel assortment leads to more variety perception.</i>	<b>Supported</b>
<b>H5b</b>	<i>Subjects' variety perception positively influences their attitude towards the multichannel retailer.</i>	<b>Supported</b>
<b>H6</b>	<i>While subjects perceive congruity-incongruity in regards to current cross-channel assortment, more variety will be perceived in the case of incongruity by the high-involved subjects compared to the low-involved subjects, but no significant difference on variety perception in the case of congruity between the high-involved subjects and the low-involved subjects.</i>	Rejected



**Chapter 8– CONTRIBUTION,  
LIMITATION, AND FUTURE  
RESEARCH**



## **1. CONTRIBUTION AND IMPLICATION**

### **1.1 Theoretical Contribution**

Total three studies are launched in this dissertation of which one study is qualitative depth interview and the other two are quantitative experimental studies. All of them focus on Chinese multichannel retailing market and particularly concern the scenario of multichannel containing online store and offline store. Compared to year 2000, today's e-commerce becomes more successful and perfect. The sales revenues obtained from online shopping keep increasing year by year. More and more conventional retailers have entered into the virtual market and have started a mixed operation by executing multichannel retailing strategies. To retailers, the target of involving a new distributional channel into current system is to increase sales, margins, and market shares. However, yet many retailers do not successfully benefit from their multichannel strategy.

Opening an online store is not a difficult thing, but the difficulty is how to manage and balance the new online store with the current offline stores (or distribution system). Retailers are very interested in the between-channel instruction. Unfortunately, lack of academic references supports this, also few reference regards single multichannel store attribute. Therefore, it is a new try to introduce perceived congruence with regard to multichannel price and multichannel assortment to examine consumers' fairness and variety perception, respectively, and subsequent attitude towards the multichannel retailer. The findings offer the evidences to fill the gap on between-channel congruence, and subsequent perception.

#### **1.1.1 Contribution to multichannel retail context**

First of all, 15 years ago, Chinese retail market was not well known by the world. The traditional retail distribution system was just getting started at that moment. But, today,

it becomes the world's second-largest retail market, both offline and online market. It must be noted that when e-commercial emerges, Chinese offline distribution system has less power to postpone or impede its growth. Consequently, it can find that Chinese online stores have the dominant position over the traditional offline stores. The depth interview implies that compared to the consumers in developed country, Chinese consumers:

- Heavily rely on the e-commercial stores.
- enjoy the convenient online buying;
- are dependent to get relevant information from the online store;
- need others' comments to enhance their judgment and decision process;
- prefer to do the comparison through price and assortment;
- have less concerns on financial risk and privacy during their purchasing;
- Not worry about the delivery time and return policy.

In general, the interviewees are familiar with multichannel retailing and are inclined to distinguish the functional effect between the different channel stores, also expect to see the synergy effect that two channel stores present.

Second, congruence concept is often adopted for comparing the similarity or consistence between two entities. The different extents of perceived congruence can influence individuals' cognitive evaluation. This concept was widely used in the domains such as sponsorship, celebrity/spokesperson, advertisement, brand extension and etc. It is a surprise that only a little literature investigated it in multichannel situation (Wang, Beatty, and Mothersbaugh 2009; Bèzes 2010; Badrinarayanan *et al.* 2012), neither article used congruence perception on single store attributes between online store and offline store. To our knowledge, this is the first research that investigates how congruence perception based on cross-channel price and assortment affects subjects' fairness perception, variety perception and their attitude towards the retailer.

Compared to the entities that are studied based on the congruence concept, some researchers may argue that online store and offline store which are belonged to the same

retailer haven't gotten apparent discrepancy. This assumption is not correct. The findings, derived from the early study about the store image and the Depth Interview of this study (Chapter 5), have pointed out that consumers treat online store differently from the offline store when both stores are existed independently. Conversely, when online and offline stores belong to the same retailer, a direct comparison occurs rapidly. Consumers consciously link the one channel store to another. In the latter case, not all store attributes (or attractive points) will be intuitively compared, only those attributes that are prominently existed in both stores. Hence, price and assortment are the two attributes which always occur in both channel stores. The results from Depth Interview imply that the comparative cognitive process is applicable to the multichannel study, and the consequences of comparative process very possible influences consumers' evaluation about the retailers. It can suppose that cross-channel based comparative process can be the antecedent to consumers' preference in multichannel retail context.

### **1.1.2 Contribution related to perceived congruence concept**

The first contribution to congruence perception concept is the mechanism of how subjects perceive congruence in a multichannel environment. The results of this research show that congruence perception is a function of how the expectation with regard to the different attributes is met. In the multichannel price experimentation (Chapter 6), the "relevant" measurement scores are from 4.68 to 4.99 among three groups, which have not significant different among the groups. Only the measurement of "expectancy" can determine the extent of each participant's congruence perception. Similarly, the quasi-experiment study (Chapter 7) also confirmed the same effect of "expectation" on the congruence perception. This implies that "expectancy" is the unique role in multichannel congruence study.

Another contribution is about the multi-states of congruence. Previously, researchers found that expectancy based moderate incongruence perception can result in more

positive evaluation than the congruence perception (Meyers and Tybout 1989; Mandler 1982; Heckler and Childers 1992). Few study has concerned the situation within several moderate incongruence coexisting. The findings from this research identify that moderate incongruence is not a unique phenomenon, different moderate incongruence states can co-exist. The consequences of moderate incongruence cannot be consistently more positive than the congruence state. It depends on the evaluation. Oliver (2010) stated that consumers have a paradoxical need, in one hand, consumers hope to be fairly treated by others (or by retailer); on the other hand, consumers hope to maximize their benefit. Consumers' responses on price fairness judgment and variety perception present such paradoxical propensity. In one hand, we hope that retailers should fairly price their products; on the other hand, we desire the variety on product choices. This explains why different moderate incongruence states will result in the opposite results.

In fact, these results account for a new question of asking whether the current naming rule with respect to congruence/incongruence is appropriate. Adopting an adjective "moderate" is only distinguished from the adjective "extreme", this may make congruence concept to be succinct but lose the underlying details of concept. A possible alternative naming rule should link to the corresponding cognitive processes more closely. Moderate incongruence is more complicated than researchers ever think about. Imagine a case that one brand decides to sponsor different events, whether each "moderate" incongruence situations can receive the similar positive evaluation? The answer is not clear. However, this study reveals that if researchers agree that congruence-incongruence is on the same continuum, the conclusion of monotonic or inverse U-shape effect in which moderated incongruence generates more positive result is not correct. Moderate incongruence is not a unique point on the continuum, give a conclusion of the best evaluation is arbitrary.

This research project adopts experimental involvement measurement to test its moderation effect with current congruence perception. Involvement is a complicated psychological structure and presents individual's motivation but can be easily influenced

by other factors. Although both study 2 and study 3 cannot validate the moderation effect with involvement in statistics, the visualization base on the crosstab drawing still indicates the potential moderation effect probably exists. It can be found that the value changes on the dependent variable are different between the high involved subjects and low involved subjects. Although, the experimental involvement may not be applicable in this study, different involvement measurements probably result in different kind of consequences. To some extent, the results from this study still support Mailles and Fleck's (2011) proposition that involvement and the motivation exerts the contingent effect on the consequences resulted from incongruence perception.

### **1.1.3 Contribution related to store-attribute-based evaluation**

This research investigates causal relationships and consumers' perceived congruence on price fairness perception. Both concepts are related to perceive similarity, but none of study did this before. According to perceived similarity, online stores and offline stores are regarded as similar, when a different price presentation is given, it may enhance subjects' perception of why the prices are not same, which in turn results in an unfairness evaluation. Our findings do not support the above assertion, instead, it is found that subjects concern more on inferred profit and inferred motive in forming the fairness judgment. When retailers keep online price equal to their offline price, subjects may interpret it as retailers' motivation to gain extra-profit. Similar interpretation can be also applicable to the condition where online price is higher than offline prices. This may attribute to the connection of value perception to which price can easily stimulate subjects' economic consideration.

Morales *et al.*'s (2005) study found that congruence perception between consumers' internal schema and external assortment shelf layout can influence the variety perception. This research study moves two concepts into multichannel assortment context. The results show that more incongruence perceived can generate more variety perception.

This indicates that making the cross-channel assortment out of participants' expectation increases their cognitive activities to focus on the potential benefit from the incongruence state, because two channel stores are inherently connected. To some extent, both two channel stores can be deemed as entirety, participants then perceive the variety such as the depiction of general structure proposed by Kahn and Wansink (2004). The cognitive process can help the participants distinguish the product item between two channel stores, and the symmetry of two channel store assortment also could enhance their variety perception. Therefore, incongruence does not obstruct the variety perception.

Supported by Hayes's "process" macro, both fairness and variety perception are found to be mediator through the effect of congruence perception on attitude. Incongruence on cross-channel prices can either directly influence attitude or indirectly influence the attitude through fairness perception, whereas incongruence from cross-channel assortment only indirectly affects consumers' attitude through variety perception. Mediation test also identifies that fairness perception exerts the strongest effect on attitude among all indirect effects. Therefore, making consumers feel fairer from the price and perceive more variety from the assortment is the two pivotal points to decide consumers' favorable attitude. It implies that congruence perception is not always a direct antecedent of attitude, but it will stimulate other relevant perceptions which dominantly determine the attitude

In summary, this research project implies that subjects regard different channel stores as correlated and compare the stores to ensure retailers' intention will not reduce their benefits. Subjects prefer to reward the retailer whose multichannel store design represents the potential gains for consumers. Otherwise, a negative evaluation may emerge even if the retailer makes completely identical pricing and assortment crossing its channel stores. In this case, perceived congruence (incongruence) can influence the subsequent evaluation, but the effect is not monotonic. Moreover, both price fairness and variety perception affect subjects' attitude towards the retailer, and also take the

mediation role to transmit the effect from congruence perception to attitude. The difference is that variety perception is a complete mediator, but not the price fairness. Test with experimental involvement reveals that the involvement cannot exert the moderation effect interacting with congruence perception on participants' attributed based evaluation. However, the visualization of moderation implies the potential moderation effect probably exists. For conveniently understand, the key points are highlighted hereinafter:

- ✓ Offers rich connotation for understanding Chinese multichannel market and multichannel consumers' behaviors
- ✓ This is the first study investigates the causal relationship of congruence based on store attributes influences consumers' evaluation and attitude
- ✓ Consumers distinguish the characteristics of online stores and offline stores, but while the both stores belong to the same retailer, consumers prefer to compare them on those apparent attributes. These comparisons are separately executed, not on the whole.
- ✓ The consequences of incongruence are not monotonic; it depends on whether the incongruence perception leads to the potential benefits or whether the congruence perception will reduce the subjects' gains.
- ✓ Consequences from moderate incongruence are out of researcher's view. To simply say that moderate incongruence is better than congruence is not appropriate. There can be different moderate incongruences co-existed, and the effect of each incongruence state varies depending on the cognitive treatment.
- ✓ In a multichannel environment, consumers are inclined to judge price fairness depending on economic norm. Retailer's motivation of pricing strategy is probably used for evaluation.
- ✓ Incongruence perceived from subjects' prior multichannel assortment schema to current multichannel assortment leads to more variety perception than that of congruence perception. It can be supposed that external factor can exert the effect on cognitive process which changes the consequence of incongruence perception.
- ✓ Both fairness and variety perception take the mediation role on the effect of

congruence perception to attitude. Incongruence on cross-channel price can either directly influences attitude or indirectly influences the attitude through fairness perception. But, it must mention that fairness perception exerts the strongest effect on attitude evaluation compared to the effect from congruence perception. Alternatively, incongruence from cross-channel assortment only indirectly affects consumers' attitude through variety perception.

- ✓ Experimental involvement, which presents subjects' current motivation, is not an effective moderator influences consumers' cognitive process when they encounter the congruence-incongruence scenarios.

## **1.2 Managerial Contribution**

One objective of this research is to help managers well understand Chinese consumers' perception and attitude during their multichannel shopping journey. The results of this research can provide some inspiration to the managers. According to the Depth Interview, participants used to do shopping in the stores of e-retailer. They know the multichannel retailers, and have the experiences in these multichannel stores too. However, not too many multichannel retailers are immediately recalled in the first time. This reveals that multichannel retailers forget to promote themselves, lack of introduction has exposed in both channel stores. Probably, retailers want to strengthen their resources in one channel store rather than another channel; however, it absolutely cannot increase the synergy effect of both channels. Therefore, to let consumers well know different channel stores is a very important thing, it can increase the interaction between the stores.

Moreover, consumers consciously know online store and offline store having different characteristics. The attractive points to consumers can be apparently distinguished. When consumers evaluate online store and offline store independently, they entitle "efficiency" and "convenience" to the online store, and mark "touching to believe" and "social activities" to the offline store. These titles reveal the focal point of each type of



store. For instance, in online store, retailers should make product information more detailed and clearer, easy to compare, place the order simply and quickly. In contrast, retailers' offline store should provide sufficient fitting space; organize the marketing events that are adapted to the friends and the family.

In addition, when online store and offline store belong to the same retailer, consumers would like to directly compare the stores based on the common store attributes. In this case, participants state that between-store comparison is necessary because the stores are relevant. Participants can accept the difference between two channel stores unless the discrepancy is too big to understand. This means that multichannel retailers must pay attention to the relationship between online stores and offline stores on product price and product options, or other relevant multichannel attributes; one of the better ways is to develop the attractive point of each type of store, and encourage the consumers to visit them.

Actually, managers can be really benefited from the subsequent quantitative studies. In multichannel price study, making equal prices between two channel stores is not judged as fairness by participants. If retailers insist on adopting an equal price strategy, the results will not only lower consumers' price fairness perception, but also reduce consumers' favorable attitude compared to the retailers whose online price is slightly lower than its offline price. That is to say, participants reward the retailer whose online store price is perceived lower than its offline store price. Everyone believes that rental cost and human resource cost are eliminated in the online environment, due to the inherent characteristics of online store, not produced by the retailers. Therefore, consumers make a judgment of unjust enrichment if the online price is identical to its counterpart. On the surface, making two channel prices equally seems logical and reasonable, but the fact is that equal prices result in questioning and the dissatisfaction which will be labelled as unfair perception. Consumers will choose the avoidance, tend to find a substitutable supplier, and get the perception of greater loss. To the managers, they must know consumers' fairness perception is a determinant on behavioral decision

than the congruence perception. To make consumers feel treated fairly is the key to open the door of success.

A small tip is that it is not necessary to make all product prices to be lower (than that from their counterpart) when retailers want to lower the price perception. One possible way is to adjust the highest and the lowest product prices slightly lower in one store than in another (Gourville and Moon 2004). Another way is like this study in which the retailers only make the moderate-range products prices lower in one channel store, which also reach the overall lower price perception. The retailer managers can set up a cost-sensitive product price to be a little bit lower in online store, but keep other products prices equal to that in offline store, which can protect retailer's margin.

From the assortment study, it indicates that consumers expect themselves to control the process of product choices based on a broad assortment. However, too many product choices may frustrate them. If retailer managers let the multichannel product assortment matches consumers' expectation, it may put consumers in a perception of nothing new. This probably increases the shopping efficiency, makes the decision process to be simple but it also reduces the explorative interest and lessens the shopping experience. In the long term, the congruence perception probably damage cross-channel synergy because it reduces consumers' attractiveness to visit an offline store, particularly if the online price is a little bit lower in the same time. The lesson from this research proposes that managers should make their multichannel assortment exceeds consumers' expectation, and do not make same assortment in both channel stores. The different assortment is the way to increase consumers' intention to visit all types of stores.

Do not worry about incongruent assortment organization results in the negative evaluation. Attitude is not directly determined by congruence perception regarding cross-channel assortment, is only influenced when variety perceives less. In this case, managers should set up the surprise on the between-channel assortment and make consumers perceive more variety from the cross-channel assortment. In order to

differentiate the cross-channel assortment, it is unnecessary to make all product options completely different in both channel stores. As the third study demonstrated, make 20-30% differences on product options between the channel stores are sufficient to stimulate prominent variety perception.

Finally, subjects' involvement may present their instant motivation. It is a dynamic psychological state which can be varied by products, environment, mental state, or shopping target. Retailer managers must organize their channel stores to be attractive in order to stimulate consumers' motivation. For instance, introduce special products, organize store promotion or personal related advertisement, increase the interactions between different channel stores, all may evoke consumers' interest to increase their intention.

In summary, this research project opens the view on how to maximize the synergy effort from the combination of multichannel store attributes. The results not only inspire the managers on understanding what Chinese multichannel consumer think, but also provide the detailed suggestion on how to manage online and offline stores on price and assortment. Similarly, the key point of managerial contribution will be highlighted hereinafter:

- ✓ Multichannel retailing strategy is widely applied in the Chinese market. The retailer needs to do more self-presentation due to insignificant recognition by participants in the depth interview.
- ✓ Online stores and offline stores have their own characteristics and retailers must take care of these points to make their stores meet consumers' expectation in regards to those characteristics.
- ✓ If two stores belong to the same retailer, retailer should pay attention to the comparison between the stores on price and assortment. Chinese consumers prefer to do between channel comparisons.
- ✓ Make online store prices perceivably lower than that of offline store can be judged as fairer pricing than that of completely equal cross-channel pricing strategy. The

key point is that retailers must make consumers feel treated fairly, this is the door to success

- ✓ Retailers only reduce the prices in parts of products if they want to make the overall prices are lower perceived. This can enhance the fairness perception, also protect retailers' profit.
- ✓ Perceived congruence of multichannel assortment organization will cause lower variety perception and less favorable attitude. It is better for managers to make surprise on assortment management in order to increase variety perception, and enrich the experiences in the long term.
- ✓ Retailers need to evoke consumers' interests and enhance their motivation. Some special products, promotion, events, or channel interaction probably reaches the effort. When consumers are highly involved, their variety perception and attitude expression can be potentially increased.

## 2. Limitation and Future Research

This research study investigates Chinese consumers' multichannel shopping habits from depth interview, and examines the effect in regards to the congruence perception between channel price and channel assortment on subjects' price fairness and variety perception, respectively. The results showed that more congruence perceived on multichannel price results in more fairness perception and favorable attitude towards the retailer, whereas more congruence perceived on multichannel assortment organization results in lower variety perception and unfavorable attitude towards the retailer. However this is the first study to investigate the comparison between multichannel store attributes and its consequences, there are yet some limitations should be pointed out.

In Depth Interview, some participants cannot recall multichannel retailer names immediately until the researcher gives some cues. Why does this phenomenon occur? The depth interview does not give the answer. This may be attributed to a very common multichannel retailing strategy that has been launched in the Chinese market. Consumers are too familiar to distinguish multichannel retailer from single channel retailer. Another reason may relate to multichannel retailer's online store. In China, when conventional retailers or a brand retailer attempts to open their online store, there are two possibilities. One is to open online store based on the retailer's (brand) official website such like IKEA, UNIQLO. Another way is to open it based on the Tmall system ([www.tmall.com](http://www.tmall.com)), adopted by Decathlon and Clarins. The second method is co-managed with Alibaba (NYSE: BABA). That is to say retailers' online stores directly link to the website of Alibaba (Tmall). When consumers click the web link, they have access to the online store of the multichannel retailer that is presented as one of the plentiful retailers' online stores in Tmall system. The latter multichannel system (offline + online on Tmall) may reduce the consumers' cognition and recall compared to the standard multichannel form (offline + online on official website). Therefore, whether these two multichannel retailing forms can result in the similar consumers' perception, evaluation and attitude is

worth for studying too.

The designs of the two experimental methods are somewhat imperfect. First of all, the simulation of cross-channel stimuli are very simple, it cannot precisely reflect the real retail situation. The layout and demonstration of each stimulus are far from the retail store that consumers usually visit, particularly in the illustration of the offline store. Although researchers attempted to make them to be clearly distinct by using title plus special online indicators (such as Facebook, google+), it can be still argued whether these stimuli have same effort as that real multichannel stores have. Next, as have mentioned in the discussion of price fairness study, the title within words “taste” in offline chocolate store but not occurs in online store may evoke an affective bias and the recent experiences during the test. This can exert potentially stronger effect in evaluation, which may change the explanation power of the study.

Similarly, the quasi-experimental design of assortment study also has the drawbacks. It seems that the participants who hold the three different types of expectation in regards to the multichannel assortment are not collected evenly. The quantity of holding an expectation that more assortments in online is significant over the quantity of holding other expectations. This imbalance status can be transferred to the distribution in subsequent regrouping process among the participants. Moreover, someone may argue that the classification of four types of congruity-incongruity states is absolutely arbitrary. This query is justified. Although the statistical results almost identify the differences among four types of congruity-incongruity states, this classification is seemed to rely on intuition more than to rely on theory. Lack of conceptual inferences can completely support it conceptually. Except for the statement all above, the two products, chocolate and bicycle, are used in experiments is needed to be deliberately considered. For example, chocolate is the low value product, but more affective or emotional, whereas bicycle is the utility product, moderate valued, but insufficiently attractive or very normal. This may explain why the tests of involvement do not work well in both studies. Anyway, the stimuli designed for multichannel stores need to be refined.

More than the discussion on research design, some theoretical concerns are worth for proposing. According to the proposition of dual-entitlement (Kahneman, Knetsch, and Thaler, 1986a; 1986b), the sellers are not necessary to reduce the selling price when the cost is cut. Consequently, consumers will not negatively evaluate the seller's action. The findings of this research project do not support this. The cost of online stores is less than that of offline stores, consumers do not permit retailers to keep the costing saving in online store. As the consequence, making the same online price to the offline price is negatively evaluated by the consumers because it is interpreted as the unreasonable intention to obtain the additional margins. In fact, this study does not investigate why dual-entitlement is ineffective in the multichannel retail environment, particularly in the situation of the cost reduction condition used and the situation of the cost increase justified. It is needed to clarify the underlying process of inferred motive compared to dual-entitlement in multichannel context.

Furthermore, equity is sometimes regarded as the antecedent of satisfaction (Oliver and Swan, 1994a; 1994b). But this study does not examine such causal effect. Equity is distinct cognition paralleled with disconfirmation mechanism (Oliver 2010). Someone can argue when participants perceive more fairness from the scenario of lower online price, they may be also more satisfied in the same scenario than in the other scenarios. This can be true because Xia, Monroe, and Cox (2004) proposed that the consequences of fairness can be linked to value perception and emotions. In the discussion of satisfaction, however satisfaction is a distinct construct compared to value, these two concepts mutually influence each other as value transforms and modulates between the calculated states and the end states (Oliver 2010). Similarly, emotions and affective state is part and parcel of satisfaction construction (Oliver 2010). To Separate from the preexisting emotions, researchers identified that consumption emotion can influence the satisfaction evaluation eventually (Oliver 1993; Westbrook and Oliver 1991). Therefore, consumers' fairness perception may influence satisfaction through the value perception and positive emotions. For future research, researchers should investigate the causal

route from the price fairness to the value perception and the emotions (affects), which in turn influences the consumers' satisfaction and their attitudinal intention. Here, value perceptions, emotions, and satisfaction are very possible to take the mediation roles that influence the effect of fairness on attitude.

The statistic result implies that the variety perception with respect to multichannel assortment is one of the consequences of congruence perception. This result may be affected by subjects' intention of variety seeker. As involvement which presents subject's motivation, variety seeker presents subject's intrinsic intention to choice variation. It may be inferred that individual's variety seeker intention can moderate the effect of congruence perception on variety perception. This new moderator can work with personal involvement and offer the interaction in deciding variety perception. It needs further verification in the future.

In fact, the moderation effect is not validated in both studies. This may attribute to the product categories that are chosen in the studies, but also attribute very likely to the research design. In addition, involvement has the cognitive and emotional components (Dubois, Jolibert, and Mühlbacher 2007). Cognitive components are related to product utilization, while emotional components may be related to the product hedonism. In multichannel environment, the evidences from Depth Interview have identified the effects of both components. For instance, subjects go to offline store for touching and fitting is related to product utilization concerning, shopping with the friends is the social activities that can be linked to the emotional components. Similarly, 24-hour non-stop online buying, clear and complete product introduction, higher effective comparing system present the online channel utilization, however, the time for waiting delivery, the risk of financial loss are closed to the emotional components. These situations imply the complexity of subjects' decision process in the multichannel retail market. The future involvement study can attempt to adopt different involvement measurements with different product categories in the completely incongruence states to examine its effort through the subjects' decision process.



Except for the points that have stated before, there are still some limitations and suggestions worthy of presenting. Future research should consider mix the price and assortment in the same study, not only the mixed attributes that are closed to the real retailing environment, but also the interaction that are existing between price and assortment on decision making. Grouville and Moon (2004) compared two conventional wine shops on price fairness within overlapping assortment strategy. They found fairness perception varied depending on the assortment strategy. In their study, only five bottles of wine were presented in the scenarios, but they did not examine the variety perception. Future research can investigate the subjects' reaction to the two stores belonging to the same retailer in which product price are presented based on the different assortment strategies.

In fact, a very difficult issue for multichannel study is how to simulate the current multichannel scenarios. Restricted by the cost, and also the potential interactive effect from cross-store visiting, the lacking methods is used appropriately in multichannel domain. As this researcher has stated before, online stores are distinct from offline stores, including design, layout, purchasing habits, and subjects' preference. When researcher presents offline stores in the virtual space, some of the most important offline store elements will be eliminated. Similarly, it is difficult to let subjects respond the questions with respect to online stores when they actually stay in an offline store. In this research, all stimuli are presented in the website, no matter from the online stores or from the offline store. The presentation of an online store may be closed to the reality, the presentation of an offline store is far from the reality definitely. The method of simulate both offline store and online stores require the technique development in the future. Probably, virtual reality technology can help researchers construct quasi-realistic multichannel context soon.

## **Appendix**

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## **Appendix A: Questions for Depth Interview (in English & in Chinese)**

Thank you for taking the time to attend this interview. The subject of this interview is about multichannel retail and shopping habits. The interview may take one-hour, more or less. If you catch the time or you already have other appointment, please do not hesitate to tell us. We can re-schedule it.

During the interview, we will ask you some questions, you can give the answer based on whatever you think about. You are also encouraged to expand your answer from the question if you think what your talking is relevant to or worthy for it.

We apologize in advance if any question makes you feel embarrassed or feel inconvenient. You may directly tell us if any question you do not want to answer and you may also tell us if you really feel boredom and wish to stop.

We respect your privacy. We make promise that all information we get will be only used for academic research and my doctoral thesis. We do not, also will not, provide and/or transfer your personal information to anyone without your authorization.

Q1) Would you please tell us your name?

Q2) If you do not mind, can you tell us your age?

Q3) Please tell us your level of education?

Q4) Please choose one from the four options which can indicate your monthly incoming  
<5000      5000-12000      12000-20000      >20000

Q5) Except for the grocery product, how often you go shopping (to physical store)? And how often you go shopping on Internet?

Q6) Please tell us what product categories you usually buy from online store (as possible as you can)

Q7) Let us talk about multichannel retail. Can you tell us the multichannel retailers whom you recognize? (If participants are difficult to recall, give some cues by mention the product category. i.e., where you buy your computer? Where you buy your cloth and shoes? )

Q8) Online store and offline store, how you make choice when you go shopping or purchasing? Or through what attribute, you decide your channel store choice? Please tell us some of your experience.

Q9) Last question you talk about your experience of online store and offline store. Now let's think about "pure" multichannel retailer– who owns both online store and offline store. Do you have some experiences would like to share us? Or are some store attributes you more concern?

10) Based on your viewpoint, do you think whether it is important to organize multiple channel stores for the retailers? And why?

11) Do you think whether the different channel stores, for example, online store and offline store, should keep consistence (or same)? Or whether the differences between channel stores influence your purchasing decision?

## Appendix A (continuous)

### 深度访谈问题集 (in Chinese)

衷心感谢您抽空参加这次访谈。这次访谈的主题主要是关于多渠道零售和个人购物习惯。本次访谈大约需要一个小时左右。如果您赶时间，或者已经另有安排，请务必告诉我们，我们可以择期再进行。

以下是一些须知，我们需要事先告诉您。在访谈期间，我们会问你与访谈主题的一些问题。您可以畅所欲言，只要您认为您的回答与话题相关，您就可以表达出来。我们的问题没有预先设置回答的范围。

如果我们的某个问题或某个讨论让您感到难堪或不舒服，请您务必直接告诉我们，您可以直接选择拒绝回答。如果发生此类情况，请接受我们的歉意，并请务必了解我们并非有意给您带来不适。另外，如果在回答过程中您感到疲劳或厌倦，您可以随时要求停止访谈。

我们尊重您的个人隐私。在此，我们承诺在未经您的允许下，不会将有关您的个人信息转交给任何第三方。您的隐私和本次内容将只被用于学术研究和博士论文撰写。这一点敬请放心。

Q1) 请告诉我们如何称呼您？

Q2) 如果您不介意的话，请告诉我们您的年龄？

Q3) 请告诉我们您的学历水平？

Q4) 请从以下四项选择中选取一项您认为接近您每月的收入水平？

<5000      5000-12000      12000-20000      >20000

Q5) 除去日常用品，您一般多久逛一次街（实体商店），间隔多久时间会去网店购物一次？

Q6) 请谈谈一般您在网店都买些什么样的产品？

Q7) 您能说出您所熟悉或知道的多渠道零售商的名字嘛？（如果参加者难以回答，可给出一些提示：比如您的手机是在哪里买的？你平时穿的和用的衣服鞋帽是哪里买的？）

Q8) 对于网店和实体店您一般是如何取舍的？您又是如何决定在哪一家店购买？能谈谈您的一些经验吗？

Q9) 上一个问题您谈了一些在线商店和实体商店的购物体验。那现在让我们聊聊多渠道零售的情况。如果是在一个同时又有实体点又有网店的零售商 shopping, 您是如何决定商店的取舍, 又有哪些条件是您在决策过程中非常介意的?

10) 对您而言, 您认为零售商组织安排多渠道业务是必须的吗? 你如何看待, 为什么?

11) 您认为同一个零售商下面的网店和实体店是否应该保持一致呢? 也就是说里面展示的东西, 价格等等都相同? 如果有所不同, 您又会如何想, 会影响您的购物过程吗? 请仔细谈一谈。

## Appendix B: Experimental Stimuli Presented in Study 2

## Group “Higher Online” (Offline / Online – Price higher in Online)

请到我们的巧克力店来实地品尝

							
大果粒巧克力 杏仁 200g 42.00 元	大果粒巧克力 榛子 200g 35.00 元	大果粒巧克力 焦糖着色开心果 200g 37.00 元	夹心巧克力 椰子风味 150g 41.00 元	夹心巧克力 焦糖风味 150g 41.00 元	夹心巧克力 牛轧糖风味 150g 48.00 元	夹心巧克力 薄荷风味 150g 42.00 元	巧克力 牛奶姜饼 200g 38.00 元
							
巧克力 牛奶榛子 200g 32.00 元	巧克力 牛奶油酥饼 200g 32.00 元	巧克力 牛奶黑葡萄榛子 200g 36.00 元	纯黑巧克力 70%可可脂 100g 26.00 元	纯黑巧克力 开心果 120g 27.00 元	纯黑巧克力 柑橘 100g 26.00 元	纯黑巧克力 柠檬生姜 120g 26.00 元	纯黑巧克力 芝麻 100g 26.00 元

您随时随地的巧克力在线商店

							
大果粒巧克力 杏仁 200g 42.00 元	大果粒巧克力 榛子 200g 39.00 元	大果粒巧克力 焦糖着色开心果 200g 37.00 元	夹心巧克力 椰子风味 150g 45.00 元	夹心巧克力 焦糖风味 150g 45.00 元	夹心巧克力 牛轧糖风味 150g 48.00 元	夹心巧克力 薄荷风味 150g 42.00 元	巧克力 牛奶姜饼 200g 38.00 元
							
巧克力 牛奶榛子 200g 36.00 元	巧克力 牛奶油酥饼 200g 35.00 元	巧克力 牛奶黑葡萄榛子 200g 36.00 元	纯黑巧克力 70%可可脂 100g 26.00 元	纯黑巧克力 开心果 120g 27.00 元	纯黑巧克力 柑橘 100g 26.00 元	纯黑巧克力 柠檬生姜 120g 29.00 元	纯黑巧克力 芝麻 100g 29.00 元

## Group “Equality” (Offline / Online – Equal Price)

请到我们的巧克力店来实地品尝

							
大果粒巧克力 杏仁 200g 42.00 元	大果粒巧克力 榛子 200g 39.00 元	大果粒巧克力 焦糖着色开心果 200g 37.00 元	夹心巧克力 椰子风味 150g 45.00 元	夹心巧克力 焦糖风味 150g 45.00 元	夹心巧克力 牛轧糖风味 150g 48.00 元	夹心巧克力 薄荷风味 150g 42.00 元	巧克力 牛奶姜饼 200g 38.00 元
							
巧克力 牛奶榛子 200g 36.00 元	巧克力 牛奶油酥饼 200g 35.00 元	巧克力 牛奶黑葡萄榛子 200g 36.00 元	纯黑巧克力 70% 可可脂 100g 26.00 元	纯黑巧克力 开心果 120g 27.00 元	纯黑巧克力 柑橘 100g 26.00 元	纯黑巧克力 柠檬生姜 120g 29.00 元	纯黑巧克力 芝麻 100g 29.00 元

您随时随地的巧克力在线商店

							
大果粒巧克力 杏仁 200g 42.00 元	大果粒巧克力 榛子 200g 39.00 元	大果粒巧克力 焦糖着色开心果 200g 37.00 元	夹心巧克力 椰子风味 150g 45.00 元	夹心巧克力 焦糖风味 150g 45.00 元	夹心巧克力 牛轧糖风味 150g 48.00 元	夹心巧克力 薄荷风味 150g 42.00 元	巧克力 牛奶姜饼 200g 38.00 元
							
巧克力 牛奶榛子 200g 36.00 元	巧克力 牛奶油酥饼 200g 35.00 元	巧克力 牛奶黑葡萄榛子 200g 36.00 元	纯黑巧克力 70% 可可脂 100g 26.00 元	纯黑巧克力 开心果 120g 27.00 元	纯黑巧克力 柑橘 100g 26.00 元	纯黑巧克力 柠檬生姜 120g 29.00 元	纯黑巧克力 芝麻 100g 29.00 元



## Group “Lower Online” (Offline / Online – Price higher in Offline)

请到我们的巧克力店来实地品尝

							
大果粒巧克力杏仁 200g 42.00 元	大果粒巧克力榛子 200g 39.00 元	大果粒巧克力焦糖着色开心果 200g 37.00 元	夹心巧克力椰子风味 150g 45.00 元	夹心巧克力焦糖风味 150g 45.00 元	夹心巧克力牛轧糖风味 150g 48.00 元	夹心巧克力薄荷风味 150g 42.00 元	巧克力牛奶姜饼 200g 38.00 元
							
巧克力牛奶榛子 200g 36.00 元	巧克力牛奶油酥饼 200g 35.00 元	巧克力牛奶黑葡萄榛子 200g 36.00 元	纯黑巧克力70%可可脂 100g 26.00 元	纯黑巧克力开心果 120g 27.00 元	纯黑巧克力柑橘 100g 26.00 元	纯黑巧克力柠檬生姜 120g 29.00 元	纯黑巧克力芝麻 100g 29.00 元

您随时随地的巧克力在线商店

							
大果粒巧克力杏仁 200g 42.00 元	大果粒巧克力榛子 200g 35.00 元	大果粒巧克力焦糖着色开心果 200g 37.00 元	夹心巧克力椰子风味 150g 41.00 元	夹心巧克力焦糖风味 150g 41.00 元	夹心巧克力牛轧糖风味 150g 48.00 元	夹心巧克力薄荷风味 150g 42.00 元	巧克力牛奶姜饼 200g 38.00 元
							
巧克力牛奶榛子 200g 32.00 元	巧克力牛奶油酥饼 200g 32.00 元	巧克力牛奶黑葡萄榛子 200g 36.00 元	纯黑巧克力70%可可脂 100g 26.00 元	纯黑巧克力开心果 120g 27.00 元	纯黑巧克力柑橘 100g 26.00 元	纯黑巧克力柠檬生姜 120g 26.00 元	纯黑巧克力芝麻 100g 26.00 元

## **Appendix C: Questionnaire Launched in Study 2 (with regard to Price Fairness)**

**(In English)**

### **Study for Consumer Behavior in Multichannel Retailing Context**

Thanks for helping us to complete this research. Our object is to understand consumers' attitude perception towards the discrepancy between channel stores in multichannel retailing environment. This is not an intelligence test; the answers are nothing about correct or wrong. You just answer it according to your own ideas. The whole process may take 8 minutes, more or less. If you are ready, please click the "start" button. Thanks.

---

### **Chocolate**

**The company “Dreaming-Chocolate” is a multichannel retailer, established in Bretagne France, who sells European Chocolates products worldwide. Now they start their business in China and hope to introduce cheerful, pure European flavor chocolates to Chinese consumers. Their first physical store is in decoration and will be opened in next month in the region of east China. At the same time, an online store is under preparing and will be managed by “Dreaming-Chocolate” itself.**

**Now you are invited to find out part of their chocolate products that will be sold in both physical store and online store. The following two illustrations list the on shelf chocolate samples, respectively. Please click the following button to take a look of these chocolate.**

Based on what you have read, please answer the following questions (please circle your choice black). All questions are required to answer.

1. Based on the page you have read, do you think the current chocolates in two channel stores are fairly priced? (9-point Scale)

Completely Unfair                                     Completely Fair

2. The two stores probably carry other chocolates that are the same. Do you think these other chocolates in two stores will be fairly priced? (9-point Scale)

Completely Unfair                                  Completely Fair

3. The two stores probably carry other chocolates that are different (carried by one store, but not by the other). Do you think these different chocolates in two stores will be fairly priced? (9-point Scale)

Completely Unfair                                  Completely Fair

4. Assume all other conditions are same in these two stores, how do you evaluate the multichannel retailer who applies such pricing strategy between different channel stores?

Unlike                            Like

5. When you are reading the contents presented above:

You think you are:

Not Involved                      Involved

Not Absorbed                      Absorbed

Stimulated                      Not Stimulated

It was not personally relevant                      it was personally relevant

6. Based on the illustration you have read, the prices of products between two channel stores are?

Completely Irrelevant                         Completely Relevant

7. Based on the illustration you have read, the prices of products between two channel stores are?

Completely Unexpected         Completely Expected

8. Based on what you read, please rate the price level in which channel store you perceive higher?

Offline Price Higher    No Difference    Online Price Higher

9. Your Gender: Male  Female

10. Please choose which one indicates your age:

18-24  25-30  31-36  37-45  More than 45

11. Please choose one option which indicates your monthly familiar Incoming (Currency: RMB):

Less than 4000  4000-6000  6001-10000  10001-15000  more than 15000

12. On average, how often you buy from online store every month?

Less than 1  1-2 times  3-4times  5-8 times  More than 8

Thanks for your participation, wish you good health, Thanks!

---

## Appendix C (continued)

### 多渠道零售环境消费者行为调查研究

#### (In Chinese)

非常感谢您抽出宝贵的个人时间协助我们完成这个调查研究。本研究的目的是为了了解一般消费者在零售多渠道环境中对不同渠道之间可能存在的差异的态度感知。以下您将阅读到的内容以及相应的问题并非智力测试，答案不存在正确与否，您只需按照您自己的想法回答即可。

本次调查问卷需时约 10 分钟。请从阅读下面开始，谢谢！

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#### 多渠道巧克力商店

“梦幻”巧克力公司是一家坐落于法国诺曼底大区的知名巧克力零售商。该公司主要负责向欧洲各类超市提供巧克力商品。梦幻巧克力公司除了致力于巩固其欧洲巧克力零售商的地位之外，也开始积极拓展在中国及亚洲地区的业务。他们衷心希望能给中国消费者带来品质优良且价格合适的世界各大知名巧克力品牌产品。目前，他们计划在江浙沪地区开设他们的第一家实体商店。同时，他们也计划开设一间官方在线巧克力商店（用自己的网站建网店）。

在正式开张之前，“梦幻”巧克力公司很乐意提前与您分享他们未来将会推出的一些巧克力产品。在接下来的页面中，您将会分别看到“梦幻”巧克力公司实体商店和网络商店中的部分巧克力商品。请翻页继续仔细阅读。

接下来，根据以上您所看到的不同类型商店之间所展示的商品，请按顺序回答下列问题（请在与您观点一致的白色圆圈上打叉或涂黑，所有的问题都是必答题）：

1. 根据以上您所看到的两个页面，您认为这种同一个零售商名下同类商品在不同渠道之间的定价方式是否公平合理？（9点量表）

完全不(公平)合理 ○ ○ ○ ○ ○ ○ ○ ○ ○ 完全(公平)合理

2. 如果这家“梦幻”巧克力零售商的实体商店和在线商店中还有其他相同的巧克力产品（但是并没有展示在刚才的页面中），您推测这些其他相同的巧克力产品在不同渠道商店之间可能的定价会否公平合理？（9点量表）

完全不(公平)合理 ○ ○ ○ ○ ○ ○ ○ ○ ○ 完全(公平)合理

3. 如果这家“梦幻”巧克力零售商的实体商店和在线商店中还有其他不同的巧克力产品（但是并没有展示在刚才的页面中），您推测这些其他不同的巧克力产品在不同渠道商店之间可能的定价会否公平合理？（9点量表）

不会(公平)合理 ○ ○ ○ ○ ○ ○ ○ ○ ○ 会(公平)不合理

4. 根据以上您所看到的不同渠道商店的页面，“梦幻”巧克力公司对于同一种商品不同渠道之间的定价方式您是：（7点量表）

不喜欢 ○ ○ ○ ○ ○ ○ ○ 喜欢

5. 您在刚才阅读浏览这些不同渠道商店页面时：

- 5.1 您感觉您自己在这个过程中是：

没有积极参与 ○ ○ ○ ○ ○ ○ 有积极参与

- 5.2 您感觉刚才阅读浏览到的内容对您来说：

没有吸引力 ○ ○ ○ ○ ○ 有吸引力

- 5.3 您感觉到上述这些展示的内容：

有激起您的关注 ○ ○ ○ ○ ○ 没有激起您的关注

- 5.4 您自我感觉以上这些内容对您：

没有意义(有关系的) ○ ○ ○ ○ ○ 有意义(没有关系的)

6. 根据您刚刚看到的两个页面(图片),您认为两类商店相互之间的价格关联程度如何?  
(7点量表)

完全不相关        完全相关

7. 作为同一个零售商辖下不同的商店形式,您认为您所看到的这种不同渠道之间的标价符合您的一贯预期吗?(7点量表)

完全不符合预期        完全符合预期

8. 请告诉我们,您所看到的俩个商店中的价格,哪一个更高,哪一个更低?(7点量表)

没有差异

实体商店价高        在线商店价高

9. 请问您的性别: 男  女

10. 请问您的年龄:

18-24  25-30  31-36  37-45  More than 45

11. 以家庭为单位,平均月收入水平大概是(人民币):

少于 4000 元  4000-6000 元  6001-10000 元  10001-15000 元  多于 15000

12. 平均来说,你每个月会在网上购物的次数大概是(一张订单算一次):

少于 1 次  1-2 次  3-4 次  5-8 次  8 次以上

问题到此结束,非常感谢您的参与,祝您工作顺利,身体健康。谢谢!

## Appendix D: Quasi-Experimental Stimuli Presented in Study 3

Stimulus contains 30 bicycle products





## Stimulus contains 20 bicycle products



## **Appendix E: Questionnaire Launched in Study 3 (with regard to Perceived Variety)**

Study for Consumer Behavior in Multichannel Retailing Context

**Thanks for helping us to complete this research. Our object is to understand consumers' attitude perception towards the discrepancy between channel stores in multichannel retailing environment. This is not an intelligence test; the answers are nothing about right and wrong. You just answer it following your own ideas. The whole process may take 8 minutes, more or less. If you are ready, please click the "start" button. Thanks.**

---

### **Please answer first questions**

1. Based on shopping experiences, please list at least 5 product categories you have bought from online store.

---

2. Given a retailer who possesses both online store and offline store, from your viewpoint, please indicate what is your usual expected assortment between online store and offline stores? (7-point scale)

Offline Store More                            Online Store More

## **Multichannel Bicycle Retailer**

**《Golden-Wheel Expert》 is a famous multichannel retailer established in Europe. The company devotes itself to provide high-quality multi-types of bicycle products and valuable services to the consumers around the world. More than that, the company has good relationship with the most famous worldwide bicycle races such as “La Tour de France”, “Giro d’Italia” and so on. With the improvement of living standards in China, more and more Chinese people are interested in cycling activities. 《Golden-Wheel Expert》 always innovates and diversifies its bicycle products and promote more available types of bicycles for China market, such as racing cycle, folding bicycle, and all-terrain bicycle, etc.**

**《Golden-Wheel Expert》 monthly updates its available bicycle products and publicizes it to the consumers via printing brochure or regular newsletter. The following two pages you read are the available bicycle products in both Offline Store and Online Store, wish you enjoy reading it.**

Based on what you have read, please answer the following questions (please circle your choice black). All questions are required to answer.

3. How many choices do you feel when you were offered in terms of the bicycle selection from **both Channel Stores**? (9-point Scale)

No Choice at all          a lot of choice

4. How much variety do you think there was in the bicycle display from **both Channel Stores**? (9-point Scale)

Very little variety          a lot of variety

5. How similar do you think within all of the bicycles displayed of **both Channel Stores** (9-point Scale)?

Not at all similar          extremely similar

6. Assume all other conditions are same in these two stores, how do you evaluate the multichannel retailer who applies such assortment strategy between different channel stores? (7-point Scale)

Unlike        Like

7. **When you are reading the contents presented above:**

**You think you are:** (7-point Scale)

Not Involved        Involved

Not Absorbed        Absorbed

Stimulated        Not Stimulated

It was not personally relevant        It was Personally relevant

8. Based on the two pictures you have seen, please state that in what extent do you think the product options are same or different between two channel stores? (7-point Scale)

Completely NOT same        Completely Same

9. Based on the two pictures you have seen, please state by which channel store do you think it offers more bicycle products?

Equality

More In Offline        More in Online

10. Please evaluate the extent of how is the **Multi-Channel Stores** assortments you have read consistent with your prior expectation? (7-point Scale)

Completely inconsistent        Completely consistent

11. **Your Gender:** Male  Female

12. Please choose which one indicates your age:

18-24  25-30  31-36  37-45  More than 45

13. Please choose one option which indicates your monthly familiar Incoming (Currency: RMB):

Less than 4000  4000-7000  7001-10000  10001-16000  more than 16000

14. On average, how often you buy from online store every month?

Less than 1  1-2 times  3-4times  5-8 times  More than 8

**Thanks for your participation, wish you good health, Thanks!**

---

**Appendix E (continued)****多渠道零售环境消费者行为调查研究****(in Chinese)**

非常感谢您抽出宝贵的个人时间协助我们完成这个调查研究。本研究的目的是为了了解一般消费者在零售多渠道环境中对不同渠道之间可能存在的差异的态度感知。为感谢您的大力支持帮助，

您将会阅读到的内容以及相应的问题并非智力测试，答案不存在正确与否，您只需按照您自己的想法回答即可。

本次调查问卷需时约 10 分钟。请从阅读下面开始，谢谢！

---

在正式开始前，请先回答以下问题：

1. 以你个人的购物经历来说，请尝试罗列出 5 项您既会在实体商店购买，也会在网  
上商店购买的产品类别有：

---

2. 就以上您所列的这些产品类别而言，如果存在这样一类零售商，他们既有实体商店也有网络商店，您觉得一般来说这类零售商辖下的那一种类型的渠道商店提供的产品选择更多？

一样多

实体商店可选商品更多        在线商店可选商品更多

## 多渠道自行车商店

《金轮行家》是一家提供各种类型自行车产品及服务的知名自行车多渠道零售商，他们同时也是包括环法、环意大利等世界各大自行车比赛的合作赞助方。伴随中国普通消费者生活水平的提高，《金轮行家》不断地调整他们的在华产品线，包括引入一些赛车、折叠车、全地形自行车等等，以求更好地满足中国消费者的需求。

作为一家常年扎根中国的自行车零售商，通过邮寄或电子邮件方式定期寄送商品推荐信息给他们的客户是他们长期坚持的一种营销方式。您接下来将会看到的就是从他们不同的产品手册（在线商店电子邮件推送或实体商店邮寄信件）中复制的自行车产品展示。请翻页继续仔细阅读。

接下来，根据以上您所看到的不同类型商店之间所展示的商品，请按顺序回答下列问题（请在与您观点一致的白色圆圈上打叉或涂黑，所有的问题都是必答题）：

3. 对于这样一家同时提供实体商店和在线商店的零售商，总体而言，您认为他们提供的各类自行车货品的可选性是：

没什么可选择的商品           有很多可选择的商品

4. 总体而言，您觉得这家零售商不同渠道之间自行车货品品种变化是：

渠道间货品品种没有差异          渠道间货品品种差异很大

5. 总体而言，您觉得这家零售商不同渠道商店之间的货品品种是：

完全不相似          完全相似

6. 对于以上这种跨越不同渠道之间（实体商店和在线商店）的商品供应组合方式，您的态度是：

不喜欢         喜欢

7. 在刚才阅读不同渠道商店页面时，

- 7.1 您感觉您自己在这个过程中是：

没有积极参与        有积极参与

- 7.2 您感觉刚才阅读浏览到的内容对您来说：

没有吸引力        有吸引力

- 7.3 您感觉到上述这些展示的内容：

有激起您的关注        没有激起您的关注

- 7.4 您自我感觉以上这些内容对您：

没有意义(没有关系的)        有意义(有关系的)

8. 以您看来，比较刚才这两类商店之间可供选择的自行车产品，它们是：

完全不同的        完全相同的

9. 以您的感受而言，刚才的这两类商店中，哪一类商店提供的货品选择更多，实体商店还是在线商店？

一样多

实体商店可选商品更多        在线商店可选商品更多



10. 以您的感受而言, 这种一个零售商辖下不同渠道商店之间同一类商品供货的差异(或相似)与您的预期一致吗?

完全不一致        完全一致

11. 请问您的性别: 男  女

12. 请问您的年龄:

18-24 岁  25-30 岁  31-36 岁  37-45 岁  45 岁以上

13. 以家庭为单位, 平均月收入水平大概是(人民币):

小于 4000 元  4001-7000 元  7001-10000 元  10001-16000 元  16000 元以上

14. 平均来说, 你每个月会在网上购物的次数大概是(一张订单算一次):

少于 1 次  1-2 次  3-4 次  5-8 次  8 次以上

问题到此结束, 非常感谢您的参与, 祝您工作顺利, 身体健康。谢谢!

## Appendix F: Statistic report of Price Fairness Variable (Study 2)

### Cronbach's Alpha by Reliability Test on Price Fairness items

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.799	.802	3

### Statistics by Internal Reliability Test across Three Price Fairness Measurement

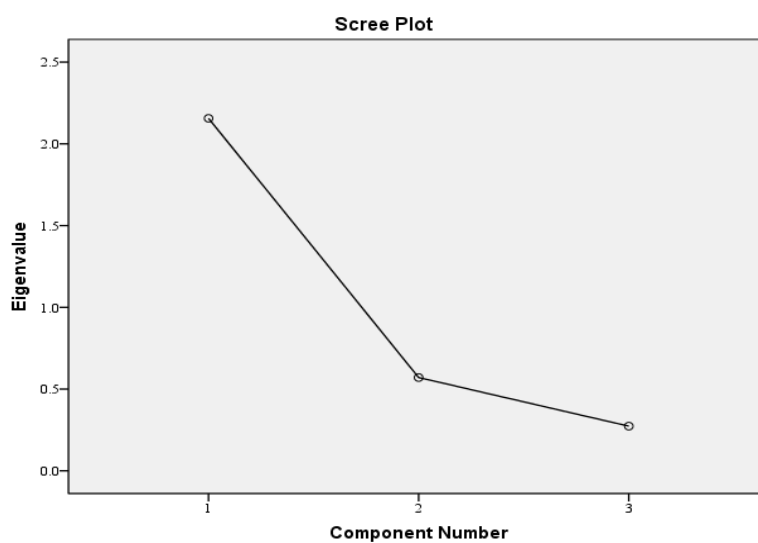
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's $\alpha$ if Item Deleted
Fairness1	11.14	14.836	.537	.291	.841
Fairness2	11.27	13.712	.717	.562	.649
Fairness3	11.20	13.934	.688	.542	.680

### Total Variance Explained by Factors

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	<b>2.156</b>	<b>71.867</b>	<b>71.867</b>
2	.571	19.024	90.891
3	.273	9.109	100.000

Extraction Method: Principal Component Analysis.

### Screen Plot of Principle Component Factor Analysis



## Appendix G: The Report of Mediator Congruence Perception from Macro “process”

Run MATRIX procedure:

\*\*\*\*\* PROCESS Procedure for SPSS Release 2.15 \*\*\*\*\*

Written by Andrew F. Hayes, Ph.D.      www.afhayes.com

Documentation available in Hayes (2013). www.guilford.com/p/hayes3

\*\*\*\*\*

Model = 4

Y = Fairness

X = MultiGr

M = CongW\_sd

Sample size

202

Coding of categorical X variable for analysis:

MultiGr	D1	D2
1.00	.00	.00
2.00	1.00	.00
3.00	.00	1.00

\*\*\*\*\*

Outcome: CongW\_sd

Model Summary

R	R-sq	MSE	F	df1	df2	p
.2539	.0645	2.0835	6.8577	2.0000	199.0000	.0013

Model

	coeff	se	t	p	LLCI	ULCI
Constant	4.1298	.1777	23.2437	.0000	3.7795	4.4802
D1	.4401	.2522	1.7446	.0826	-.0573	.9375
D2	.9133	.2468	3.7003	.0003	.4266	1.3999

\*\*\*\*\*

Outcome: Fairness

Model Summary

R	R-sq	MSE	F	df1	df2	p
---	------	-----	---	-----	-----	---

.5604 .3140 2.2402 30.2131 3.0000 198.0000 .0000

Model

	coeff	se	t	p	LLCI	ULCI
Constant	2.5221	.3551	7.1026	.0000	1.8218	3.2223
CongW_sd	.5279	.0735	7.1811	.0000	.3829	.6728
D1	.8503	.2635	3.2265	.0015	.3306	1.3700
D2	1.0882	.2646	4.1131	.0001	.5665	1.6100

\*\*\*\*\* TOTAL EFFECT MODEL \*\*\*\*\*

Outcome: Fairness

Model Summary

R	R-sq	MSE	F	df1	df2	p
.3679	.1354	2.8095	15.5770	2.0000	199.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
Constant	4.7020	.2063	22.7900	.0000	4.2952	5.1089
D1	1.0826	.2929	3.6961	.0003	.5050	1.6602
D2	1.5703	.2866	5.4791	.0000	1.0051	2.1354

\*\*\*\*\* TOTAL, DIRECT, AND INDIRECT EFFECTS \*\*\*\*\*

Relative total effects of X of Y

	coeff	se	t	p	LLCI	ULCI
D1	1.0826	.2929	3.6961	.0003	.5050	1.6602
D2	1.5703	.2866	5.4791	.0000	1.0051	2.1354

Omnibus test of total effect of X on Y

R-sq	F	df1	df2	p
.1354	15.5770	2.0000	199.0000	.0000

=====

Relative direct effects of X on Y

	coeff	se	t	p	LLCI	ULCI
D1	.8503	.2635	3.2265	.0015	.3306	1.3700
D2	1.0882	.2646	4.1131	.0001	.5665	1.6100

Omnibus test of direct effect of X on Y

R-sq	F	df1	df2	p
.0643	9.2797	2.0000	198.0000	.0001

=====

Relative indirect effect(s) of X on Y through:

---

CongW\_sd

	Effect	SE(boot)	LLCI	ULCI
D1	.2323	.1383	-.0263	.5244
D2	.4821	.1565	.2104	.8314
Omnibus	.0291	.0192	.0015	.0712

-----

\*\*\*\*\* ANALYSIS NOTES AND WARNINGS \*\*\*\*\*

Number of bootstrap samples for bias corrected bootstrap confidence intervals:  
10000

Level of confidence for all confidence intervals in output:  
95.00

NOTE: CONTRAST option not available with multi-categorical X.

----- END MATRIX -----

## Appendix H: The Report of Mediator Price Fairness from Macro “process”

Run MATRIX procedure:

\*\*\*\*\* PROCESS Procedure for SPSS Release 2.15 \*\*\*\*\*

Written by Andrew F. Hayes, Ph.D.      www.afhayes.com  
 Documentation available in Hayes (2013). www.guilford.com/p/hayes3

\*\*\*\*\*

Model = 4  
 Y = Attitude  
 X = CongW\_sd  
 M = Fairness

Sample size  
 202

\*\*\*\*\*

Outcome: Fairness

Model Summary

R	R-sq	MSE	F	df1	df2	p
.4997	.2497	2.4257	66.5681	1.0000	200.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	2.8303	.3570	7.9283	.0000	2.1264	3.5342
CongW_sd	.6036	.0740	8.1589	.0000	.4577	.7495

\*\*\*\*\*

Outcome: Attitude

Model Summary

R	R-sq	MSE	F	df1	df2	p
.7064	.4990	2.6439	99.0984	2.0000	199.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	-.5471	.4273	-1.2804	.2019	-1.3897	.2955
Fairness	.7347	.0738	9.9520	.0000	.5891	.8803
CongW_sd	.3256	.0892	3.6519	.0003	.1498	.5015

\*\*\*\*\* TOTAL EFFECT MODEL \*\*\*\*\*

Outcome: Attitude

Model Summary

R	R-sq	MSE	F	df1	df2	p
.4996	.2496	3.9400	66.5375	1.0000	200.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	1.5323	.4550	3.3679	.0009	.6351	2.4295
CongW_sd	.7691	.0943	8.1571	.0000	.5832	.9550

\*\*\*\*\* TOTAL, DIRECT, AND INDIRECT EFFECTS \*\*\*\*\*

Total effect of X on Y

Effect	SE	t	p	LLCI	ULCI
.7691	.0943	8.1571	.0000	.5832	.9550

Direct effect of X on Y

Effect	SE	t	p	LLCI	ULCI
.3256	.0892	3.6519	.0003	.1498	.5015

Indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
Fairness	.4435	.0755	.3103	.6089

Partially standardized indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
Fairness	.1940	.0322	.1368	.2624

Completely standardized indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
Fairness	.2881	.0472	.2049	.3909

Ratio of indirect to total effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
Fairness	.5766	.1156	.3900	.8424

Ratio of indirect to direct effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
Fairness	1.3618	13.3434	.6324	5.1486

R-squared mediation effect size (R-sq\_med)

	Effect	Boot SE	BootLLCI	BootULCI
--	--------	---------	----------	----------

---

Fairness .2161 .0513 .1253 .3237

Preacher and Kelley (2011) Kappa-squared

	Effect	Boot SE	BootLLCI	BootULCI
Fairness	.2957	.0465	.2108	.3941

Normal theory tests for indirect effect

Effect	se	Z	p
.4435	.0705	6.2906	.0000

\*\*\*\*\* ANALYSIS NOTES AND WARNINGS \*\*\*\*\*

Number of bootstrap samples for bias corrected bootstrap confidence intervals:

10000

Level of confidence for all confidence intervals in output:

95.00

----- END MATRIX -----



## Appendix I: Report of Serial Multiple Mediator Model subsequently through Congruence Perception and Price Fairness Calculated by Macro “process”

Run MATRIX procedure:

\*\*\*\*\* PROCESS Procedure for SPSS Release 2.15 \*\*\*\*\*

Written by Andrew F. Hayes, Ph.D.      www.afhayes.com

Documentation available in Hayes (2013). www.guilford.com/p/hayes3

\*\*\*\*\*

Model = 6

Y = Attitude

X = MultiGr

M1 = CongW\_sd

M2 = Fairness

Sample size

202

\*\*\*\*\*

Outcome: CongW\_sd

Model Summary

R	R-sq	MSE	F	df1	df2	p
.2539	.0645	2.0732	13.7781	1.0000	200.0000	.0003

Model

	coeff	se	t	p	LLCI	ULCI
constant	3.6675	.2690	13.6341	.0000	3.1370	4.1979
MultiGr	.4568	.1231	3.7119	.0003	.2141	.6995

\*\*\*\*\*

Outcome: Fairness

Model Summary

R	R-sq	MSE	F	df1	df2	p
.5546	.3076	2.2497	44.2099	2.0000	199.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	2.0858	.3892	5.3588	.0000	1.3182	2.8533
CongW_sd	.5273	.0737	7.1587	.0000	.3821	.6726

MultiGr .5408 .1325 4.0798 .0001 .2794 .8021

\*\*\*\*\*

Outcome: Attitude

Model Summary

R	R-sq	MSE	F	df1	df2	p
.7065	.4992	2.6563	65.7807	3.0000	198.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
constant	-.5859	.4524	-1.2950	.1968	-1.4781	.3063
CongW_sd	.3235	.0898	3.6036	.0004	.1464	.5005
Fairness	.7290	.0770	9.4639	.0000	.5771	.8809
MultiGr	.0399	.1499	.2660	.7905	-.2558	.3355

\*\*\*\*\* TOTAL EFFECT MODEL \*\*\*\*\*

Outcome: Attitude

Model Summary

R	R-sq	MSE	F	df1	df2	p
.2735	.0748	4.8582	16.1650	1.0000	200.0000	.0001

Model

	coeff	se	t	p	LLCI	ULCI
constant	3.5307	.4118	8.5743	.0000	2.7187	4.3427
MultiGr	.7575	.1884	4.0206	.0001	.3860	1.1290

\*\*\*\*\* TOTAL, DIRECT, AND INDIRECT EFFECTS \*\*\*\*\*

Total effect of X on Y

Effect	SE	t	p	LLCI	ULCI
.7575	.1884	4.0206	.0001	.3860	1.1290

Direct effect of X on Y

Effect	SE	t	p	LLCI	ULCI
.0399	.1499	.2660	.7905	-.2558	.3355

Indirect effect(s) of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
Total:	.7176	.1436	.4491	1.0127
Ind1 :	.1478	.0704	.0411	.3256
Ind2 :	.1756	.0594	.0775	.3169
Ind3 :	.3942	.1096	.2010	.6318

(C1)	-.0278	.0760	-.2015	.1108
(C2)	-.2464	.1443	-.5318	.0368
(C3)	-.2186	.1197	-.4645	.0017

## Partially standardized indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
Total:	.3139	.0585	.1985	.4300
Ind1 :	.0646	.0303	.0180	.1396
Ind2 :	.0768	.0251	.0345	.1349
Ind3 :	.1725	.0470	.0876	.2712

## Completely standardized indirect effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
Total:	.2591	.0486	.1638	.3559
Ind1 :	.0533	.0249	.0152	.1152
Ind2 :	.0634	.0208	.0285	.1119
Ind3 :	.1423	.0389	.0724	.2246

## Ratio of indirect to total effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
Total:	.9473	.2583	.6340	1.5475
Ind1 :	.1951	.0970	.0549	.4307
Ind2 :	.2318	.0959	.1100	.4843
Ind3 :	.5204	.1905	.2662	.9549

## Ratio of indirect to direct effect of X on Y

	Effect	Boot SE	BootLLCI	BootULCI
Total:	17.9915	999.7235	6.0066	80364.3055
Ind1 :	3.7047	267.3111	1.2601	23121.4937
Ind2 :	4.4029	210.7023	1.4404	15066.4889
Ind3 :	9.8839	543.0764	3.3297	42176.3229

## Indirect effect key

Ind1 :	MultiGr	->	CongW_sd	->	Attitude
Ind2 :	MultiGr	->	CongW_sd	->	Fairness -> Attitude
Ind3 :	MultiGr	->	Fairness	->	Attitude

## Specific indirect effect contrast definitions

(C1)	Ind1	minus	Ind2
(C2)	Ind1	minus	Ind3
(C3)	Ind2	minus	Ind3

\*\*\*\*\* ANALYSIS NOTES AND WARNINGS \*\*\*\*\*

Number of bootstrap samples for bias corrected bootstrap confidence intervals:  
10000

Level of confidence for all confidence intervals in output:  
95.00

----- END MATRIX -----

## Appendix J: Statistic report of Experimental Involvement Variable (Study 2)

### Reliability Statistics of Experimental Involvement

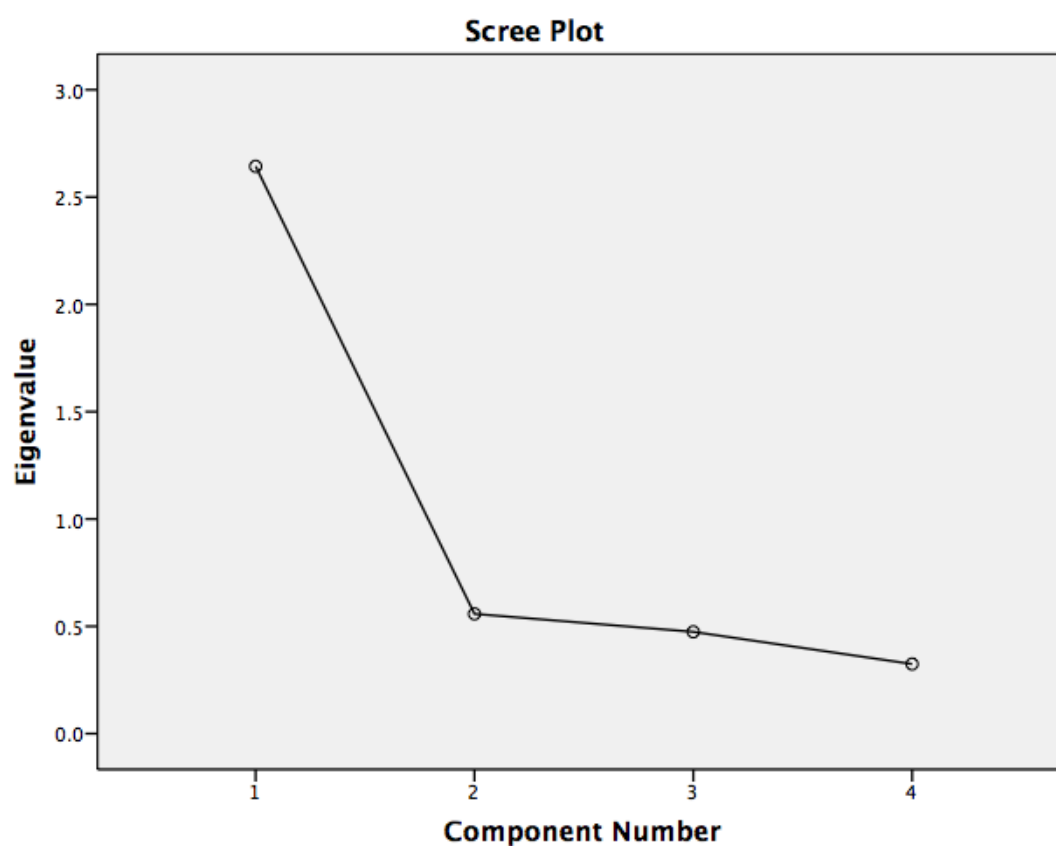
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.828	.828	4

### Initial Eigenvalues by Principle Factor Analysis

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.643	66.082	66.082	2.643	66.082	66.082
2	.558	13.952	80.034			
3	.474	11.859	91.892			
4	.324	8.108	100.000			

Extraction Method: Principal Component Analysis.

### Scree Plot of Principle Factor Analysis for Experimental Involvement



## Appendix K: Report of Moderation Involvement Interacts with Cross-Channel Price Policy on Congruence Perception by Macro “process”

Run MATRIX procedure:

\*\*\*\*\* PROCESS Procedure for SPSS Release 2.15 \*\*\*\*\*

Written by Andrew F. Hayes, Ph.D.      www.afhayes.com

Documentation available in Hayes (2013). www.guilford.com/p/hayes3

\*\*\*\*\*

Model = 1

Y = CongW\_sd

X = MultiGr

M = All\_Invo

Sample size

202

Coding of categorical X variable for analysis:

MultiGr	D1	D2
1.00	.00	.00
2.00	1.00	.00
3.00	.00	1.00

\*\*\*\*\*

Outcome: CongW\_sd

Model Summary

R	R-sq	MSE	F	df1	df2	p
.3154	.0995	2.0363	4.3298	5.0000	196.0000	.0009

Model

	coeff	se	t	p	LLCI	ULCI
constant	3.7711	.5739	6.5709	.0000	2.6393	4.9029
All_Invo	.0940	.1431	.6566	.5122	-.1883	.3762
D1	-.0281	.8114	-.0346	.9724	-1.6283	1.5721
D2	-.0113	.8337	-.0135	.9892	-1.6554	1.6328
int_1	.1219	.2019	.6037	.5467	-.2763	.5201
int_2	.2249	.2032	1.1070	.2697	-.1758	.6256

Product terms key:

int\_1 : D1 X All\_Invo

int\_2 : D2 X All\_Invo

R-square increase due to interaction:

R2-chng	F	df1	df2	p
.0056	.6144	2.0000	196.0000	.5420

\*\*\*\*\*

Conditional effect of X on Y at values of the moderator:

Moderator value:

All\_Invo 2.6740

	Coeff	se	t	p	LLCI	ULCI
D1	.2979	.3408	.8741	.3831	-.3742	.9699
D2	.5901	.3525	1.6738	.0958	-.1052	1.2854

Test of equality of conditional means at this value of the moderator

R2-chng	F	df1	df2	p
.0129	1.4040	2.0000	196.0000	.2481

Estimated conditional means at this value of the moderator

MultiGr	yhat
1.0000	4.0223
2.0000	4.3202
3.0000	4.6124

-----

Moderator value:

All\_Invo 3.8948

	Coeff	se	t	p	LLCI	ULCI
D1	.4467	.2498	1.7884	.0753	-.0459	.9393
D2	.8647	.2450	3.5298	.0005	.3816	1.3477

Test of equality of conditional means at this value of the moderator

R2-chng	F	df1	df2	p
.0572	6.2298	2.0000	196.0000	.0024

Estimated conditional means at this value of the moderator

MultiGr	yhat
1.0000	4.1370
2.0000	4.5837
3.0000	5.0017

-----

Moderator value:

All\_Invo 5.1156

	Coeff	se	t	p	LLCI	ULCI
D1	.5955	.3607	1.6507	.1004	-.1160	1.3069
D2	1.1392	.3446	3.3058	.0011	.4596	1.8189

Test of equality of conditional means at this value of the moderator

R2-chng	F	df1	df2	p
.0503	5.4691	2.0000	196.0000	.0049

Estimated conditional means at this value of the moderator

MultiGr	yhat
1.0000	4.2517
2.0000	4.8472
3.0000	5.3909

Moderator values are the sample mean and plus/minus one SD from mean

\*\*\*\*\*

Data for visualizing conditional effect of X on Y

Paste text below into a SPSS syntax window and execute to produce plot.

DATA LIST FREE/MultiGr All\_Invo CongW\_sd.

BEGIN DATA.

1.0000	2.6740	4.0223
2.0000	2.6740	4.3202
3.0000	2.6740	4.6124
1.0000	3.8948	4.1370
2.0000	3.8948	4.5837
3.0000	3.8948	5.0017
1.0000	5.1156	4.2517
2.0000	5.1156	4.8472
3.0000	5.1156	5.3909

END DATA.

GRAPH/SCATTERPLOT=All\_Invo WITH CongW\_sd BY MultiGr.

\*\*\*\*\* ANALYSIS NOTES AND WARNINGS \*\*\*\*\*

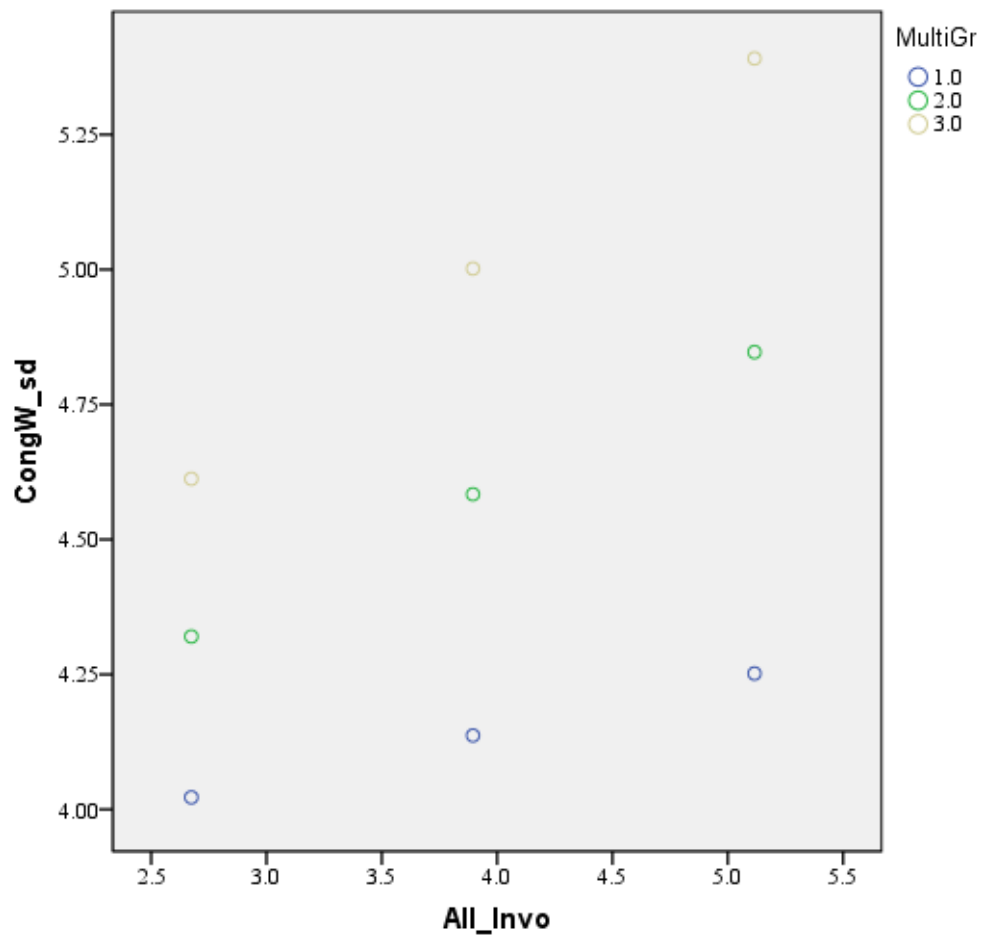
Level of confidence for all confidence intervals in output:

95.00



NOTE: Johnson-Neyman method not available with multi-categorical X

----- END MATRIX -----



## Appendix L: Statistic report of Variety Perception Variable (Study 3)

### Cronbach's Alpha test among three variety variables

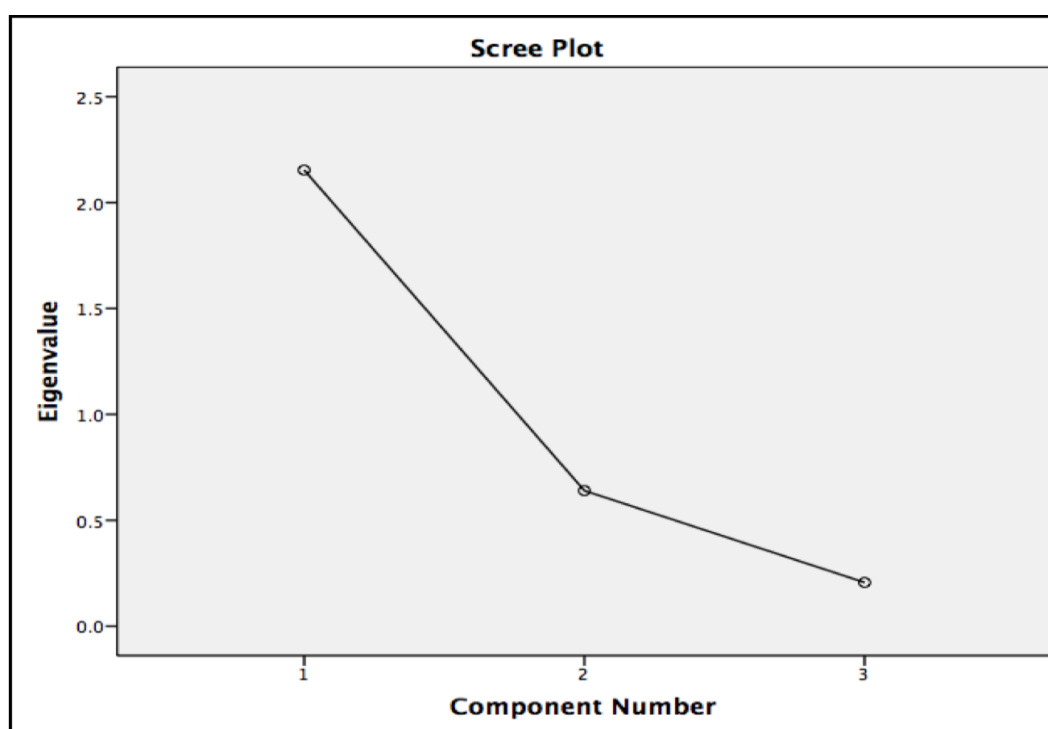
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.798	.797	3

### Total Variance Explained by Initial Eigenvalues

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.151	71.694	71.694	2.151	71.694	71.694
2	.640	21.337	93.031			
3	.209	6.969	100.000			

Extraction Method: Principal Component Analysis.

### Screen Plot Based on results of Eigenvalue



## Appendix M: The Report of Mediator Variety Perception from Macro “process”

Run MATRIX procedure:

\*\*\*\*\* PROCESS Procedure for SPSS Release 2.15 \*\*\*\*\*

Written by Andrew F. Hayes, Ph.D.      www.afhayes.com  
Documentation available in Hayes (2013). www.guilford.com/p/hayes3

\*\*\*\*\*

Model = 4

Y = Attitude

X = ConDef4

M = Variety

Sample size

246

Coding of categorical X variable for analysis:

ConDef4	D1	D2	D3
1.00	.00	.00	.00
2.00	1.00	.00	.00
3.00	.00	1.00	.00
4.00	.00	.00	1.00

\*\*\*\*\*

Outcome: Variety

Model Summary

R	R-sq	MSE	F	df1	df2	p
.4295	.1845	2.0062	18.2450	3.0000	242.0000	.0000

Model

	coeff	se	t	p	LLCI	ULCI
Constant	5.2742	.1799	29.3198	.0000	4.9199	5.6285
D1	-.3768	.2663	-1.4145	.1585	-.9014	.1479
D2	-1.6720	.2544	-6.5726	.0000	-2.1732	-1.1709
D3	-1.2551	.2470	-5.0811	.0000	-1.7417	-.7686

\*\*\*\*\*

Outcome: Attitude

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.3118	.0972	1.6452	6.4895	4.0000	241.0000	.0001

Model

	coeff	se	t	p	LLCI	ULCI
Constant	3.2528	.3476	9.3591	.0000	2.5682	3.9375
Variety	.2334	.0582	4.0096	.0001	.1187	.3481
D1	-.3575	.2422	-1.4760	.1412	-.8345	.1196
D2	-.2226	.2501	-.8902	.3742	-.7153	.2700
D3	-.3338	.2353	-1.4183	.1574	-.7973	.1298

\*\*\*\*\* TOTAL EFFECT MODEL \*\*\*\*\*

Outcome: Attitude

Model Summary

	R	R-sq	MSE	F	df1	df2	p
	.1924	.0370	1.7477	3.1007	3.0000	242.0000	.0274

Model

	coeff	se	t	p	LLCI	ULCI
Constant	4.4839	.1679	26.7063	.0000	4.1531	4.8146
D1	-.4454	.2486	-1.7917	.0744	-.9351	.0443
D2	-.6129	.2374	-2.5813	.0104	-1.0806	-.1452
D3	-.6267	.2306	-2.7183	.0070	-1.0809	-.1726

\*\*\*\*\* TOTAL, DIRECT, AND INDIRECT EFFECTS \*\*\*\*\*

Relative total effects of X of Y

	coeff	se	t	p	LLCI	ULCI
D1	-.4454	.2486	-1.7917	.0744	-.9351	.0443
D2	-.6129	.2374	-2.5813	.0104	-1.0806	-.1452
D3	-.6267	.2306	-2.7183	.0070	-1.0809	-.1726

Omnibus test of total effect of X on Y

	R-sq	F	df1	df2	p
	.0370	3.1007	3.0000	242.0000	.0274

=====

Relative direct effects of X on Y

	coeff	se	t	p	LLCI	ULCI
D1	-.3575	.2422	-1.4760	.1412	-.8345	.1196
D2	-.2226	.2501	-.8902	.3742	-.7153	.2700
D3	-.3338	.2353	-1.4183	.1574	-.7973	.1298

Omnibus test of direct effect of X on Y

R-sq	F	df1	df2	p
.0106	.9431	3.0000	241.0000	.4204

=====

Relative indirect effect(s) of X on Y through:

Variety

	Effect	SE(boot)	LLCI	ULCI
D1	-.0879	.0616	-.2332	.0136
D2	-.3903	.1195	-.6604	-.1844
D3	-.2930	.1002	-.5207	-.1274
Omnibus	.0407	.0158	.0158	.0764

-----

\*\*\*\*\* ANALYSIS NOTES AND WARNINGS \*\*\*\*\*

Number of bootstrap samples for bias corrected bootstrap confidence intervals:

10000

Level of confidence for all confidence intervals in output:

95.00

NOTE: CONTRAST option not available with multi-categorical X.

----- END MATRIX -----

## Appendix N: Statistic report of Experimental Involvement Variable (Study 3)

### Cronbach's Alpha test among four involvement items

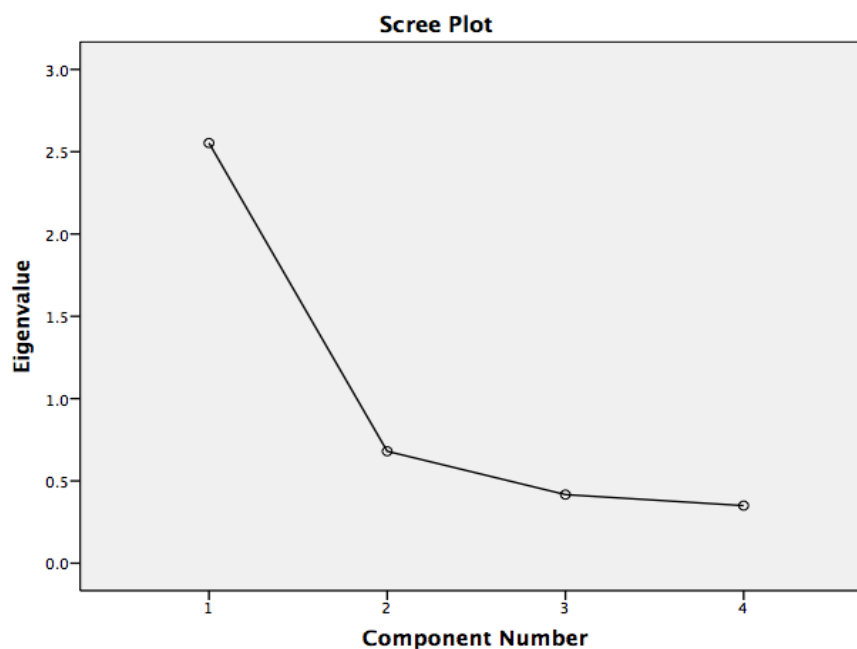
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.803	.799	4

### Total Variance Explained by Initial Eigenvalues

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.517	62.937	62.937	2.517	62.937	62.937
2	0.746	18.655	81.592			
3	0.414	10.356	91.948			
4	0.322	8.052	100.000			

Extraction Method: Principal Component Analysis.

### Screen Plot Based on results of Eigenvalue



## Appendix O: Report of Moderator Involvement Interacts with Cross-Channel assortment on Variety Perception via Macro “process”

Run MATRIX procedure:

\*\*\*\*\* PROCESS Procedure for SPSS Release 2.15 \*\*\*\*\*

Written by Andrew F. Hayes, Ph.D.      www.afhayes.com  
Documentation available in Hayes (2013). www.guilford.com/p/hayes3

\*\*\*\*\*

Model = 1

Y = Variety  
X = MeasCon  
M = Involve

Sample size

246

\*\*\*\*\*

Outcome: Variety

Model Summary

R	R-sq	MSE	F	df1	df2	p
.2669	.0712	2.2848	6.1864	3.0000	242.0000	.0005

Model

	coeff	se	t	p	LLCI	ULCI
constant	3.7726	.8255	4.5701	.0000	2.1465	5.3987
Involve	.3323	.1688	1.9684	.0502	-.0002	.6649
MeasCon	.0180	.1876	.0960	.9236	-.3515	.3875
int_1	-.0504	.0384	-1.3134	.1903	-.1260	.0252

Product terms key:

int\_1    MeasCon    X    Involve

R-square increase due to interaction(s):

	R2-chng	F	df1	df2	p
int_1	.0066	1.7250	1.0000	242.0000	.1903

\*\*\*\*\*

Conditional effect of X on Y at values of the moderator(s):

Involve	Effect	se	t	p	LLCI	ULCI
3.0640	-.1365	.0850	-1.6063	.1095	-.3038	.0309
4.4634	-.2070	.0604	-3.4294	.0007	-.3259	-.0881
5.8628	-.2776	.0764	-3.6318	.0003	-.4281	-.1270

Values for quantitative moderators are the mean and plus/minus one SD from mean.

Values for dichotomous moderators are the two values of the moderator.

\*\*\*\*\*

Data for visualizing conditional effect of X on Y

Paste text below into a SPSS syntax window and execute to produce plot.

DATA LIST FREE/MeasCon Involve Variety.

BEGIN DATA.

2.4637	3.0640	4.4546
4.0732	3.0640	4.2350
5.6827	3.0640	4.0154
2.4637	4.4634	4.7459
4.0732	4.4634	4.4127
5.6827	4.4634	4.0795
2.4637	5.8628	5.0371
4.0732	5.8628	4.5904
5.6827	5.8628	4.1436

END DATA.

GRAPH/SCATTERPLOT=MeasCon WITH Variety BY Involve.

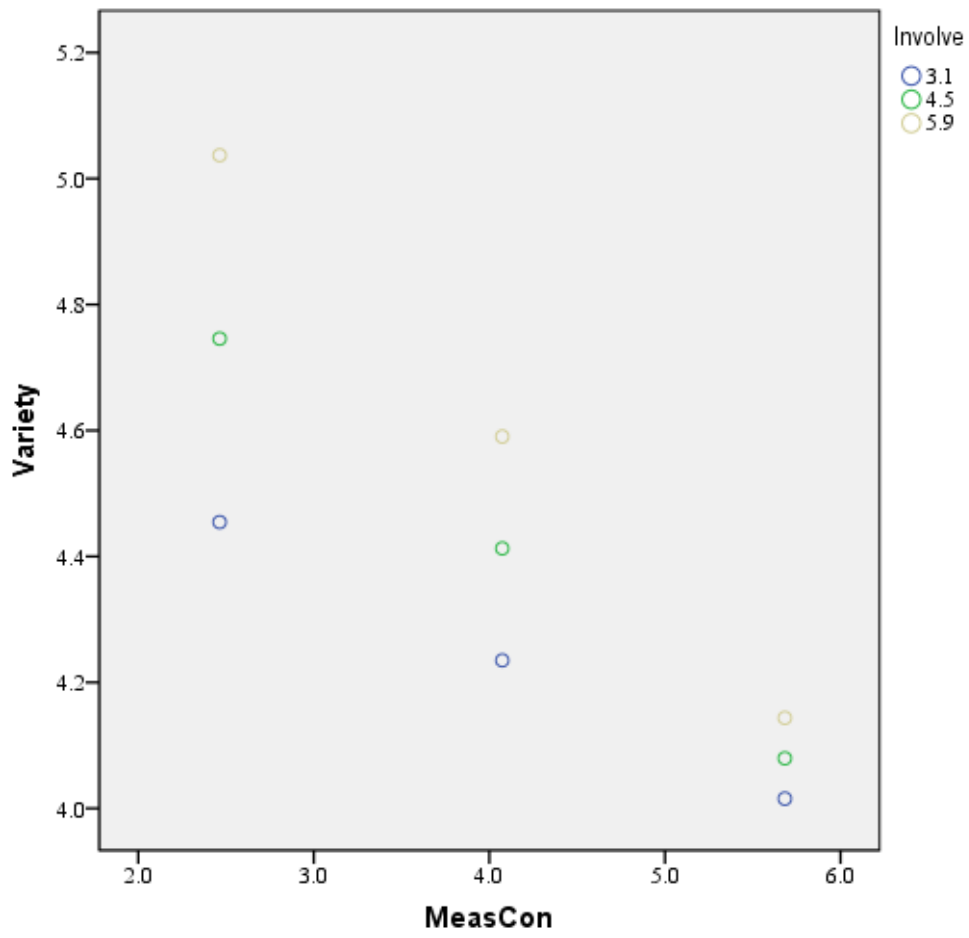
\*\*\*\*\* ANALYSIS NOTES AND WARNINGS \*\*\*\*\*

Level of confidence for all confidence intervals in output:

95.00

----- END MATRIX -----





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## *Résumé*

Avec le développement rapide du commerce électronique, la vente au travers de canaux multiples, associant le «brick-and-mortar» et la vente en ligne, est devenue le standard en 2016. Cependant, cette stratégie ne garantit pas toujours le succès des campagnes commerciales des détaillants. La plupart du temps, les difficultés proviennent d'un manque de coordination efficace entre la boutique en ligne et son homologue hors ligne au niveau de leurs attributs respectifs. Sur la base du concept de congruence perçue, cette thèse étudie l'évaluation par les sujets des attributs des magasins entre les différents canaux en ligne et hors ligne sur le marché chinois. Les résultats d'une étude qualitative par entretiens (étude 1) montrent que les consommateurs chinois préfèrent le comportement commercial «multicanal». Ils aiment la congruence entre les canaux, mais espèrent aussi profiter des situations non-congruentes, ce qui indique leur propension à comparer les prix et l'assortiment entre les canaux. Deux autres études quantitatives identifient la congruence perçue comme un facteur déterminant pour l'évaluation des détaillants par les sujets. Plus précisément, plus les sujets perçoivent de la congruence dans la politique de prix entre les canaux, plus les sujets jugent les prix justes. Des prix perçus comme justes se traduisent par une attitude plus favorable envers le vendeur (étude 2). En revanche, lorsque les sujets perçoivent plus d'incongruité dans l'assortiment entre les canaux, ils considèrent que le choix est plus important (étude 3). Cependant cette conséquence n'apparaît pas systématiquement dans la comparaison en termes de congruité. En outre, quand un prix juste est perçu et qu'une variété est perçue, les deux sont identifiés comme médiateurs de l'effet de la perception de congruence sur l'attitude des sujets envers les détaillants. En outre, l'implication des sujets dans l'expérimentation ne soutient pas statistiquement l'effet de modulation en interaction avec la congruence perçue sur l'évaluation des sujets des attributs du canal de distribution, mais l'effet marginal dans la visualisation indique que les chercheurs doivent, dans les études futures, continuer l'étude des influences pertinentes entre l'implication et la congruence perçue.

**Mot-Clés :** Multicanaux, congruence perçue, justice de prix, variété d'assortiment, attitude, marché chinois

## *Abstract*

Along with the globally rapid development of e-commerce, multichannel retail including both brick-and-mortar and online stores is in 2016 the standard for the sellers. However, such strategy not always guarantee retailers' success in commercial campaigns. Most of the time the difficulties arised from the lack of efficient coordination between the online store and its offline counterpart concerning their respective attributes. On the basis of the perceived congruence concept, this dissertation investigates subjects' evaluation of store attributes between the different channels (online and offline) of the Chinese market. Through a qualitative study based on interviews (Study 1), it was found that Chinese multichannel consumers prefer the multichannel shopping behavior. They like the between-channel congruence but also expect to enjoy the incongruent situation which indicates their propensity to compare the between-channel prices and assortment. Two quantitative studies identified the perceived congruence as a determinant to the subjects' evaluation towards the retailer. More precisely, the more congruence subjects perceive from the cross-channel price policy, the more the subjects judge prices fair. In turn, fair prices produce more favorable attitudes towards the retailer (Study 2). In contrast, when the subjects perceive more schema incongruity, from the cross-channel assortment, they consider that variety is more important (Study 3). However, this consequence does not occur consistently in every comparison between the incongruity state and the congruity state. In addition, both price fairness perception and variety perception are identified to mediate the effect of congruence perception on subjects' attitude towards retailers. Besides, subjects' experimental involvement, does not statistically support the moderation effect interacting with congruence perception on subjects' evaluation regarding channel store attributes, but the marginal effect in visualization indicates that researchers must, in future study, keep investigating the relevant influences between involvement and congruence perception..

### **Key words:**

Multichannel, perceived congruence, price fairness, variety perception, attitude, Chinese retail market