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Analysis of Self Service Technology and Retail Brand Equity

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Abstract

Title: Analysis of Self Service Technology and Retail Brand Equity

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Thesis purpose:	The purpose of this study is to provide an examination, within grocery retailing, of whether a positive linkage between SST usage and consumer-based retailer brand equity exists. The study portrays co-creation as a key mediator, which means we are going to investigate whether different levels of customer co-creation, by means of SST usage, can help in building a strong retailer brand.
Methodology:	It is a comparative study following a deductive approach. A quantitative approach has been used and the empirical data has been collected through questionnaires. The data has been analyzed through descriptive statistics and cross tabulation tests.
Theoretical perspective:	Three main theoretical areas have been combined, including fundamental theories of SST, theories on customer co-creation and S-D logic, and retailer equity.
Empirical data:	The empirical data are collected by questionnaire-based survey, comparing three groups of customers with different level of SST usage at four stores of two leading grocery retailers in Sweden.
Conclusion:	The study concludes a positive relation existing between using SST and consumer-based retailer brand equity, because most of the parallel retailer equity dimensions have been proved to be positively affected by the level of co-creation. High level of customer service co-creation can help in building a strong retailer brand.

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1. Introduction

The first chapter provides the reader an overview of the main area on which the thesis project focuses, and introduces the authors' focus on SST and retail brand. The chapter commences with background knowledge, and an associated problem discussion which are the basis upon which the research aim is formulated and clarified. A brief description of the depositions of the whole thesis is presented in the end, to guide the readers with an outline of the paper.

1.1 Backgrounds

Self-service technologies (SSTs) or Technology based self service (TBSS) is increasingly adopted by many industries such as banking and financial (ATM and online banking), transportation (Ticketing machine), hotel (self check in and online booking), and retailing (online purchase, self-service check out at grocery store, pay at pump) (Dean, 2008; Weijters and Rangarajan, 2007). The term TBSS was first mentioned in 1994 by Dabholkar, and defined the activity based on hard technology offered by service providers and participated by the customers (Anselmsson, 2001). The adoption of SST in grocery retailing primarily refers to self-scanning and self-checkout machines.

The benefits of SST might include cost cutting in store personnel, better cope with increased consumption demand, providing more consistent service and eliminating poor customer interaction at the counter (Dean, 2008). In return, customers also benefit from convenience, ubiquitous availability, time, and money savings, and a reduction in the anxiety caused by judgmental service representatives (Cunningham et al., 2008). However, recent research points out that if customers are forced to use TBSS, negative attitudes towards both the service provider and the service itself arise, and the negative effect could be offset to certain extent by previous positive experience of TBSS (Dabholkar et al, 2008).

Previous studies have focused on determinants of customer's intention to adopt SST (Curran et al., 2003; Dabholkar & Bagozzi, 2000; Marzocchi & Zammit, 2006; and Meuter et al., 2005; Walker & Johnson, 2006), customer attitude toward the use of SST among age groups (Dean, 2008), customer awareness of level of SST usage and degree of liking (Dabholkar et al., 2003), the influence of technology anxiety created by using SST to consumer behavior (Mick & Fournier, 1998; Meuter et al., 2003), consequence of forcing the use of TBSS (Dabholkar et al., 2008), customer satisfaction (Meuter et al., 2000; Walker & Johnson, 2006; Weijters et al., 2007), customer loyalty (Selnes & Hansen, 2001), and retailers' benefit from the rollout of SST (Bitner et al., 2002; Rosen, 2001; Weijters et al.2007). However from array of previous research, there are no specific studies conducted in exploring the connection between SST and co-creation, along with the retail branding.

The article by Weijters et al. (2007) shows that attributes such as perceived usefulness, perceived ease of use, reliability and fun associated with using SST, show a highly significant impact on actual SST usage. The use of SST affected the perceived waiting time at the counter, which in turn was an important antecedent of customer satisfaction with the shopping trip. The usefulness or the view of benefit demonstrated the highest explanatory power on attitude. The demographic variables did seem to affect some of the relationships, especially customers' education and gender whereas age does not moderate the attitude user relation. In an early stage of SST introduction, the customers with higher level of education, intrigued by newness perception, are more likely to adopt SST and in terms of gender. The authors also suggest that retail stores should focus on communicating the benefit, effectiveness and reliability of SST to increase SST usage and also draw up contingency plans if the machine broke down. Lastly, the overall customers flow through the store is not necessarily affected by the introduction of SST.

A comprehensive research focusing on customer-perceived service quality of TBSS concluded that both technique and customer characteristic factors help to achieve high TBSS quality, if correctly balanced between design, management and communication, etc. (Anselmsson, 2001). Although SST may help grocery retailers in a way of building a positive image and offering more options to customers, a longitudinal study, covering data from 2004 and 2007, revealed a disappointing conclusion that SST as a marketing tool cannot prove a significant relevance to customer loyalty (Andersson & Munch, 2007). However, a study conducted by Bendapudi and Leone (2003), has pointed out that by using SST consumers' behavior is changed since consumers also become co- producers of the service, with responsibility for delivering the service and for their own satisfaction.

The innovation creates new service options, customer participation in service creation, and changes the service nature from human to human interaction to human to technology interaction. Meuter et al. (2005) have claimed that customers become co-producers from the utilization of SST; however their role in the production of service has not been clearly defined. Their paper suggested that in order to achieve a successful SST co-production, customers should be aware of what is expected of them, motivate to engage in behavior and receive the necessary knowledge and skills to carry out the activity.

The challenge for grocery retailers today is to set themselves apart from their competitors, since price, assortments, location are not as important as they once were (Bernhard et al., 2007). The attention is drawn toward retail branding, according to Srivastava et al. (2001), brands are one of the firm's most valuable assets. Retail branding is deemed important to influence customer perception and it motivates store choice and loyalty (Ailawadi & Keller, 2004; Hartman & Spiro, 2005). There are many components that build store image including service quality. According to Sweeney et al. (1997), service quality influenced customers' willingness to purchase more than the perception of the product quality. A study by Berhard et al. (2007)

concluded that service, accounted for store personal and SST, in grocery retailers has the most significant influence on retail brand equity, when compared with other retailer attributes such as value/price, assortment, advertising, and store design.

Creating a positive shopping experience through store environment also contributes to store image. The store environment affects customers in terms of encouraging them to spend longer time and purchase more in store, as well as revisit the store, visit the store more often, recommend the store to their network and become loyal to the store (McGoldrick, 2002). According to Verhoef et al. (2009), an experience based business, including social environment, service interface, retail atmosphere, assortment, price, customer experiences in alternative channels and retail brand, does contribute to business growth. In their study SST was included under service interface and it also counted as part of in store shopping experience. SST is part of grocery retailers' service and when the customer get involved in the production of service process by utilizing SST, customers have included SST in their shopping journey or shopping experience. It is interesting to see how retailers build a strong brand by encouraging such experience.

1.2 Problem Discussion

According to Gummesson (1995), customers do not buy goods and services, but buy service offerings which could create value as perceived by customers. The shift in focus to services means that there is a shift from the producer's perspective to the customer's perspective (Gummesson, 1995). There is a trend toward the view of value and the service-dominant. The foundational proposition of service-dominant view is that value is created by the customer through service experience, particularly in the co-creation and sharing skills and knowledge with suppliers. In the traditional perspective, firms design products and develop production processes as well as create value to the customer autonomously. There is little or no physical interaction between firms and consumers. Consumers only play roles when they purchase goods. But nowadays, people are starting to realize that the markets are being challenged by informed and active consumers (Prahalad & Ramaswamy, 2004). Now, consumers are longing to exert their influences at each stage of the business. Therefore, consumers interact with firms and therefore "co-create" value. As the value of a service could only be realized when it is consumed, customers become a part of the value creation process (Wikstrom, 1995).

During the last twenty years, managers were trying to make their consumers do something which should be done by the firms traditionally (Prahalad & Ramaswamy, 2004), for example self-checkout in retail payment systems and self-scanning systems. It is believed that the firms must provide more satisfaction to customers in order to create user value (Meuter et al. 2002). This means that firms have to understand both

the expectation and feedback from customers. Customers take part in the processes of both defining and creating value, so the co-created service experiences of customers become the very basis of value (Prahalad & Ramaswamy, 2004).

SST is used as a means to an end and what the customer gets in return from the usage of such technology needs to be taken into account. There are some perceived benefits of using SST. The primary experience is that the customer need is satisfied better than the non self-service alternative. This may relate to higher availability as well as more flexible operation hours (Meuter *et al.* 2000). Due to these features, SST can help customers to immediately solve problems. SST is supposed to improve customers' satisfaction by helping them out of the difficult situation. For some of the customers SST is easier to use than non self-service options, which due to its simple and clear instructions results in customer satisfaction. In the case of customers who want to avoid service personnel, the benefit is that they can still achieve the service outcome without any interaction with the store personnel (Meuter *et al.* 2000). It is believed that customers can provide service more efficiently and valuable experience has been gained through SST is time saving and convenient (Ding *et al*. 2007). For instance the transaction is allowed to be operated more quickly or efficiently than non self-service alternative.

Sandström et al.'s study (2008) focuses on value created by services through emphasizing the roles of the service experience, and highlights the importance of both functional and emotional dimensions. "Products or services are means of reaching end-states, e.g. happiness, security, and accomplishment" (Gutman, 1982). This emphasizes the fact that consumers may buy certain goods because it can bring them the experience of owning something and service, on the other hand, could fulfill their emotional needs, such as happiness. Therefore, the total service experience consists of both functional and emotional outcome dimensions. The functional qualities include time saving for customers, and the emotional dimension is part of satisfactory experience (Sandström, 2008).

To extend the discussion further, it is interesting to explore why co-creation by means of SST is important for retail brand equity. As proposed by Aaker and Keller (1990) there are four dimensions of brand equity: brand awareness, brand association, perceived quality and brand loyalty. However, retailer brands which are certainly different from product brands, the actual applications of those branding principles vary. Multi-sensory in nature, retail brands rely more on consumer experiences to impact their equity. An ideal position of creating experience for their customers, retailers can strengthen their brand equity by attaching unique associations to the quality of service provided, product assortment, pricing, etc. Even the products on shelves are similar to competitors, the ability of a retailer to create strong in-store personality and rich experiences can significantly help in building retailer brand equity (Ailawadi & Keller, 2004).

Customer satisfaction, in various versions of its definitions, is highly associated with

customer expectation (Kotler 2006, Zeithaml & Bitner 2000) and customer experience (Pappu & Quester, 2006). It is the psychological state resulting from cumulative experiences and the evaluation of the experiences (ibid.). Pappu & Quester (2006) have empirically examined the relationship between customer satisfaction and brand equity dimensions in a retail context. Both strong satisfaction and dissatisfaction lead to brand awareness, and satisfaction has a positive impact on it. Besides, satisfied customers associated positively to the retailer when it comes to services on and after sales, and they are more likely to hold favorable perceptions of the quality. Furthermore, satisfied customers are more loyal than those dissatisfied to the retailer.

Bitner et al (1997) indicate that customer experiences in service are strongly influenced by the level of participation. Service co-creation consists of a high level participation, in which customers themselves play the role of satisfaction and values contributor. It is suggested that customers who participate in co-creation process are more likely to show higher level of satisfaction (Marzocchi & Zammit, 2006). Many studies have been done in seeking the link between the propensity to participate and the level of customer satisfaction. The co-creative experiences entitle customers with more autonomy. For instance, customers get the opportunity to convert the time spent in waiting at the checkouts into actively exploited time. The option of actively participating in co-creation of service by means of self-service devices has positive influence on customer overall experience and thus on customer satisfaction of the service, which is the main reason for Marzocchi and Zammit to suggest retailers to adopt SST (ibid.).

In short, customer satisfaction contributes to retailer brand equity. Therefore if co-creation via SST results in favorable customer experiences which will contribute to a certain level of customer satisfaction, it is reasonable to assume that self-service co-creation leads to increased brand equity.

Customer value perception is also a key determinant when it comes to retail brand equity. There are two types of shopping value: *utilitarian value* and *hedonic value*. The utilitarian value depends on the accomplishment of shopping behavior, while the hedonic value reflects the shopping's potential entertainment and emotional worth (Babin et al, 1994). Carpenter et al (2005) confirm that consumer's perceptions on hedonic and utilitarian values on the shopping experience are critical to the retailer brand. The delivery of such values is the source of differentiation. Retail brands can achieve uniqueness via differentiating its service in consumers' mind. The value created by customer participation of self service also includes psychological enjoyment that is hedonic-oriented, and time-efficiency as well as better knowledge/closer contact to the products which is utility-oriented (Marzocchi & Zammit, 2006).

1.3 Research Purpose

Along with the above discussion, the purpose of this study is to provide an examination, within grocery retailing, of whether a positive linkage between SST usage and consumer-based retailer brand equity exists. The study portrays co-creation as a key mediator, which means we are going to investigate whether different levels of customer co-creation, by means of SST usage, can help in building a strong retailer brand.

1.4 Thesis Dispositions

In order to show how the paper is constructed, and to aid the reader in what to expect from the chapters, we have compiled the structure and summarized as following:

CHAPTER ONE:
In the introduction chapter, we provide the readers with an overview of the subject of this paper: the concern of SST adoption and its contribution in retail industry. The background and the problem discussion are presented. The research purpose is generated.

CHAPTER TWO:
Three theoretical sections, on SST, Customer co-creation, and Retailer Equity, are introduced and discussed respectively. Built on the theories, a conceptual framework is developed, which explains how the theories presented serve the research purpose. Four hypotheses are set accordingly.

CHAPTER THREE:
In this chapter, the methods used in the thesis are introduced with the reasons why we use them, concerning the aim of the study. The validity and reliability issues are considered in this paper.

CHAPTER FOUR:
We account for our empirical findings: first the descriptive statistics from the survey, then the hypotheses are tested and analyzed with theories. The aim of this chapter is to connect the theories with our empirical findings, showing our understanding and interpretation of the empirical studies.

CHAPTER FIVE:
We conclude the previous chapters in this chapter and show the readers how the research purpose is achieved. Our reflection and the expected criticisms are also mentioned. At last we give suggestions to the future studies in this field along with our research limitation.

2. Theoretical Framework

The purpose of the chapter is to present necessary theories that lay the framework for the study. Relevant theories regarding to the feature and categorization of SST, S-D logic and customer value co-creation, and retail brand equity are presented and discussed. In addition, four hypotheses serving the research aim are displayed.

2.1 Self-service Technologies

Service in nature, unlike goods, is intangible making it harder to observe, feel or taste and at the same time difficult for customer to judge prior encountering such activity or before purchasing it (Anselmsson, 2001). Service activity interaction can be carried out in person and machine; all in all such activities deem to generate customer satisfaction (Meuter et al., 2000). According to Rayport & Sviokla (1995), market space transaction, where no inter personal contact is required between buyer and seller, is increasingly taken over traditional marketplace interaction. SST is a good example of such market space transaction. Anselmsson (2001) has defined technology based self-service delivery as "service delivery where the customer, to at least some degree, serves him-/herself by using the technology of the service company rather receives service from a person". Another definition by Meuter et al. (2000) is technological interfaces that enable customers to produce services without involving direct employee encounter.

From a study conducted by Meuter et al (2000), different types of Self-service technologies are classified and presented in a matrix of the types of SST according to the level of customers interface and the purpose of the technologies from customer perspective was being presented.

Figure 2.1: Categories and Examples of SSTs in Use

Interface / Purpose	Telephone/Interactive Voice Response	Online/ Internet	Interactive Kiosks	Video/CD*
Customer Service	•Telephone banking •Flight information •Order status	•Package tracking •Account information	•ATMs •Hotel checkout	
Transactions	•Telephone banking •Prescription refills	•Retail purchasing •Financial transactions	•Pay at the pump •Hotel checkout •Car rental	
Self-Help	•Information telephone lines	•Internet information search •Distance learning	•Blood pressure machines •Tourist information	•Tax preparation software •Television/ CD-based training

Source: Meuter et al (2000)

The matrix shown in Figure 1, the self scanning device and self checkout use in

grocery retail are not used for customer service and self help purposes and neither telephone/interactive voice respond nor online/internet nor video/CD, they fall under Interactive Kiosks interface and Transactions purpose. This type of SST is rapidly growing and it allows the customers to be more in control of their purchasing activities without any direct interaction with employees. According to Dabholkar (1996), controllable attributes is one of the two most influential attributes to evaluate SST service quality and another attribute is the enjoyment aspect, the examination also tested expected speed of delivery, ease of use, and reliability.

A study by Cunningham et al. (2008) has also classified SSTs based on customer view, by dividing SST into two dimensions between the basis of separability and customization. Retail self-scanning is being placed under moderately separable from product/service and standardized interface (Figure 2). Such type of service represents some degree of standardization may well reflect the inclusion of personal contact in the delivery of an SST. Customer's view on retail self scanning is much less able to distinguish the SST from grocery purchased.

Figure 2.2: Customer based SSTs classification

	Customized	Standardized
Separable from product/service	• Airline reservations • Online car buying • Online auctions	
Moderately separable	• Distance education • Online banking	• Pay at the pump • Retail self-scanning • Internet search • Tax software • ATMs
Inseparable from product/service	• Online brokerage	• Interactive phone

Source: Cunningham et al. (2008)

These two researches have classified SST based on customers' view where retail self scanning device and self scanning counter are being participated at a transactional based under a standardized interface.

2.2 Service-Dominant Logic and Co-creation

Service-Dominant Logic takes co-creation as the centre. At first, we give a general explanation about service-dominant logic. Traditional logic, namely a goods-dominant logic (G-D logic) focuses on tangible output and isolates the producer from the consumer. In G-D logic, the firm creates value which will be

distributed in the market by exchange of goods and money. From this point of view, there is a big difference between the roles of producers and consumers, and value creation is often considered as a series of activities carried out by the company (Vargo, et al. 2008). The introduction of service-dominant logic (S-D logic) allows marketers to reconsider their position (Gummeson, 2008). Therefore, marketing has moved from the perspective of G-D to S-D view, in which intangibility and relationships are to be highlighted. The emerging S-D logic is mainly based on the interaction of the producer and the consumer. In S-D logic, there is no distinct difference between the roles of producers and consumers. This means that value is always jointly and reciprocally created between producers and consumers through collaborative processes (Vargo, et al. 2008). Within S-D logic, value proposition is created by suppliers which will be actualized by customers, so the supplier and customers co-create value during this process (Gummesson, 2008).

In addition, the orientation of marketing used to mean to target and promote to customers, while S-D logic takes both customers and supply chain into consideration in the whole marketing process, which changes the philosophy of 'market to' into 'market with' (Vargo & Lusch, 2006). Based on S-D logic, both customers and suppliers are resource integrators, meaning that the customer and organization's partners are both involved in the process of co-creation of value. So, S-D logic concludes that entities should collaborate and integrate resources with other entities (Cova & Salle, 2008).

S-D logic is based on ten foundational premises (Vargo & Lusch, 2008). These premises contribute to a better understanding of value and exchange of marketing. In our study we focus on one of the foundational premises: "The customer is always a co-creator of value, which means value will not be created until an offering is used—experience and perception are important to determine the value (Vargo & Lusch, 2006)." This foundational proposition is closely linked with our research subject, which will be discussed in detail later. The following ten foundational premises summarize S-D logic:

Figure 2.3: S-D logic foundational premises

FPs	Foundational premise
FP1	Service is the fundamental basis of exchange
FP2	Indirect exchange masks the fundamental basis of exchange
FP3	Goods are a distribution mechanism for service provision
FP4	Operant resources are the fundamental source of competitive advantage
FP5	All economies are service economies
FP6	The customer is always a co-creator of value
FP7	The company cannot deliver value, but only offer value propositions
FP8	A service-centered view is inherently customer oriented and relational
FP9	All social and economic actors are resource integrators
FP10	Value is always uniquely and determined by the beneficiary

Source: S-D logic: continuing the evolution. (Vargo and Lusch 2008)

Co-creation is being specified in three aspects, which will be illustrated as follows: Firstly, Prahalad and Ramaswamy (2004) defined co-creation as "create value jointly by both the company and the customer. It is not the firm trying to please the customer". In addition, co-creation allows customers to construct their personalized experience. From the traditional perspective, customers purchased goods and services, which are produced by providers. Gummesson (1998) pointed out that "value is only created when a good or service is consumed, and a service provider cannot produce anything without customers". According to Dabholkar (1990), customer participation is "the extent to which the customer is involved in producing and delivering the service". Nowadays, customers are interacting with providers in all stages including product design and delivery. This form of interaction could be seen as a process of learning together (Ballantyne 2004). Therefore, there is an opportunity for provider and customer to create value through customized, co-produced offerings together (Payne et al, 2008).

The argument suggested by Vargo and Lusch (2008), that the "customer is always a co-creator," serves as one of the foundational premises for the emerging dominant logic of marketing as mentioned above. The customer becomes a value co-creator, giving rise to a system of value co-creation. The two distinguishing features of such a new system are: on the one hand, customers are no longer just an external element to companies, they are considered as a co-producer as well. The customer changes his/her role from an irrelevant to a co-producer can be realized by a series of co-creation activities, which can turn the efforts, skills and knowledge of customers into the unique competitive advantages for companies (Zhang & Chen, 2006). On the other hand, Prahalad and Ramaswamy (2004) advocate that creating value with customers becomes a new source of competence. Such customer competence is perceived as a competitive business strategy (Prahalad & Ramaswamy, 2004). Customers are no longer in a passive position. Instead, they find themselves becoming active co-producers. Customers are actively co-creating value with service providers, which will in turn enhance their satisfaction and serve their personal needs better (Evans, et al. 2008). Therefore, we form the variable "shift from employee checkout to self-checkout" based on the previous studies.

Secondly, according to a study done by Vargo and Lusch (2006), through the co-creation of value, firms could stress the customer's point of view, which could further help firms identify customers' needs and wants. Furthermore, the quality of interactions between the customer and the company has an influence on the quality of the co-creation experience. High quality interactions between customers and the company could be new sources of competitive advantage for companies through co-creating experiences (Prahalad & Ramaswamy, 2004). In addition, a co-creation experience serves as the basis for unique value to customers. The quality of the co-creation experience depends on the nature of the involvement, which the customer has had in co-creating it with the company (Prahalad & Ramaswamy, 2004). Therefore, the company needs to create an experience environment in which customers can create their own personalized experience. Based on the two studies by

Vargo and Lusch (2006) and Prahalad and Ramaswamy (2004), we form the variable "creating customer own experience" as one of co-creation variables.

As discussed before, value is created jointly by both companies and customers now, so companies have passed some of the work onto their customers, for instance self-checkout and self-scanning systems. Thirdly, in Dabholkar's study (1996), it shows one of the most important factors for customers when they are using and evaluating self-service options are control. Dabholkar defined expected control as "the amount of control the customer expects to have during the process of service delivery". In comparison with other factors, such as speed of service delivery which has no significant effect on service quality in his study. The feeling of being in control while shopping can enhance customer evaluations of shopping experience and directly affect their intentions to use the option in the future. Some of previous empirical studies supported this point of view. Langeard et al. (1981) claimed that control is essential to those customers who preferred self-service. According to Bateson (1985) and Bowen (1986), customers choose to use self-service options (e.g. self-scanning) because they cannot only save money, but also feel in control. Therefore, feeling in control is more likely to be relevant for evaluating self-service alternatives. From this point of view, it is an important factor to most people. Furthermore, Langer and Saegert (1977) pointed out that customers who feel that they have control will in turn enhance the evaluation of the experience. It is proposed that by increasing expected control, which will in turn enhance the expected value of the service to the customer (Bateson & Hui, 1987). We form the variable "take control over purchase" in terms of theories as mentioned above.

To sum up, the research issue of the study, co-creation is measured below on three variables: shift from employee checkout to self checkout; customers create their own experience and take control over purchase, which will be applied to test our hypotheses.

2.3 Retail Brand Equity

In general, brand equity is referred to as a set of brand assets and liability that is understood as added value from the brand to the product, service or corporation (Aaker, 1991). It is indicated that as the retailers are getting more powerful in consumer market, strong retailer brands contributes in conveying clear values to the customers, which might include quality, price, convenience, and even ethical stance. Meanwhile, brand equity helps retailers in gaining and enhancing competitive advantages (McGoldrick, 2002). Although brand equity is one of the most researched areas in marketing, brand equity in a retailing context is not as revealed as anticipated. Many branding principles might still be applicable to retailer brands. However, retailer brands are typically more multi-sensory in nature than product brands and rely

on rich consumer experiences to impact their equity (Ailawadi & Keller, 2004). Hereby the actual application of general theories of brand equity is insufficient.

2.3.1 Corporate store image and "the store as a brand"

The image of the retailer in the minds of consumers is the basis of this brand equity (Ailawadi & Keller, 2004). In grocery retailing, corporate store image is defined as the combined effect of how the retailer as a brand, manufacturer brands, and store brands are perceived. Martenson (2007) suggested that the image and equity of retailer brands cannot be discussed exclusively from manufacture brands and store brands. It is important by him that the manufacture brands, the store private brands and the store itself as a brand together build up the overall retailer brand as corporate brand which forms the corporate image. In comparison with manufacturers who usually brand their products, retailers spend great budgets in branding corporate names. As illustrated with the contrast of P&G and ICA, Martenson has drawn the risk that if there is any problem with quality offered, P&G will only lose a certain product, but the retailer has the most to lose with its name (ibid.). The notion of the store as a brand declares that the influence of the store to the brand is stronger than that of brand to the store, which means the image of the store influences customer's perception of the brand (ibid.).

An eaarlier study by Sudhir and Talukdar (2004) suggested that store brands contributed to store differentiation rather than to price sensitivity. The extent of importance of corporate store image from a customer perspective can be examined in from customer satisfaction and finally results in customer store loyalty. The study proved that corporate store image, consisted of manufacture brands, individual store brands and store brand, is important for the retailer in a customer perspective. "Store as a brand", which basically means how retailers perform their jobs through offers, relation works, price and "nice" factor to customers, shows that by creating an attractive and pleasant shopping environment and efficient outlets, the retailers can achieve customer satisfaction.

2.3.2 Measurement of Retailer Brand Equity

To measure retailer brand equity, theorists make endeavors to break the concept down to several dimensions, so that it is measurable. Generally, retailer equity can be measured on a consumer-based or a firm-based way. Consumer-based means the measurement of cognitive and behavioral brand equity at the individual consumer level through a consumer survey (Yoo & Donthu, 2001). Whether to take a consumer based approach or a firm-based approach would depend on the research focus and purpose. Yoo and Donthu's consumer based three-dimension approach consists of brand loyalty, perceived quality, and brand awareness/associations. However, this approach is questioned upon viewing brand-awareness and brand-association as one combining element.

Arnet et al. (2003) has applied a partial least square analysis to develop indexes of retailer equity, which provides practitioners and researchers in the fields a

benchmarking tool, an indicator of marketing success, a means of evaluation, and most importantly, an instrument to examine the relevance of various components of retailer equity for specific retailers. The parsimonious retailer equity indexes are in line with a multi-dimensional approach in measuring consumer-based brand equity. Arnet er al, following Aaker, claims four dimensions of retailer equity, mirroring those of brand equity. They are name awareness, retailer association, service quality and store loyalty. Since customers sometimes form unique associations with certain retailers, the retailer association dimension should be adjusted to match specific retailer features. The other three dimensions are believed to be more consistent among retailers.

The three-dimension by Yoo and Donthu and multi-dimension consumer-based methods by Arnet et al., however, are argued by Pappu and Quester to suffer three limitations: the lack of empirical evidence for the structural similarity between common brand and retailer equity, the lack of clarity regarding the number and nature of dimensions, and the lack of discriminate indicators for measuring retailer associations (Page 318 & 319).To improve both approaches, Pappu et al (2005) conducted empirical studies that has proved that consumer-based brand equity is four dimensional. Hereby Pappu and Quester define retailer equity as "the value associated by the consumer with the name of a retailer, as reflected in the dimensions of retailer awareness, retailer associations, retailer perceived quality and retailer loyalty" (Page 319), mirrored Aacker's definition of brand equity.

The four dimensions of Pappu and Quester's consumer based methods are explained as follows:

1. **Retailer awareness**, defined as consumer's ability to recognize or recall that the retailer is a member of certain retailer category, is similar to Yoo and Donthu's brand awareness and Arnett et al's name awareness (Pappu & Quester, 2006). High level of awareness helps in decreasing vulnerability to competitive marketing actions (Keller, 1993).

2. **Retailer association**, different from both previous concepts, is closely linked to the measurement of retailer image.

3. The conceptualization of retailer perceived quality is similar to "**perceived quality**" the three-dimensional method. Here the concept highlights the subjective perception of consumers rather than the objective service quality.

4. **Retailer loyalty** is both attitudinal and behavioral, which indicates that not only the actual loyalty behavior is taken into account, but also the intention of customer to be loyal to the retailer (Pappu & Quester, 2006).

Pappu's dimensional measuring method makes improvement to the previous ones (Yoo's and Arnert's), and is empirically proved. Therefore the four dimension approach is employed as the foundation theory for further argument and analyses.

2.3.3 Retailer Equity Attributes

Even with the three dimensions mentioned in 2.3.2, it is still not feasible to apply the measurement in a practical consumer survey. To convey what the researchers want to explore into consumer-friendly concepts and notions, more specific and concrete attributes are vital. With theories on store image in 2.3.1 and brand equity in 2.3.2, it is necessary to further present a study on how store image is related to retailer brand equity dimensions.

Five selected store image attributes are tested around ten hypermarkets in China to prove the hypotheses that such image attributes do have certain effects on retailer equity. The study applies a four dimensions method when it comes to retailer equity, which are basically what Pappu and Quester proposed. Only that for Pappu and Quester's method the four dimensions are parallel, but Wu and Tian perceive three of them parallel and the loyalty dimension as a result from retailer awareness, retailer association and retailer perceived quality. The result shows that convenience, reputation, physical facilitates, perceived price and employee service as store image attributes directly affect retailer awareness, retailer association, and retailer perceived quality. These three dimensions are then related to retailer loyalty (Wu & Tian, 2008). However, the study in China only consider employee service, which is not sufficient according to Swoboda et al's (2007) research on the relevance of service in building a strong retail brand via structural equation modeling.

The inter-sector analysis outlines the main constructs of the relation between retailer attributes and retailer equity. The authors use *likeability, commitment, wiliness to recommend, trustworthiness and differentiation* as measurement of customer-based brand equity. Accordingly, *service, price, assortment, advertising and store design* are selected as retailer attributes perceived by customers. The result reveals the significance of service quality at intersectoral level in building a retail brand. Moreover, both sales service (e.g. helpfulness, friendliness, employee competence) and store service (service after sale) have considerable influences. Even in sectors that featured with self-service, the importance of service-quality and the competence of staff is evident. The study implicates that since service is strategically critical to retail brand building, it's even crucial for medium or small sized retailer who usually have difficulties to compete on price (Swoboda et al, 2007).

Ailawadi & Keller (2004) developed five dimensions to review retailer store image. These are: (1) access, (2) in-store atmosphere, (3) price and promotion, (4) cross-category product/service assortment, and (5) within-category brand/item assortment. The in-store atmosphere which provides hedonic utility encourages consumers to visit more often, stay longer and to buy more. And the ability to create such in-store personality and to enrich customer experiences plays a significant role in enhancing brand equity. Moreover, customer's perception of the breadth of products and services offered by a retailer under one roof is also influential to the brand.

2.3.4 Conceptual Framework and Hypotheses

Integrating above-mentioned theories along with the research aim of this project, the authors develop a conceptual framework. The measurement of retailer equity is indicating the gaps with arrows, whereas the authors generate 4 hypotheses upon the model, which are to be tested empirically.

Figure 2.4: SST – Co-creation – Retailer Equity Model
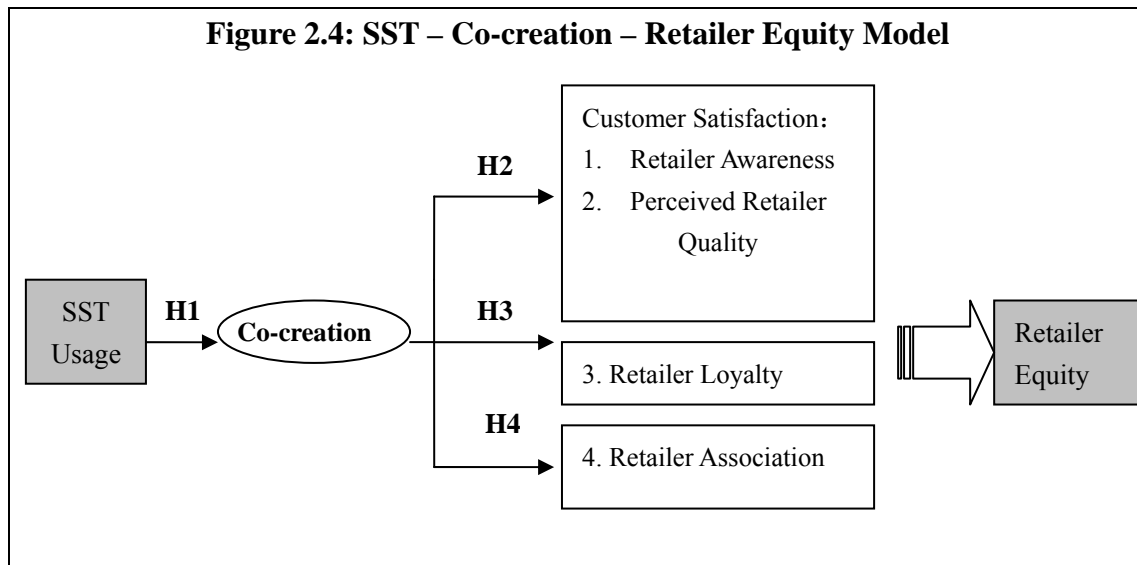
SST usage and retailer equity are two key concepts in the model. Co-creation is addressed as a mediator. To serve the research purpose, we assume first that there is a causal relation between SST usage and Retailer equity, and this relation is realized through customer co-creation. To test the relation, several sub-relations should be examined. The first gap is whether different level of SST usage co-related to the degree of customer co-creation process.

The four dimension approach by Pappu and Quester (2006), retailer equity is measured by its dimensions. It is proved by Pappu and Quester that retailer awareness and perceived retailer quality are affected by customer satisfaction. If customers are satisfied, they perceived the retailer better than they are not. The awareness goes up when customers are both very satisfied and dissatisfied. Hereby, customer satisfaction is used as a substitute for these two dimensions in the model. The second gap exists between degree of co-creation and the level of customer satisfaction. The purpose of looking into the gap is to see whether customers participate as co-creators tend to be more satisfied with the shopping process. As a result of co-creation's influence on satisfaction, retailer equity as a whole is also affected.

Similarly, retailer loyalty and retailer association are another two dimensions of retailer equity that are to be tested with customer co-creation. To make retailer association feasible and tangible to investigate, several attributes are chosen according to what is mentioned in 2.3.3 about store brand image.

Based on the literature review and the subsequent conceptual model presented above, the following research hypotheses have been generated:

H1: The level of SST usage and the degree of customer co-creation participation is positively related, which means higher SST usage results in higher customer co-creation.

This is the root hypothesis, and any further assumptions should be based on it. Only if H1 is supported, the following hypotheses are valid. Otherwise, co-creation as a bridge between SST usage and retailer equity collapses.

H2: Customer co-creation contributes to customer satisfaction, which means, co-creative experience contributes to higher customer satisfaction than low co-creative shopping experience.

H3: The level of co-creative involvement is positively related to the extent of retailer loyalty.

H3 is based on the assumption that SST users are more loyal than non-users, and heavy users are more loyal than light users and non SST users.

H4: The level of co-creative involvement is positively related to the extent of retailer association.

The basic assumption behind H4 is that those who use SST in retail stores are more likely to have stronger association to the retailer in terms of retailer image.

Now that the four dimensions of retailer equity are paratactic, if any of H2, H3 and H4 are proved, our main assumption is tenable. If any sub-link from co-creation to dimensions of retailer equity can be proven exist, and give H1 is supported as a premises, the research aim to find out whether there is a linkage between SST usage and retailer equity can be achieved.

3. Methodology

The chapter displays a description of a comparative designed, deductive quantitative research method. Specifically, it presents in detail of how data is collected under consideration of the research aim and hypotheses. The validity and reliability issues are considered in this chapter.

3.1   Methodological Paradigm

The methodological philosophy is about basic assumptions on the nature of social entities and the how social science should be conducted how people make inquiry of the reality, which helps to clarify research designs and assist researchers in recognizing which should or should not include in the study process (Easterby-Smith et al, 2004). Easterby-Smith et al also suggested the risk of failure without considering philosophical issues.   In order to achieve the aim of the study, collecting relevant data and conducting a valid analysis, ontological and epistemological consideration associated with a reflexive methodological approach should be announced first. Objectivism and subjectivism are referred as two positions of ontology. An objectivistic perspective holds that the reality is external to the individuals and thus is objective.

In line with objectivistic ontology is the philosophic tradition of positivism. The distinction between positivism and interpretivism lies in whether natural scientific principles, procedures and ethos can be applied in social world (Bryman & Bell, 2007). The study attempts to explore SST and retail brand equity with regards to service co-creation, and test the hypothesis in practice. The authors, as researchers, position themselves independently from the studied objects i.e. the customer and retailers. The study is interested in testing and discovering the linkage of SST and retail brand equity, hereby the positivistic approach is adopted. Because the demonstration of explanation is more important than understanding of the situation (Easterby-Smith et al, 2004), and the how factors influence and interact with each other is value-free from individual researched.

3.2   Research Design

Research design provides a framework for data collection and data analysis. The choice of research design is a comparative research design and is commonly used to make comparisons across different cultures and different countries (Bryman and Bell, 2003). Since our research is carried out in Sweden, there is no question of cross-cultural research. However, in our study, we will interview among customers who regular use self-service, customers who seldom use self-service and customers

who do not use self-service in two grocery stores (ICA Maxi and Coop Forum). Those three categories of customers are interviewed by asking questions of their experiences of using self-service and their perception of retail brand (see questionnaire for more detail). After collecting all the relevant data, we will compare customers who use self-service with customers who do not use self-self to investigate whether using SST helps retailer to build retail brand equity. From this perspective, this type of design may have been appropriate.

3.3   Research Approach

When conducting a study, the researcher has to make a choice on what theoretical and methodological approaches should be used. The theoretical approaches include inductive and deductive, and the methodological approaches are qualitative and quantitative (Bryman and Bell, 2003).

3.3.1 Deductive Approach

The research purpose is to investigate whether customers, by means of service co-creation through SST, can help in building a strong retail brand. The study is deduced from existing theories, which is referred to as a deductive methodological approach. Deductive approach starts with existing theories, and from that formulates hypotheses, and eventually develops a research strategy to test hypotheses. The findings from hypotheses lead either to confirmation or rejection (Bryman and Bell, 2003). In order to choose an appropriate theoretical approach, the nature of the research topic should be considered. If adequate literature about the topic can be gathered and we can define the theoretical framework from it, the deductive approach is suitable for the research.

The theoretical framework is based on existing theory within the area of SST, co-creation and retail brand equity. The theories are chosen to measure retail brand equity, which constitute the framework for the theoretical part as discussed above. Literature regarding retailer association, retailer-perceived quality and retailer loyalty can help to fulfill the purpose of the thesis. Since our study will test if SST and retail brand equity in both practical and theoretical are related or not, we develop our hypotheses afterwards on the basis of the theoretical framework. These theories have presented the base for the quantitative questionnaires with which relevant data is collected. The hypotheses are tested based on gathering data in reality. Our research study is performed in ICA and Coop stores and thereafter results will be drawn in order to find connections between SST and retail brand equity.

3.3.2 Research methodological method

According to Bryman and Bell (2003), a quantitative method refers to information

that is collected on the basis of numerical data, and statistical analyses are as important part of a quantitative study. The quantitative research mainly aims to establish relationships between variables.

The goal of this study is to investigate whether the linkage between SST and retail brand equity exists. For this purpose we need a structured and formalized framework. We are going to develop a proper framework from literatures. By using such a framework we are trying to explain the phenomenon of consumer by means of co-creation (using SST) helps retailer to build retail brand equity with numbers and figures. Furthermore, we are going to collect data from number of consumers, and analyze the data by using the SPSS computer program. This program will help us to establish whether our findings are statistically significant or not. In addition, according to Bryman and Bell (2003), the deductive method is associated with a quantitative research approach. Based on the above discussion the quantitative approach is chosen for our study.

3.4 Data collection

The nature of quantitative research design emphasize on providing description of social reality to the question of why and an aim to provide causal explanation moreover quantitative method is based on the idea that social phenomena can be quantified measured and expressed numerically where it can be analysed by statistic methods (Bryman & Bell, 2003; Easterby-Smith et al., 2002). In this section the focus is upon providing suitable research techniques that are best to facilitate and support the study purpose.

According to Bryman & Bell (2003), there is an array of research techniques within quantitative research such as structured interviewing, self-completion questionnaires, structured observation, content analysis, secondary data analysis and official statistics. However the selected research techniques used for this study to answer how SST is linked to co-creation and the impact of those two elements on retail branding are self-completion questionnaires. This technique measures the consumers' attitude toward SST and co-creation together with retail branding connection.

3.4.1 Questionnaires

According to Bryman & Bell (2003) and Easterby-Smith et al. (2002), questionnaires serve to be a much more convenient research technique alternative when compared to other forms of interview where the customers' characteristics are not being judged upon and exclude from social desirable bias. Furthermore it tends to reduce anxiety caused during the responding process when compared to structured interview (ibid.).

As stated by Bryman & Bell (2007), that the precision of a research result is

depending on the amount of sample size. Quantitative research requires a greater number of sample size to produce a representative outcome (ibid, Easterby-Smith et al, 2006). Since this study is limited by time and cost constraints, we decided to limit data collection period to 4 days. The data were collected in 2 stores, in each store one week day and one weekend day. The collection time were scatted into 3 time slots, from 10am–2pm, 2pm–6pm and 6pm–10pm, so that the respondents sample is not limited to any dominant group of customers. With an aim to collect 100 completed set of questionnaires per day in both two stores brought the sample size to a total of 409 completed questionnaires.

3.4.2 Questions formulation

The hand out questionnaire consisted of 11 questions and the design was kept at 2 page length where the questions incorporated customers' choice of products scanning, their evaluation, experience, likability, satisfaction of their choice of products scanning, and the retail branding perception of their first choice retailers.

The research aim is to identify the connection through the level of co-creation developed from level of SST usage and its effect to retail brand equity. In order to carry out the study, the most crucial test is to prove that there are significant relations between users' types and the level of co-creation (H1). Once the H1 is proven valid then only test the relationship the levels of co-creation versus customer satisfaction (H2), which will determent retailer awareness and perceived retailer quality, the levels of co-creation versus retailer loyalty (H3) and the levels of co-creation versus retailer association through retailer image attributes (H4). The connection between each question to the hypothesis is being presented in Figure 3.1. The first question allows respondents to select their 1st store choice. Due to the fact that this question can be biased by the store location where surveys are conducted, this question is not included in the analysis (Chapter 4). Furthermore our attempt in getting respondents to rate their satisfaction toward SST in question 11, including rating for satisfaction toward shop assistants service (11a) and cashier service (11b) to distract the customers from answering 11c alone and keep away from having only one leading question.

Figure 3.1: Questions formulation structure

Question No.	Description	Purpose	Hypothesis
1	Selecting 1st store choice	Background Question	Avoid Bias
2	Retailler image attributes	Retail Association	H 4
3	% of shopping per month in 1st store choice	Loyalty	H 3
4	Method of product scanning	User's Type	H 1
5.1	Rating both SST and traditional counter benefits	Attitude Question	Descriptive Statistic
5.2	Ranking importance of 2 counters benefits	Attitude Question	Descriptive Statistic
6*	Taking control over purchase	Co-creation	H 1, 2, 3 & 4
7*	Creating own shopping experience	Co-creation	H 1, 2, 3 & 4
8*	Shifting from employee to Self-checkout	Co-creation	H 1, 2, 3 & 4
9	Future usuage of SST	Satisfaction	H 2
10	Willing to Recommend	Satisfaction	H 2
11-a	Satisfaction toward Shop assistants service	Satisfaction	Avoid Bias
11-b	Satisfaction toward Cashier service	Satisfaction	Avoid Bias
11-c	Satisfaction toward SST	Satisfaction	H 2

* If the variables shown strong relationship in H1, then they will be use to test H2-4

Bryman & Bell (2007) argue that questionnaire research technique mostly contains close ended questions since it's easy to answer, should be easy to follow and kept short to reduce the risk of respondent fatigue. The answers options were kept to a 1-5 scaling answers and yes/ no answers. In order to reach out to the broader population the questions will be translated in Swedish to limit the language barrier that would discourage the participation.

3.4.3 Retailer Description and Store selection

SST has been introduced to Swedish grocery retailer for almost 30 years. Both the Swedish ICA store and Coop store has adopted SST. In 1999, both Coop and ICA have installed the self-scanning system, called Self-Express and Self-Express system was introduced to Coop Forum in 2003. In order to collect relevant data, Coop and ICA as pioneers of SST adopter, are considered as good research objects.

ICA AB

The ICA Group (ICA AB) is one of the Nordic region's leading retail companies with about 2,230 own and retailer-owned stores in Sweden, Norway and the Baltic region, including ICA Sverige, ICA Norge, Rimi Baltic, and ICA Banken (ICA.se, 2009). ICA AB is a joint venture 40 percent owned by Hakon Invest AB and 60 percent by Royal Ahold N.V. In year 2008, ICA Sweden has taken 62.6% of the sales, making 2,644 million SEK operating income, with 5208 employees (ICA Annual Report, 2008).

According to the distinctions of store size, sales, product range and geographic location, ICA AB has several store formats: ICA Nära, ICA Supermarket, ICA Maxi, and ICA Kvantum. Maxi ICA hypermarket is a store format that provides wide variety of foods and non-foods products with extended opening hours. Maxi ICA

hypermarket also promises everything at good prices under one roof and convenience for drivers. In Sweden, there are 66 (60 in 2007) ICA stores under this format, which in total generate 22,707 million SEK in 2008 (ibid.).

Figure 3.2: ICA Store sales in Sweden

Store sales excl. VAT	January – December 2008		
	SEK million	Change, all stores	Change, comparable stores
Maxi ICA Stormarknad	22,707	14.3%	6.4%
ICA Kvantum	21,365	4.0%	4.7%
ICA Supermarket	28,809	4.6%	5.3%
ICA Nära	13,547	5.9%	6.1%
TOTAL	86,428	7.0%	5.6%

In 2008 the share of private label sales in Sweden rose from 17.4 percent to 18.2 percent.

Source: ICA's Annual Report including the Corporate Responsibility (2008)

Malmö is the capital of the southernmost province of Skåne County. ICA Maxi Västra Hamnen is one of the largest hypermarkets in Malmö located in Varvsgatan, with high visit and relatively more educated customers. It is chosen for the study because of its larger sampling pool and because the average education level of the visiting customer there can ensure the quality of the communication.

Coop Sverige

Coop Sverige is wholly owned by KF, which operates FMCG shops in chains like Coop Forum, Coop Extra, Coop Konsum, Coop Nära, and Coop Bygg. Together with the retail consumer cooperative societies, Coop Sverige accounts for 21.4% of the entire Swedish FMCG sector. Among the variety of Coop stores, Coop Forum which offers everything under one roof is comparable to ICA Maxi. The hypermarkets offer a broad range of products, particularly foods, and are often located next to large shopping centers (Coop. se, 2009). In 2007, Coop Forum generates sales revenue of 10,315 million SEK from 38 stores. During the year, there were major investments in new shop openings, as well as renovations and upgrades in existing units, particularly in the largest chains, Coop Forum and Coop Konsum. Ten of Coop Forum's hypermarkets were renovated and modernized. Although essential investment in major renovations and reconstruction in Coop Forum had a negative effect on sales in the short term, it is expected by the firm to increase competitiveness and sales in long term perspective (Coop Annual Report, 2007).

In order to ensure the validity of the data collected at Coop Forum, Coop Jägersro is chosen in comparison with ICA Maxi Västra Hamnen. It shares similar features with ICA Maxi Västra Hamen in store size, customer flow, and education level.

3.4.4. Respondent Selection

Since the population is determined by some criterions making the study fall under stratified random sampling. This type of sampling is defined by Bryman and Bell (2003) as the sample is divided into categories. The collection criterion for this research is divided into heavy SST users, light SST users and non SST users group. The set of questionnaires are handed out randomly since the validity of a research could be strengthened when the sample is randomly selected (Bryman & Bell, 2007). Therefore the data would capture all user types, which in this thesis the participants are being classified into three types of users. Firstly, heavy SST users, always use self-service device. Secondly, light SST users, only use self-service from time to time and finally, non SST users, who have never used self service device before.

Every 10 minutes, the researcher would stop a customer and asked if he/she was willing to participate by filling in the survey. Each questionnaire is completed before the target customers enter the grocery retailing area. If the questionnaires are handed out after respondent shopping journey, it will more likely represent their rating based mostly on the recent shopping experience and not the overall perceived experiences which then would not reflect in a genuine emotion toward retail branding. Since the questionnaire is not limited to any level of target group's education background, gender and age where the result should reflect the whole population, the hand out surveys are prepared in two version, English and Swedish languages.

3.5 Evaluation of methodology – validity and reliability

According to Bryman and Bell (2003), the two most important criteria in the evaluation of business and management research are reliability and validity.

Reliability is concerned with whether or not the results of a study are repeatable (Bryman & Bell 2003). A factor that ensures the reliability of our study is that customers shopping at an ICA Maxi and a Coop forum have been considered as our respondents, rather than using students as samples, or surveying people randomly at public. This choice has enhanced the overall reliability. During the surveys we have used the same questions for non-users, heavy-users and light-users. We have conducted our questionnaire just before customers enter the store because the question is answered on the basis of the respondent's past experience. Interviewing after customers complete their shopping can affect the reliability since their judgment may be influenced by shopping at this time. The questionnaires are all conducted in Swedish in order to ensure the reliability in each survey since we consider not every person can speak English.

The validity refers to whether a study reflects the concept that what is planned to be measured (Bryman and Bell, 2003). Since the statistical analysis is applied in this

thesis to test the hypotheses and display the results, internal validity of this study can be considered to be enhanced. A self-completion questionnaire is used in this study to collect data, since questionnaires allow a larger sample size, leading to an increased generation of results. As our research is about SST in grocery retailers and the surveys take place in a natural store environment, ecological validity can be increased. In order to investigate whether the survey questions are easy to understand and answer, at first we have done a preliminary surveying with a few respondents before the questions are prepared for the questionnaire. The preliminary questionnaire provides us the opportunity to assess our questions. After conducting a few questionnaires, we got to know which questions to consider.

4. Results and Analysis

There are three main sections in the chapter. Firstly, results are shown descriptively to give the reader an objective overview of the data. In depth analysis of the data are conducted via SPSS and are provided afterwards. Both analytical results and the authors' interpretation are included. The four hypotheses brought up earlier are tested. Lastly, the last section provides a conclusion for all the hypotheses.

4.1 Descriptive Statistics

During week 17 and 18 we conducted 409 questionnaire-based surveys in an ICA Maxi and a Coop Forum in Malmö. Customers who always scan products by themselves are overrepresented in the study due to 54.3% of the respondents are heavy-users and only 25.4% are customers who always have products scanned by normal cashiers. In addition, 20.3% of respondents have at least one time used the self-scanning system shop express, which are represented as light-users. The average percentage of grocery shopping for respondent in one month is 61-80%.

Figure 4.1: Descriptive statistics of variables used in the test

	Co-creation (H1-4)			Satisfaction (H2)			Loyalty (H3)	Association (H4)
	Control over purchase (Q6)	Shopping experience (Q7)	Shift from Traditional to SST (Q8)	Future SST use (Q9)	Recommendation (Q10)	SST option satisfaction (Q11 c)	Shopping Percentage (Q3)	Advance Facilities (2)
Valid	401	405	406	405	408	403	408	409
Missing	8	4	3	4	1	6	1	0
Mean Total	4.05	4.11	3.47	4.25	0.57	4.35	3.81	0.35
Std. Deviation	1.16	1.39	1.03	1.23	0.49	0.88	1.12	0.48
Mean Non-user	3.11	3.38	2.88	2.54	0	3.73	3.48	0.04
Mean Light-user	4.18	4.01	3.29	4.52	0.76	4.39	3.67	0.35
Mean Heavy-user	4.41	4.48	3.81	4.93	0.76	4.61	4.02	0.49

Figure 4.1 provides descriptive statistics for all variables used in this study, including the total mean of the respondents as well as the difference among three customer groups (non-user, heavy-user and light-user). The highest total mean of the variable on a 5-point scale is with the SST satisfaction at 4.35 and the mean for heavy users are 4.61. Weijters et al. (2007) looked into outcomes of customer's use of SST. They illustrate the use of SST affects the perceived waiting time at the counter, which is an important antecedent to customer satisfaction. SST users are able to gain time at the check-out since their products are already scanned by themselves during shopping. On the contrary, for non users, all their purchases are scanned by the cashier individually at the check-out. As a result, it will take time to scan each product for non users. The lowest total mean is attitude toward the shift from employee checkout to self-checkout with 3.47. A total mean close to 3 means that the customer neither disagrees nor agrees. Meuter, et al (2000) examines in a study customer's satisfaction with SST. They illustrate customers who use SST are more likely to create positive future

behaviors for satisfying incidents. The results from Figure 4.1 show that heavy and light users tend to use SST in the future. We represent recommendation and advance facilities using dummy variables, the mean of recommendation for both heavy users and light users is 0.76, which means customers who use self-scanning are more likely to recommend it to people around them. Furthermore, customers select ICA or Coop as their first choice of grocery shopping mainly because the introduction of self-service technologies (self-scanner or self-checkout).

Figure 4.2: Descriptive statistics of variables for Q5.1-5.2

	Convenience	Entertainment	Efficiency	Rank Convenience	Rank Entertainment	Rank Efficiency
Valid	400	393	394	380	381	379
Missing	9	16	15	29	28	30
Mean Non-user	3.52	2.37	3	1.38	2.54	2.05
Mean Light-user	4.11	2.96	4.23	1.68	2.77	1.53
Mean Heavy-user	4.75	2.68	4.75	1.61	2.93	1.42

Figure 4.2 provides the mean of respondents' attitude toward rating both SST and traditional counter benefits on a 5-point scale and ranking importance of SST and traditional counters benefits. The highest mean of benefits for non users is with convenience at 3.52, which means those customers think their products scanned by normal cashiers is convenient for them, second and close is efficiency with 3. When mean is close to 3 it will be interpreted as the respondent neither disagrees nor agrees. When non users are ranking the three benefits, the lowest mean is also convenience with 1.38; it indicates convenience ranks the most important one compared with efficiency and entertainment. Based on Berry et al (2002)'s study, one of the major reasons customers quest for SST is because of the convenience. In addition, Cunningham et al. (2008) pointed out customers' benefits from SST, such as convenience, ubiquitous availability and time. This is supported by the findings in Figure 4.2, from the perspective of heavy users, they rate convenience as the highest with 4.75. According to heavy users, efficiency is the most important compared with convenience in terms of ranking. The highest mean of benefits for light users is efficiency, and efficiency ranks as the most important as well by light users. Based on a study conducted by Marzocchi and Zammit (2006), the value created by customer participate in self service includes psychological enjoyment that is time-efficiency. For all three customer groups, entertainment has the lowest rating and has the lowest rank of either SST or traditional benefits since customers pay less notification to the entertainment or fun factor.

4.2 Hypothesis

The research issue in this study, the linkage between SST and retail brand equity will be investigated below with four hypotheses. In this paper, a cross tabulation analysis will be applied to show if there is any relation between the two variables by comparing the expected and actual count. The expected count is the number of cases that will be expected in the cell if the two variables are independent of each other (courses.washington.edu). The actual count is the number of cases observed in each cell. By comparing the observed and expected count, we can determine the trend of the two categorical variables so as to investigate whether a positive or negative relation exists. In addition, chi-square test is used to determine whether there is a statistically significant relationship between these two categorical variables.

4.2.1 SST usage and co-creation

H1. The level of SST usage and the degree of customer co-creation participation is positively related, which means, higher SST usage results in higher customer co-creation.

In Appendix2-Table 2.1.1, shows the expected count of the number of non-users who strongly disagree (value 1) and disagree (value 2) that they can take control over purchase is 6.0 and 3.6 respectively, and the actual or observed count is 20 and 10 respectively. Therefore, there are somewhat 14 and 6.4 more non-users who strongly disagree (value 1) and disagree (value 2) than will be expected by chance. On the contrary, there are 9.6 and 23.5 fewer non-users who agree (value 4) and strongly agree (value 5) that they are taking control over purchase respectively than will be expected. This result shows that non users do not feel that they are taking control over purchase. From the perspective of heavy-users, the observed count of the number of heavy-users who strongly disagree (value 1) and agree (value 4) is 4 and 2 respectively. Thus, there are 9.8 and 6.3 fewer heavy-users who strongly disagree (value 1) and disagree (value 2) that they can take control over purchase than the expected count. However, the observed count of the number of heavy-user is more than that number of expected in terms of agree (value 4) and strongly agree (value 5). It is shown that heavy users feel that they are taking control over purchase. This is supported by many scholars, who argue that control is essential to customers who choose to use self-service options and expected control in using the self-service options resulting in a positive impact on expected service quality (Langeard et al, 1981; Dabholkar, 1996). Based on a study conducted by Dabholkar et al. (2003), their findings showed customers who use self-scanning regularly viewed it as giving greater control than those who did not use this option. Besides, by using self-service

options, customers' feeling of being in control is enhanced. Furthermore, there is no distinct difference between the expected and observed counts of the number of light-users who disagree (value 2), neutral (value 3) or strongly agree (value 5). There are 4.1 and 2.4 fewer lighter-users who strongly disagree (value 1) and strongly agree (value 5) respectively than will be expected, but 7.5 more lighter-users who agree that than expected count. The result indicates that there is still a trend that light users feel that they are taking control over purchase.

By examining the difference between the observed and expected count, we got a clue about the differences among three customer groups in respect to whether they disagree or agree that they can take control over purchase. According to Appendix2-Table 2.1.2, the significant level for the chi-square value is found to be 0.000 (significant at $p \leq 0.05$ level), which indicates that there is a significant relationship between these two variables.

As indicated in Appendix2-Table 2.1.3, there are somewhat 11.6 and 17.5 fewer heavy-users who do not think they can create their own shopping experience or neutral than will be expected by chance. But, in contrast, there are 29.1 more heavy-users who think they can create their own shopping experience. Prahalad and Ramaswamy (2004) claimed that co-creation experience as the unique value to customers. What the company needs is to create an environment within which customers can have their own personalized experience. This is supported by the finding in this study, which shows that heavy users tend to create their own shopping experience. Since the store creates an experience environment for customers, those customers who always use self-scanning in the store can help in creating their own shopping experience. There are also discrepancies between the observed and expected counts in the other six cells of the table. Customers who never scan products by themselves are not inclined to think their own shopping experience can be created. However, there is no big difference between the observed and expected count of the number of light-users with regard to their shopping experience. Appendix2-Table 2.1.4 shows that the significance level of the test is 0.000 (significant at $p \leq 0.05$ level), which means that the results found are significant.

When observing Appendix2-Table 2.1.5 the data shows that those customers who always use self-scanning results in a positive attitude toward shift from employee checkout to self-checkout. Based on a study by Meuter et al. (2000), customers are able to perform the service without having to interact with employees as well as avoid moronic employees by using SST. In addition, avoiding store personnel accounts for 3% of satisfying incidents for SST. In contrast to heavy users, there is a negative

attitude toward shift from traditional to SST by non users. On the one hand, non users do not think product scanning should be their job, and on the other, technology failure sometimes occurs when customers interact with the machine (Meuter et al, 2000). Appendix-Table 2.1.6 indicates that there is a significant result at 5% significance level. Although we find the relationship between the two variables to be significant in this study, we still cannot trust the test results, because there are 2 cells (22.2%) cells with expected count less than 5. In order for the chi-square test to be valid, the percentage of the expected counts cannot be more than 20%. Therefore, the results of Appendix2-Table 2.1.6 are null and void. In addition, during the survey, even customers who always use self-scanning, they still remain neutral toward shift from traditional to SST since customers do not want employees lose their job. Therefore, the relationship between the level of SST usage and customers' attitude toward shift from employee checkout to self checkout can be ignored in this study.

Figure 4.3: Cross Tab Tests for H1
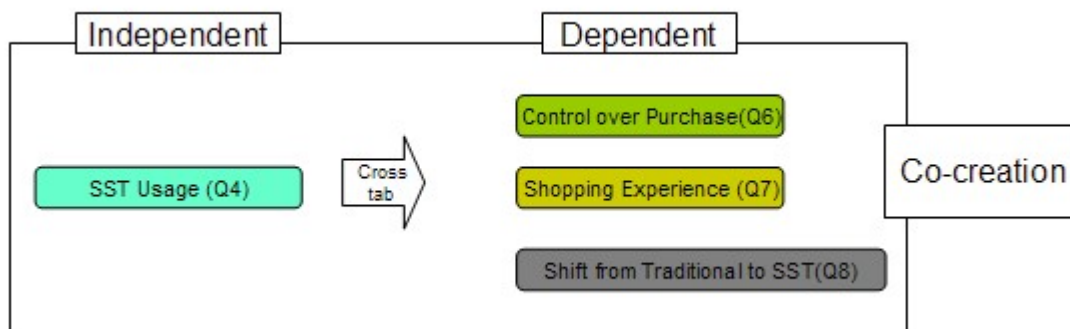
In the analysis above, co-creation is measured in terms of three aspects: control over purchase, shopping experience and shift from traditional to SST. Two of three cross tabs are supportive with a significant positive relation between the three dependent variables and one independent variable respectively.

Thus, to sum up the results which we have just indicated, we can see that the level of SST usage and the degree of customer co-creation participation is positively related. As Prahalad and Ramaswamy (2004) proposed the value needs to be created by both the provider and the customer to achieve co-creation. For customers who have products always scanned by normal cashiers, they have minimum role in value creation and they only get involved with the provider at the point of transaction. Therefore, our hypothesis 1 is supported, which means a higher level of SST usage results in a higher degree of co-creation. Since our hypothesis 1 is tenable, thereby hypothesis 2, hypothesis 3 and hypothesis 4 are valid.

4.2.2 Co-creation and Satisfaction

H2: Customer co-creation with retailers contributes to customer satisfaction, which means, co-creative experience contributes to higher customer satisfaction than low co-creative shopping experience.

Because H1 is supported as a premise, a further test on H2 could be processed.

The level of control of purchase has been proved to be positively related to SST-usage (4.2.1), and it is one of the reflections of co-creation. Thus according to the conceptual framework, control over purchase will be tested as an independent variable with the customer satisfaction as a dependent variable (Appendix2-Table 2.2.1), to see how these two are related, or whether a significant relation exists. The test result is valid, as in the Chi-Square Tests (Appendix2-Table 2.2.2), 3 cells (20%) have expected count less than 5.

When the rating of control over purchase variable is as low as 1, the rating of new satisfaction in its lowest level is significantly higher than expected, and in its highest level which means very satisfied, the rating is lower than expected. Along with the side-value of control over purchase, when the rating of control over purchase is 2, which means less control over purchase, there are more respondents rating low-satisfaction than expected and less rating high-satisfaction than expected. Besides, when we look at those who have most control over the purchase process, meaning that those who have rated 5 points to the independent variable, it is significant that they also rate higher in satisfaction than statistically expected. It can therefore be proven that there is a positive causal relation between the independent and dependent variables, which indicates that customers feeling to have more control over purchase is more likely to feel satisfied than those who have less.

Keeping "control over purchase" as independent variables, we test it with two other statistics representing the level of customer satisfaction. One is future use of SST, and the other is recommendation of SST usage.

From common behavioral rules we can assume that those who are satisfied with SST will continue on using it, and those who have intentions to improve their shopping experience will think of start using it. Hereby, whether to use SST in the future reflects whether the customer is satisfied with the service provided. The test (Appendix2- Table 2.2.3) reveals the relation between these two variables, whereas future use of SST is set as a dependent variable. The test result is valid for 3 cells (20%) have expected count less than 5 from Chi-Square Tests (Appendix2- Table 2.2.4).

The likelihood of future SST usage is significantly related to the level of control over purchase. It is obvious that customers who feel to have the least and less control over purchase are less likely to use the SST in the future than statistically expected and customers who feel to have more control are very much likely to use SST in the

future.

In the cross tab table (Appendix2-Table 2.2.5) of control over purchase and recommendation, there is also a positive relation revealed. The non-users who have never used SST are not willing to recommend it. A strong relationship exists as less of those who rate 1 at the level of control than expected is willing to recommend, and more of those who believe themselves having more control are willing to recommend than expected. Since the expected number represents a random case, a significant higher and lower number from the expected ones reflects a trend.

Control over Purchase(Q6) ⟺ Recommendation (Q10)
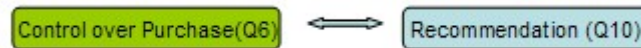
The three tests with control over purchase are all supportive; however, they are insufficient unless other measurements of level of co-creation are tested too. Because control over purchase is just one of the reflections of level of co-creation, to enhance the reliability another set of cross tab analyses should be done. In the second set of cross tab test, customer shopping experience is used as an independent variable.

Keeping satisfaction rating, future usage, and recommendation as dependent variables respectively, we do cross tab to test them with shopping experience. Here the variable of "shopping experience" represents data collected from the question on whether using or start using SST will make the customer feel that they are the only person in charge of the shopping process (Appendix1). Shopping experiences are rated by the customer from 1 to 5. 1 represents the most disagreeable attitude, meaning that using SST could/would not help the customer feel that they are the only one in the purchase process. 3 being neutral, and 5 is a strongly agree attitude.

Shopping Experience (Q7) ⟺ Satisfaction (Q11c)

In the cross tab analysis (Appendix2- Table 2.2.11) when customer satisfaction is set as a dependent variable against shopping experience as independent, the result is supportive to a positive relation. 17 out of 46 low rated respondents have the lowest satisfaction while the expected number is only 6. Only 21 of them claim high satisfaction when 25 is expected. On the other hand, 23 out of 271 high rated respondents showing low satisfaction, compared with 40 expected. And 159 of them are highly satisfied when only 149 are expected. The result is valid according to Chi-Square Tests (Table 2.2.12). The result can be interpreted as more customers feel that they are the only one in charge of the purchase, the more they are satisfied with the (self) service provided by retailer.

Shopping Experience (Q7) ⟺ recommendation (Q10)

With all non-users not recommending (value=0), the test between variable of

shopping experience and variable of recommendation involves all research groups. Value 1 represents those who have recommended SST to others, and 0 is the opposite. From Table 2.2.5 (Appendix2), it is significant that more respondents who rated 1 for shopping experience have not recommended this to their friends and families than expected. And 184 out of 271 respondents who strongly agree that SST helps in creating their own shopping experience have recommended SST to others, than expected 154. The positive relation tells that the more the customers agree on SST could help in shopping experience, the more they are willing to recommend.

The test with future usage (Appendix2-Table 2.2.7) is also supportive, with 13 low shopping experiences rated respondents declaring not likely to use SST, compared with 5 expected. Only 17 low shopping experiences rated respondents declaring likelihood of using SST, compared with 30 expected. Merely 12 high shopping experiences rated customer choose not to use SST in the future compared with a statistic expectation of 30. While 209 out of 270 high rated customer will use SST, and the expected number is 177. With the Chi-Square Tests (Appendix2-Table 2.2.8) confirming 0 cells (0%) have expected count less than 5, the cross tab results are valid and the relation is significant.

Figure 4.4: Cross Tab Tests for H2
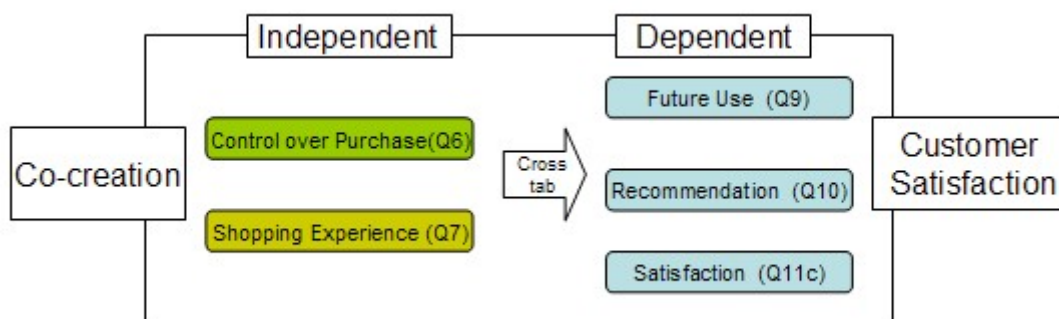
In the analysis above, customer co-creation is measured by two elements: control over purchase and shopping experience. Meanwhile, customer satisfaction is analyzed through three aspects: willingness to use in the future, willingness to recommend, and direct satisfaction 5 point scale rating. All 6 cross tabs are supportive with a significant positive relation in between the 2 independent variables and 3 dependent variables respectively.

Hereby, it is logical to declare that the second hypothesis referring to customer co-creation and customer satisfaction is proved true. It is reasonable to interpret it as when customers are involved in a higher level of co-creation process, they feel more satisfied with the purchasing experience as a whole, and tends to appreciate what the retailer provided.

One may wonder why, from the results, customer is doing more by themselves, instead of being served, but still feeling more satisfied. It is to be notice that co-creation is not as an activity-transfer or outsourcing (Ramaswamy & Prahalad, 2004), rather an experience creating and an interaction. Serving customers well is no longer about doing everything for the customers but asking for their real needs. The consumer market is all about each individuals rather than passive pocket of demand (ibid.). For a service/goods supplier, the role of customer experience, which leads to customer satisfaction, is incorporated into the development of service blueprint (Payne et al, 2008), which means the firm needs to have a full understanding of customer experience in how customer engage with the service. Back into the statistics analysis of H2, the experience of taking control and being involved do give customers a richer experience. Not only the process of using self-scanner, but also the option of SST alternatives contributes customer satisfaction (even non-user rate 3.73 on SST option satisfaction). It is not simply the case of the "more the better". As indicated by Sandström et al (2008), great satisfaction is not gained from functional level but emotional end-states. Actually such satisfaction does not come from one party of the service, but from both sides, the customer together with the retailer. As a service co-producer, customer is responsible to some extent of their own satisfaction (Meuter et al., 2005). Retailers make their customers happy by providing them more options in service and achieve more autonomy. Customers who enjoy such autonomy are more likely to aware the retailer better and perceive them to have better service quality.

4.2.3 Co-creation and Loyalty

H3: The level of co-creative involvement is positively related to the extent of retailer loyalty.

Figure 4.5: Cross Tab Test for H3
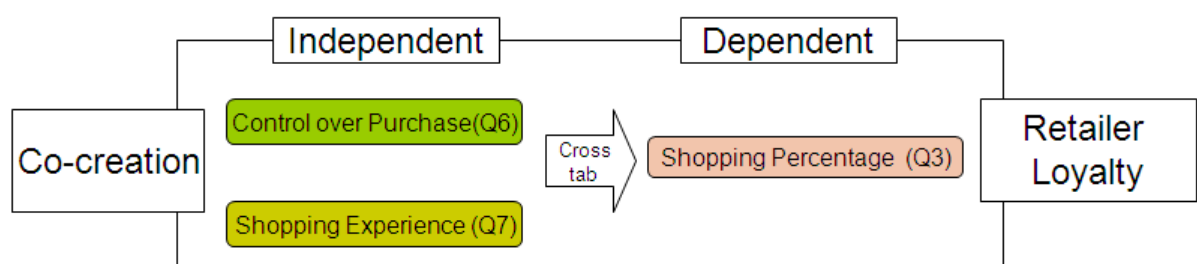
Pappu and Quester (2006) have included loyalty as one of the attributes to measure retailer brand equity. They have also accounted both attitude and behavior in retailer loyalty, which in this paper retailer loyalty will be determined by the percentage of attempt purchase in the retailer's stores in 1 month. Initially the scale presented in the questionnaire range shopping percentage in five scales: 0-20%, 20%-40%, 40% -60% 60%-80% and 80% -100%. However due to the insignificant the outcome lead us to narrow down to 3 scales from 0-20%, 20%-60% and 60% -100%.

Control over Purchase(Q6) ⟷ Shopping Percentage (Q3)

When the relationship between Control over purchase, a scale from 1-5 and 5 being strongly in control, and Shopping percentage, a scale from 0-20%, 20%-60% and 60%-100%, the data shown in Figure 4.6 that those with high control over purchase for rating 4 and 5 results in a positive value over 60-100% of their grocery consumption in 1 month. However when observing those with low control over purchase of 1, the data also shows that 17 out of total respondents in scale 1, which is 25, attempt to purchase more than 60-100% in 1 month from their first choice retailer. This figure has changed the pattern in the table and therefore the outcome is insignificant to interpret.

Figure 4.6: Control Over Purchase vs. Shopping Percentage Crosstabulation

Control Over Purchase vs. Shopping Percentage			0-20%	20%-60%	60%-100%	Total
				Shopping Percentage		
Control Over Purchase	1	Count	2	6	17	25
		Expected Count	0.8	7.3	16.9	25
		Count - Expected Count	1.2	-1.3	0.1	
	2	Count	1	9	5	15
		Expected Count	0.5	4.4	10.2	15
		Count - Expected Count	0.5	4.7	-5.2	
	3	Count	3	25	35	63
		Expected Count	2	18.3	42.7	63
		Count - Expected Count	1	6.7	-7.7	
	4	Count	1	33	76	110
		Expected Count	3.6	31.9	74.5	110
		Count - Expected Count	-2.6	1.1	1.5	
	5	Count	6	43	138	187
		Expected Count	6.1	54.2	126.7	187
		Count - Expected Count	-0.1	-11.2	11.3	
Total		Count	13	116	271	400
		Expected Count	13	116	271	400

According to Appendix 2- Table 2.3.1, the Chi-Square tests for this table (Figure 4.6) also shows that the relationship between these two variables of control over purchase and monthly shopping percentage is over 20%, which in this case is 33.3%, making the result unreliable. Even though the probability for this table is 0.012 which is below 0.05, makes the variables related but not in a significant manner. The key aspect of co-creation marketing is the interaction between customer and firm, in customer service scope letting customers serve themselves through intelligent automated support systems. This is not only convenient for consumers and fulfills their needs, but does reduce a firm's operation costs (Sheth et al., 2000).

Shopping Experience (Q7) ⟷ Shopping Percentage (Q3)

Referring to Appendix 2- Table 2.3.2, when observing the relationship between Customers' shopping experience and Customers' monthly shopping percentage, the same pattern shown for Low and Neutral Shopping Experience that those with low and neutral experiences have positive figures from the differences in count and expected count and negative figures in 60%-100% amount of monthly purchase from their first choice retailers. The negative trends were shown in Low and Neutral Shopping experience. For respondents with high shopping experience, the data show a positive trend from (-5.5) in 20%-60% and (7.6) in 60%-100%. However the unexpected drop occurs from (-2) in 0-20% to (-5.5) in 20%-60%, made the result less significant. The Chi-Square tests for testing shopping experience and shopping percentage has shown that the relationship between these two variables is 22.2%, which is more than 20% making the result unreliable (Appendix 2- Table 2.3.3). The probability is 0.339, which is more than 0.05 making the variables significantly irrelevant. Therefore, comparing co-creation with the percentage of monthly consumption might not be appropriate to prove customers' loyalty.

A previous thesis for Lund University by Andersson and Munch (2007) explored the effect on store loyalty from customers who use self scanning. The result however showed a weak relation, which was insignificant to confirm their hypothesis and required further research clarification. A similar outcome was presented by a study by Dobaholkar (1996), evaluating regular SST users and non-SST users whereas during the study period non users did not participate in answering questions concerning self-scanning, which made the relation less significant. However the study by Andersson and Munch (2007) detected a stronger loyalty relationship trend. Users of self-scanning are more likely to be loyal from data collection in 2004 and 2007. Supporting by another study conducted by Leenheer (2007), self-scanning users on average spend more grocery budget in store than non users. In this study, the customers who use SST from both stores obtain the retailers' loyalty card, which shown another positive indication of how most SST users are loyal to their retailer and validate the hypothesis. According to Sheth et al. (2000), "co-creation marketing can enhance customer loyalty and reduce the cost of doing business"

4.2.4 Co-creation and Retailer association

H4: The level of co-creative involvement is positively related to the extent of retailer association.

Figure 4.7: Cross Tab Test for H4
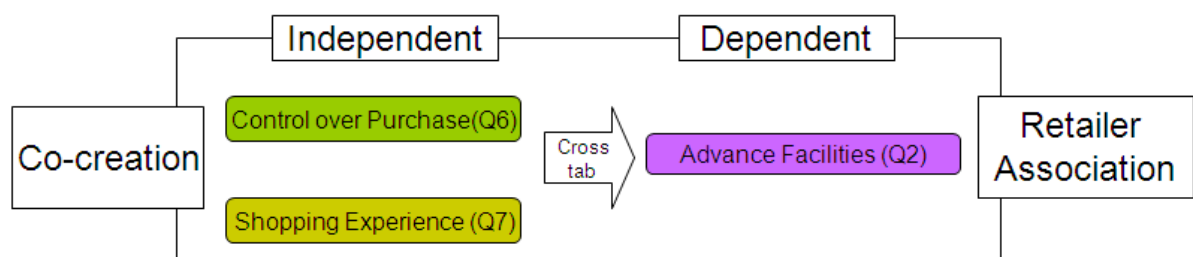
In many theories (2.3.2) involving a measurement of retailer brand equity contain brand-association as one of 3 or 4 dimensions. The finding from a study by Wu and Tian (2008) shows that physical facilitates and other 4 attributes represent store image, which directly affect retailer awareness, association and retailer perceived quality. Pappu and Quester (2006) have also stated that retailer association is closely linked to the measurement of retailer image in the sense of any attributes and benefits linked to the retailer's name in consumer's mind. In this case the advanced facilities in this study falls under one of the attributes in retailer association image.

Control over Purchase(Q6) ⟺ Advance Facilities (Q2)

There is a positive relation between co-creative involvement and retailer association as shown in Appendix 2- Table 2.4.1. Customers with low control over purchases do not value the advanced facilities the retailers offer. When observing the trend by calculating Count deducting Expected Count (Count − Expected Count), the result shown from positive figures to a negative figures, such result repeated from Control over purchase 1-4. On the 5th rating, which means customers felt very in control of their purchase, when minus Expected Count from Count shown a positive trend from negative number (-25.4) to a positive number (25.4). Observing the respondents that answer "Yes" to advanced facilities, it is demonstrated that the numbers of respondents increase gradually from low level of control over purchase (1), (3), (11), (35) and increase substantially to (92). The more control over purchase the customers rate the more appreciation they have toward the advanced facilities. When the probability is less or equal to 0.05, then the variables are significantly related. The perception of being in control over service delivering process and an additional opportunity to make choices, by means of retailer offering a high level of customization, could lead to more favorable assessment of the organization and increase customer's brand associations (Auh et al, 2007). Chi-Square probability in Appendix 2- Table 2.4.2 show it is .000, which means that the variables are significantly related. Furthermore in a. note, shows that 0 cell (0%) have expected count less than 5, which means that when the number of cell show percentage below 20% the result is reliable.

Shopping Experience (Q7) ⟺ Advance Facilities (Q2)

While testing the relationship between shopping experience and advanced facilities, one of retail association image, the responds proven to be more visible. Those who have responded that they have low to neutral shopping experience tend to overlook the advanced facilities image. The test shows that those with high shopping experience are more inclined to associate the store image with advanced facilities. The number of respondents increases gradually from Low (11) to Neutral (15) then increase significantly in High (116) according to Appendix 2- Table 2.4.3.

The result shown in Chi Square tests in Appendix 2- Table 2.4.4 has also indicated that the two variables are significantly related. Since the probability in this table shows .000, this represents that the variables are significantly related. Furthermore it also shows that 0 cell (0%) have an expected count less than 5, which means that when the number in the cell shows a percentage below 20% the result is reliable.

Testing both Control over purchase and Shopping experience, which are variables for co-creation, has proven that there is a strong relation between co-creation and retailer association in terms of retailer image. The higher the customers felt toward being in control over their purchase and creating their own shopping experience, the more they perceive SST or advanced facilities as the retailers' image. Therefore, the hypothesis could be confirmed. According to Porter and Claycomb (1997), retail images create association that the store positive attitudes and feelings that are transferred to the retail brand. Therefore the feeling about a store and its quality can be viewed as key variables that influence retailer image due to retail associations. Pappu and Quester (2006) have stated that "consumers are more likely to have favorable and strong associations towards a retailer when they are highly satisfied with that retailer than when they report low satisfaction levels", when we look at the findings in 4.2.2 Co-creation and Retailer satisfaction, the outcome shows that the higher level of co-creation results in a higher level of retailer satisfaction. This confirms that retailer associations are influenced by co-creation.

4.3 Concluding Analysis

Co-creation, as one of the foundational premises of the service-dominant logic, is measured by three dimensions in this study: taking control over purchase, creating customers own shopping experiences and attitude toward shift from the traditional counter to SST. The findings show that the level of co-creation is strongly related to consumer's usage of SST. Those with heavy usage, that use SST when visiting grocery store, tend to be more in control of their activity and create their own shopping experience. Non SST users, who rely solely upon employee service to scan their products, are less involved in the shopping process. However, when it comes to the relation between usage of SST and attitude toward shift from traditional to SST, the test results are not reliable. The relationship between co-creation and SST usage is a fundamental element in this paper, since the result shows a strong connection between SST usage and level of co-creation. This has validated that co-creation has played an important role in engaging the customers' in-store activity.

Furthermore the level of co-creation has been used in this paper, to test customer's satisfaction of SST which determines retailer awareness and perceived retailer quality. These two dimensions together with retailer loyalty and retailer associations are investigated to measure retailer brand equity. The outcome of the study reveals that

those with a high level of co-creation are more satisfied with shopping process as a whole and with the service provided by the retailer. SST users, both heavy and light users, have associated the retailer with the image of having advanced facilities and are happy with more service options. A weak relationship between retailer loyalty and level of co-creation is observed. Therefore although SST in grocery stores can help customers building strong associations with the retailer brand, perceiving a better service quality, be more awarded of retailer and feel more satisfied, it is not proved and supported that SST can also help to increase loyalty. Three, out of four retailer equity dimensions, are positively related to customer's use of SST.

5. Conclusion

The chapter provides a final discussion of the topic and actually shows how the research aim is achieved. Managerial implications and recommendations to future study are given.

The thesis conducts a comparison study among SST non-users, light users and heavy users within grocery retail industry in Sweden, 2009. The research is deductive, starting with a literature review of previous studies of SST in marketing and consumer cultural area, S-D logic, customer value co-creation and retailer equity. A conceptual framework that combines relevant theories illustrates the assumed relationship in between SST usage and customer co-creation, as well as co-creation and retailer equity dimensions. Four hypotheses are developed according to the framework, and the testing of them is performed through a quantitative field work.

SST influences retail brand equity; however, this study revealed additional aspects attached to the utilization of SST of which retailers should be aware of. The effects of the usage of SST is co-creation, the measures of retail brand equity used in this study show promise and potential facts on how co-creation through SST could influence retailer awareness, retailer perceived quality, retailer loyalty and retailer association. The creation of consumer perceptions concerning retail brand equity is a crucial strategic decision, it is not a matter of promoting physical goods alone but rather involve in serving customer's need according to their preference. In order to capture individual needs and tailor the solution to each, the use of SST could ultimately fulfill their requirements.

5.1 Conclusion and Managerial Implications

The purpose of the study is to examine whether using SST as a way of customer co-creation would help the retailers in building a strong consumer based corporate brand. Theoretically, studies on SST and branding have long ignored the possible relation between the two. By putting co-creation as a mediator, our research makes endeavors to test the linkages, giving implications to both theorists within retailing and branding area as well as to marketing practitioners in grocery retail industry.

The main contribution of this study lies in the fact that it confirms, and most importantly, extends the previous findings. In addition, since this thesis explores whether there exists a linkage between SST and retail brand equity, which has not been done before, therefore it fills an important research gap in the relevant research area. Furthermore, this research portrays co-creation as a key mediator between SST and retail brand equity, which contributes to the existing literature as well. In addition,

questionnaire-based data collection provides us meaningful data for further analysis and enabled us to fulfil the research purpose.

From our empirical study, we have seen that the difference between SST users (heavy and light) and non-users lies in their different reactions of service co-creation. The users are more active than the non-users, and are more willing to create value together with the service provider, i.e. the retailer. Those active groups of consumer are more aware of the idea that shopping is a personal experience, which can be improved through their own participation. As the shopping experience is improved, the level of customer satisfaction increases. Retail brand equity, distinct from brand of other industries, is highly associated with customer experience and is multi-sensory. The impact of SST on retailer equity through co-creation is what the study attempts to explore. All the data and analysis shows that it is reasonable to claim a positive relation existing between using SST and consumer-based retailer brand equity, because most of the parallel retailer equity dimensions have been proved to be positively affected by the level of co-creation. High level of customer service co-creation can help in building a strong retailer brand.

For the retailers who are intended in strengthening and differentiating their brands, this is a considerable result. The adoption of SST is suggested to not only benefit the stores from lowering their operational cost through providing less service from shop assistances but also initiate customers' involvement in their shopping experience. Since there is a positive relation between co-creation and the brand equity, the retailer could also consider other activities that can encourage more customer involvements during shopping. In addition, retailers can stimulate and encourage customer group of SST light users to increase SST usage and motivate non users to start using SST, which helps in building stronger bound with the retailer.

5.2 Limitations and Future research

The research period lasted from March to May 2009, thus it is constrained with a limited time schedule. Given more time and larger research budget, the empirical study can have been taken place in more cities of Sweden, covering more stores, and a wider range of respondents. The Swedish market can not represent all geographical markets. Cultural effects on consumer behaviour are not included in the project. Future researchers can take cultural comparison into consideration, and test the relation in broader market.

The survey is conducted in Sweden; however, none of the researchers speaks Swedish. The issue of language barrier was addressed by providing Swedish questions to the non English speaking respondents to self complete the survey. Such process limited the researchers from clarifying the questions and answers if some misunderstanding

or misinterpretation were encountered by the non English speaking respondents.

Furthermore since the testing on retailer loyalty was measured in this research using a single-item measure, future researchers may want to use multiple measures to detect any possible relationship between co-creation and retailer loyalty. When testing a relationship between co-creation and retailer association in this research, advanced facilities option was used as a single reflection to retailer image, whereas future research may include multiple measures to test the relationship.

The authors are aware of the existence of several other SST devices, when the study involves only one type of SST: self-express scanning device. Further testing can be undertaken, by including more types of SST such as self checkouts, which are available to both customers' with and without retailer loyalty card, and online shopping. Besides, along with macro-technological-development, more SST options can be expected. It is always attractive to see how consumers are affected by those technological innovations, due to their various functions and features. This study focuses on grocery retailing sectors. SST, nevertheless, appears in many other occasions, indicating that a cross-sector analysis is also recommended.

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Appendix 1 A

Questionnaire about Self-service Technology

Introduction: Hi, I am from Lund University and I am conducting a research about self-service-technology in grocery retailers for master thesis project. I wonder if you have 5 spare minutes to help me by answering following questions.

1. Which of the following supermarket chain is your first choice of grocery shopping?
☐Willys ☐ICA ☐Coop ☐Netto ☐Lidl ☐Others_____

2. What are the features that made you selected the supermarket chain in Question 1? (You can tick more than one of the alternatives)
☐Price: I can always get good value from my purchase
☐Product assortment: I have more options here and are able to find want I want
☐Product Quality: I think goods here are good in quality
☐Store atmosphere: makes me feel tidy, clean and comfortable
☐Employee service: the employee here is nice and helpful
☐Advanced facilities: the introduction of self-service technologies (self-scanner, or self-checkout)

3. In one month, how many percent of grocery shopping do you do in your selected supermarket chain?
☐0-20% ☐21-40% ☐41-60% ☐61-80% ☐81-100%

4. How do you usually have your products scanned?
☐Always by the normal cashiers (traditional way of checkout)
☐Always by yourself (via self-scanner, or self-checkout)
☐Sometimes by yourself and sometimes by the normal cashiers

(Please answer Question 5 and Question 6 based on your answer to Question 4)

5. 1 According to your usual way of products-scanning, you make your decision upon:

Convenience, and please rate:

1	2	3	4	5
Not convenient at all		→		Very Convenient

Entertaining (fun), and please rate

1	2	3	4	5
Not fun at all	→			Very much fun

Efficiency (faster), and please rate

1	2	3	4	5
Low efficiency	→			High efficiency

5.2 Please rank from 1-3, one being the most important benefit
____ Convenience   ____ Entertaining (fun)   ____ Efficiency

6. With my usual way of products-scanning, I feel that I am taking control over my purchase.

1	2	3	4	5
Disagree		→		Strongly Agree

7. Do you think using/ start using self-service-technology (e.g. self-scanner, self checkout) would help in creating your own shopping experience.

☐ Yes   ☐No   ☐Make no difference to me

8. What do you think of the shift from *employee checkout* to *self-checkout*?

☐ I like it, since I'm more involved in the purchase process and have little to deal with the employee.

☐ I'm Ok with the shift, as long as I have options to use both ways of scanning.

☐ I think product scanning should not be my job. Shop assistants should be the one who scan my goods.

9. How likely are you to *use/continue to use* self-service-technology (e.g. self-scanner, self-checkout) IN THE FUTURE?

1	2	3	4	5
Not at all likely		→		Very Likely

10. Have you ever recommended to people around you about any self-service-technology (e.g. self-scanner, self checkout) when shopping together?

☐ Yes   ☐ No

11. Please rate the extent to which you satisfied with the following:

a. Service from shop assistants:

1	2	3	4	5
Not satisfied at all		→		Very satisfied

b. Service from the cashier:

1	2	3	4	5
Not satisfied at all		→		Very satisfied

c. The availability of self-service options:

1	2	3	4	5
Not satisfied at all		→		Very satisfied

Sincere Thanks for Your Participation!

From

Xiaoxi Zhang, Pattarin Pintusopon, Feifei Wei

Appendix 1 B

Frågeformulär om Kunders Scanning Metoder

Introduktion: Hej, jag är från Lunds Universitet Och jag utför en undersökning om självscanning som ett examensarbete. Har ni 5 minuter över att svara på några frågor?

1. Vilken av följande butiker är ditt första val när du ska handla?

☐Willys   ☐ICA   ☐Coop ☐Netto ☐Lidl ☐Others_____

2. Vad fick dej att välja just den butik? Var det pga._____(Kryssa i flera rutor)

☐ Priset: Man får mycket för pengarna

☐ Stort utbud av produkter: Det finns mer att välja på

☐ Produkt kvalite: Jag tycker varorna här håller hög kvalite

☐ Butiks miljön: Rent ock fint, trevlig och avslappnad miljö

☐ Personalen: Trevlig och hjälpsam personal

☐ Modern lokal: Som tex själv scanning

3. Under en månad hur många procent av dina daglig varor handlar du från nämnda butiks kedja?

☐ 0-20%   ☐ 21-40%   ☐ 41-60%   ☐ 61-80%   ☐ 81-100%

4. Hur scannar du dina varor?

☐ Alltid traditionell kassörska

☐ Scannar alltid själv

☐ Båda sätten

(Svara på fråga 5 och 6 baserat på ditt svar från fråga 4)

5. 1 Varför scannar du dina varor på det viset?

Bekvämlighet
1	2	3	4	5
Mycket lite		→		Väldigt mycket

Underhållande (kul)
1	2	3	4	5
Inte kul		→		Jätte kul

Effektivitet (fortare)
1	2	3	4	5
Låg effektivitet		→		Mycket effektivt

5.2 Lista från 1-3 följande alternativ, med 1 som bäst.

____ Bekvämlighet   ____ Underhållande (kul)   ____ Effektivitet (fortare**)**

6. Hur mycket kontroll har du över ditt val av scanning?

1	2	3	4	5
Lite		→		Väldigt mycket

7. Genom att börja använda/använda självscanning, tror du då att du har full kontroll över hela processen? (Handla och betalning)

☐ Ja   ☐ Nej   ☐ Spelar ingen roll

8. Vad tycker du om bytet från kassörska till själv betalning?

☐ Jag tycker det är bra. Man har mer kontroll och man har mycket lite kontakt med personalen.

☐ Det är Ok. Så länge båda alternativen finns.

☐ Scanna varor är inte mitt jobb. Det ska en kassör göra.

9. Hur stor är sannolikheten att du kommer börja använda/fortsätta använda själv scanning?

1	2	3	4	5
Mycket liten		→		Mycket stor

10. Har du någon gång rekomenderat någon att använda självscanning?

☐ Ja   ☐ Nej

11. Betygsätt följande

a. Service från butiks biträden:

1	2	3	4	5
Mycket dålig		→		Väldigt bra

b. Service från kassörerna:

1	2	3	4	5
Mycket dålig		→		Väldigt bra

c. Tillgången till självscanner

1	2	3	4	5
Mycket dålig		→		Väldigt bra

Tack så mycket för ditt deltagande

Från

Xiaoxi Zhang, Pattarin Pintusopon, Feifei Wei

Appendix 2

Table 2.1.1 SST usage vs. Control over purchase Crosstabulation

			Control Over Purchase					Total
			1	2	3	4	5	
SST Usage	Non SST users	Count	20	10	28	17	22	97
		Expected Count	6.0	3.6	15.2	26.6	45.5	97.0
		Count - Expected Count	14.0	6.4	12.8	-9.6	-23.5	
	Heavy SST users	Count	4	2	23	63	130	222
		Expected Count	13.8	8.3	34.9	60.9	104.1	222.0
		Count - Expected Count	-9.8	-6.3	-11.9	2.1	25.9	
	Light SST users	Count	1	3	12	30	36	82
		Expected Count	5.1	3.1	12.9	22.5	38.4	82.0
		Count - Expected Count	-4.1	-0.1	-0.9	7.5	-2.4	
Total		Count	25	15	63	110	188	401
		Expected Count	25.0	15.0	63.0	110.0	188.0	401.0

Table 2.1.2 Chi-Square Tests for SST usage vs. Control over purchase

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	98.039[a]	8	.000
Likelihood Ratio	89.768	8	.000
Linear-by-Linear Association	43.378	1	.000
N of Valid Cases	401		
a. 2 cells (13.3%) have expected count less than 5. The minimum expected count is 3.07			

Table 2.1.3 SST Usage vs. Shopping_experience Crosstabulation

			Shopping Experience			Total
			Low	Neutral	High	
SST Usage	Non SST users	Count	22	38	41	101
		Expected Count	11.7	21.7	67.6	101.0
		Count - Expected Count	10.3	16.3	-26.6	
	Heavy SST users	Count	14	30	177	221
		Expected Count	25.6	47.5	147.9	221.0
		Count - Expected Count	-11.6	-17.5	29.1	
	Light SST users	Count	11	19	53	83
		Expected Count	9.6	17.8	55.5	83.0
		Count - Expected Count	1.4	1.2	-2.5	
Total		Count	47	87	271	405
		Expected Count	47.0	87.0	271.0	405.0

Table 2.1.4 Chi-Square Tests for SST Usage vs. Shopping Experience

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	49.564[a]	4	.000
Likelihood Ratio	48.840	4	.000
Linear-by-Linear Association	12.339	1	.000
N of Valid Cases	405		
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 9.63			

Table 2.1.5 SST Usage vs. attitude toward a shift from traditional check out to SST Crosstabulation

			Shift			
			Disagree	Neutral	Agree	Total
SST Usage	Non SST users	Count	17	73	11	101
		Expected Count	4.2	68.7	28.1	101.0
		Count - Expected Count	12.8	4.3	-17.1	
	Heavy SST users	Count	0	132	90	222
		Expected Count	9.3	150.9	61.8	222.0
		Count - Expected Count	-9.3	-18.9	28.2	
	Light SST users	Count	0	71	12	83
		Expected Count	3.5	56.4	23.1	83.0
		Count - Expected Count	-3.5	14.6	-11.1	
Total		Count	17	276	113	406
		Expected Count	17.0	276.0	113.0	406.0

Table 2.1.6 Chi-Square Tests for SST Usage vs. attitude toward a shift from traditional check out to SST

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	86.379[a]	4	.000
Likelihood Ratio	84.862	4	.000
Linear-by-Linear Association	10.205	1	.001
N of Valid Cases	406		
a. 2 cells (22.2%) have expected count less than 5. The minimum expected count is 3.48			

Table 2.2.1 Control Over Purchase vs. SST Satisfaction Crosstabulation

			SST satisfaction			Total
			Low	Neutral	High	
Control Over Purchase	1	Count	10	5	9	24
		Expected Count	3.4	7.4	13.2	24.0
		Count - Expected Count	6.6	-2.4	-4.2	
	2	Count	6	2	7	15
		Expected Count	2.1	4.6	8.3	15.0
		Count - Expected Count	3.9	-2.6	-1.3	
	3	Count	18	19	25	62
		Expected Count	8.9	19.0	34.1	62.0
		Count - Expected Count	9.1	0.0	-9.1	
	4	Count	10	51	48	109
		Expected Count	15.6	33.4	60.0	109.0
		Count - Expected Count	-5.6	17.6	-12.0	
	5	Count	13	45	130	188
		Expected Count	26.9	57.6	103.4	188.0
		Count - Expected Count	-13.9	-12.6	26.6	
Total		Count	57	122	219	398
		Expected Count	57.0	122.0	219.0	398.0

Table 2.2.2 Chi-Square Tests for Control Over Purchase vs. SST Satisfaction

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	65.445[a]	8	.000
Likelihood Ratio	58.224	8	.000
Linear-by-Linear Association	41.521	1	.000
N of Valid Cases	398		

a. 3 cells (20%) have expected count less than 5. The minimum expected count is 2.15

Table 2.2.3 Control Over Purchase vs. Future SST use Crosstabulation

			Future SST use			Total
			Unlikely	Likely	Most Likely	
Control Over Purchase	1	Count	14	8	3	25
		Expected Count	2.7	5.8	16.5	25.0
		Count - Expected Count	11.3	2.2	-13.5	
	2	Count	3	10	2	15
		Expected Count	1.6	3.5	9.9	15.0
		Count - Expected Count	1.4	6.5	-7.9	
	3	Count	12	21	30	63
		Expected Count	6.8	14.6	41.6	63.0
		Count - Expected Count	5.2	6.4	-11.6	
	4	Count	5	33	72	110
		Expected Count	11.8	25.5	72.7	110.0
		Count - Expected Count	-6.8	7.5	-0.7	
	5	Count	9	21	158	188
		Expected Count	20.2	43.6	124.2	188.0
		Count - Expected Count	-11.2	-22.6	33.8	
Total		Count	43	93	265	401
		Expected Count	43.0	93.0	265.0	401.0

Table 2.2.4 Chi-Square Tests for Control Over Purchase vs. Future SST use

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	122.743[a]	8	.000
Likelihood Ratio	106.801	8	.000
Linear-by-Linear Association	90.646	1	.000
N of Valid Cases	401		

a. 3 cells (20%) have expected count less than 5. The minimum expected count is 1.61

Table 2.2.5 Control Over Purchase vs. SST Recommendation Crosstabulation

			recommendation		Total
			No	Yes	
Control Over Purchase	1	Count	21	4	25
		Expected Count	10.7	14.3	25.0
		Count - Expected Count	10.3	-10.3	
	2	Count	11	4	15
		Expected Count	6.4	8.6	15.0
		Count - Expected Count	4.6	-4.6	
	3	Count	41	22	63
		Expected Count	26.9	36.1	63.0
		Count - Expected Count	14.1	-14.1	
	4	Count	35	75	110
		Expected Count	46.9	63.1	110.0
		Count - Expected Count	-11.9	11.9	
	5	Count	63	125	188
		Expected Count	80.2	107.8	188.0
		Count - Expected Count	-17.2	17.2	
Total		Count	171	230	401
		Expected Count	171.0	230.0	401.0

Table 2.2.6 Chi-Square Tests for Control Over Purchase vs. SST Recommendation

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	47.905[a]	4	.000
Likelihood Ratio	48.898	4	.000
Linear-by-Linear Association	39.002	1	.000
N of Valid Cases	401		

a. 0 cells (0%) have expected count less than 5. The minimum expected count is 6.40

Table 2.2.7 Shopping Experience vs. Future SST use Crosstabulation

			Future SST use			Total
			Unlikely	Likely	Most Likely	
Shopping Experience	Low	Count	13	16	17	46
		Expected Count	5.0	10.8	30.2	46.0
		Count - Expected Count	8.0	5.2	-13.2	
	Neutral	Count	19	29	38	86
		Expected Count	9.4	20.1	56.5	86.0
		Count - Expected Count	9.6	8.9	-18.5	
	High	Count	12	49	209	270
		Expected Count	29.6	63.1	177.3	270.0
		Count - Expected Count	-17.6	-14.1	31.7	
Total		Count	44	94	264	402
		Expected Count	44.0	94.0	264.0	402.0

Table 2.2.8 Chi-Square Tests for Shopping Experience vs. Future SST use

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	59.925[a]	4	.000
Likelihood Ratio	57.889	4	.000
Linear-by-Linear Association	53.182	1	.000
N of Valid Cases	402		

a. 0 cells (0%) have expected count less than 5. The minimum expected count is 5.03

Table 2.2.9 Shopping Experience vs. Future SST use Crosstabulation

			Recommendation		Total
			No	Yes	
Shopping Experience	Low	Count	30	17	47
		Expected Count	20.2	26.8	47.0
		Count - Expected Count	9.8	-9.8	
	Neutral	Count	57	29	86
		Expected Count	37.0	49.0	86.0
		Count - Expected Count	20.0	-20.0	
	High	Count	87	184	271
		Expected Count	116.7	154.3	271.0
		Count - Expected Count	-29.7	29.7	
Total		Count	174	230	404
		Expected Count	174.0	230.0	404.0

Table 2.2.10 Chi-Square Tests for Shopping Experience vs. Future SST use

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	40.446[a]	2	.000
Likelihood Ratio	40.642	2	.000
Linear-by-Linear Association	32.712	1	.000
N of Valid Cases	404		

a. 0 cells (0%) have expected count less than 5. The minimum expected count is 20.24

Table 2.2.11 Shopping Experience vs. SST Satisfaction Crosstabulation

			SST satisfaction			Total
			Low	Neutral	High	
Shopping Experience	Low	Count	17	8	21	46
		Expected Count	6.8	13.9	25.4	46.0
		Count - Expected Count	10.2	-5.9	-4.4	
	Neutral	Count	19	24	41	84
		Expected Count	12.4	25.3	46.3	84.0
		Count - Expected Count	6.6	-1.3	-5.3	
	High	Count	23	89	159	271
		Expected Count	39.9	81.8	149.4	271.0
		Count - Expected Count	-16.9	7.2	9.6	
Total		Count	59	121	221	401
		Expected Count	59.0	121.0	221.0	401.0

Table 2.2.12 Chi-Square Tests for Shopping Experience vs. SST Satisfaction

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	31.354[a]	4	.000
Likelihood Ratio	28.018	4	.000
Linear-by-Linear Association	22.658	1	.000
N of Valid Cases	401		
a. 0 cells (0%) have expected count less than 5. The minimum expected count is 6.77			

Table 2.3.1 Chi-Square Tests for Control Over Purchase vs. Shopping Percentage

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.646[a]	8	.012
Likelihood Ratio	19.126	8	.014
Linear-by-Linear Association	7.669	1	.006
N of Valid Cases	400		
a. 5 cells (33.3%) have expected count less than 5. The minimum expected count is 0.49			

Table 2.3.2 Shopping Experience vs. Shopping Percentage Crosstabulation

			Shopping Percentage			Total
			0-20%	20%-60%	60%-100%	
Shopping Experience	Low	Count	3	18	26	47
		Expected Count	1.7	13.8	31.4	47.0
		Count - Expected Count	1.3	4.2	-5.4	
	Neutral	Count	4	27	56	87
		Expected Count	3.2	25.6	58.1	87.0
		Count - Expected Count	0.8	1.4	-2.1	
	High	Count	8	74	188	270
		Expected Count	10.0	79.5	180.4	270.0
		Count - Expected Count	-2.0	-5.5	7.6	
Total		Count	15	119	270	404
		Expected Count	15.0	119.0	270.0	404.0

Table 2.3.3 Chi-Square Tests for Shopping Experience vs. Shopping Percentage

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.528[a]	4	.339
Likelihood Ratio	4.339	4	.362
Linear-by-Linear Association	4.421	1	.035
N of Valid Cases	404		
a. 2 cells (22.2%) have expected count less than 5. The minimum expected count is 1.75			

Table 2.4.1 Control Over Purchase vs. Advance Facilities Crosstabulation

			Advance Facilities		Total
			No	Yes	
Control Over Purchase	1	Count	24	1	25
		Expected Count	16.1	8.9	25.0
		Count - Expected Count	7.9	-7.9	
	2	Count	12	3	15
		Expected Count	9.7	5.3	15.0
		Count - Expected Count	2.3	-2.3	
	3	Count	52	11	63
		Expected Count	40.7	22.3	63.0
		Count - Expected Count	11.3	-11.3	
	4	Count	75	35	110
		Expected Count	71.0	39.0	110.0
		Count - Expected Count	4.0	-4.0	
	5	Count	96	92	188
		Expected Count	121.4	66.6	188.0
		Count - Expected Count	-25.4	25.4	
Total		Count	259	142	401
		Expected Count	259.0	142.0	401.0

Table 2.4.2 Chi-Square Tests for Control Over Purchase vs. Advance Facilities

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	36.875[a]	4	.000
Likelihood Ratio	41.358	4	.000
Linear-by-Linear Association	34.355	1	.000
N of Valid Cases	401		
a. 0 cells (0%) have expected count less than 5. The minimum expected count is 5.31			

Table 2.4.3 Shopping Experience vs. Advance Facilities Crosstabulation

			Advance Facilities		Total
			No	Yes	
Shopping Experience	Low	Count	36	11	47
		Expected Count	30.5	16.5	47.0
		Count - Expected Count	5.5	-5.5	
	Neutral	Count	72	15	87
		Expected Count	56.5	30.5	87.0
		Count - Expected Count	15.5	-15.5	
	High	Count	155	116	271
		Expected Count	176.0	95.0	271.0
		Count - Expected Count	-21.0	21.0	
Total		Count	263	142	405
		Expected Count	263.0	142.0	405.0

Table 2.4.4 Chi-Square Tests for Shopping Experience vs. Advance Facilities

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	22.075[a]	2	.000
Likelihood Ratio	23.554	2	.000
Linear-by-Linear Association	15.805	1	.000
N of Valid Cases	405		
a. 0 cells (0%) have expected count less than 5. The minimum expected count is 16.48			