In-store apparel shopping behavior

in relation to stockouts

by

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INTRODUCTION

Quick Response business systems (QR) for apparel have been successful in satisfying customer demand and reducing stockouts. As a result of the introduction of QR, sales have increased 10% to 50% because merchandise is in stock (Hunter, 1990; Nuttle, King, & Hunter 1992). Many other sources reported increasing sales because of introducing QR (Drinkard, 1992; Fallon, 1992; QR works for J. C. Penny, 1987; Whalen, Lord & Burnett, 1993). "Ultimately, the purpose of QR is to shorten the time it takes for merchandise to arrive in stores and to keep inventories at each level in balance with consumers' demands" (Jarnow & Guerreiro, 1991, p. 105). Keeping inventories in balance means preventing stockouts.

The sales increases that result from QR are indications of the magnitude of the retail stockout problem. Even with current technology, merchandisers are frequently unable to present balanced assortments. The store's ability to have the product in stock that the consumer wants is an important aspect of successful retail operations. The stockout level is a measure of product availability (Lambert & Stock, 1993). It is very difficult to predict customers' demands and to keep 100% in stock when customers make their buying decisions on apparel goods, especially fashion goods. Thus, understanding customer in-store shopping behavior in relation to stockouts is crucial. Researchers have conducted hundreds of studies of consumer behavior but few studies of in-store customer shopping behavior exist. Consequently, little is mentioned in the literature about customer response to stockouts.

Almost all studies related to stockouts have focused on grocery stores. Thus, there is a need to determine if data on apparel industry stockouts are similar or unique. Many of the

grocery studies proposed models that have common elements (Emmelhainz, Stock, & Emmelhainz, 1991; Miklas, 1979; Schary & Christopher, 1979; Walter & Grabner, 1975). For example, in Schary and Christopher's (1979) model, stockout behavior is broken down into four responses to stockouts: not buy, postpone purchase, substitute product or brand, or go to other stores. They found that stockout behavior was related to three aspects of consumer loyalty: non-loyal, store loyal, and brand loyal. Walter and Grabner (1975) related the same four responses to stockouts to brand, price, and size. Emmelhainz, Stock, and Emmelhainz (1991) expanded the Schary and Christopher model to include the situational factors: risk, urgency, and need.

These studies of grocery stores may be useful for understanding and identifying variables that relate to apparel stockout behavior. However, purchases of grocery items are less costly and apparel is purchased less frequently, therefore, customers may respond differently to apparel stockouts.

As a part of research related to QR business systems, Nuttle, King, and Hunter at North Carolina State University (1991) developed the Apparel Retail Model (ARM). This computer simulation allows the operator to input an assortment plan, a pricing plan,and a delivery plan. The computer calculates financial outcomes based on a customer shopping behavior model that includes a stockout model that, because of a lack of apparel research, is based on grocery store research.

The purpose of this study is to examine apparel shopping behavior in relation to stockouts and to propose implications for merchandising strategies. This study is a part of a

larger project, based on Behavioral Theory of the Apparel Firm (Kunz, 1995), that is being conducted in cooperation with a regional apparel retail company located in a large midwestern city. To protect the confidentiality of the retailer, the code name "Ramal" is used in this study.

Objectives

1. To propose a model of in-store apparel shopping behavior based on review of previous literature
2. To report general characteristics of Ramal customers' shopping habits
3. To test hypotheses based on the proposed model of in-store shopping behavior using Ramal shoppers
4. To modify the proposed model of apparel customer shopping behavior in relation to stockouts based on the findings
5. To propose a shopping behavior model appropriate for the ARM simulation
6. To propose further development of the Behavioral Theory of the Apparel Firm

Assumptions

1. Respondents participated in telephone interviews frankly and appropriately.
2. The instruments are appropriate for conducting telephone interviews.

Limitations

1. The shopping behavior reported by this study may not be representative all shopping behavior.
2. The situational factors included in the proposed model are not formally tested. Thus influences of the situational factors can not be generalized in this study.

Definitions

1. Brand loyal customer: a customer who has preference for a particular group of products because of their perceived attributes.
2. Brand or product change: an in-store decision to switch to a different brand or product from the brand or product initially planned (Park, Iyer, & Smith, 1989).
3. Browsing behavior: examining a retailer's merchandise for informational and/or recreational purposes without an immediate intent to buy (Bloch & Richins, 1982).
4. Business wear: traditional and contemporary professional attire.
5. Casual wear: comfortable and convenient attire for informal and recreation occasions.
6. Customer: a person who is a patron; a potential purchaser of goods or services at a particular time and place.
7. Fill-in shopping trip: quick excursion for current need.
8. "General item in mind" customer: purposive shopper with an item defined according to style, color, or size.

9. Major shopping trip: extended excursion for seasonal or annual needs.
10. Non-loyal customer: a customer who chooses products without bias to brand or store.
11. Planned purchase: decision to buy is determined before entering the store (Kahn, & Schmittlein, 1992).
12. Purposive customer: a person who has an item in mind to purchase.
13. Shopping behavior: "activities that people engage in while examining or purchasing merchandise or services" (Darden & Dorsch, 1990, p. 289).
14. "Specific item in mind" customer: purposive shopper with an item defined according to style, color, and size.
15. Stockout: the situation that occurs when the specific item desired by a customer is not available when the customer wants to buy it.
16. Store knowledge: the information a customer has about a specific store's attributes.
17. Store loyal customer: a customer who has preference for particular merchandise source because of its attributes.
18. Time available for shopping: time a customer chooses to allocate for a particular shopping activity.
19. Unplanned purchase: opportunistic purchase, decision to buy is at the site of purchase (Kahn, & Schmittlein, 1992).

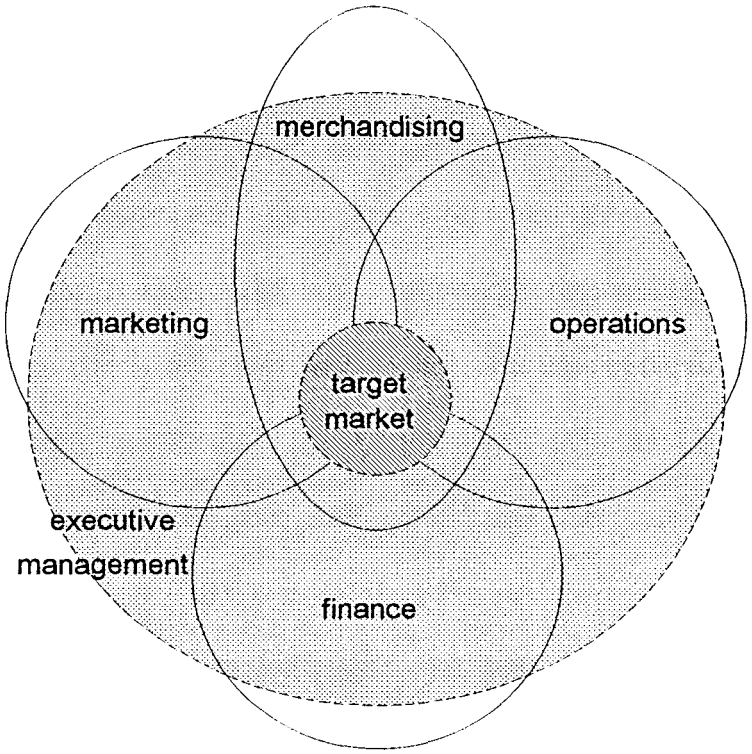
REVIEW OF LITERATURE

To build a model of in-store apparel shopping behavior in relation to stockouts, three areas of literature were reviewed. The first part of literature review involved the theoretical framework for this research. The second part of literature review examined the customer shopping behavior research that reported the situational factors influencing customers' shopping behavior and shoppers' intentions before they entered stores. The last part of literature review included studies about stockout problems, customers' response to stockouts, and customer shopping behavior model in ARM.

Theoretical Framework

An apparel firm is a highly interactive operation with complicated decision making. According to Kunz (1995), an apparel firm is a coalition of employees with five internal constituencies: executive management, merchandising, marketing, operations, and finance. The apparel firm can be engaged partially in retailing, partially in manufacturing, or in a combination of retailing and manufacturing. An important concept of Kunz's behavioral theory of the apparel firm is the interactive relationships among functional divisions focused on the target market. The illustrated model of the behavioral theory of the apparel firm and the primary responsibilities of each constituency are in Figure 1.

In this model, Kunz emphasized the function of merchandising that interacts with all other divisions in apparel firm in relation to product line. "Merchandising is the planning,



Constituency	Responsibility
executive management	establishes the apparel firm's goals and administers activities to achieve them
merchandising	plans, develops, and presents product lines
marketing	defines target customer(s) and develops positioning and promotion strategies
operations	manages people and physical property
finance	manages financial resources

Figure 1. Interaction of the functional areas of specialization within an apparel firm (Kunz, 1995, p. 255).

development, and presentation of product line(s) for identified target market(s) with regard to prices, assortments, styling, and timing" (Glock & Kunz, 1990, pp. 30-31). Kunz explains that role of merchandising constituency is to analyze customers' apparel preferences for the firm. The merchandising constituency manages and controls the development of the product lines from start to finish. The merchandising constituency is responsible for management of product lines based on information from the other constituencies of the firm and the target market while considering the economic, social, and cultural environments of the firm. Merchandisers determine merchandise assortments and assortments are fundamentally related to the frequency of stockouts. For this study, the behavioral theory of the apparel firm provides a framework within which to examine the relationships between merchandising strategies and in-store shopping behavior.

Customer Shopping Behavior Research

Three areas of literature were reviewed to build the proposed model of apparel in-store shopping behavior: 1) the model of the consumer decision making process, 2) the situational factors that contribute customers' in-store shopping behavior, 3) the shopper's intentions before they entered a store.

The model of the consumer decision making process

Many researchers have discussed a five stage model of the consumer decision making process. The model regards a consumer as a problem solver (Dewey, 1910; Engel and Blackwell, 1982; Peter and Olson, 1987; Runyon and Stewart, 1987; Solomon, 1994).

Solomon (1994) explained that a person becomes a consumer as a response to a problem that is a perceived need for a new item. The five stages included in the model are 1) problem recognition, 2) information search, 3) evaluation of alternatives, 4) product choice, and 5) postpurchase and evaluation.

Problem recognition is caused when consumers encounter an important discrepancy between their current state and ideal state (Solomon, 1994). Runyon and Stewart (1987) described that problem recognition might be most complicated stage because of the social, psychological, and environmental interaction.

Information search is the process where consumers look for proper data in their environment to make a satisfactory decision (Solomon, 1994). There are two types of information search: internal information search and external information search (Engel and Blackwell, 1982; Peter and Olson, 1987; Runyon and Stewart, 1987; Solomon, 1994). Internal information search is the process in which consumers seek proper information from memory of product knowledge. External information search is the process in which consumers look for information through shopping, asking someone, reading advertisements in magazine or catalog, etc. Bloch, Sherrell, and Ridgway (1986) explained information search as two types of browsing activities. Prepurchase search is for a current purchase. Ongoing search is for future use and recreation. In this research, the prepurchase search is regarded as shopping and the ongoing search is regarded as browsing.

Evaluation of alternatives is the stage in which consumers evaluate or judge competitive options. In most cases, this stage simultaneously occurs with the previous stage,

information search, and continues to the next stage, product choice process (Runyon and Stewart, 1987).

The product choice stage is a result of the information search and evaluation of alternatives process. Consumers make a purchase decision in this stage. Marketers try to make it easy for consumers to make a purchase decision in many ways: brand availability, credit policy, warranties and guarantees, return policy, etc. (Runyon and Stewart, 1987).

The postpurchase and evaluation stage is a critical stage for results of consumers' decisions (Runyon and Stewart, 1987). This may not be only the last stage in the process but may be the first stage for next decision making process (Solomon, 1994).

Situational factors that contribute to customer shopping behavior

Four situational factors are examined in this research: store knowledge, time available for shopping, type of shopping trip, and social surroundings. These situational factors were frequently used to explain in-store shopping behavior.

Park, Iyer, and Smith (1989) defined store knowledge as "the information consumers have about a specific store's layout and floor configurations, including locations of products and brands, based on repetitive shopping experiences in that store" (p. 423). They showed that the low knowledge customers under time pressure were more likely to fail to make intended purchases, and more likely to switch brand or product when they could not find the preferred item. The low knowledge customers under no time pressure were more likely make unplanned purchases.

Park, Iyer, and Smith (1989) defined time available for shopping as "consumers' perceptions of the time required to perform the intended shopping task relative to the actual time available to perform such task" (p. 423). Time pressure primarily had an effect on frequency of failure to make intended purchases. Zbytniewski (1979) found that employed customers spent less time in stores, used fewer coupons and read less advertising than non-employed customers.

Several researchers categorized the type of shopping trips as major trips and fill-in trips (Kahn & Schmittlein 1989, 1992; Kollet & Willett, 1967). Major trip refers to a customer's regular trip for repeated need. For example, a customer may shop for a box of corn flakes once a week. Fill-in trip refers to a customer's additional trip for urgent or additional need. Kollet and Willett (1967) mentioned that fill-in trips were usually for satisfying urgent need and required smaller effort and time commitment. They reported that the percentage of unplanned purchases in a supermarket was larger during major trips than during fill-in trips. Kahn and Schmittlein (1992) found that the percentage of purchases made of featured brands was lower on major trips than on fill-in trips while the percentage of purchases made with a coupon was higher on major trips than on fill-in trips.

Social surroundings refers to how other people influence an individual's purchase behavior (Runyon & Stewart, 1987). Common examples may be influences of shopping in groups and sales person's influence on a customer's purchasing behavior. Granbois (1968) showed when people shopped in groups, individuals made more unplanned purchases and visited more stores than single shoppers. A recent survey of the reasons people left without

purchasing found that sixty two percent left without purchasing because sales people were not available and sixty percent left because a sales person could not answer a question asked about merchandise people wanted to buy (Meet the new competition, 1994).

Shopping intentions

Downs (1961) suggested three categories of shopping intentions: purchasing goods, getting information for future purchase, and receiving pleasure. Kollat and Willett (1967) reported five intentions based on the customer's planning prior to going to a store. The first four intentions relate to Downs' concept of purchasing goods: the shopper has product and brand in mind, the shopper has only product in mind, the shopper has only product class in mind, the shopper recognizes only need for something.

Kollat and Willett's (1967) last intention, the shopper doesn't have any intention to buy, relates to Downs' intention of getting information and pleasure. Receiving pleasure includes things like enjoyment of just looking at merchandise and feelings of status based on shopping in an up-scale store. Bloch, & Richins (1982) defined the intention of getting information and receiving pleasure without current intent to buy as browsing. They showed that significant numbers of people did browse in retail outlets without a purchase in mind.

Bloch, Sherrell, and Ridgway (1986) explained browsing using different terms: prepurchase search and ongoing search. Prepurchase search referred to acquiring information for a current purchase. Ongoing search is related to saving information for future use and recreation. Ongoing search was explained again as browsing by Bloch, Ridgway, and Sherrell (1989). They pointed out that retail environment and product involvement level was strongly

related to browsing activity. They also found that browsers had more knowledge about products and were more likely to be opinion leaders than non-browsers.

Today's buying trends may reflect a customer's desire to minimize expenditures and maximize returns when shopping. This suggests that more customers are now more purposive in their shopping behavior (Richardson, 1993). One study of people in a mall found that 48% of people were purposive customers, 42% of people were browsing customers, and the other 10% of people were not shoppers (Shopping the Big Centers, 1990). Therefore, a store's service level may most important for purposive customers. In other words, a store's stockout level may one of the critical problems to both retailers and customers.

Stockouts in Relation to Merchandising

To build a stockout model in the proposed model of apparel in-store shopping behavior, three areas of merchandising literature were reviewed: 1) balanced assortments and stockout problems, 2) stock situations and shopping outcomes, and 3) stockouts in Apparel Retail Model (ARM).

Balanced assortments and stockout problems

Taylor (1970) insisted that too narrow and shallow assortment planning results in a weak assortment that is unable to meet sales objectives. Conversely, too broad and deep merchandise planning leads to unproductive use of space, promotional effort, and merchandise investment. Thus, balanced assortments are the goal of all merchandising efforts. Merchandisers seek to achieve maximum sales volume, customer satisfaction, minimum

inventory investment, and satisfactory gross margin. A balanced assortment means that the "correct amount of merchandise on hand and on order in relationship to sales estimate and coverage needs" (Taylor, 1970, p. 16). Glock and Kunz (1995) also stated that a balanced assortment is critical to meet apparel firms' profit goals.

"Perhaps the most critical merchandising problem faced by stores is that of having - on demand - the type of merchandise sought by customers" (Taylor, 1970, p. 9). Failure to solve the "critical merchandising problem" results in stockouts. There are two reasons for stockouts: poorly planned assortments and delayed delivery or late replenishment. Stockouts are caused by ill planned assortments. Allen (1982a) reported that " to maintain balanced stocks throughout the season, the buyer must plan for breadth, depth, and the proper mix of sizes, colors, and price lines" (p. 90). Too narrow range of assortments limits the customer interests and too broad range of assortment make customers confused and generates stockouts because of inadequate depth of assortment.

However, there were no meaningful definitions to quantify the dimensions of assortments. Thus, Rupe and Kunz (in review) introduced "volume per SKU for the assortment (VSA)" that is "a measure of how many units are allocated on the average for each Stock Keeping Units (SKU) in the assortment" (p. 9). The VSA is calculated by the following formula:

VSA only reflect relative assortment, not absolute

$$VSA = Volume / SKUs \text{ for the assortment}$$

They developed two concepts of assortment ranges: diverse assortment and focused assortment. They found that the more diverse the assortments, the higher the rate of

stockouts. Glock and Kunz (1995) pointed out that diverse assortments cause loss of sales because popular items are difficult to keep in stock.

Delayed delivery and late replenishment of merchandise also cause stockouts. Delayed delivery refers to late receipt of the initial delivery. Late replenishment refers to delay in restocking. The delayed delivery to a retail store leads to lost sales and stockouts (Taylor, 1970: Brauth and Brown, 1989). Late replenishment causes stockouts and reduces profits (Corwin, 1993; Foster, 1993; Murrah & Piasecki, 1992).

To prevent or reduce stockouts, fast and accurate replenishment of merchandise might be a solution. Fast and accurate replenishment by using electronic systems, like Electronic Data Interchange (EDI), Universal Product Code (UPC), etc., can reduce stockout problems (Corwin, 1993; Foster, 1993; Murrah & Piasecki, 1992). Allen (1982b) reported that careless reordering might generate too much merchandise or cause stockouts of items. Effective replenishment was a consequence of a well developed ordering plan. Allen also pointed out that it was not too difficult for staple goods to be reordered, but it was difficult for fashion goods to be reordered. Corwin (1993) reported that EDI works with basic items, it is hard to keep fashion items in stock. Saks Fifth Avenue is a high-fashion retailer that uses EDI for replenishing basic goods within 72 hours (Fearnley-Whittingstall, 1994, April, 4). However, how to apply EDI or QR to fashion goods for fast replenishment is still problem.

Stock situation and purchase decisions

Miklas (1979) reported the effects of consumer reactions to stockouts on the retailer and the manufacturer. If a customer that experiences a stockout purchases another brand,

purchases a substitute product, or does not purchase a product, these stockout reactions may cause short run profit losses to manufacturers. If a customer that experiences a stockout goes to another store, this reaction may cause short run profit losses to retailers. All reactions causing short-run profit loss to both retailer and manufacturer may result in loss of store loyalty or brand loyalty.

Other studies mentioned that stockouts lead to loss of patronage and sale (Emmelhainz, Stock, & Emmelhainz, 1991; The out-of-stock study, 1968; Schary & Becker, 1978; Schary & Christopher, 1979; Walter and Grabner, 1975). Among these studies, three suggested models of customers reaction to stockouts (Emmelhainz, Stock, & Emmelhainz, 1991; Schary & Christopher, 1979; Walter and Grabner, 1975). All models illustrated three possible customers' reaction to stockouts: substitute product or brand, go to other store, and postpone purchase. Walter and Grabner's (1975) simple model had three parts: buying intention, stock situation, and customer reaction. They compared customer reactions to repeated stockouts. They found that repeated stockouts increased the percentage of customers who would go to another store. Stockout caused loss of continued patronage.

Schary and Christopher's (1979) model described three types of customers' loyalty: brand loyal, store loyal, and non-loyal. They reported that brand loyal customers were more likely to go to another store, change the size of same brand, or postpone purchase. Store loyal customers were more likely to switch brands or products within the store. Non-loyal customers were more likely to be pragmatic by buying available stock because it was convenient, efficient, or economic.

Emmelhainz, Stock, and Emmelhainz's (1991) model include three situational factors that influenced outcomes based on customer loyalty: risk, urgency, and usage. According to their findings, twenty five percent of customers believed that switching brands had risk. Most stockout items were for regular usage rather than special occasion. The customers that shopped for regular usage were more likely to switch stockout items than the customers that shopped for special occasions. About half of customers needed the stockout items the day of the shopping trip. Of these urgent customers, most customers substituted for the stockout items. Risk, usage, and urgency of purchase had strong influence on switching products or brands.

Miklas (1979) pointed out several problems of stockout studies previously done. Little research had been done about stockouts in relation to retail stores and customer reactions and most stockout studies used cross-sectional data. Thus, the results of the studies had limitations related to extending conclusions over time and to other classes of products. He proposed a good method might include an ad hoc consumer panel and experimental study for tracking customers' stockout reactions overtime while simultaneously manipulating marketing variables.

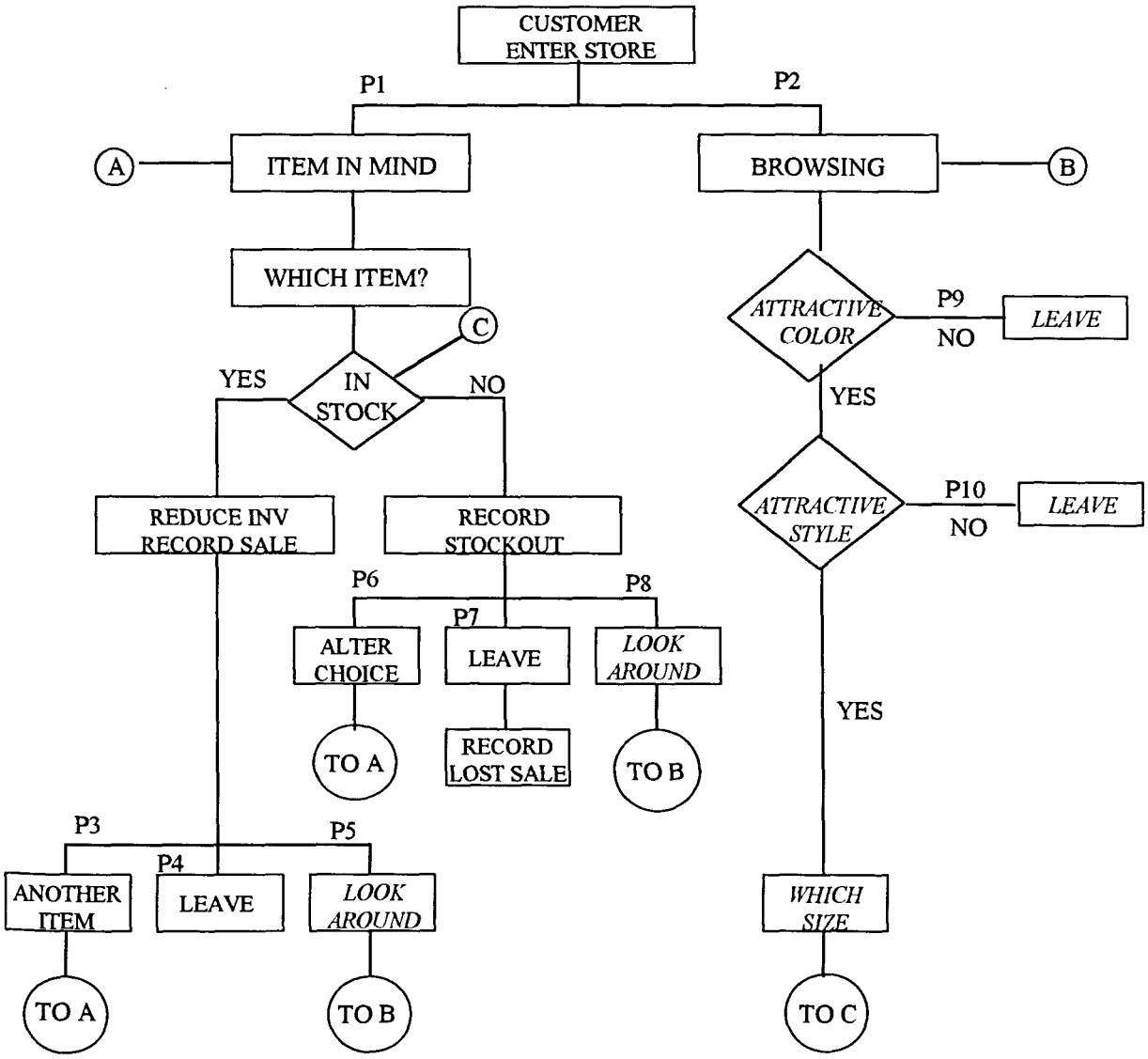
All stockout studies mentioned in this literature review used grocery items to explain customers' reaction to stockouts. Miklas (1979) suggested that frequently purchased grocery items be used in the stockout research because of relatively large number of purchases, many well-known brands, and easy manipulation of experimental research. However, studies of other products have not been reported.

Stockouts in Apparel Retail Model (ARM)

As a part of research related to QR business systems, Nuttle, King, and Hunter at North Carolina State University (1991) have developed Apparel Retail Model (ARM), a simulation of the apparel merchandising process. "Its purpose is to provide 'hands-on' tool for buyers in exploring the significance of different retail operating procedures (i.e., assortment planning, delivery strategy, and pricing) in traditional and QR settings" (Poindexter, 1991, p. 1). The simulation allows the operator to input an assortment plan, a pricing plan, and a delivery plan. The computer calculates financial outcomes based on a shopping behavior model.

Figure 2 shows the consumer behavior branching diagram of the ARM simulation that includes 10 parameters for in-store shopping behavior that can be changed by the operator. Parameters 1 and 2 identify two types of customers: purposive and browsing. Parameters 3, 4, and 5 are related to shopper's motives and time spent. Parameters 6, 7, and 8 explain outcomes of a stockout experience. Parameters 9 and 10 relate to outcomes of browsing behavior. Because of limited studies related to shopping behavior, the model presently in use in the ARM simulation is based on an experimental study in grocery stores (Nuttle, King and Hunter, 1991). No studies are available related to apparel to provide a basis of understanding shopping behavior in relation to stockouts for assigning appropriate percentages.

The model shown as Figure 2 divides customers who enter a store into two types : 1) the customers who have an item in mind, and 2) the customers who browse. This dichotomy may be too simple to explain shoppers intentions. Kollat and Willett (1967) suggested that



P1: Percentage of customers who have an item in mind on arrival.
P2: Percentage of customers who browse on arrival.
P3: Percentage of customers who look for another item after a purchase.
P4: Percentage of customers who leave after a purchase.
P5: Percentage of customers who browse after a purchase.
P6: Percentage of customers who alter their choice after a stockout.
P7: Percentage of customers who leave after a stockout.
P8: Percentage of customers who browse after a stockout.
P9: Percentage of customers who find a style when browsing.
P10: Percentage of customers who find a color when browsing.

Figure 2. Consumer behavior branching diagram (Poindexter, 1991, P. 5).

there were five major intentions that customers might have before entering the store: 1) the customer has product and brand in mind, 2) the shopper has only product in mind, 3) the shopper has only product class in mind, 4) the shopper recognizes only need for something, and 5) the shopper does not have any intention to buy.

Next, the model presented in Figure 2 illustrates that the buying decision process has three criteria in relation to merchandise: 1) color, 2) style, and 3) size. These are consistent with an apparel stock keeping unit. However, there may be other important criteria to influence customer buying decision of apparel products, and the order of the three criteria may be different depending on preferences of the customer and product type. Eckman, Damhorst, and Kadolph, (1990) found 35 extrinsic and 52 intrinsic criteria to influence consumer evaluation of apparel products across 21 studies. They reported that color, style, and fabric were most important criteria during the interest stage. Fit or sizing, style, and appearance were most influential criteria during the trial stage. The model in ARM does not recognize the difference between the interest stage and trial stage. More specific criteria for buying decision process may be developed for ARM to predict more reasonable and accurate financial outcomes for merchandising strategies.

RESEARCH METHODS AND PROCEDURES

Ramal Project

This study is a part of a larger project, named the Ramal Project. The Ramal project research team includes four graduate students and director, Dr. Grace Kunz.. The research team visited the Ramel headquarters and five Ramal stores based in a large sized midwestern city. The team interviewed executives of the company and the store managers. Ramal is a well established, up scale, regional apparel retail company with controlled growth. The stores sell both traditional and contemporary professional apparel and dressy casual attire for men and women. The prices of merchandise are up-scaled with better to bridge price points. These stores carry well-known brands and also have a private label. According to the marketing manager's description, the target customers are urban professionals with over $40,000 average income a year. This company uses their management information system (MIS) for extensive records of individual customer purchases and records of merchandise receipts, merchandise plans, distribution, and sales. Detailed information about customers, merchandise, and sales was provided by Ramal for the project.

For this study, literature was reviewed and synthesized to propose a model of in-store apparel shopping behavior in relation to stockouts. Survey research was used to examine Ramal customers' general shopping habits. Quasi-experimental design using the scenario method was included to test hypotheses in relation to stockouts.

Scenarios were used because it is very difficult to create stockout situations in the actual store locations. Miklas (1979) points out that there are so many practical obstacles to observe customers' resultant behavior in the actual store location like lack of store cooperation, lack of control over relevant factors, cost of tracking a sample, etc. The scenario method provides an acceptable substitute at low cost for situations that cannot be controlled easily in experimental research (Mixon, 1971). Two different scenarios were given to Ramal customers assuming a Ramal customer experienced a stockout when she or he wanted to buy a shirt for casual Friday and a business suit for a job interview. Each scenario had 9 questions scored on a five point Likert-type scale, with 1 being 'least likely' and 5 being 'most likely'. These questions measured the Ramal customer's likelihood of changing brand, changing color, changing style, changing size, postponing purchase, looking for another item, quitting shopping, going to another store, and buying the item with delivery within three days when she or he encountered a stockout. These scenarios and questions are in Appendix C.

Model Building

For the first objective, to propose the model of in-store apparel shopping behavior in relation to stockouts, a general model of consumer decision making process was considered and the reviewed literature on shopping behavior was synthesized.

Literature contributing to the proposed in-store shopping behavior model in relation to stockouts

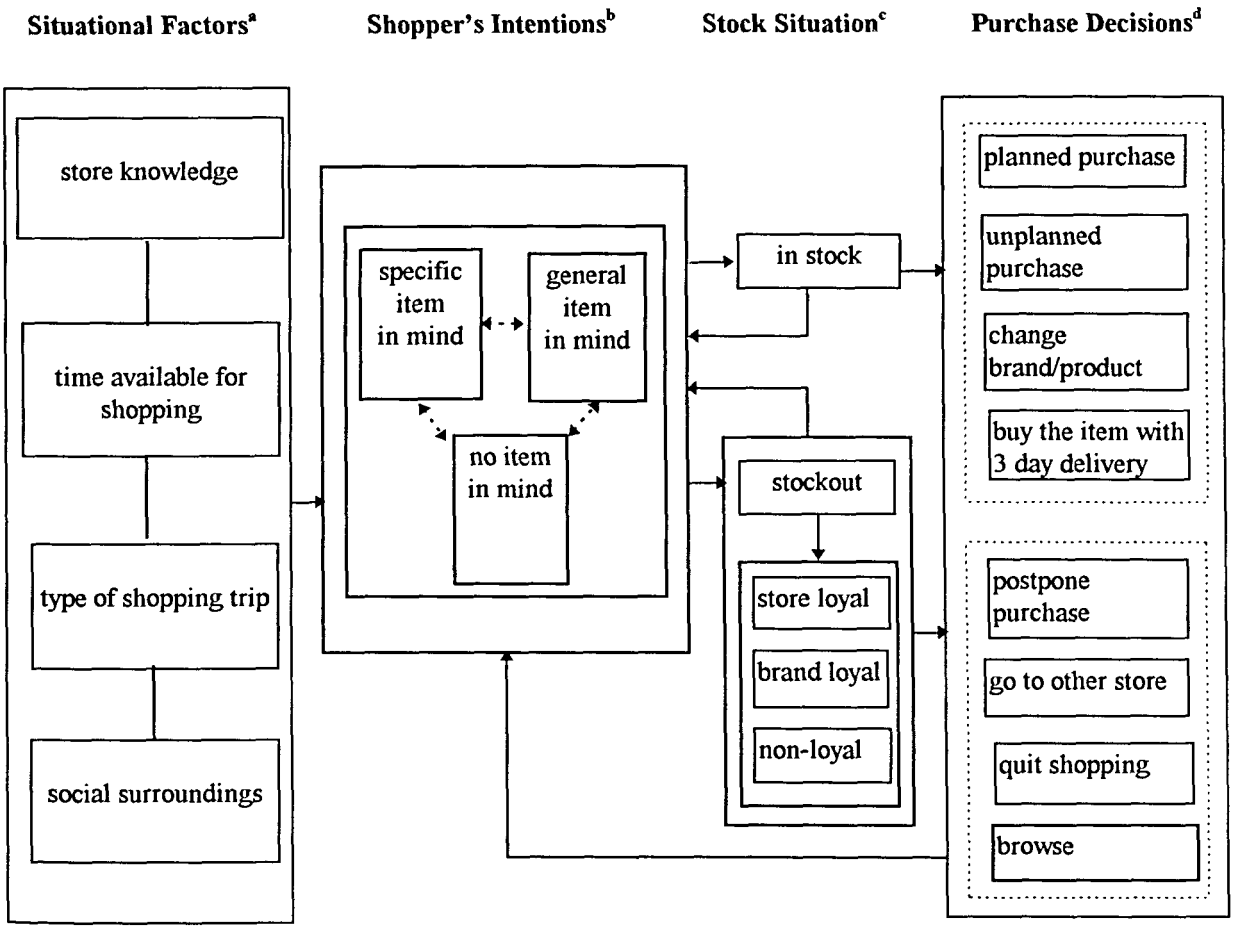
Syntheses of previous shopping behavior research reported in the literature review

resulted in the identification of four constructs related to in-store shopping behavior: situational factors, shopping intentions, stock situation, and purchase decision. Based on a priori relationships among these constructs, a model of apparel in-store shopping behavior in relation to stockouts was proposed. The list of literature contributing to each construct is included in Figure 3.

Of the five consumer decision making stages previously discussed in this section, problem recognition stage and postpurchase and evaluation stage are not included in the proposed model because the problem recognition stage occurs for a purposive customer, before a consumer enters a store and post purchase and evaluation stage occur after purchasing. Information search, evaluation of alternatives, and product choice stages are included in the proposed model (see Figure 3).

Situational factors is defined as " all those factors particular to a time and place of observation which do not follow from a knowledge of personal (intra-individual) and stimulus (choice alternative) attributes and which have a demonstrable and systematic effect on current behavior" (Belk, 1975, p. 158). In this research four situational factors that may influence an apparel shopper's in-store shopping behavior were synthesized from literature reviewed: store knowledge, time available for shopping, type of shopping trip, and social surroundings. Store knowledge refers to the information a customer has about a specific store's attributes.

Type of shopping trip was categorized as major shopping trip and fill-in shopping trip (Kahn & Schmittlein 1989, 1992; Kollet & Willett, 1967). Major shopping trip is extended excursion for seasonal or annual needs. Fill-in shopping trip is quick



a. Kollat and Willett (1967), Granbois (1968), Zbytniewski (1979), Runyon & Stewart, (1987), Park, Iyer, and Smith (1989), Kahn & Schmittlein (1989, 1992), Meet the new competition (1994)

b. Downs (1961), Kollat and Willett (1967), Bloch, & Richins (1982), Bloch, Sherrell and Ridgway (1986), Bloch, Ridgway and Sherrell (1989)

c. The out-of-stock study (1968), Schary and Becker (1978), Schary and Christopher (1979), Emmelhainz, Stock, & Emmelhainz (1991), Walter & Grabner (1975), Miklas (1979), Lambert, & Stock (1993), Nuttle, King, and Hunter (1991), Poindexter (1991)

d. The out-of-stock study (1968), Schary and Becker (1978), Schary and Christopher (1979), Emmelhainz, Stock, & Emmelhainz (1991), Walter & Grabner (1975), Miklas (1979), Lambert, & Stock (1993), Nuttle, King, and Hunter (1991), Poindexter (1991)

Figure 3. A proposed model of in-store apparel shopping behavior in relation to stockouts.

excursion for current need. Kollet and Willett(1967) showed influences of major trip and fill-in trip on unplanned purchases. They reported that the percentage of unplanned purchases in a supermarket was larger during major trips than during fill-in trips. Kahn and Schmittlein (1992) found that the percentage of purchases made of featured brands was lower on major trips than on fill-in trips while the percentage of purchases made with a coupon was higher on major trips than on fill-in trips. Social surroundings refers to how other people influence an individual's purchase behavior (Runyon & Stewart, 1987).

Shopper's intentions are categorized into three groups: specific item in mind, general item in mind, and no item in mind. Considering Kollat and Willett's (1967) five intentions: 1) the shopper has product and brand in mind, 2) the shopper has only product in mind, 3) the shopper has only product class in mind, 4) the shopper recognizes only need for something, and 5) the shopper doesn't have any intention to buy, the first intention is categorized as specific item in mind; the second, third and forth intentions are categorized as general item in mind; and the last intention is categorized as no item in mind. These proposed three intentions may interact together. A customer who has no item in mind may find a specific item or general item during the shopping trip. A customer who has a general or specific item in mind can give up purchase intention and have no item in mind because of the stock situation or influence of other situational factors.

Considering the model of decision making process previously discussed, information search stage relates to shopper's intentions. A shopper who has a specific item in mind may depend on her/his internal information in the process of information search. Thus she or he

may less browse than a shopper who has a general item in mind or no item in mind. A shopper who has a general item in mind may partially rely on internal information search and also rely on external information search. In other words, a shopper who has a general item in mind may more browse than a shopper who has a specific item in mind. A shopper who has no item in mind may mostly depend on external information search. Therefore, browsing activity of her/him may more active than a shopper who has a specific or general item in mind.

Stockout situation refers to the presence of an item a customer wants to buy: in-stock or stockout. Stock situation is a most critical situation in merchandising strategy that directly influence a shopper's purchase decisions. Information search and evaluation of alternative processes may simultaneously occur in relation to the stock situation. Well developed and balanced assortments may provide better information search and evaluation of alternatives for a shopper.

Purchase decisions is the final construct in the proposed model. Depending on situational factors, a shopper's intention, and stock situation, a shopper's purchase decision may include eight options: purchase planned item, purchase unplanned item, change brand or product, buy the item with 3 day delivery, postpone purchase, go to another store, quit shopping, or browse. These eight purchase decisions may be categorized two groups: current sales, potential sales. The current sales occurs when a customer makes a purchase and store can make sales records. The potential sales occurs when a customer dose not make a purchase in the store and a store can not make sales records. The current sales group includes purchasing planned item, purchasing unplanned item, changing brand or product, and buying

the item with 3 day delivery. The potential sales group includes postponing purchase, going to another store, quitting shopping, and browsing. These purchase decisions are made through the product choice process of the five stage decision making model. The purchase decisions caused by a stockout situation may be influenced by a shoppers' loyalty: store loyal, brand loyal, and non-loyal. Schary and Christopher (1979) reported that brand loyal customers were more likely to go to another store, change the size of same brand, or postpone purchase when they encounter a stockout. Store loyal customers were more likely to change brands or products within the store. Non-loyal customers were more likely to buy available stock considering convenient, efficient, or economic.

Hypotheses

Hypotheses were based on the proposed in-store shopping behavior model. Two product types were selected for an experimental design of this research: casual shirts and business suits. Many articles reported that increasing numbers of companies allow casual wear in the office, every day or on casual days (Fitzgerald, 1994; Getting serious about casual were, 1994; Goldberg, 1995; Lee, 1995; McConville, 1994). Thus, casual wear has become a more important category of business attire. Different responses of customers to stockouts related to casual wear and business wear contribute to marketing and merchandising strategies.

Demographic variables may also have different influences on the customers' reactions to stockouts. Jarboe and McDaniel (1987) reported that browsers in regional malls are more likely to be employed females. Zbytniewski (1979) found that employed consumers spent less

time in grocery stores and it might be because of the employed customer's limited shopping time. One survey showed that females are more likely to regard shopping as fun and males are not likely to spent time in shopping. Customers over 55 year old were also more likely to regard shopping as fun. Price is more likely to be important consideration for the customers aged from 18 years old to 34 years old, the customers over 55 year old, and females. The younger customers are, the more likely they are to buy something at the first store because it would take too much time to shop around (Meet the new competition, 1994). Chowdhary (1989) found that customers aged over 65 years old were more likely to shop at department stores for clothing because they believed that department stores had better prices and better selections than discount stores or specialty sores. The null hypotheses tested in this research are as follows:

H1. There are no significant differences between casual shirts and business suits in relation to customer's reactions to stockouts.

H2. The demographic variables are not related to respondents' reactions to casual shirt stockouts.

H3. The demographic variables are not related to respondents' reactions to business suit stockouts.

Instrument for Data Collection

A questionnaire was developed for this research and designed to take 10 minutes for each telephone interview. The questionnaire was reviewed by three research experts and pretested with two graduate students, four Ramel credit card customers, and a Ramal

executive. Based on recommendations from the experts, pretest participants, and a Ramal executive the final questionnaire was revised.

The questionnaire has three sections. For the second objective, to report general characteristics of Ramal customers' shopping habits, 16 questions addressed the customers' general apparel shopping habits. Twelve questions were multiple choice and 4 questions were open-ended questions. These questions addressed the shopping purpose, shoppers' intention, type of shopping trip, stockout experience and participants' apparel store preferences.

For the third objective of this research, to test hypotheses based on the proposed model of in-store shopping behavior, 18 questions were used, based on two different scenarios. One scenario assumed a participant experienced a stockout when she/he wanted to buy a specific shirt for casual Friday. The other scenario assumed a participant encountered a stockout when she/he wanted to buy a specific business suit for a job interview. Each scenario had 9 questions scored on a five point Likert-type scale, with 1 being "least likely" and 5 being "most likely". These questions asked participants for their reactions to stockouts that addressed changing brand, changing color, changing style, changing size, postponing purchase, looking for another item, quitting shopping, going to another store, and buying the item with free delivery within three days. After reviewing the original instrument, the Ramal executive specifically requested that the option be added to buy an item with free delivery within three days. The last section of the questionnaire included demographic characteristics of research participants including 8 questions related to gender, marital status, age, occupation, education level, annual clothing expenditure, income, and race.

Procedures for Data Collection

The procedure for telephone survey used data collection methods recommended by Dillman's method (1978). Ramal randomly selected from their data base 250 credit card customers' and 250 non-credit card customer's names, telephone numbers, addresses, and individual sales records from March, 1994 to March, 1995. The credit card customers were chosen as the sample population because it was believed the addresses and phone numbers would be more up to date.

Before conducting the telephone survey, letters were sent to the 250 credit card customers from a list provided by the company introducing the project. Two trained interviewers conducted the telephone interviews. Telephone calls were placed during the evening time over a two month period because respondents could not be reached during the day. The interviewers placed a total of 654 calls and completed 95 interviews.

Among the 250 credit card customers' telephone numbers, 40 telephone numbers were incorrect or disconnected (16%) and 51 customers never answered the phone (20.4%). Thus, 159 customers that were contacted (63.6%). Among the 159 contacted customers, 97 customers participated in the telephone survey (61%) and 62 customers refused to answer the questionnaire (39%). Of 97 customers interviewed, two customers' answers were eliminated because too many questions were not completed. Thus, the sample size of this study is 95.

After collecting all data, interviewer's effect was tested using t-test of difference between interviewers. There was no significant interviewer's effect on the results of the telephone survey.

Analysis of Data

SAS User's Guide Version 5 (SAS Institute Inc., 1985) was using for statistical analysis. To examine the characteristics of general shopping habits for clothing, the chi-square test for contingency tables was used. To obtain proper results of the chi-square test, the response categories in which each cell frequency had a value of less than 5 were collapsed or combined. Several statistical methods were used to test the hypotheses. Table 1 shows a summary of the hypothesis along with the statistical test methods.

Table 1. Hypotheses and test methods.

Hypothesis	Test Method	Reactions to stockout
H1. There are no significant differences between casual shirts and business suits in relation to customer's reactions to stockouts*.	•paired comparison •t-test	a) finding a different brand b) finding a different color c) finding a different style d) finding a different size e) postponing purchase f) browsing g) quitting shopping h) going to another store for the specific item i) buying the item with delivery at the store's expense within three days
H2. Demographic variables are not related to respondents' reaction to casual shirt stockouts*.	•t-test •regression	
H3. Demographic variables are not related to respondents' reaction to business suit stockouts*.	•t-test •regression	

* Reactions to the stockouts are itemized as 'a' to 'i' in column 3.

Frequency and chi-square (χ^2) test

Frequency distribution and chi-square (χ^2) test were used for analyzing general clothing shopping habits of Ramal customers. The chi-square test is used for testing significance in the analysis of the frequency distribution of categorical data (Zikmund, 1991). In this research, general clothing shopping habits were compared by sex.

Paired comparison t-test

Paired comparison t-tests were performed for testing H1: There are no significant differences between casual shirt and business suit in relation to customer's reactions to stockouts. Table 2 shows the method of measuring differences for paired comparison t-test.

Table 2. Method of measuring differences, for paired comparison t-test, of likelihood of change in relation to stockouts between casual shirts and business suits.

difference	likelihood of change for casual	likelihood of change for business
D_BRAND	change brand in casual shirt	change brand in business suit
D_COLOR	change color in casual shirt	change color in business suit
D_STYL	change style in casual shirt	change style in business suit
D_SIZE	change size in casual shirt	change size in business suit
D_POSTPONE	postpone purchase in casual shirt	postpone purchase in business suit
D_BROWSE	look for other item in casual shirt	look for other item in business suit
D_QUIT	quit shopping in casual shirt	quit shopping in business suit
D_OTHER STORE	go to other store in casual shirt	go to other store in business suit
D_DELIVERY	buy the item with delivery in casual shirt	buy the item with delivery in business suit

After generating differences between shoppers' reactions to stockouts for casual shirts and the reactions for business suits, univariate procedures were used for the paired comparison t-test involving hypothesis H1. For the paired comparison t-test, the difference between likelihood of alternative responses to stockouts in casual shirts and business suits were measured. The differences were calculated by

difference = likelihood of change for casual - likelihood of change for business

T-test and regression for testing H2 and H3.

To test significant differences across demographic variable categories, t-test were performed. To test for relationships between continuous demographic variables and dependent variables, regression analysis and t-test were applied. In this research, the categorical demographic variables were sex (male and female) and marital status (married and not married). The continuous demographic variables were age, education level, clothing expenditure, and income.

Factor analysis

The purpose of factor analysis is to summarize the information contained in large number of variables into a small number of factors (Zikmund, 1991). Because the items were expected to exhibit potentially multicollinearity. In this research, factor analysis was used to identify factors to be used in subsequent analyses. The nine items measuring respondents' reactions to stockouts were analyzed using varimax procedures. Eigenvalues were inspected as criteria for deciding the number of factors. Item loading 0.4 or higher in one factor were

considered as the means for interpreting the factors. Sums of items were used for creating factors. Cronbach α was calculated to test the reliability of the summated measures. After investigating internal consistency within items, the negative items loading on factors were rescored to reverse polarity of the item scale before performing factor analysis.

RESULTS

General Shopping Habits

The second objective of this research was to examine the characteristics of general shopping habits for clothing. The data were examined based on the proposed model of in store shopping behavior. The frequency tables are reported in the text and the chi-square tests of significance of difference between males and females are reported in Appendix A. Only a few significant differences were found. The majority of the data reported in this section is based on the survey. In addition, shopping patterns of the sample are compared to credit card and non-credit card customers based on sales data provided by Ramal.

Characteristics of sample

Table 3 shows results of the demographic questions included in the survey. Forty nine point five percent of the Ramal customers responding to the telephone survey were male and 50.5% were female. The participants ranged in age from 22 to 80 years, (mean = 45, SD = 11.77). About 30% of customers were in their thirties and 30% were in their forties. Seventy percent of participants were married and 16% were never married. Forty five percent of participants' occupations were professional or technical jobs and 25% of them were managers or administrators. The sample shows a very high education level. Seventy nine percent of customers had completed college education or beyond. Of them, 42.7% completed college, 9.3% took some graduate courses, and 48% completed graduate degrees. Most participants were white (95.8%). Sixty nine percent of customers reported family incomes over $100,000.

Table 3. Demographic characteristics of Ramal customers participating in survey.

Variables	Male (49.5%) (N=47) %	Female (50.5%) (N=48) %	Total (100%) (N=95) %
AGE			
less than 30	5.26	3.16	8.42
30-39	11.58	17.89	29.47
40-49	12.63	16.84	29.47
50-59	15.79	4.21	20.00
over 60	4.21	8.42	12.63
MARITAL STATUS			
never married	7.40	9.40	16.80
married	40.00	33.70	73.70
divorced	2.10	4.20	6.30
widowed	0.00	3.20	3.20
JOB TYPE			
professional/technical	27.40	17.90	45.30
manager/administrator	12.70	12.60	25.30
sales worker	8.40	8.40	16.80
clerical worker	0.00	1.10	1.10
domestic house hold	0.00	8.40	8.40
retired	0.00	1.10	1.10
service worker	1.10	1.10	2.10
EDUCATION			
completed high school	0.00	6.30	6.30
some college	6.30	8.40	14.70
completed college	17.90	15.80	33.70
some graduate	2.10	5.30	7.40
graduate degree	23.20	14.70	37.90
RACE			
African American	2.10	0.00	2.10
Asian	0.00	1.10	1.10
White	47.40	48.40	95.80
Other	0.00	1.10	1.10
FAMILY INCOME[a]			
30,000- 40,000	0.00	3.60	3.60
40,001- 50,000	1.20	4.80	6.00
50,001- 75,000	2.40	12.10	14.50
75,001-100,000	12.10	4.80	16.90
100,001-200,000	22.90	18.10	41.00
over 200,000	10.80	14.30	18.10
CLOTHING EXPENDITURE[b]			
less than 1,000	4.21	12.63	16.84
1,000-1,999	8.42	7.37	15.79
2,000-3,999	20.00	15.79	35.79
4,000-5,999	9.47	9.47	18.95
over 6,000	7.36	5.27	12.63

a. N=83 (male=41, female=42, missing value=12)
b. N=84 (male=42, female=42, missing value=11)

The range of total clothing expenditures per customer last year was from $500 to $25,000. The mean clothing expenditure was $3,783.33 (SD = 3960.33). About 67% of customers spent over $2,000 for their clothes during last year.

Compared with the demographics of population of United States (U.S.) in 1992 (Bureau of the Census, 1994), the sample represents a high income and education level. Seventy nine percent of the sample completed college level or more, while about 21% of the U.S. population completed college level or more. While the family income of about 34% of the U.S. population is over $50,000, the family income of about 91% of sample is over $50,000. The average annual apparel expenditure of individuals in the sample is $3,783, while the average annual expenditure of a family in the U.S. population is $1,710 for apparel and other services.

Shopping patterns of the sample compared to credit card and non-credit card Ramal customers based on sales records

Table 4 shows shopping patterns of credit card and non-credit card Ramal customers. According to the individual sales records provided by Ramal, 250 credit card customers purchased 2,448 items within a year with a total sales volume of $256,594.68. The average number of items purchased within a year was about 10 items (9.79 items) per person, and their average sales volume within a year was $1,026.38 per person. Their average frequency of visiting Ramal stores within a year was about 4 times per person, and their average expenditure per trip was $268.69 per person.

The total numbers of purchased items of 250 non-credit card customers were 1,288 items within a year, and total sales volume was $95,953.66. Thus, their average number of items purchased within a year were about 5 items (5.15 items) per person, and their average sales volume within a year was $383.81 per person. Their average frequency of visiting Ramal stores within a year was about 2 times per person, and their average expenditure per trip was $190 per person.

The frequency of purchase and amount of sales volume of credit card customers was about two times more than those of non-credit card customers. Credit card customers visited the Ramal store two times more than non-credit card customers. Credit card customers also made more expenditure per trip than non-credit card customers.

Table 4. Shopping patterns of the sample, credit card customers, and non-credit card customers based on Ramal sales records.

	Sample (N=95)	Credit Card Customers (N=250)	Non-Credit Card Customers (N=250)
Average Amount of Items Purchased per Person within a Year	8.73	9.79	5.15
Average Sales Volume per Person within a Year	$916.96	$1,026.38	$383.81
Average Frequency of Visiting Ramal Stores per Person within a Year	4.06	3.82	2.02
Average Items Purchased per Trip	2.15	2.56	2.55
The Average Expenditure per Trip	$225.85	$268.69	$190.00

According to the sales records of the sample of 95 credit card customers interviewed, the average frequency of sample customers' visiting Ramal stores was 4 times (4.06 times) a year. Ramal customers, on the average, purchased about 9 items (8.73 items) per year and more than 2 items (2.15 items) were purchased on a shopping trip in Ramal stores. The average expenditure per trip were $225.85. The shopping patterns and expenditures of sample were similar to the total of 250 credit card customers. Total amount of expenditure in Ramal stores was $87,112 ($916.96×95). Based on the survey, total annual expenditure for clothes was $244,500. Therefore about 36% of the total expenditure were made in Ramal stores

Shopping trip patterns

Based on the survey, Table 5 shows the shopping purpose, annual shopping frequency and size of shopping group by sex. The results of chi-square tests are in Appendix A. About 70% of Ramal customers were likely to shop for updating their wardrobes while about 16% of the customers usually shopped for purchasing clothes for special occasions. Only a few of customers were likely to shop for recreation or purchasing a new wardrobe. The result of chi-square test showed that there was no significant difference between males and females.

About 52% of customers shopped for their clothes a few times a year; 29% shopped every month. Thus, most respondents' shopping trips for clothes might be based on seasonal clothing needs or fashion changes. The result of chi-square test showed that there was no significant difference between males and females.

About half of customers (51%) shopped alone when they shopped for their clothes and about half (49%) of customers shopped with someone: with spouse (30.53%), with family members (15.79%), with friends (2.11%), and with others (1.05%). The results of chi-square test showed a significant chi-square for the shopping in group, $\chi 2 = 4.257$, $p < .05$. Men were more likely to shop with their spouse than women with their spouse. Women were more likely to shop alone or with other family members than men.

Table 5. Shopping purpose, annual shopping frequency, and size of shopping group by sex.

	Male (49.5%) (N=47)	Female (50.5%) (N=48)	Total (100%) (N=95)
	%	%	%
Shopping Purpose			
update wardrobe	38.95	30.53	69.47
special occasion	5.26	10.53	15.79
other (all)	4.21	4.21	8.42
recreation	1.05	4.21	5.26
new wardrobe	0.00	1.05	1.05
Shopping Frequency			
every week	0.00	6.32	6.32
every month	17.89	11.58	29.47
a few times a year	27.37	24.21	51.58
others	4.21	8.42	12.63
Shopping Group			
no one	20.00	30.53	50.53
spouse	25.26	5.26	30.53
family member	3.16	12.63	15.79
friends	1.05	1.05	2.11
other	0.00	1.05	1.05

Shoppers' intentions

Most customers (89%) had an item in mind: about 56% of customers had a general item in mind when they went shopping for clothes, 33% had specific item in mind, and 11% had no item in mind. See Table 6. Thus, 89% of customers could be described as purposive. The chi-square test revealed a significant chi-square, $\chi 2 = 8.135$, $p < .05$. Males were significantly more likely to have a specific item in mind than females. Females were significantly more likely to have a general item in mind than males. See Appendix A.

Table 6. Frequency of shopping intentions by sex.

Shopping Intentions	Male (50%) (N=47)	Female (50%) (N=47)	Total (100%) (N=94)
	%	%	%
specific item in mind	23.40	9.57	32.98
general item in mind	22.34	34.04	56.38
no item in mind	4.26	6.38	10.64

Purchase decisions

Table 7 shows the number of items purchased per trip and the behavior after purchasing by sex. Approximately 57% of customers purchased multiple items. Thirty percent of customers purchased coordinated outfits. Thirteen percent customers purchased

single item. Therefore, most of customers (about 87%) made multiple purchases. The result of chi-square test showed that there was no significant difference between males and females.

About 61% of customers left after a making a purchase. Thirty nine percent browsed. The result of chi-square test showed that there was no significant difference between males and females.

Table 7. Number of items purchased per trip and behavior after a purchasing by sex.

	Male (49.5%) (N=47)	Female (50.5%) (N=48)	Total (100%) (N=95)
	%	%	%
Number of Items purchased per trip			
purchase multiple items	29.47	25.26	54.74
purchase coordinated outfit	12.63	16.84	29.47
purchase single item	5.26	7.37	12.63
others	1.05	1.05	2.11
not purchase	1.05	0.00	1.05
Behavior after Purchasing			
leave	30.53	30.53	61.05
browse	18.95	20.00	38.95

Stockout perceptions

Table 8 shows frequency of stockout experience, stockout reason, seriousness of stockout problem, and frequency of stockouts as Ramal compared to other stores by sex. About 93% of respondents had stockout experiences. Seven percent never experienced stockouts.

Table 8. Frequency of stockout experience, stockout reason, seriousness of stockout problem, and frequency of stockouts at Ramal compared to other stores by sex.

	Male (49.5%) (N=47)	Female (50.5%) (N=48)	Total (100%) (N=95)
	%	%	%
Frequency of Stockout Experience			
frequently	2.11	6.32	8.42
sometimes	11.58	12.63	24.21
not usually	30.53	29.47	60.00
never	5.26	2.11	7.37
Stockout Reason[a]			
brand	1.09	0.00	1.09
style	2.17	5.43	7.61
color	7.61	0.00	7.61
size	30.43	41.30	71.74
other (all above)	7.61	4.35	11.96
Perceived Seriousness of Stockout Problem			
yes	15.79	12.63	28.42
maybe	8.42	12.63	21.05
no	25.26	25.26	50.53
Frequency of Stockouts at Ramal Compared to Other Stores[b]			
more	2.35	4.71	7.06
same	17.65	23.53	41.18
less	30.59	21.18	51.76

a. N=92 (male=45, female=47, missing value=3) b. N=85 (male=43, female=42, missing value=10)

The most frequent reason for stockouts was because of size. Among the respondents who had stockout experiences, most respondents experienced stockouts because of size (72%). Other reasons were unavailable style, unavailable color, and unavailable brand.

Twenty eight percent regarded stockouts as a serious shopping problem. Twenty one percent responded stockouts were may be a serious shopping problem. Fifty one percent of respondents regarded stockouts as a not serious shopping problem. About 52% of customers experienced less stockouts in Ramal store, compared other stores. Forty one percent responded that Ramal had same frequency of stockouts. Seven percent answered that they experienced more stockouts in Ramal than other stores. The results of chi-square tests showed significant difference between males and females for stockout reasons. Females experienced more stockouts because of the size than males. Males experienced more stockouts because of other reasons than females ($\chi 2 = 3.935$, $p < .05$). See Appendix A.

Store loyalty

Table 9 shows preference for Ramal as a source for casual shirts and business suits. About 39% of customers were more likely to shop for casual shirts and 45% were less likely to shop for casual shirts in Ramal than other stores. Sixteen percent were not sure. About 76% of customers were more likely to shop for business suits and 17% were less likely to shop for business suits in Ramal. Seven percent were not sure. Compared to the preference for shopping at Ramal for casual shirts, more customers preferred shopping for business suits in Ramal to shopping for casual shirts in Ramal. The result of chi-square test showed that there was no significant difference between males and females. See Appendix A.

Table 9. Preference for shopping at Ramal as a source for casual shirts and business suits.

Likelihood	Male (49.5%) (N=47) %	Female (50.5%) (N=48) %	Total (100%) (N=95) %
Casual Shirts			
very unlikely	3.16	10.53	13.68
unlikely	15.79	15.79	31.58
not sure	8.42	7.37	15.79
likely	11.58	11.58	23.16
very likely	10.53	5.26	15.79
Business Suits			
very unlikely	4.21	7.37	11.58
unlikely	1.05	4.21	5.26
not sure	3.16	4.21	7.37
likely	11.58	10.53	22.11
very likely	29.47	24.21	53.68

Table 10 shows alternative choice of stores to Ramal for shopping for casual shirts and business suits and criteria for their choices. The most preferred store for casual shirts of customers was Marshall Field (31.5%). The second preferred store was Nordstroms (20.7%). The third preferred was Gap (13.0%). Next were Banana Republic (6.5%) and J. Crew (6.5%). The remaining 64% were allocated to twenty seven different stores. The customers only shopping at Ramal for shirts were 2.18%. The most frequent criterion of store choice for casual shirts was the selection (40%). Other criteria of store choice were price (32.6%), quality (15.8%), style (14.7%), convenience (7.4%), and preferred brand (7.4%).

The first and second preferred stores for business suits were same as the preferred store for casual shirts. The most preferred store for business suits was Marshall Field (25.6%). The second preferred store was Nordstroms (22.2%). The third preferred store was

Table 10. Alternative choice of stores to Ramal and criteria for store choice for casual shirts and business suits.

	Male (47.8%) (N=44)	Female (52.2%) (N=48)	Total (N=92)
	%	%	%
CASUAL SHIRTS			
Other Preferred Store			
Marshall Field	13.04	18.48	31.52
Nordstroms	13.04	7.61	20.65
Gap	6.52	6.52	13.04
Banana Republic	4.35	2.17	6.52
J Crew	4.35	2.17	6.52
other (included 27 stores)	28.26	35.87	64.13
Ramal Loyal			
Only shop at Ramal	1.09	1.09	2.18
Criteria			
selection	23.15	16.85	40.00
price	16.85	15.79	32.64
quality	9.47	6.32	15.79
style	5.26	9.47	14.73
convenience	4.21	3.16	7.37
preferred brand	1.05	6.32	7.37
others	5.26	7.37	12.63

	Male (50%) (N=45)	Female (50%) (N=45)	Total (N=90)
BUSINESS SUITS	%	%	%
Other Preferred Store			
Marshall Field	10.00	15.56	25.56
Nordstroms	11.11	11.11	22.22
Bigsby & Kruthers	10.00	0.00	10.00
Others (include 23 stores)	27.78	46.66	74.44
Ramal Loyal			
Only shop at Ramal	8.89	4.44	13.33
Criteria			
selection	17.89	24.21	42.10
price	4.21	12.63	16.84
style	8.42	6.32	14.74
quality	8.42	3.16	11.58
service	4.21	5.26	9.47
others	3.16	13.68	16.84

Bigsby and Kruthers (10%). About 74% were allocated to 23 different stores. The customers only shopping at Ramal for suits were 13.3%. Thus, they were completely store loyal for suits. This shows that more customers were likely to shop for business suit in Ramal than to shop for casual shirts at Ramal. The most frequent criteria of store choice for business suits were the selection (42.1%), price (16.8%), style (14.7%), quality (11.6%), and service (9.7%). In both casual shirts and business suits, selection is the most important criteria for store choice. The price of casual shirts is more important criteria for store choice than the price of business suit.

Summary of general shopping habits

Ramal customers represent a unique customer group based on demographics. The 95 Ramal credit card customers discussed in this study are mostly white males and females, middle aged, highly educated, married, and employed with high income. Compared with the demographics of population of U.S. in 1992 (Bureau of the Census, 1994), the sample represents a high education and income level. The average annual apparel expenditure of individuals in the sample is over twice as much as the average annual expenditure of a family in the U.S. population for apparel and other services.

There were great differences in shopping habits between 250 credit card customers and 250 non-credit card customers based on Ramal sales records. Credit card customers made nearly twice the purchases (in both dollars and units) and shopping trips at Ramal as non-credit card customers. Sample (N=95) is representative of random sample of 250 credit card customers.

The results of chi-square tests showed relatively few significant differences between males and females. Men were significantly more likely to shop with their spouse than women with their spouse and women were significantly more likely to shop alone or with other family members than men. Males were significantly more likely to have a specific item in mind than females and females were significantly more likely to have a general item in mind than males. Females were significantly more likely to experience stockouts because of the size. Males were significantly more likely to experience stockouts because of other reasons (brand, style, and color) than females.

About 70% of customers shopped to update their wardrobes and the average frequency of customers' shopping for their clothes is four times a year. This type of shopping is defined as major shopping trip in this study. About half of respondents shopped with someone when they shopped for their clothes. The customers were much more likely to be purposive customers (89%) than browsers (11%). About 84% of customers purchased multiple or coordinated items. About 93% of customers experienced stockouts. About 72% of stockout reasons were because of size.

Ramal customers significantly preferred Ramal as a source for business suits as compared to casual shirts. About 13% of customers answered that they only shopped in Ramal for business suit while about 2% of customers answered that they only shopped in Ramal for casual shirts.

Results of Test of Hypotheses

The third objective of this research was to test the hypothesis based on the proposed model of in-store shopping behavior using apparel shoppers. To test hypotheses, two different scenarios were given to Ramal customers one at a time: the first assumed a Ramal customer experienced a stockout when she or he wanted to buy a particular shirt for casual Friday. The second assumed the customer wanted to buy a particular business suit for a job interview. In terms of shopper's intentions, the customers, in each case, had a particular item in mind. Each scenario had 9 questions scored on a five point Likert-type scale, with 1 being 'least likely' and 5 being 'most likely'. These questions asked a Ramal customer's likelihood of changing brand, changing color, changing style, changing size, postponing purchase, browsing, quitting shopping, going to another store, and buying the item with delivery within three days when she or he encountered a stockout. Results of tests of hypotheses are reported and interpreted from merchandising prospective. Observations of the extremes of the frequencies are discussed first followed by a comparison of more likely and less likely responses.

H1. There are no significant differences between casual shirts and business suits in relation to shopper's reactions to stockouts

Casual shirts. Table 11 shows the frequency of each reaction to stockouts of casual shirts. About 85% of the customers answered they were least likely to change size when they encountered a stockout of casual shirts. There is little flexibility of size change in casual wear in terms of shoppers purchase decisions when stockouts occur. About 82% of customers

were most likely to buy the casual shirt if the store would deliver it to them within three days at the store's expense when they encounter a stockout. Therefore, providing delivery service of a stockout item may reduce lost sales due to stockouts. About 47% of customers were most likely to postpone purchase of the shirts when stockouts occur while about 19% of customers were least likely to postpone purchase the shirts when stockout occurred. This means that most customers do not expected to have an urgent need for casual shirts.

To get a more descriptive picture of responses to stockout options, responses on the scale of 1 and 2 were combined into less likely and scale 4 and 5 were combined into more likely. About 51% of customers were less likely to change brand while 35% of customers were more likely to change brand. About 51% of customers were less likely to change color while 24% of customers were more likely to change color. About 53% of customers were less likely to change style while 22% of customers were more likely to change style. About 86% of customers were less likely to change size while 6% of customers were more likely to change size. Thus, over half of customers may have brand loyalty, color preference, style preference or size preference. At the same time, nearly half of customers were flexible for changing brand, color or style. This implies that these customers may have multiple brand loyalties, and alternative color and style preferences. By far the least likely to change is size.

About 23% of customers were less likely to postpone purchase while 63% of customers were more likely to postpone purchase. About 28% of customers were less likely to browse while 55% of customers were more likely to browse. About 3% of customers were

Table 11. Frequency of customer reactions to stockout for casual shirts.

Reactions	Percentage of Frequency					Mean (STD)
	1 least likely	2	3 not sure	4	5 most likely	
Change Brand	40.00	10.53	14.74	16.84	17.89	2.62 (1.57)
Change Color	41.05	9.47	25.26	17.89	6.32	2.39 (1.35)
Change Style	44.21	8.42	25.26	13.68	8.42	2.24 (1.38)
Change Size	85.26	1.05	7.35	5.26	1.05	1.36 (0.91)
Postpone	18.95	4.21	13.68	15.79	47.37	3.68 (1.55)
Browse	23.16	5.26	16.84	22.11	32.63	3.36 (1.55)
Quit Shopping	44.21	15.79	16.84	8.42	14.74	2.34 (1.48)
Other Store	24.21	4.21	12.63	25.26	33.68	3.40 (1.57)
Delivery	2.11	1.05	2.11	12.63	82.11	4.72 (0.75)

less likely to buy the shirts with three day delivery service while 95% of customers were more likely to buy the shirts with three day delivery service. Thus, there are potential chances for sales depending on replenishment of the stockout item and varied selections, even though a stockout occurs.

About 60% of customers were less likely to quit shopping while 23% of customers were more likely to quit shopping. This suggests that a stockout may cause lost sales to the retailer being shopped as well as to other retailers. About 28% of customers were less likely

to go to another store while 59% of customers were more likely to go to another store. This implies acquiring the product is more important than where the product is purchased. Stockouts may cause the loss of store loyalty and lost sales when customers shop for casual shirts.

Business suits. Table 12 shows likelihood and mean values of the nine reactions to stockouts of business suits. About 91% of customers were least likely to change size when they encountered a stockout of business suits. As same as the case of casual shirts, this implies that there is little flexibility of size change in business wear when stockouts occur. About 51% of customers were most likely to buy the business suit if the store will deliver it to them within three days at the store's expense when they encounter a stockout. Therefore, providing delivery service of stockout item may reduce lost sales due to a stockout. However, comparing with the case of casual shirts, fewer business suit customers want delivery service of the stockout item.

Considering scale 1 and 2 as less likely, and scale 4 and 5 as more likely, about 41% of customers were less likely to change brand while 45% of customers were more likely to change brand. About 59% of customers were less likely to change color while 30% of customers were more likely to change color. About 65% of customers were less likely to change style while 26% of customers were more likely to change style. This implies that more customers may have strong color and style preferences. About 94% of customers were less likely to change size while 1% of customers were more likely to change size. There are

Table 12. Frequency of customer reactions to stockout for business suits.

Reactions	Percentage of Frequency					Mean (STD)
	1 least likely	2	3 not sure	4	5 most likely	
Change Brand	38.71	2.15	13.98	19.35	25.81	2.91 (1.68)
Change Color	47.31	11.83	10.75	20.43	9.68	2.33 (1.48)
Change Style	53.76	10.75.	9.68	17.20	8.60	2.16 (1.45)
Change Size	91.40	2.15	5.38	0.00	1.06	1.17 (0.62)
Postpone	35.48	6.45	13.98	12.90	31.16	2.99 (1.70)
Browse	29.03	12.90	13.98	16.13	27.96	3.01 (1.61)
Quit	49.46	6.45	16.13	13.98	13.98	2.37 (1.54)
Other Store	23.66	3.23	9.68	20.43	43.01	3.56 (1.62)
Delivery	25.81	4.30	8.60	10.75	50.54	3.56 (1.71)

obviously little flexibility of changing size in business suits. Thus, complete assortments may also stimulate the customers' business suit purchase.

Considering scale 1 and 2 as less likely, and scale 4 and 5 as more likely, about 42% of customers were less likely to postpone purchase while 43% of customers were more likely to postpone purchase. About 42% of customers were less likely to browse while 44% of customers were more likely to browse. Almost equal portion of customers were allocated to "less likely" or "more likely" in the case of postponing purchase and browsing. Therefore fast

replenishment of stockout items and complete assortments may prevent lost sales. About 30% of customers were less likely to buy the suits with three day delivery service while 61% of customers were more likely to buy the suits with three day delivery service. This implies that providing delivery service also important in the stockout situation of business suits but not as effective as for casual shirts.

Considering scale 1 and 2 as less likely, and scale 4 and 5 as more likely, about 56% of customers were less likely to quit shopping while 28% of customers were more likely to quit shopping. About 27% of customers were less likely to go to another store while 63% of customers were more likely to go to another store. This implies that over half of customers may not have store loyalty if stockouts occur for business suits. Stockouts may cause the loss of store loyalty and lost sales.

Comparing casual shirts and business suits. The results of test of H1, there are no significant differences between casual shirts and business suit in relation to shopper's reactions to stockouts, are in Table 13. As a result of the first hypothesis test, H1(a), changing brand, H1(b), changing color, H1(c), changing style, H1(g), quitting shopping, and H1(h), going to other store, were not rejected.

H1(d), changing size, was rejected ($p < .01$). This suggests that there may be more flexibility of size change in casual wear than business wear even though most customers were not likely to change size when they encounter stockouts in both casual shirts and business suits.

Table 13. Paired comparison t-test of difference between casual shirts and business suits to nine reactions to stockouts.

Variable	T:Mean=0	Prob>|T|
D_BRAND	-1.56437	0.1212
D_COLOR	0.525447	0.6005
D_STYL	1.116246	0.2672
D_SIZE	2.962665	0.0039**
D_POSTPONE	4.042446	0.0001***
D_BROWSE	2.115165	0.0371*
D_QUIT	0.000000	1.0000
D_OTHER STORE	-0.95009	0.3446
D_ DELIVERY	6.813065	0.0001***

* P<.05
** P<.01
*** P<.001

H1(e), postponing purchase, was rejected ($p < .001$). The result suggests that more customers who want to buy casual wear may postpone the purchase when they encounter stockouts than the customers who want to buy business wear. This means that customers may perceive less urgent need of the casual wear when they encounter stockout than urgent need of business wear.

H1(f), browsing, was rejected ($p<.05$). The result suggests that more customers encountering stockouts of casual wear browse than the customers encountering stockouts of business wear. This result may related with the result of test of H1(e), postponing purchase. According to the result of test of H1(e), more casual suit customers were likely to postpone the purchase than business suit customers. Postponing purchase means the customers may have more shopping time available. Thus, more casual shirt customers may be more likely to browse than business suit customers who would go to another store to get the same item.

H1(i), buying the item with three day delivery, was rejected ($p< .001$). More customers who want to buy business wear may want to try on the suit and have it custom fitted than customers who want to buy casual shirts. The result of test H1(d), changing size, may support this assumption. Business suit customers were less likely to change size than casual shirt customers. Size and fit may more important for business wear than casual wear. In other words, three day delivery service of stockout item in business wear may be less effective than casual wear.

H2. The demographic variables are not related to the respondents' reaction to casual shirt stockouts

The results of testing H2 are in Table 14 and Table 15. Based on the results of t-test, there were no significant differences between male and female to the stockouts of casual shirts. No significant differences between married and not married to the stockouts of casual shirt were found. See Table 14.

Table 14. Results of t-test of sex and marital status in relation to responses to stockouts in casual shirts*.

	Mean (SD)		
	Male (N=47)	Female (N=48)	*t*
Change Brand	2.74 (1.66)	2.50 (1.49)	0.76
Change Color	2.36 (1.29)	2.41 (1.41)	0.84
Change Style	2.45 (1.35)	2.23 (1.42)	0.77
Change Size	1.30 (0.91)	1.42 (0.92)	-0.63
Postpone	3.51 (1.63)	3.86 (1.47)	-1.08
Browse	3.40 (1.54)	3.31 (1.57)	0.29
Quit	2.26 (1.48)	2.42 (1.49)	-0.53
Other Store	3.30 (1.55)	3.50 (1.61)	-0.62
Delivery	4.62 (0.92)	4.81 (0.53)	-1.26
	Married	Non-married	*t*
Change Brand	2.74 (1.66)	2.50 (1.49)	0.76
Change Color	2.36 (1.29)	2.41 (1.41)	0.84
Change Style	2.45 (1.35)	2.23 (1.42)	0.77
Change Size	1.30 (0.91)	1.42 (0.92)	-0.63
Postpone	3.51 (1.63)	3.86 (1.47)	-1.08
Browse	3.40 (1.54)	3.31 (1.57)	0.29
Quit	2.26 (1.48)	2.42 (1.49)	-0.53
Other Store	3.30 (1.55)	3.50 (1.61)	-0.62
Delivery	4.62 (0.92)	4.81 (0.53)	-1.26

* There is no significant differences.

Table 15. Result of regression analysis of continuous variables in casual shirts.

Independent variables	Dependent variable:	F value	R-square	Slope
Expenditure	Change Brand	2.006	0.0239	-
	Change Color	0.003	0.0000	+
	Change Style	0.008	0.0001	-
	Change Size	0.014	0.0002	-
	Postpone	0.112	0.0014	+
	Browse	0.620	0.0075	+
	Quit	1.193	0.0143	+
	Other Store	1.949	0.0232	-
	Delivery	0.791	0.0096	+
Income	Change Brand	0.305	0.0038	+
	Change Color	0.106	0.0013	+
	Change Style	0.136	0.0017	+
	Change Size	1.375	0.0167	-
	Postpone	2.139	0.0257	-
	Browse	0.508	0.0026	+
	Quit	5.146*	0.0597	-
	Other Store	0.015	0.0002	-
	Delivery	0.024	0.0003	-
Age	Change Brand	0.328	0.0035	+
	Change Color	5.732*	0.0581	-
	Change Style	4.223*	0.0434	-
	Change Size	8.753**	0.0860	-
	Postpone	0.157	0.0017	-
	Browse	0.028	0.0003	+
	Quit	2.143	0.0225	-
	Other Store	0.030	0.0003	-
	Delivery	1.289	0.0137	-
Education	Change Brand	1.717	0.0181	-
	Change Color	0.045	0.0005	-
	Change Style	0.026	0.0003	-
	Change Size	1.086	0.0115	-
	Postpone	0.389	0.0042	-
	Browse	1.786	0.0188	+
	Quit	1.646	0.0174	-
	Other Store	0.374	0.0040	-
	Delivery	1.121	0.0119	+

*p < .05 **p < .01 ***p < .001

According to the results of regression analysis for testing significant relationships between continuous variables and the reactions to stockouts, income level had significant negative relation with quitting shopping ($F = 5.146$, $p<.05$, $r^2 = 0.06$). See Table 15. Higher income customers quit shopping less when they encountered a stockout. Age also had significant negative relation to changing color ($F = 5.732$, $p<.05$, $r^2 = 0.06$), changing style ($F = 4.223$, $p<.05$, $r^2 = 0.04$), and changing size ($F = 8.753$, $p<.01$, $r^2 = 0.09$). The older customers that had specific items in mind may be less likely to change to a different item when a stockout occurs than younger customers.

However, very low r^2 implies that variables examined did not adequately explain the reactions to the stockouts in casual shirts. To further examine the relationship among the variables. multiple regression was performed. Overall F values and R^2 were investigated for relationship for all demographic variables and each reaction to stockout for casual shirts. No significant overall F value was found and r^2 was not significantly improved. To explain customers' reactions to stockouts in casual shirts, other additional variables, such as time available for shopping and customer services, might be measured.

H3. The demographic variables are not related to the respondents' reactions to business suit stockouts

The results of test H3 are in Table 16 and Table 17. Just one significant difference of dependent variable, buying the item with delivery service, was found between males and females. Significant difference between married and not married customers in the category of business suit stockouts was not found. Table 16 suggests that more females (mean = 4.09)

were more likely to buy the business suit if the store offers delivery service of stockout item than male (mean = 3.02). Perhaps women's suits are less likely to be custom fitted. Females may have had less time for business wear shopping than males because most female customers were employed and married (see Table 3).

Table 17 shows several significant influences of continuous demographic variables on the respondents' reactions to stockouts in business suits. Apparel expenditure level had significant positive relation with postponing purchase ($F = 4.895$, $p<.05$, $r^2 = 0.06$). This implies that more apparel expenditure may mean more shopping trips or more multiple purchases. Thus, the customer who spent more money for apparel may have more chance to buy the stockout suit on a later shopping trip or buy another suit instead of the stockout suit. Age had significant negative relation with changing size ($F = 5.614$, $p<.05$, $r^2 = 0.06$). This implies that older customers are less willing to be flexible in selection to size than younger customers. Education had significant negative relation with buying the item with delivery ($F = 4.063$, $p<.05$, $r^2 = 0.04$). Therefore, more educated customer may want to try on the suit and have it custom fitted.

However r^2 in business suit were also very low. Thus, after performing multiple regression for relationship of all demographic variables and each reaction to stockout for business suits, overall F value and R^2 were investigated. No significant overall F value was found and r^2 was not significantly improved. There might be additional variables such as role of custom fitting and time available for shopping that explain the reactions to the stockouts in business shirts.

Table 16. Results of t test of sex and marital status in relation to responses to stockouts in business suits.

	Mean (SD)		
	Male	Female	*t*
Change Brand	2.89 (1.68)	2.96 (1.69)	-0.25
Change Color	2.26 (1.50)	2.40 (1.50)	-0.47
Change Style	1.91 (1.30)	2.40 (1.57)	-1.65
Change Size	1.13 (0.65)	1.21 (0.59)	-0.64
Postpone	2.65 (1.66)	3.30 (1.69)	-1.86
Browse	2.80 (1.63)	3.21 (1.59)	-1.23
Quit	2.20 (1.54)	2.53 (1.53)	-1.05
Other Store	3.54 (1.64)	3.57 (1.61)	-0.09
Delivery	3.02 (1.73)	4.09 (1.53)	-3.14**
	Married	Non-married	*t*
Change Brand	3.02 (1.68)	2.60 (1.66)	1.09
Change Color	2.37 (1.51)	2.24 (1.42)	0.37
Change Style	2.19 (1.46)	2.08 (1.44)	0.33
Change Size	1.10 (0.55)	1.36 (0.76)	-1.55
Postpone	2.81 (1.73)	3.44 (1.56)	-1.60
Browse	2.99 (1.62)	3.08 (1.63)	-0.24
Quit	2.31 (1.55)	2.52 (1.53)	-0.59
Other Store	3.66 (1.58)	3.28 (1.72)	1.01
Delivery	3.46 (1.74)	3.84 (1.62)	-0.96

*p < .05 **p < .01 ***p < .001

Table 17. Result of regression analysis of continuous variables in business suits.

Independent variables	Dependent variable:	F value	R-square	Slope
Expenditure	Change Brand	1.314	0.0160	-
	Change Color	1.402	0.0170	+
	Change Style	3.956	0.0466	+
	Change Size	0.355	0.0044	-
	Postpone	4.895*	0.0570	+
	Browse	0.489	0.0060	-
	Quit	0.685	0.0084	+
	Other Store	0.788	0.0096	-
	Delivery	1.994	0.0240	+
Income	Change Brand	0.357	0.0045	+
	Change Color	0.133	0.0017	-
	Change Style	0.844	0.0106	+
	Change Size	0.282	0.0036	-
	Postpone	0.467	0.0059	-
	Browse	0.300	0.0038	-
	Quit	1.997	0.0247	-
	Other Store	0.180	0.0023	+
	Delivery	2.939	0.0359	-
Age	Change Brand	0.505	0.0055	-
	Change Color	0.422	0.0046	-
	Change Style	3.024	0.0322	-
	Change Size	5.614*	0.0581	-
	Postpone	0.170	0.0019	-
	Browse	1.822	0.0196	+
	Quit	0.853	0.0093	-
	Other Store	0.553	0.0060	-
	Delivery	0.424	0.0046	-
Education	Change Brand	0.069	0.0008	-
	Change Color	0.162	0.0018	+
	Change Style	0.174	0.0019	+
	Change Size	0.291	0.0032	-
	Postpone	0.022	0.0002	+
	Browse	1.663	0.0179	+
	Quit	0.577	0.0063	-
	Other Store	0.028	0.0003	+
	Delivery	4.063*	0.0427	-

*p < .05 **p < .01 ***p < .001

Factor analysis

As a result of factor analysis of Ramel customers' nine reactions to stockouts of casual shirts, three factors were generated. See Table 18. The first factor, labeled Relinquished Reaction, included browsing and quitting shopping. The second factor, named Flexible Reaction, included changing style brand color and size of the item. The last factor, labeled Constant Reaction, included postponing purchase and going to other store for same item. However, the items in Constant Reaction factor and Flexible Reaction factor may not strongly represent the factors because the Cronbach α of Constant Reaction factor and Flexible Reaction factor are relatively low. Correlation matrix of items in casual shirts also shows this problem. See Table 19.

Table 18. Results of factor analysis of stockout reactions for casual shirts.

Factors	Items	Factor Loading	Eigen Value	Percent of Variance	Mean (STD)	Cronbach α
Factor 1:	browse	0.783	1.37	15.2	7.02 (2.642)	0.69
Relinquished Reaction	quit shopping	0.749				
Factor 2:	change style	0.588	1.20	13.3	11.99 (3.194)	0.42
Flexible	change brand	0.567				
Reaction	change color	0.474				
	change size	0.425				
Factor 3:	postpone purchase	0.553	1.07	11.9	5.72 (2.413)	0.32
Constant Reaction	go to other store	0.467				

Table 19. Correlation matrix of stockout reactions for casual shirts.

	CHANGE BRAND	CHANGE COLOR	CHANGE STYLE	CHANGE SIZE	POSTPONE PURCHASE	OTHER ITEM	QUIT SHOPPING	OTHER STORE	BUY WITH DELIVERY
CHANGE BRAND	1.00								
CHANGE COLOR	**0.27636** **	1.00							
CHANGE STYLE	**0.40735** ***	**0.36909** ***	1.00						
CHANGE SIZE	-0.15530	-0.13676	-0.14011	1.00					
POSTPONE PURCHASE	**0.22826** *	-0.05435	0.13348	0.1411	1.00				
OTHER ITEM	0.00386	0.13633	**0.34072** ***	-0.02136	-0.19779	1.00			
QUIT SHOPPING	0.07269	0.06661	**0.25956** *	**0.24170** *	0.07933	**0.52236** ***	1.00		
OTHER STORE	**0.41448** ***	0.16660	**0.29962** **	0.05646	0.19160	0.11950	**0.26444** **	1.00	
BUY WITH DELIVERY	0.10090	0.02605	0.18315	0.05686	0.15898	0.06686	0.16341	0.12745	1.00

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 20 shows the result of the factor analysis for business suits. Three factors emerged from the factor analysis and were labeled the same as the factors for casual shirts. First factor, labeled Constant Reaction, included postponing purchase waiting delivery and going to other store for same item. Second, named Flexible Reaction, included changing style brand and color of the item. The last factor, labeled Relinquished Reaction, included browsing and quitting shopping. Correlation matrix of items in business suits shows that items in each factor are highly correlated. See Table 21.

Table 20. Results of factor analysis of stockout reactions for business suits.

Factors	Items	Factor Loading	Eigen Value	Percent of Variance	Mean (STD)	Cronbach α
Factor 1:	postpone purchase	0.831	1.74	19.4	9.02 (4.008)	0.71
	go to other store	0.455				
Constant Reaction	buy the item with delivery service	0.784				
Factor 2:	change style	0.783	1.36	15.2	7.41 (3.487)	0.63
	change brand	0.551				
Flexible Reaction	change color	0.529				
Factor 3:	browse	0.664	1.22	13.6	6.65 (2.725)	0.66
	quit shopping	0.850				
Relinquished Reaction						

Table 21. Correlation matrix of stockout reactions for business suits.

	CHANGE BRAND	CHANGE COLOR	CHANGE STYLE	CHANGE SIZE	POSTPONE PURCHASE	OTHER ITEM	QUIT SHOPPING	OTHER STORE	BUY WITH DELIVERY
CHANGE BRAND	1.00								
CHANGE COLOR	**0.24403**	1.00 *							
CHANGE STYLE	**0.36824** ***	**0.48326** ***	1.00						
CHANGE SIZE	-0.11899	-0.05549	-0.02937	1.00					
POSTPONE PURCHASE	0.19105	0.07503	-0.06770	0.17914	1.00				
OTHER ITEM	0.07265	0.08067	0.19036	0.09993	**-0.26584** **	1.00			
QUIT SHOPPING	0.02558	0.04945	0.05122	0.10449	0.13607	**0.49716** ***	1.00		
OTHER STORE	**0.37797** ***	0.13038	0.17926	-0.04399	**0.37483** ***	-0.02317	**0.31889** **	1.00	
BUY WITH DELIVERY	0.09667	0.06601	-0.17846	0.19571	**0.64732** ***	-0.15163	**0.25627** *	**0.32637** **	1.00

* $p < .05$ ** $p < .01$ *** $p < .001$

In the case of the Constant Reaction factor and Flexible Reaction factor for business suits, the items that were included were different from the item included in the same factors for casual shirts. The item 'buying the item with delivery service' was not involved in the Constant Reaction factor in casual shirts but was involved in Constant Reaction factors for business suits. The item 'changing size' in Flexible Reaction in casual shirt was not included in the factors in business suits. Because of the inconsistency of results and low Cronbach α, no additional tests related to factors are reported.

Summary of results of tests of hypotheses

The results of tests of H1 suggests that there may be more flexibility to change size in casual wear than business wear even though most customers were not likely to change size when they encountered stockouts. More customers who want to buy business wear may want to try on the suit and have it custom fitted than customers who want to buy casual shirts. Thus, three day delivery service of stockout items for business wear may be less effective than for casual wear. Size and fit may more important for business wear than casual wear. The results show that more customers who want to buy casual wear were more likely to postpone the purchase to a later time when they encounter stockouts than the customers who want to buy business wear. This may mean that customers perceive less urgent need for the casual than for business wear. Postponing purchase may mean the customers may have more shopping time available on that particular time. Customers encountering stockouts of casual wear were significantly more likely to browse than the customers encountering stockouts of business wear.

The results of tests of H2 showed a few significant demographic influences on responses to stockouts of casual shirts. Higher income customers were significantly less likely to quit shopping for casual wear when they encountered stockouts. Older customers were significantly less likely to change color, style, and size for casual wear.

According to the results of tests of H3, more females were more likely to buy the business suit if the store offered delivery service of stockout item than males. The customers who had higher total annual expenditure for clothing were significantly more likely to postpone purchase to a later time when they encountered stockouts. Older customers were significantly less likely to change size for business suits. The customers who had higher education were significantly less likely to buy the item with delivery service for business suits. However, very low r^2 implies that there are additional factors that explain the reactions to the stockouts in casual shirts and business suits.

As a result of factor analysis of respondents' nine reactions to stockouts, three factors were generated. Constant Reaction means that when a stockout occurs, a customer is unwilling to change to a different item so the possible reactions are postponing purchase, going to other store for the same item, or buying the item with delivery service. Constant Reaction may result in a current sale, a potential sale, or a lost sale. Flexible Reaction means that when a stockout occurs, a customer is willing to change brand or product so possible reactions are changing brand, style, color, or size. Flexible Reaction may result in a current sale. Relinquished Reaction means that when a stockout occurs, a customer will stop

shopping for the desired item so possible reactions are browsing or quitting shopping. Relinquished Reaction may result in a potential sale or a lost sale.

However, the items of each factors in casual shirts and business suits were somewhat different. Changing size is not included in Flexible Reaction in business suits. Buying the item with delivery service is not included in Constant Reaction in casual shirts. Relatively low Cronbach α of casual shirt category implies that the items in each factors did not explain the factors well.

CONCLUSIONS AND DISCUSSION

The summary of this research is presented and discussed in this section. A modified model of apparel in-store shopping behavior in relation to stockouts and its relationship to behavioral theory of the apparel firm are addressed. Implications for shopping behavior model in ARM and implications for the merchandising strategy are discussed. Recommendations for methods and future research are also discussed.

Summary

As a part of Ramal project, the purpose of this research was to examine apparel shopping behavior in relation to stockouts and to propose implications for merchandising strategies. A balanced assortment is critical to meet apparel firms' profit goals (Glock & Kunz, 1995). Balanced assortments are the goal of all merchandising efforts (Taylor, 1970). However, little research has been done about customer response to stockouts. Therefore, stockout issue is the focus of this research.

To examine the apparel shopping behavior, a model of in-store apparel shopping behavior in relation to stockouts was proposed from the literature reviewed and synthesized. Based on this proposed model, three hypotheses were generated. Telephone survey research and experimental design using the scenario method was used. A questionnaire was developed for this research, and reviewed by research experts, and pretested. Based on recommendations from the experts, pretest participants, and a Ramal executive, the final questionnaire was revised. Sales records of 250 credit card customers and 250 non-credit

card customers provided by Ramal were examined. The data from 95 credit customers from telephone survey were examined and tested for this research.

The Ramal credit card customers discussed in this study were mostly white males and females, middle aged, highly educated, married, and employed with high income. They made nearly twice the purchases as non-credit card customers. About 70% of customers shopped to update their wardrobes and the average frequency of customers' shopping for their clothes was four times a year. This implies most Ramel customers are more likely to look for fashion goods and seasonal goods and they have a pattern of major shopping trips as defined in this study. Fashion and seasonal goods require more careful assortment planning and attention to selling patterns (Allen, 1982b). About half of respondents shopped with someone when they shopped for their clothes. According to the Granbois's research (1968), group shoppers made more unplanned purchase than single shoppers.

The customers were much more likely to be purposive customers (89%) than browsers (11%) in this study. Purposive shoppers spend more money in a shorter period of time than browsing shoppers (Shopping the Big Centers, 1990). Therefore, a store's accurate and balanced assortment can be an important part of merchandising strategy.

Comparing the preference of Ramal for casual shirts and business suits, the customers preferred shopping for business suits at Ramal to shopping for casual shirts at Ramal. Considering recent dressing down tendency, Ramal might need to study customers' responses to casual wear at Ramal store and to reconsider its merchandising strategies for casual wear. Many articles reported that increasing number of companies allow casual wear in the office,

every day or on casual days (Fitzgerald, 1994; Getting serious about casual were, 1994; Goldberg, 1995; Lee, 1995; McConville, 1994). Casual wear has become a more important category of business attire.

According to the results of this research, most customers experienced stockouts because of garment size (71.74%), and the size was the most inflexible requirement when stockouts occurred in both casual and business wear. Taylor (1970) pointed out that size is the inflexible requirement that precedes color, style and other variables in importance because the apparel items not fitted properly is useless to the customer. Therefore, size is the most important issue with the stockouts. Providing short term delivery service may help solve this size related stockout problem because the results show many customers are very likely to buy the stockout item with free three day delivery service.

The results also showed that customers were much less likely to change brand, or product when they encountered stockouts. The customers were much more likely to go to another store for the same item when a stockout occurred. Thus, stockouts lead to lost sales and patronage. To minimize these losses, merchandisers might try to keep accurate assortments. Some customers were, however, willing to change brand, or product when stockouts occurred and not willing to go to another store for the same item when a stockout occurred. Therefore, it might be necessarily to keep diverse assortments to satisfy the customers who are willing to change brand or product. Thus, fast replenishment and accurate and diverse assortments may satisfy all customers.

Results of tests of H1 showed significant difference between casual shirts and business suits. The customers who wanted to buy casual shirt were more likely to accept the store's delivery service than customers who wanted to buy business suits. The customers who want to buy business wear may want to try on the suit and have it custom fitted than customers who want to buy casual shirts. Thus, three day delivery service of stockout item in business wear may be less effective than casual wear. There was more flexibility to change size in casual wear than business wear even though most customers were not likely to change size when they encountered stockouts. Size and fit may be more important for business wear than casual wear. More customers who wanted to buy casual wear were more likely to postpone the purchase when they encountered stockouts than the customers who wanted to buy business wear. This implies that customers perceive less urgent need for the casual wear when they encounter stockout than for business wear. Postponing purchase means the customers may have more shopping time available. Thus, more customers encountering stockouts of casual wear were more likely to browse than the customers encountering stockouts of business wear.

The results of tests of H2 showed a few significant demographic influences on responses to stockouts of casual shirts. Higher income customers were significantly less likely to quit shopping for casual wear when they encountered stockouts. Older customers were significantly less likely to change color, style, and size for casual wear when they encountered stockouts than younger customers.

According to the results of tests of H3, females were more likely to buy a business suit than males if the store offered delivery service of stockout item. The customers who had higher total annual expenditure for clothing were significantly more likely to postpone purchase to a later time when they encountered stockouts. Older customers were significantly less likely to change size for business suits. The customers who had higher education were significantly less likely to buy the item with delivery service for business suits.

However, very low r^2 implies that there are additional variables that explain the reactions to the stockouts in casual shirts and business suits. Thus, for more precise explanation of demographic influence on purchase decisions in relation to stockouts, a study about other variables influencing the purchase decisions might be done.

As a result of factor analysis of respondents' nine reactions to stockouts, three factors were generated. Constant Reaction means that when a stockout occurs, a customer is unwilling to change to a different item so the possible reactions are postponing purchase, going to another store for the same item, or buying the item with delivery service. Constant Reaction may result in a current sale, a potential sale, or a lost sale. Flexible Reaction means that when a stockout occurs, a customer is willing to change brand or product so possible reactions are changing brand, style, color, or size. Flexible Reaction may result in a current sale. Relinquished Reaction means that when a stockout occurs, a customer will stop shopping for the desired item so possible reactions are browsing or quitting shopping. Relinquished Reaction may result in a potential sale or a lost sale. However, the items of each factors in casual shirts and business suits were somewhat different and Cronbach α of casual

shirt category was relatively low. These imply that the items in each factors did not explain the factors well.

Modified Model of In-Store Apparel Shopping Behavior and Its Relationship to Behavioral Theory of the Apparel Firm

Modified model of in-store apparel shopping behavior

A modified model of apparel in-store shopping behavior in relation to stockouts based on this research is illustrated in Figure 4. This modified model shows that purchase decisions are made depending on a shopper's intentions and stock situation under the influence of situational factors. The proposed model was only partially tested in this research. Thus, the area of each construct not tested in this research remains the same as the proposed model.

For example, the influence of situational factors on purchase decisions in relation to stockouts were not specifically tested even though some descriptive information about these variables were generated from the survey. However, several significant demographic influences to purchase decisions were found in this research. Thus, demographics has been added as an element in the situational factors construct.

Using the scenario method, customers who had specific casual shirts and business suits in mind were tested. Many differences were found in customer reactions to stockouts between casual and business wear. This implies that product type may influence purchase decisions with shoppers' intentions. Therefore, product type was added as an element to the shoppers intentions construct.

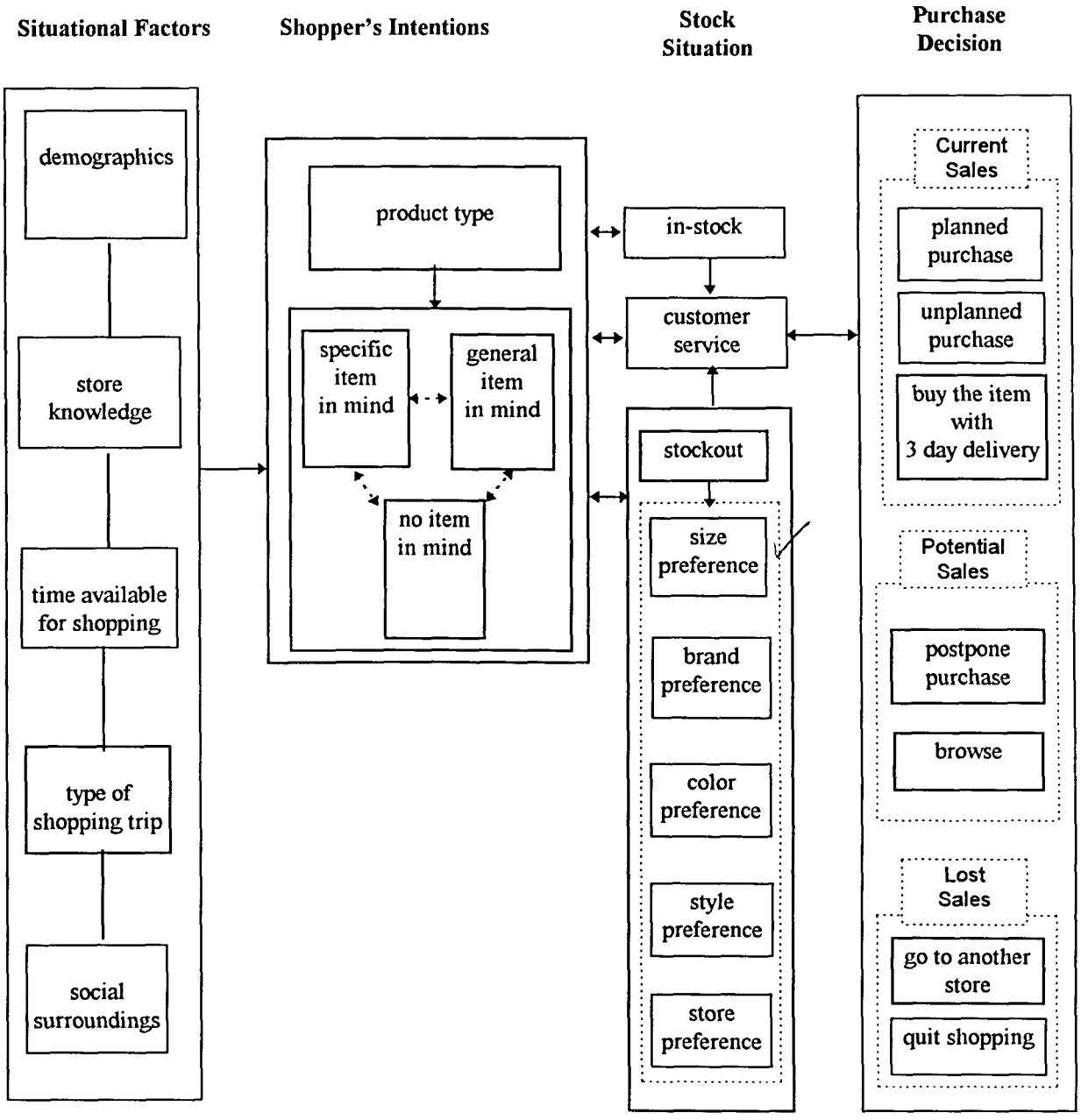


Figure 4. A modified model of in-store apparel shopping behavior in relation to stockouts.

With regard to the stock situation construct, the stockout element was tested in this research and the in-stock element was not. Size is the most common cause of stockouts. There is little willingness to change size. Brand, color, and style also cause stockouts. Some customers have brand preference, color preference, or style preference, and the others do not. Store preference also relates to stockouts. If a customer has preference for the store when a stockout occurs, a customer may switch the item or look for another item. Thus, the store may not record a lost sale. Therefore, the customers' preference may influence to purchase decisions when stockouts occur. In the modified model, the term is changed from brand and store loyalty to brand and store preference. Little evidence of loyalty were found in this study. The word " preference" is better because it suggests "the determining of choice by predisposition or partiality" (Kent, 1984, p. 38).

The findings and results in this study emphasized some important merchandising strategies: merchandise selection, credit card policy, inventory replenishment, balanced assortment, and free delivery service. Most Ramal customers' shopping patterns are multiple purchase, major shopping trips. Providing the merchandise customers want is the most important strategy to increase sales. Most customers are unwilling to change size but some customers are willing to change brand, style, and color when stockouts occur. Thus, complete size assortment is very important for prevention stockouts. However, if a store has varied selection the customers can change brand, color, or style in their preferred size. Most customers accept free three day delivery service when stockouts occur. The free three day delivery service can compensate for stockouts. Fast inventory replenishment is necessary.

Considering customer service in relation to stockouts, if a sales person knows a customer encounters a stockout, he or she can offer alternatives: delivery service resulting in a current sale or offering to call the customer when the item is restocked resulting in potential sales. A store's customer service may contribute to customers' purchase decisions.

Purchase decisions in the modified model are categorized from merchandising perspective: current sales, potential sales, and lost sales. Current sales include planned purchase, unplanned purchase, and delivery purchase. If a customer changes brand, color, style, or size when a stockout occurs, the planned purchase takes place and the store may record a current sale. If a customer buys the stockout item with delivery service, this is also recorded as a current sale. Unplanned purchase may result from making multiple item purchases such as buying a coordinate group.

Potential sales include postponing purchase and browsing. If a customer does not want to change a stockout item and postpones purchase until the item is restocked, sales may occur when the item is restocked. If a customer decides to browse when a stockout occurs, a potential sale exists if the customer finds another item.

Lost sales include going to another store for a stockout item and quitting shopping. If customers do not want to change from the stockout item, and go to another store or quit shopping, that means lost sales and lost patronage.

Behavioral theory of the apparel firm

The theoretical framework of this research is the behavioral theory of the apparel firm (Kunz, 1995) that involves five constituencies with customers: merchandising, marketing,

operations, finance, and executive management. The modified model of in-store apparel shopping behavior in this research is designed based on the following several assumptions of the behavioral theory of the apparel firm (Kunz, 1995, p. 259):

1. "A firm is a coalition of individuals with some common goals."
2. "The focus of the coalition is on the customer and satisfying the customer's needs within the limitations of the firm."
3. "The inter relationships among constituencies form the internal decision making matrix for the firm".
4. "Overall goals of the coalition are formulated by the executive constituency."

To prevent stockouts, lost sales, and lost patronage, this research suggests the need for balanced assortment planning and fast replenishment. These two suggestions emphasize the role of merchandising constituency. Kunz (1995) explains that the role of merchandising constituency is to analyze customers' apparel preferences for the firm. The merchandising constituency is responsible for management of product lines based on information from the other constituencies of the firm and the target market while considering the economic, social, and cultural environments of the firm.

The behavioral theory of the apparel firm proposed by Kunz (1995) assumes that satisfying needs and wants of the firm's customers is the central focus of decision making as shown in Figure 1. "Merchandising is the planning, development, and presentation of product line(s) for identified target market(s) with regard to prices, assortments, styling, and timing" (Glock & Kunz, 1990, pp. 30-31). Merchandisers determine merchandise assortments and

assortments are fundamentally related to the frequency of stockouts. A balanced assortment satisfies customers' needs and wants. However, it is impossible to provide all products that customers need and want. The goal is to maximize sales, reduce stockouts, and minimize lost sales and lost patronage for the assortments the store choose to offer. Customer service requires inter relationship with marketing constituency and merchandising constituency with customers. Customer service including three day delivery service for a stockout item as a special policy can help reduce lost sales related to stockouts.

To support three day delivery service, merchandisers need better resupply systems for replenishment. Three steps for the better resupply system for replenishment are as follows: 1) present initial assortment, 2) observe sales, and 3) resupply to prevent stockouts. Making all these three steps effective is dependent on accurate information, cooperation, and speed. Cooperation among a firm's five internal constituencies as well as collaboration with external coalitions (suppliers) is required. Kunz (1995) points out that the ability of the firm to achieve its goals may depend on how all constituencies interact, coordinate, and resolve conflicts among internal constituencies and external coalitions.

Implications for Shopping Behavior Model in ARM

Based on the results of characteristics of general shopping behavior for apparel, several new probabilities of in-store shopping behavior of Apparel Retail Model (ARM) computer simulation are suggested. These new probabilities may provide more practical outcomes of ARM for remainder of the Ramal project. The new five probabilities of in-store shopping behavior for apparel are as follows:

P1: Percentage of customers who have an item in mind on arrival. 89%

P2: Percentage of customers who browse on arrival. 11%

P3: Percentage of customers who look for another item after a purchase. 84%

P4: Percentage of customers who leave after a purchase. 0%

P5: Percentage of customers who browse after a purchase. 16%

These five probabilities are based on results of the general shopping habit questions.

Based on the results from the scenarios in this research the following probabilities are generated. In this research, the scenarios had 9 questions scored on a five point Likert-type scale, with 1 being "least likely" and 5 being "most likely". These questions asked customers for their reactions to stockouts that addressed changing brand, changing color, changing style, changing size, postponing purchase, looking for another item, quitting shopping, going to another store, and buying the item with delivery within three days. Thus, the questions related to changing brand, color, style, and size are considered as P6. The questions related with quitting shopping and going to another store were considered as P7. The question related to looking for another item after a stockout is considered as P8. The new three probabilities of in-store shopping behavior for apparel are as follows:

P6: Percentage of customers who alter their choice after a stockout. 27%

P7: Percentage of customers who leave after a stockout. 34%

P8: Percentage of customers who browse after a stockout. 40%

In this research, color, style, and size preferences related to browsing activity were not tested. Thus P9, percentage of customers who find a style when browsing, and P10,

percentage of customers who find a color when browsing, are defaulted as 0% based on a assumption from definition of browsing used in this research. Block and Richins (1982) defined browsing behavior as examining activity without an immediate intent to buy. Thus, it is assumed that browsers do not make a purchase.

Implications for Merchandising Strategy

Most Ramal customers are purposive shoppers. They may make relatively few shopping trips per year, but make more multiple purchases with high dollar expenditure per trip. Considering these customers shopping patterns, several important implications for merchandising strategy are suggested from this research. The implications are as follows:

1. According to the results of this study, the most frequent reason for stockouts is the size a customer wants is not available. Furthermore, most customers do not want to change size when they encounter a stockout. It is unlikely, particularly for suits, that a garment of a different size will fit adequately. Thus, a complete range of sizes must be considered as a priority to reduce stockouts.
2. Offering the free delivery service within three days to customers can result in eliminating lost sales and getting current sales. Offering fast replenishment of stockout items can change potential sales to current sales when the customer visits again for the stockout item. However, if replenishment is not made by the time the customer visits again, the potential sales become lost sales. Walter and Grabner (1975) found that repeated stockouts increased the percentage of customers who would go to another store.

3. Considering customer service in relation to stockouts, if a sales person knows a customer encounters a stockout, he or she can offer the customer three options: 1) helping the customer find alternatives resulting in current sales, 2) offering delivery service resulting in current sales, and 3) offering a call to the customer when the item is restocked resulting in a potential sales, thus, possibly avoiding a lost sale.
4. Many articles reported the dressing down trend in business (Fitzgerald, 1994; Getting serious about casual were, 1994; Goldberg, 1995; Lee, 1995; McConville, 1994). Casual wear has become a more important category of business attire. However, the results in this study reported that Ramal customers tended to have less preference for Ramal as a source for casual wear than business wear. This can cause critical loss of sales. Ramal needs to study further the selection and price relationship for positioning their casual wear business.
5. According to the findings from sales records provided Ramal, credit card customers make more shopping trips to Ramal and purchase twice as much as non-credit card customers. About 30% of total annual apparel expenditures of credit card customers were made in Ramal. A goal could be to increase the portion of total clothing expenditures in Ramal. Ramal needs to study what kind of services can make credit card customers go to Ramal more often.

Conclusively, to minimize lost sales due to the stockouts, correctly positioned assortments in terms of selection and price are required. However, it is impossible to keep all

items customers want and need. Therefore, fast replenishment must be emphasized to solve this contradictory problem.

Recommendations

Recommendations for research method

There are several way to improve methods used in this research:

1. Increasing sample size-- considering the results of chi-square test in this research, some variables were collapsed or combined together because of lack of sample size. Increasing sample size may provide more powerful significance levels and reliable results.
2. Low r^2 problem in regression analysis-- low r^2 implies that there are other variables influencing dependent variables. Therefore, using open-ended questions or qualitative methods to identify other variables may help solve the low r^2 problem.
3. Limited survey method and questionnaire-- due to the some limited characteristics of telephone survey, there were restrictions in terms of the number of questions and the way of asking questions. Customer reaction to stockouts involve very complicated factors. Thus, a mail survey or personal interviews may be more effective methods to understand customer reactions to stockout because these survey methods allow the respondents to take enough time to give thoughtful responses (Frankel and Wallen, 1993).

Recommendations for further research

In this study, hypotheses were built under the assumption that certain specialty store customers had a specific item in mind and encountered a stockout. Thus, the proposed model of in-store shopping behavior was only partially tested. Several recommendation for further studies are suggested as follows:

1. Findings of this study indicated that over half of customers had general items in mind when they went shopping for clothes. Females are more likely to have general item in mind than males. The customers who have general items in mind may be more likely to change items, instead of postponing or quitting shopping, than a customer who has specific items in mind.
2. Demographics were tested in relation to reactions to stockouts and had some meaningful results. However, other situational factors are not formally tested in this research. Thus, to further develop this model of in-store apparel shopping behavior in relation to stockouts, testing influences of other situational factors is needed.
3. The sample used in this research was biased to high income, high education, middle aged customers. To generalize the results to a larger population, research with other populations needs to be done. Apparel stockout research based on other target markets will contribute understanding of customer reactions to stockouts.

4. The Ramal customers' most frequent criteria for store choice was merchandise selection. Thus, a study about what constitutes customers' view of a "good selection" might help to develop merchandising strategies for increased sales.

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APPENDIX A: RESULTS OF CHI-SQUARE TESTS OF SHOPPING HABITS

Table A1. Chi-square test of shopping purpose by sex

Shopping Purpose	Frequency Expected Cell Chi-Square		
	Male	Female	Total
update wardrobe	37 34.2 0.2255	29 31.8 0.2428	66
special occasion	5 7.8 0.9921	10 7.2 1.0684	15
others	5 6.93	9 7.07	14
Total	47	48	95

Statistic	DF	Value	Prob
Chi-Square	2	3.769	0.152

Table A2. Chi-square test of shopping frequency by sex

Shopping Frequency	Frequency Expected Cell Chi-Square		
	Male	Female	Total
every week	17 14.8 0.33	11 13.21 0.37	28
a few times year	26 25.9 0.00	23 23.1 0.00	49
others	4 6.34 0.86	8 5.66 0.96	12
Total	47	42	89

Statistic	DF	Value	Prob
Chi-Square	2	2.530	0.282

Table A3. Chi-square test of shopping size of shopping group by sex

Group in Shopping		Frequency Expected Cell Chi-Square	
	Male	Female	Total
no one	19 24 1.0417	29 24 1.0417	48
spouse	24 14.5 6.2241	5 14.5 6.2241	29
family member	3 7.5 2.7	12 7.5 2.7	15
Total	46	46	92

Statistic	DF	Value	Prob
Chi-Square	2	19.932	0.000

Table A4. Chi-square test of shopping intentions. by sex

Shopping Intentions		Frequency Expected Cell Chi-Square	
	Male	Female	Total
specific item in mind	22 15.5 2.7258	9 15.5 2.7258	31
general item in mind	21 26.5 1.1415	32 26.5 1.1415	53
no item in mind	4 5 0.2	6 5 0.2	10
Total	47 50.00	47 50.00	94 100.00

Statistic	DF	Value	Prob
Chi-Square	2	8.135	0.017

Table A5. Chi-square test of number of items purchased per trip by sex

Amount of Items purchased per trip		Frequency Expected Cell Chi-Square	
	Male	Female	Total
purchase multiple items	28 25.4 0.2587	24 26.6 0.2477	52
purchase coordinated outfit	12 13.7 0.2099	16 14.3 0.201	28
purchase single item	5 5.9 0.1288	7 6.1 0.1233	12
Total	45	47	92

Statistic	DF	Value	Prob
Chi-Square	2	1.170	0.557

Table A6. Chi-square test of behavior after a purchasing by sex

Behavior after Purchasing		Frequency Expected Cell Chi-Square	
	Male	Female	Total
leave	29 28.7 0.003	29 29.3 0.003	58
browse	18 18.31 0.005	19 18.70 0.005	37
Total	47	48	95

Statistic	DF	Value	Prob
Chi-Square	1	0.017	0.898

Table A7. Chi-square test of frequency of stockout experience by sex

Frequency of Stockout Experience	Male	Female	Total
not usually	29 28.5 0.009	28 28.5 0.009	57
sometimes	11 11.5 0.022	12 11.5 0.022	23
Total	40	40	80

Statistic	DF	Value	Prob
Chi-Square	1	0.061	0.805

Table A8. Chi-square test of stockout reason by sex

Stockout Reason	Male	Female	Total
size	28 32.28 0.57	38 33.72 0.54	66
others	17 12.72 1.44	9 13.28 1.38	26
Total	45	47	92

Statistic	DF	Value	Prob
Chi-Square	1	3.935	0.047

Table A9. Chi-square test of perceived seriousness of stockout problem by sex

Perceived Seriousness of Stockout Problem	Frequency Expected Cell Chi-Square		
	Male	Female	Total
yes	15 13.36 0.20	12 13.64 0.20	27
maybe	8 9.89 0.36	12 10.11 0.36	20
no	24 23.75 0.003	24 24.25 0.003	48
Total	47	48	95

Statistic	DF	Value	Prob
Chi-Square	2	1.123	0.570

Table A10. Chi-square test of frequency of stockouts at Ramal compared to other stores by sex

Frequency of Stockouts at Ramal Compared to other stores	Frequency Expected Cell Chi-Square		
	Male	Female	Total
same or more	13 16.25 0.65	20 16.75 0.63	33
less	20 16.75 0.63	14 17.25 0.61	34
Total	33	34	64

Statistic	DF	Value	Prob
Chi-Square	1	2.529	0.112

Table A11. Chi-square test of preference for shopping at Ramal for casual shirts

likelihood			Frequency Expected Cell Chi-Square		
			Male	Female	Total
less likely			16 19.24 0.55	23 19.76 0.53	39
more likely			21 17.76 0.59	15 18.24 0.58	36
Total			37	38	75
Statistic	DF	Value	Prob		
Chi-Square	1	2.243	0.134		

Table A12. Chi-square test of preference for shopping at Ramal for business suits

likelihood			Frequency Expected Cell Chi-Square		
			Male	Female	Total
less likely			5 7.4 0.78	10 7.6 0.76	15
more likely			32 29.6 0.19	28 30.4 0.19	60
Total			37	38	75
Statistic	DF	Value	Prob		
Chi-Square	1	1.920	0.166		

APPENDIX B: TELEPHONE PROTOCOL

Telephone Survey Call Record

Respondent Name _____
Telephone Number _____

#	Date	Time	Interviewer	Result
1	/	am am __ : __ -- __ : __ pm pm		
2	/	am am __ : __ -- __ : __ pm pm		
3	/	am am __ : __ -- __ : __ pm pm		
4	/	am am __ : __ -- __ : __ pm pm		
5	/	am am __ : __ -- __ : __ pm pm		
6	/	am am __ : __ -- __ : __ pm pm		
7	/	am am __ : __ -- __ : __ pm pm		
8	/	am am __ : __ -- __ : __ pm pm		
9	/	am am __ : __ -- __ : __ pm pm		
10	/	am am __ : __ -- __ : __ pm pm		

Abbreviation:

ASM	= Answering machine	IC	= Interview completed	RF	= Refused
NA	= No answer	PIC	= Partially completed	WN	= Wrong number
NH	= Not home	AP	= Call appointment (when)	DISC	= Disconnect
NW	= Not at work	WR	= Will return (when)		

Telephone Survey for Customer In-store Shopping Behavior

Respondent Name _____
Telephone Number _____

Direction:

Hello, this is (name), and calling from Iowa State University. May I speak to (name)?

[WHEN THE RESPONDENT ANSWERS]

This is (name). I am a graduate student from Textiles and Clothing Department at Iowa State University.

We are cooperating with Ramal Company in an effort to improve customer service. We have called you because you have a Ramal Credit Card and you have made purchases at the Ramal store during the past year. Ramal company encourages your cooperation in this study by offering a $ 25 gift certificate for your participation. The survey will take about 10 minutes. Would you willing to answer some questions about being a Ramal customer? Is a now a good time ?

Before we begin I want to assure you that any information you provide will be held in strictest confidence. Neither your name nor your personal information will be matched with your answers in any report of the results. You may refuse to answer any questions that make you feel uncomfortable.

APPENDIX C: TELEPHONE QUESTIONNAIRE

General apparel shopping habit 1

Telephone Survey for Customer In-store Shopping Behavior

In the first section of the survey, I will ask some general questions about your clothing shopping habits.

Q-1. What is likely to cause you to go shopping for clothes?

1 ___ buy an item for a specific occasion.
2 ___ spend time for pleasure or recreation
3 ___ update your wardrobes
4 ___ buy a new wardrobes
5 ___ other _____

Q-2. When you go shopping for clothes, which of the following are you more likely to have in mind?

1 ___ specific item including brand, style, and color.
2 ___ general item including just product type.
3 ___ no particular item in mind.
4 ___ other _____

Q-3. When shopping for clothes, which of the following are you more likely to do?

1 ___ purchase a single item
2 ___ purchase multiple items
3 ___ purchase a complete coordinated outfit
4 ___ not make a purchase
5 ___ other _____

Q-4. After a making a purchase, what are you most likely to do?

1 ___ leave
2 ___ browse

Q-5. When shopping for clothes, how often do you experience a stock-out, that is, the item you want to buy is not immediately available?

1 ___ frequently
2 ___ sometimes
3 ___ not usually
4 ___ never

Q-6. When you experience a stock-out, what is most likely to be the cause?

1 ___ The brand you want is not available.
2 ___ The style you want is not available.
3 ___ The color you want is not available.
4 ___ The size you want is not available.
5 ___ other _____

Q-7. Do you regard stock-outs as a serious shopping problem?

1 ___ Yes
2 ___ Maybe
3 ___ No

General apparel shopping habit 2

Q-8. When you shop for clothes, with whom do you shop?

1 ___ no one
2 ___ with friends
3 ___ with spouse or significant other
4 ___ with family members or relatives
5 ___ others _____

Q-9. How often do you shop for clothes?

1 ___ every week
2 ___ every month
3 ___ a few times a year
4 ___ other _____

Q-10. How likely are you to shop at Ramal **for casual clothes**?

1 ___ very likely
2 ___ likely
3 ___ not sure
4 ___ unlikely
5 ___ very unlikely

Q-11. If you wouldn't go to Ramal for casual clothes, where would you go?

_____

Q-12. Why would you go there?

_____

_____

Q-13. How likely are you to shop at Ramal **for business or professional clothes**?

1 ___ very likely
2 ___ likely
3 ___ not sure
4 ___ unlikely
5 ___ very unlikely

Q-14. If you wouldn't go to Ramal for business or professional clothes, where would you go?

_____

Q-15. Why would you go there?

_____

_____

Q-16. How does Ramal compare with other stores in terms of frequency of stock-outs?

1 ___ more
2 ___ same
3 ___ less

Casual shirt 3

In the second section of this survey, I am going to describe two situations that could happen to you. Think of yourself in these situations and then I will ask you some questions about how you would respond.

This is the first situation.

> ***Your company has introduced "Casual Friday" and you need to buy a new casual shirt.***
>
> ***You remember a nice casual shirt that you saw displayed in a store window.***
>
> ***You go to the store to purchase the shirt and you find that the shirt you'd like to buy is sold out.***
>
> ***The sales person says that the item will be restocked in three days.***

On a scale of one (1) meaning *least likely*, three (3) meaning *not sure*, and five (5) meaning *most likely*, please respond to the following questions with regard to the stock-out.

		Least likely		Not sure		Most likely
Q-17.	How likely are you to try to find a casual shirt in a different **brand** but with same color, style, and size?	1	2	3	4	5
Q-18.	How likely are you to try to find a casual shirt in a different **color** but with same brand, style, and size?	1	2	3	4	5
Q-19.	How likely are you to try to find a similar casual shirt in a different **style** but with same brand, color, and size?	1	2	3	4	5
Q-20.	How likely are you to try to find a similar casual shirt in a different **size** but with same brand, color, and style?	1	2	3	4	5
Q-21.	How likely are you to **postpone purchase until the specific item you want to buy is restocked**?	1	2	3	4	5
Q-22.	How likely are you to **spend time** in the same store looking for other items after experiencing the stock-out?	1	2	3	4	5
Q-23.	How likely are you to **quit shopping** for that day?	1	2	3	4	5

Casual shirt 4

Q-24.	How likely are you to **go to another store looking for the specific item** you want to buy?	1	2	3	4	5
Q-25.	How likely are you to **buy the shirt if the store will deliver it to you within three days at the store's expense**?	1	2	3	4	5

Business suit 5

This is the second situation.

> ***You are going interview for a different job in about a week so you want to buy a new business suit.***
>
> ***You remember that you saw a nice business suit while you were shopping for the casual shirt.***
>
> ***So you return to the store and you find that the suit you'd like to buy is sold out.***
>
> ***The sales person says that the item will be restocked in three days.***

With this scenario in mind, on a scale of one (1) meaning *least likely*, three (3) meaning *not sure*, and five (5) meaning *most likely*, please respond to the following questions with regard to the stock-out.

		least likely		Not sure		Most likely
Q-26.	How likely are you to try to find a suit in a different **brand** but with same color, style, and size?	1	2	3	4	5
Q-27.	How likely are you to try to find a suit in a different **color** but with same brand, style, and size?	1	2	3	4	5
Q-28.	How likely are you to try to find a suit in a different **style** but with same brand, color, and size?	1	2	3	4	5
Q-29.	How likely are you to try to find a suit in a different **size** but with same brand, color, and style?	1	2	3	4	5
Q-30.	How likely are you to **postpone purchase until the specific item you want to buy is restocked**?	1	2	3	4	5
Q-31.	How likely are you to **spend time** in the same store looking for other items after experiencing the stock-out?	1	2	3	4	5
Q-32.	How likely are you to **quit shopping** for that day?	1	2	3	4	5
Q-33.	How likely are you to **go to another store looking for the specific item** you want to buy?	1	2	3	4	5

Business suit 6

Q-34.	How likely are you to **buy the suit if the store will deliver it to you within three days at the sore's expense**?	1	2	3	4	5

In the last section of the survey, I will ask some general demographic questions.

Q-35. Respondent is:

1 ___ Male
2 ___ Female

Q-36. What is your marital status?

_____

1 ___ never married
2 ___ married
3 ___ divorced
4 ___ separated
5 ___ widowed
6 ___ living together, not married

Q-37. How old are you?

_____

1 ___ less than 25
2 ___ 25 - 30
3 ___ 31 - 35
4 ___ 36 - 40
5 ___ 41 - 45
6 ___ 46 - 50
7 ___ over 50

Q-38. What is your occupation?

_____

1 ___ Professional or technical (e.g. accountant, artist, computer specialist, dentist, engineer, lawyer, librarian, nurse, physician, scientist, teacher, technician, writer, etc.)
2 ___ Manager or administrator (except on a farm or ranch)
3 ___ Sales worker (e.g. insurance salesperson, realtor, sales clerk, stockbroker, etc.)
4 ___ Clerical worker (e.g. bank teller, bookkeeper, cashier, office clerk, postal worker, secretary, teacher/s aid, telephone operator, etc.)
5 ___ Crafts worker (e.g. baker, carpenter, electrician, foreman, jeweler, mechanic, painter, plumber, tailor, etc.)
6 ___ Machine operator (e.g. bus driver, conductor, factory worker, truck drive, operator of other kinds of machines)
7 ___ Laborer (except on farm or ranch) (e.g. carpenter's helper, garbage collector, stock handler, teamster, warehouser, etc.)
8 ___ Farmer, rancher or farm manager, ranch manager
9 ___ Farm or ranch foreman or farm or ranch laborer
10 ___ Service worker (except in private householder) (e.g. barber, bartender, cook, dental assistant, dishwasher, firefighter, janitor, nursing aide, police officer, usher, waiter, etc.)
11 ___ Domestic household worker
12 ___ Government or military worker
13 ___ Retired
14 ___ Others _____

General demographics 8

Q-39. Which of the following represents the highest level of education that you have completed?

1 ___ some high school
2 ___ completed high school
3 ___ some college
4 ___ completed college
5 ___ some graduate work
6 ___ a graduate degree

Q-40. Approximately, how much was spent on your clothes last year?

_____ dollars

Q-41. Which of the following categories represent your annual family income?

1 ___ less than 30,000
2 ___ 30,000 - 40,000
3 ___ 40,000 - 50,000
4 ___ 50,000 - 75,000
5 ___ 75,000 -100,000
6 ___ 100,000- 200,000
7 ___ over 200,000

Q-42. What is your racial heritage?

1 ___ African American
2 ___ Asian
3 ___ Hispanic
4 ___ White
5 ___ Other _____

We appreciate the time you have given us for this project. You will receive $25^{00} gift certificate from Ramal shortly.

[Conform address]

_____

_____

Thank you very much, good-bye.

APPENDIX D: ADVANCED LETTER FOR TELEPHONE SURVEY

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

College of Family and
Consumer Sciences
Department of Textiles and Clothing
1052 LeBaron Hall
Ames, Iowa 50011-1120 U.S.A.
515 294-2628
FAX 515 294-6364

June 5, 1995

Dear Customer

Within a week or so, you will be receiving a call from Iowa State University as part of a research study in collaboration the with Ramal Company. Our goal is to gather information from Ramal Credit Card holders to help improve customer service. We are sending this letter to you because you have a Ramal Credit Card and you have made purchases at a Mark Share store during the past year. Ramal encourages your cooperation in this study by offering a $ 25 gift certificate for your participation.

We are writing in advance of our telephone call because we have found that many people appreciate being advised that a research study is in process, and they will be called.

I want to assure you that participating in the survey is voluntary and any information you provide will be held in strictest confidence. Neither your name nor your personal information will be matched with your answers in any report of the results. You may refuse to answer any questions that make you feel uncomfortable.

The interview should only take about ten minutes. If by chance we should happen to call at inconvenient time, please tell the interviewer and they will be happy to call back later.

We greatly appreciate your contribution to this study's success.

If you have any questions, please don't hesitate to ask our interviewer.

Jeongwon Song
Project Director

APPENDIX E: HUMAN SUBJECTS APPROVAL

Information for Review of Research Involving Human Subjects

Iowa State University

(Please type and use the attached instructions for completing this form)

1. Title of Project: *In-store Apparel Shopping Behavior in Relation to Stock-outs*

2. I agree to provide the proper surveillance of this project to insure that the rights and welfare of the human subjects are protected. I will report any adverse reactions to the committee. Additions to or changes in research procedures after the project has been approved will be submitted to the committee for review. I agree to request renewal of approval for any project continuing more than one year.

Jeongwon Song	06/05/95	
Typed Name of Principal Investigator	Date	Signature of Principal Investigator

Textiles and Clothing	1052 LeBaron Hall Ames, IA 50010-1120	(515) 296-2070
Department	Campus Address	Campus Telephone

3. Signatures of other investigators

	Date	Relationship to Principal Investigator
	06/05/95	major professor

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4. Principal Investigator(s) (check all that apply)
☐ Faculty ☐ Staff ☒ Graduate Student ☐ Undergraduate Student

5. Project (check all that apply)
☐ Research ☒ Thesis or dissertation ☐ Class project ☐ Independent Study (490, 590, Honors project)

6. Number of subjects (complete all that apply)
X # Adults, non-students ___ # ISU student ___ # minors under 14 ___ # minors 14 - 17 ___ other (explain)

7. Brief description of proposed research involving human subjects: (See instructions, Item 7. Use an additional page if needed.)

Please see attached sheets

(Please do not send research, thesis, or dissertation proposals.)

8. Informed Consent:
☐ Signed informed consent will be obtained. (Attach a copy of your form.)
☒ Modified informed consent will be obtained. (See instructions, item 8.)
☐ Not applicable to this project.

9. Confidentiality of Data: Describe below the methods to be used to ensure the confidenuality of data obtained. (See instructions, item 9.)

Confidentiality is safeguarded by reporting results as statistical summaries.

10. What risks or discomfort will be part of the study? Will subjects in the research be placed at risk or incur discomfort? Describe any risks to the subjects and precautions that will be taken to minimize them. (The concept of risk goes beyond physical risk and includes risks to subjects' dignity and self-respect as well as psychological or emotional risk. See instructions, item 10.)

There are no anticipated risks in this research and the only anticipated discomfort is that individuals may not wish to be called for a survey.

11. CHECK ALL of the following that apply to your research:

- ☐ A. Medical clearance necessary before subjects can participate
- ☐ B. Samples (Blood, tissue, etc.) from subjects
- ☐ C. Administration of substances (foods, drugs, etc.) to subjects
- ☐ D. Physical exercise or conditioning for subjects
- ☐ E. Deception of subjects
- ☐ F. Subjects under 14 years of age and/or ☐ Subjects 14 - 17 years of age
- ☐ G. Subjects in institutions (nursing homes, prisons, etc.)
- ☐ H. Research must be approved by another institution or agency (Attach letters of approval)

If you checked any of the items in 11, please complete the following in the space below (include any attachments):

Items A - D Describe the procedures and note the safety precautions being taken.

Item E Describe how subjects will be deceived; justify the deception; indicate the debriefing procedure, including the timing and information to be presented to subjects.

Item F For subjects under the age of 14, indicate how informed consent from parents or legally authorized representatives as well as from subjects will be obtained.

Items G & H Specify the agency or institution that must approve the project. If subjects in any outside agency or institution are involved, approval must be obtained prior to beginning the research, and the letter of approval should be filed.

Last Name of Principal Investigator Jeongwon Song

Checklist for Attachments and Time Schedule

The following are attached (please check):

12. [X] Letter or written statement to subjects indicating clearly:
    a) purpose of the research
    b) the use of any identifier codes (names, #'s), how they will be used, and when they will be removed (see Item 17)
    c) an estimate of time needed for participation in the research and the place
    d) if applicable, location of the research activity
    e) how you will ensure confidentiality
    f) in a longitudinal study, note when and how you will contact subjects later
    g) participation is voluntary; nonparticipation will not affect evaluations of the subject

13. [X] Consent form (if applicable)

14. [ ] Letter of approval for research from cooperating organizations or institutions (if applicable)

15. [X] Data-gathering instruments

16. Anticipated dates for contact with subjects:

First Contact	Last Contact
06/15/95	07/31/95
Month / Day / Year	Month / Day / Year

17. If applicable: anticipated date that identifiers will be removed from completed survey instruments and/or audio or visual tapes will be erased:

_____
Month / Day / Year

18. Signature of Departmental Executive Officer | Date | Department or Administrative Unit

6/05/95 | Department of Textiles and Clothing

19. Decision of the University Human Subjects Review Committee:

[X] Project Approved [ ] Project Not Approved [ ] No Action Required

Patricia M. Keith | 6-8-95 |
Name of Committee Chairperson | Date | Signature of Committee Chairperson

GC:1/90