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The Impact of Stockouts on Customer Loyalty to Lean Retailers

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MBA, Strayer University, 2008

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Doctoral Study Submitted in Partial Fulfillment

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Abstract

The lean inventory concept has been shown to streamline operations and improve efficiency in a retail environment. The negative side of the practice is that limited inventories increase the risk of stockouts, where a routinely available product is missing and the retailer is not able to meet customer demands. The purpose of this exploratory case study was to examine stockouts as an event and document their effects on changes in customer attitudes and behaviors. Guided by a constructivist conceptual framework, the research question explored how stockout experiences affected customers' purchasing behaviors and loyalty to brand and retailer. A survey containing both open-ended and categorical response elements was validated through a pilot study and used to collect data from 40 randomly selected participants shopping at a retail mall in eastern Pennsylvania. Data coding for qualitative data consisted of 3 sequential stages of open, axial, and selective coding into a priori themes. Categorical responses were employed in downward analyses that revealed patterns in the qualitative data. The results indicated that repeated stockout experiences decreased customers' loyalty to brand and retailer and caused customers to abandon both retailers and brand. Respondents indicated that stockout impacts can be buffered through improved inventory management and better customer service. Specific recommendations included monetary incentives, personal contacts, coupons, and item discounts. Results of this study will enable retailers to gain deeper understanding of how stockout affects customers shopping experiences and loyalty, and offer mitigation measures to improve both. Results will provide a positive change to both consumers and retailers, where shoppers will enjoy pleasant shopping experiences and retailers will maintain their competitive advantage through loyalty of their customer base.

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Dedication

I would like to dedicate this dissertation to my wife Debbie and my children,

Sarah and Connor, for their unwavering support and understanding during my pursuit of

this degree. Debbie's unconditional love and understanding were essential to my success,

and her kindness and patience provided me with inspiration and strength during the

challenging times in this academic endeavor. My two wonderful children provided

further motivation to be an example to them and kept me focused on completing my

educational goals. I feel special gratitude to my wonderful mother, whose guidance and

love during my childhood and throughout her life as well as her belief in the importance

of education instilled in me a sense of lasting curiosity and love for learning.

Table of Contents

List of Tables

Section 1: Foundation of the Study

The accelerating development of communications and information technology (IT) has revolutionized global trade, and the emergence of the Internet has enabled modernization of the inventory management system (Hoffman, 2008). Retailers faced with a new challenge to compete on the global stage have leveraged the use of IT to manage inventory (Abernathy, Dunlop, Hammond, & Weil, 2000). Information integration between partners can make the supply chain more responsive to customer needs, potentially replacing inventory with information (Speier, Mollenkopf, & Stank, 2008, p. 22). Competition is not a choice but a matter of survival for retailers, as the shape and geographical location of the competition has evolved from local and national to a global marketplace. To meet this challenge, company leaders are exploring new processes to operate more efficiently and focus on inventory turnover rather than just holding inventory. Gaur, Fisher, and Raman (2005) discovered a strong correlation between inventory turnover and a firm's gross margins.

The lean manufacturing process has improved production by reducing variance and cutting waste in the process (Husby, 2007). The lean concept, which worked very well in a steady state environment (Bartels, 2006), has migrated to the retailing portion of the supply chain (Wright & Lund, 2006). One of the critical elements of success in retail operations is matching inventory with demand (Cachon & Terwisch, 2005). Koumanakos (2008) stated, "In the operations management literature, the question of how much inventory a firm should keep has been extensively studied, but there is dichotomy in the views, given that inventory is both an asset and a liability" (p. 356). The optimum inventory quantity for an item is based on the target service level, lead

time, and demand variations (Martin, 2007). Embracing the concept of lean in the supply chain can bring positive results to an organization (Martichenko, 2007, p. 35), and lean retailers can improve firm performance by holding optimum levels of inventory (Eroglu & Hofer, 2011). If held at the right level, inventory can reduce overall costs to a business (Sordy, 2007). Through the lean process, which provides customers with the products they want when they want them, companies can reap financial benefits (Womack & Jones, 2005).

Risks of stockout could occur in the lean inventory process in a retailing environment because of lack of stability of and variations in customer demand. Stockout is a situation in which a routinely available product is missing from a retailer's shelf and is not available to meet customer demands (Vasconcellos & Sampaio, 2009). Svensson (2003) identified an inverse relationship between disturbances and lean inventories; disturbances tend to increase as levels of inventory decrease. The lean environment requires frequent, timely, accurate, and strict replenishment delivery timeline (Abernathy et al., 2000). Goldsby, Griffis, and Roath (2006) discovered that the lean model can also lead to underforecasting of demand. The relationship between logistics disturbances from stocking out and inventory levels held by retailers is expressed by the view that leaner inventories can lead to higher stockout occurrences. Svensson (2003) noted, "The financial benefits that might be achieved through leanness in inventory management might also negatively influence the financial costs caused by increased disturbances" (p. 765).

Background of the Problem

Organizations traditionally have held more inventory than required to meet variations in customer demand. Musalem and Dekker (2005) suggested, "One of the most important aspects affecting the supply chain performance is the management of inventories" (p. 179). Since the early 1990s, when organizations began to understand the dynamics of demand fluctuation, companies have considered inventory management as integral to the supply chain process and have introduced innovative ideas to compete globally. Firms also discovered there were significant costs and risks associated with holding speculative inventory, prompting retailers to seek more efficient management (Goldsby et al., 2006). Companies are exploring ways to deal with the costly problem of stockout and uncertainty of demand by staging inventory in containers ahead of customer demand (Comez & Kiessling, 2012). Matching the exact amount of inventory to meet customer uncertain demand has presented a problem for managers (Zinn & Liu, 2001). The need for frequent and timely restocking to support lean inventory has also created a challenge for retailers and suppliers sourcing products from overseas manufacturers (Bruce, Daly, & Towers, 2004).

Disturbances in the supply chain can have severe effects on firms applying the lean principles (Svensson, 2001). Too little inventory could lead to stockouts; as a consequence, customers could become dissatisfied and take their business elsewhere (Koumanakos, 2008). Low product availability resulting from using lean inventory causes stockouts and can lead to decrease in customer loyalty and could cause retailers to increase safety stocks (Bardaki, Pramatari, & Miliotis, 2007). Customers' responses to stockout can be expensive to retailers: When a customer encounters stockout, the retailer

can lose up to half of the intended purchases (Gruen, Corsten, & Bharadwaj, 2002).

Campo, Gijsbrechts, and Nisol (2000) concluded that retailers can lose up to 14% of

customers who cannot find missing products. Because of stocking out, retailers could

suffer both short and long-term negative fiscal consequences. Blazenko and Vandezande

(2003) declared, "Two adverse consequences of stockouts [are] immediate foregone

profit and long-run loss of revenue arising from the shift of customers to more reliable

sources of supply" (p. 264). This research will enable retailers to gain in depth

understanding of the stockout problem and use the recommended mitigating measures to

minimize the negative effects of stockout on their customers.

Problem Statement

Retailers using the lean inventory strategy have increased risk of stockouts and

losing customers because stockout experiences negatively affect customers' purchasing

behaviors and shopping attitudes (Rani & Velayudhan, 2008). Stockouts are increasingly

recognized as a retail problem by both researchers and practitioners (Vasconcellos &

Sampaio, 2009, p. 264), for as many as 44% of customers who experience stockout will

go to competitors rather than buy a substitute item at the stores where they typically shop

(Zinn & Liu, 2008). The general business-related problem is the costly effects of

inventory stockouts on retailers within the lean retailing industry. The total cost of

dissatisfied customers lost permanently to competitors is considered in terms of lifetime

customer revenue (Lam & Ip, 2011). The specific business problem is related to changes

in customers' purchasing behaviors and decrease in loyalty to their preferred brand or

retailer after experiencing stockout. Large numbers of customers might abandon their

purchases and go to another retailer because of stockout (McKinnon, Mendes, &

Nababteh, 2007). Stockout experiences have greater implications beyond retailers'

revenues and can affect profits of stakeholders across the supply chain (Gruen & Corsten,

2007).

Purpose Statement

The purpose of this qualitative case study was to explore the effects of stockout

occurrences on changes in customers' purchasing behaviors and loyalty to preferred

brands and retailers. Retailers must have the products on hand that customers demand or

risk losing them to competitors (Richey, Skinner, & Autry, 2007). Customers who

experience stockout will routinely go to a competitor to buy the desired product, which

causes a loss in revenue for the retailer. The effect of stockout on retailer profits

experienced in the short and long-term is not limited to the stockout item and can extend

to other products (Anderson, Fitzsimons, & Simester, 2006).

Participants in this study consisted of customers shopping at a retail mall in

eastern Pennsylvania. Sample size was based on the concept of saturation (Mason,

2010). Four hundred customers were asked to participate in two separate survey periods.

Jansen (2010) ascertained that participants sample should represent the diversity and

social make-up of the local demographics. To ensure a random and accurate

representation of local demographics, every 10th customer leaving a shopping venue was

asked to respond to a survey.

Results from this study should provide process analysis that enables retailers to

optimize the various elements of their lean inventory process and minimize the effects on

customers. Pagell and Wu (2009) ascertained that implementing best practices and

increasing efficiency can lead to a sustainable supply chain. By streamlining operations

and using best practices, organizations can reduce consumption of resources and contribute to positive social change.

Nature of the Study

The selected method for this study was qualitative because the research was exploratory and included multiple perspectives (Creswell, 2009). The participants consisted of randomly selected customers shopping at a retail mall that hosted a number of national retail stores like Macy's, Sears, and JCPenney. Participants responded to a survey on stockout experiences they might have had while shopping to reveal any changes in their purchasing behaviors from stockouts. Participants completed the survey inside the mall near major retail stores.

Information collected from the answers helped to determine whether those customers who experienced stockout planned to remain loyal to the vendor by deferring their purchases, planned to buy a substitute product from the same retailer, or went to an alternate store to buy the desired product. The answers also indicated whether these customers returned to their preferred retailer after a stockout experience or decided to switch retailers for the long term. This study also explored whether a retailer reward system reduces or mitigates the negative effects of stockout on customers. Maxell (2010) viewed the difference between the qualitative and quantitative methods as thinking in two perspectives, the qualitative as events and processes, and the quantitative as variables and correlations. The qualitative method was considered a more suitable approach for this exploratory research where multiple perspectives were considered. Conclusions were based solely on the analysis of the completed surveys.

Research Questions

Advances in communications technology and the globalized market have complicated supply chain operations. Companies compete on quality of goods, price, and inventory (Zhao, 2008). To increase efficiency and reduce investments in inventory, most retailers now follow lean retailing principles (Abernathy et al., 2000; Keen & Evans, 2010). According to Goldsby et al. (2006), the lean premise relies on forecasts rather than demand-driven replenishment. Retailers have used lean inventory as a strategy to reduce costs and increase efficiency and profits. Having fewer inventories on hand coupled with volatile customer demand and ramped up advertising of manufacturers make retailers vulnerable to increased risk of running out of certain products. Stakeholders operating across the supply chain are at risk of losing money due to demand uncertainty (Towill, 2005). The following are factors related to the development of the central research question:

1. A relationship exists between demand uncertainty, firms' gross margins, and inventory levels (Rumyantsev & Netessine, 2007).

2. The lean model is susceptible to under forecasting, leading to significant inventory shortages (Goldsby et al., 2006). As a result, there are increased risks of stockout associated with using lean inventory.

3. Stockout experiences result in customer dissatisfaction and lost sales (Grant & Fernie, 2008).

The Central Research Question and Subquestions

The central research question for this study was as follows: How do stockout experiences affect customers' purchasing behaviors and loyalty to their preferred brand or retailer? The following subquestions amplified the central research question:

Subquestion 1. How does stockout affect customers' brand loyalty and future purchasing behaviors?

Subquestion 2. How does stockout affect customers' short- and long-term loyalty to retailers?

Subquestion 3. What can retailers do to mitigate the negative effects of stockout on customers?

Appendix A is a survey questionnaire with 25 questions that addressed the main research question and the three subquestions. Analysis of answers showed nonstatistical relationships resulting from the lean process within the retailing industry in the form of inventory stockout occurrences and customer purchasing behaviors. Conclusions also provided insight into responses and effects on customers' loyalty after experiencing stockout. I also explored venues that will allow retailers to mitigate the negative effects of stockout on customers.

Conceptual Framework

Central to this qualitative case study was the constructivist worldview. The case study design is an appropriate approach for the constructivist worldview (Denzin & Lincoln, 2011). This worldview advocates a philosophy of determination to explore through varied approaches and lenses by using questions that enable participants to describe their experiences. Through this approach, I explored and analyzed a qualitative

relationship between stockout experiences and customers' responses in a retail environment. This venue supported the argument and allowed me to explore and present relationships and implications between stockout experiences resulting as a consequence of the lean inventory process and customer purchasing behaviors in retail environment. The research from this study will contribute to a potential solution to a persistent supply chain problem. Results could be useful to stakeholders operating across the supply chain.

Definitions of Terms

Best practice: A process, technique, or method that has been proven to be more effective than others (Johnson, 2009).

Bullwhip effects: Demand amplification caused as a result of multiple echelons of reviewing and approving orders placed upstream along the supply chain (Towill, 2005).

Demand forecasting: The activity of estimating the quantity of products or services that consumers will purchase (Blanchard, 2007).

Globalization: The process of increasing the connectivity and interdependence of the world's markets and businesses (Blanchard, 2007).

Global sourcing: A procurement strategy in which a business seeks to find the most cost-efficient location for manufacturing a product, even if the location is in a foreign country (Agerfalk & Fitzgerald, 2008).

Just-in-time (JIT) inventory: A method of inventory control that brings material into the production process, warehouse, or to the customer just in time to be used, reducing the need to store excessive levels of material (Black & Ray, 2011).

Leagile supply chain: A hybrid strategy that combines the lean and agile supply chain approaches (Goldsby et al., 2006).

Lean distribution: Minimizing waste in the supply chain while remaining responsive to consumer demands (Reichhart & Holweg, 2007).

Lean inventory: A process that focuses on improving flow with a heavy emphasis on reducing inventory (Zylstra, 2006).

Safety stocks: Inventory held as a buffer against mismatch between forecasted and actual demand for a given period (Chopra & Meindl, 2007).

Seasonal stocks: Inventory built up in anticipation of a seasonal peak demand (Hugos, 2006).

Stockout or out of stock: Situation in which a routinely available product is missing from a retailer's shelf and is not available to meet customer demands (Vasconcellos & Sampaio, 2009).

Supply chain: The movement of materials as they flow from their source to the end customer. A supply chain (SC) includes purchasing, manufacturing, warehousing, transportation, customer service, demand planning, and supply planning. SC is made up of people, activities, information, and resources involved in moving a product from suppliers to customers (Chopra & Meindl, 2007).

Supply chain management (SCM) is the oversight of materials, information, and finances as they move in a process from supplier to manufacturer to wholesaler to retailer to consumer (Chopra & Meindl, 2007).

Upstream suppliers: Suppliers upstream include manufacturing, wholesalers, and other sourcing agencies that supply products to the retailer (Towill, 2005).

Assumptions, Limitations, and Delimitations

Assumptions

The lean inventory strategy is assumed to be an effective method for retailers to reduce inventory and costs. Too much inventory consumes physical space, creates a financial burden, and increases the possibility of damage, spoilage, and loss (Koumanakos, 2008). Limited inventory held on hand by retailers increases the risk of stockout occurrences and could affect customers' shopping behaviors, either in the short or long-term. Retailers can lose up to 14% of customers who cannot find missing products (Campo et al., 2000). Sometimes customers who experience stockout occurrences go to other retailers or competitors and could be lost to that retailer long-term, which could mean long-term profit loss to that retailer.

Limitations

This research focused on customer behaviors after stockout experiences at national chain stores at a mall in eastern Pennsylvania. These national retail brands included companies such as Macy's, Sears, and JCPenney. The stockout experience from the participants was current to within 7 days of the survey. Stockout events that happened in shopping trips prior to 7 days were not considered because the recollection and memory of the customer might not be clear. Conclusions could reflect a specific region and not apply across other regions within the United States or around the globe; thus, the region where the study took place could be a limitation to generalizability. The research could also be limited by demographics, social affiliations, and economic levels of participants. The influence of e-commerce or online shopping was not considered in this research.

Delimitations

The effects of stockouts were explored in terms of customers physically going to traditional brick and mortar stores to shop for a specific brand or item and were viewed from customers' perspectives and potential changes in purchasing behaviors if the item(s) were not available. Only national chain retail stores were used as data-collection sites. Other levels of retailing, including the food industry or online retail venues, were not considered in this study.

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Significance of the Study

</div>

Reduction of Gaps

Stockouts continue to present a significant problem for retailers (Vasconcellos & Sampaio, 2009) and in some cases are causing retailers to increase inventory levels (Schottmiller, 2010). For those reasons, I decided to explore customer reactions to stockout experiences by determining the hidden costs of lean inventory from stockout occurrences participants experienced. The information resulting from this research will enable companies using the lean inventory principles to seek and find mitigating practices to solve the stockout problem and to provide customers with more satisfactory service. Results could help supply chain retailers improve lean inventory practices and possibly reduce customer stockout experiences. Showing the specific relationships between stockout occurrences and customer satisfaction could enable retailers to plan better inventory levels and mitigate the risks of lean inventory operations.

Implications for Social Change

Consuming less and improving quality are two cornerstone principles of social change and corporate responsibility. One of the evident connections between lean

principles and a green supply chain is the reduction of waste (Mollenkopf, Stolze, Tate, & Ueltschy, 2010). Through streamlining operations, organizations can reduce consumption of resources, including raw material.

By retailers holding fewer inventories on hand, manufacturers can produce only needed quantities, resulting in use of less raw material and energy to make products. Senge, Smith, Kruschwitz, Laur, and Schley (2008) stated, "Companies in all sectors, from IBM to Alcoa to Walmart, have achieved massive savings from reducing waste and energy usage" (p. 111). Implementing best practices principles and increasing efficiency normally lead to a sustainable supply chain (Pagell & Wu, 2009). Additionally, by operating more efficiently, retailers can pass on savings to their customers and, consequently, could improve the quality of life for customers with lower incomes.

The results of this research will inform retailers of specific problems associated with poor customer service caused by stockout and could enable retailers to provide better service to customers while maintaining profit margins. By implementing lean inventory, companies achieve monetary gain while exercising social responsibility. According to Senge et al. (2008), the world's best companies know that for a supply chain to be robust and sustainable, all stakeholders in the chain must be leaders in reducing environmental impact. Using lean inventory creates a winning strategy for retail companies, as retailers can save money from not holding unnecessary inventory, improve operational efficiency, and contribute to the long-term sustainability of the global environment.

A Review of the Professional and Academic Literature

A review of existing scholarly and professional literature on the subject of stockout revealed that the topic has been studied periodically since the problem was first explored in 1978. Subsequent studies found the problem still existed and could even be getting worse, despite advancement in inventory management technology. Scholars and practitioners generally agree that stockout is a problem that reduces retailers' profits (Vasconcellos & Sampaio, 2009) and negatively affects stakeholders operating across the supply chain (Gruen & Corsten, 2007).

Most available literature was narrowly focused on stockout effects and did not fully explore possible mitigation measures for the problem. The stockout problem required further research to discover to what degree this problem still existed and to explore options to enable retailers to use to improve customer service and reduce loss of profits. The purpose of this study was to explore effects of stockout experiences on customers' purchasing behaviors and to discover changes in customers' loyalty to favorite brand or preferred retailer.

Overview and Discussions of the Literature

The supply chain landscape has become more complex and challenging as retailers and manufacturers are forced to operate across national boundaries and over greater physical distances. Since the 1990s, many organizations have adopted the concept of lean inventory, and according to Blanchard (2007), over the past 20 years, 66% of the cash-to-cash improvements throughout all industry sectors have come from reduction in inventory. Some level of inventory, however, some level of inventory will always be needed at various levels along the supply chain pipeline (Chopra & Meindl,

2007). Decrease in inventory in a product or brand can lead to a decrease in demand for

that product (Koschat, 2008). In lean inventory, the organization holds only the amount

of inventory needed to fill customer demand within a defined period. Within each level

of inventory, there are many considerations, such as cycles, seasons, and safety levels.

Lean inventory concept presents risk of disturbance to retailers in the form of

stockout. According to an Andersen Consulting (1996) study, the stockout problem cost

retailers up to $12 billion a year in lost profits. Blazenko and Vandezande (2003) stated,

"In the event of a stockout, purchasers might substitute products, temporarily switch

retailers, become permanently lost customers to the retailer, or simply postpone their

purchase" (p. 257). Svensson (2003) concluded, "The principle of balance between

inventories and disturbances indicates that when the inventories increase, then the

disturbances decrease in inbound (or outbound) logistics flows and vice versa" (p. 776).

The lean inventory offers advantages but also presents risks. If the inventory

levels held on hand are low, retailers risk stockout conditions that could cost them both

customers and profits. Consequently, for an organization to avoid the problems of lean

inventory there must be a highly responsive supply chain. Reichhart and Holweg (2007)

concluded.

> A combination of efficient (or lean) and responsive strategies have been assumed
>
> to be possible only sequentially; i.e., upstream from the decoupling point, lean
>
> processes can be used, while the downstream part of the supply chain has to rely
>
> on responsive product delivery. (p. 3719)

The lean inventory strategy can reduce operating costs and improve efficiency of

supply chain operations. According to Reichhart and Holweg (2007), the overall goal of

the lean concept is to reduce waste from the process to increase efficiency and increase the value added into the process. Goldsby et al. (2006) concluded that the lean strategy can be effective in customer service performance if customer demand can be accurately predicted. The essence of lean retailing is to respond rapidly to demand fluctuations instead of holding large inventories (Evans & Harrigan, 2005). This strategy, which requires flexible suppliers and more frequent deliveries, has also increased the risk of losing customers because of stockout from carrying lean inventory. In order for lean retailing to work properly, manufacturers must demonstrate flexibility in both ramping up and slowing down production. Lean retailing demands great flexibility from producers (Evans & Harrigan, 2005; Weil, 2006). Disturbances in unplanned production interruptions in the supply chain present added risks to retailers (Svensson, 2000). Immediate alternative sources are not always available to fill the gap caused by a disruption along the supply chain (Black & Ray, 2011; Coleman & Jennings, 1998).

The most important factor that influences inventory management performance is the variation in customer demands (Yang, Ruben, & Webster, 2003), but forecasting demand is especially difficult when the supply chain offers less stability and increased variations. According to Blanchard (2007), any kind of forecast entails predicting the future, a process that inevitably will result in some errors under the best of circumstances. The immediate effects on customer service within the distribution process are caused by inventory imbalance, much of which can be attributed to poor forecasting (Zylstra, 2006).

Information systems integration can improve collaboration within and outside the firm (Ward & Zhou, 2006). United States retailers spend a great deal of money on automated decision-support tools to manage inventory, and 1% of annual sales,

approximately $30 billion, has been spent on these tools (Steidtmann, 1999). Some costly tools, however, are providing faulty data (DeHoratius, Mersereau, & Schrage, 2008; DeHoratius & Raman, 2008) that could be exacerbating the stockout problem across the supply chain. Incorrect inventory information often leads to faulty demand data and causes inaccurate forecasting. An estimated $7 billion a year of retailers' out of stock losses can be attributed to incorrect inventory management data (Andersen Consulting, 1996).

Holding excess inventory is expensive, and shortages can lead to stockout and customer dissatisfaction. In 1978, Schary and Becker noted, "Stockouts in consumer markets can create long-term, perhaps irreversible, losses in sales and market share" (p. 33). Stockouts is an enduring problem that has not changed over the years and continues to present a threat to brand stability in the marketplace (Motes & Castleberry, 1985). Additional research reported similar findings in customer responses to stockout, as Corsten and Gruen (2004) discovered that 43% of customers would switch stores to find preferred cosmetics. Measurement of retail stockout effects is important to understanding customer responses to stockout occurrences (Zinn & Liu, 2001).

Global macroeconomic conditions affect the inventory levels of organizations. Chen, Frank, and Wu (2005) confirmed a relationship between macroeconomic conditions and inventory levels, which was later verified by Chen, Frank, and Wu (2007) as an increase in inventory value, stating that "Publicly traded U.S. companies held $450 billion worth of retail inventory in 1980, which was subsequently increased to about $700 billion in 1998" (p. 436). Chen et al. also reported a decrease in manufacturing inventory during the same period. Dooley, Yan, Mohan, and Gopalakrishnan (2010) noted that

between 2005 and 2007, retail inventories showed an overall increase and only decreased

between 2007 and 2009 during the global economic slowdown. Hoffman (2008) reported

that industry studies such as the Council of Supply Chain Professionals' State of

Logistics report showed inventory-carrying costs making a steady climb in recent years,

whereas inventory as a percentage of GDP grew from 2.8% in 2003 to 3.5% in 2007 (p.

19).

A number of factors can contribute to the problem of items not in stock.

Measurement of stockout is critical to clarify the size and scope of the problem.

Inaccurate inventory records from stock loss and theft intensify the problem and present a

unique challenge to measuring its magnitude (Kang & Gershwin, 2005; Rekik, Sahin, &

Dallery, 2008). Poor in-store handling of inventory can also lead to stockout situations

(Thongma & Laptaned, 2007). Expanded variety in market products has also reduced

visibility on store shelves and could lead to increased risk of stockout if employees taking

inventory overlook some of the missing products (Campo & Gijsbrechts, 2005).

The global sourcing phenomenon has extended supply chains and created

problems. The extended global sourcing trend leads to added risk and uncertainty

throughout the supply chain because of increased numbers of participants as well as

added costs. Longer supply chains normally lead to increased numbers of participants

involved with transportation, distribution, and other logistical functions of the product

(Hoffman, 2008). Longer supply chains could lead to more interruptions, as Svensson

(2001) noted, "Interruptions in supply chains are of immense importance as firms strive

to be lean, responsive, and agile" (p. 21). The lean system requires flexible upstream

suppliers and more extensive transportation to support deliveries that are more frequent.

When retailers make ordering decisions, they must consider the impact on their upstream partners; otherwise, the consequences of decisions could negatively affect the performance of the entire supply chain (Yang et al., 2003). In order for the lean process to work successfully, retailers must rely on supplier flexibility and highly reliable and responsive transportation systems. In a lean supply chain environment, manufacturers must constantly adjust their production levels to respond quickly to changing demands (Tan, 2002). Failure of external support systems along the supply chain could have a direct negative effect on retail operation, customer service, point-of-purchase sales, and customer loyalty.

According to Hoffman (2008), the growing trend of global trade and the expanded transportation system have complicated inventory management. The increased time-distance factor also elevates the potential for not meeting delivery times. If resupply shipments are coming from overseas, adequate inventory must be in the pipeline to cover manufacturing lead-time and the extended delivery timeline (Teague, 2007). Some macroeconomic implications playing havoc with shipping in the global transportation system include unpredictable fuel costs, changing currency values, and variability in customer demand (Hoffman, 2008). There must be a balance between cost management and risk mitigation for businesses to operate efficiently (Zuckerman, 2006). Global inventory management planners must also consider issues that companies rarely had to deal with in the past, from congestion across sea, land, and air transportation nodes to seasonal changes, natural disasters, and political instability (Hoffman, 2008). Lean strategy must include close partnerships with key supply chain partners (Jayaram, Vickery, & Droge, 2008). Working across time zones, language barriers, and cultural

differences routinely complicates global collaboration between partners. Handfield, Warsing, and Wu (2009) discovered that "this type of risk has escalated as Fortune 500 companies have sourced a great proportion of products from areas of the globe with low labor costs such as China and India" (p. 609). Evans and Harrigan (2005) argued that lean retailing creates a demand for timeliness that can be met only by producers located near United States markets.

Lean inventory also presents unforeseen challenges to retailers, particularly from customers expressing dissatisfaction when an item is not in stock in both the short and long-term (Jing & Lewis, 2011). Customers might act on previous experiences at certain retailers and switch to different retailers based on history of service and not just from immediate poor customer service (Gaur & Park, 2007). The number of customers switching stores because of stockout experiences ranged from 14% to 43% (Corsten & Gruen, 2004; Emmelhainz, Stock, & Emmelhainz, 1991; Gruen et al., 2002; Verbeke, Farris, & Turik 1998; Walter & Grabner, 1975). A relationship exists between brand loyalty and customer response to stockout. Schary and Christopher (1979) discovered that stronger consumer preference for a specific brand increases the desire to go to a different store to find the product. Ge, Messinger, and Li (2009) also discovered an out of stock item could become more attractive and desirable product to some customers. As a result, customers are more likely to switch retailers to purchase a desired product.

Customer reaction to stockout occurrences can also affect the rate of future demand (Bhargava, Sun, & Xu, 2006). The stockout problem adds to the uncertainty of true customer demand and can give an inaccurate inventory demand signal and cause inaccurate demand forecasts (Gruen & Corsten, 2007). Stockout also affects competing

retailers' inventory levels. As a result of customers switching vendors after stockout,

competing retailers might increase safety stock levels to meet an increase in customer

demand (Zhao & Atkins, 2008). The additional expense resulting from increased

frequency of deliveries to support the lean strategy must also be considered. According

to Huang and Lin (2010), an added expense is incurred by retailers to cover more

frequent transportation deliveries to meet fluctuating customer demand. Suppliers must

make more deliveries to support unknown customer demand and reduce stockout (Bard,

Huang, Jaillet, & Dror, 1998). This lean inventory strategy requires closer collaboration

between stakeholders across the supply chain. The lean and just-in-time process is a

collaborative effort between supply chain organizations and must be considered a

partnership between firms operating across the supply chain (Bhasin & Burcher, 2006;

Carter & Ferrin, 1996).

Summaries of the Literature

  Inventory management. Management of inventory is closely related to causes

and levels of stockout occurrences. Inventory management affects retailer performance

including profitability and customer service. Lean retailers must hold adequate levels of

inventory to meet customers demand or risk stokouts and losing customers.

  While measuring the cost of stockouts, Anderson et al. (2006) discovered that

affects of stockout not only affects short-term revenue but also extends to long-term

implications for retailers. Anderson et al. reported that direct effects to stockout were lost

sales, and indirect effects were the result of customers canceling purchases of other items

after a stockout experience. Anderson et al. also discovered that customers prefer to

complete all shopping at the same store, and that stockout would drive them to another

store to purchase everything from one place; and those customers who experience

stockout are less likely to return to the same store.

To investigate the cost of stockout avoidance, Blazenko and Vandezande (2003)

analyzed the effects of stockout on retailers and concluded that this situation of an item

not in stock might cause the business to lose disenfranchised customers--either

temporarily or permanently. They qualified the statement by saying that the severity of

the consequences is dependent on availability of an alternate source to purchase substitute

items. Blazenko and Vandezande concluded that firms are more open to avoiding

stockout by holding higher inventory if the cost of stockout was greater than projected

loss of profits.

The loss of revenue caused by stockout experiences is not limited to the out of

stock products but also extends to other product categories (Campo et al., 2000). Campo

et al. considered a number of circumstances as well as cost determinants that impacted

customer behavior after a stockout occurrence and observed a decrease in customer

loyalty to both the retailer and the product. Campo et al. also concluded that a customer

is inclined to choose an alternative product when available. The factors that have a direct

effect on behavior after stockout experiences included time available, attitude toward

shopping, and types of shopping trips. The items not affected by the stockout

experiences included product importance, store distance, shopping frequency, and

shopper mobility.

Campo, Gijsbrechts, and Nisol (2004) explored similarities and differences

between the planned retailer activity of permanent assortment reduction (PAR) and the

unplanned out of stock event. Campo et al. discovered that customers who tend to

change stores in case of stockout were likely to do the same in case of a PAR. Customers who normally deferred a purchase after experiencing stockout showed a stronger tendency to cancel the purchase or switch stores. Campo et al. concluded that PAR effects are more likely to cause customers to switch stores than a stockout.

Firms are finding creative methods to deal with the costly problem of stockout and uncertain customer demands (Comez & Kiessling, 2012). To mitigate lead time and transportation delays in response to the fluctuating customer demand, some firms are using floating dock concept, by staging inventory in containers ahead of customer demand. Staging inventory in anticipation of customer demand alleviates delays and provides firms shorter response time.

To examine changes in inventory levels, Chen et al. (2007) analyzed wholesale and retail inventories of publicly traded companies in the United States from 1981 to 2004. The analysis revealed that firms holding high inventory levels reported poor stock return over extended periods. Firms operating on too lean inventory levels also showed poor return. Lean firms holding less than average inventories showed excellent performance and positive long-term stock return outcome.

In global analysis of major studies related to the stockout phenomenon, Corsten and Gruen (2003) discovered that retailers experienced stockout rates between 8.3% and 12.3%. Retailers experienced the negative effects of stockout across the entire supply chain. The five reported customer responses included switching stores, delaying purchase, buying a substitute item, switching brands, or not purchasing the item. In all stockout cases, retailers risked losing revenue. Corsten and Gruen also ascertained that in

some cases, stockout could benefit competing retailers because it could drive up the price of products from their limited availability.

In another study, Corsten and Gruen (2004) explored the effects of stockout on customers and on retailer profitability. Results were that 21% to 43% of customers respond to stockout by going to a competitor to purchase the item. Corsten and Gruen concluded, that mitigating stockout could be more costly than the negative financial impact resulting from changes in customer purchasing behavior and decreased store loyalty.

In a recession environment, the bullwhip effect directly influenced inventory levels held across the supply chain by retailers, wholesalers, and manufacturers (Dooley et al., 2010). Inventory levels were affected differently at the manufacturing, wholesale, and retail levels. These sectors responded with inventory decline along different timelines; the first decline affected retail, followed by manufacturing, then by wholesale.

In a comprehensive study that surveyed 2,858 customers over 4 days, Emmelhainz, Stock, and Emmelhainz (1991) explored consumer responses after experiencing retail stockout in a controlled environment in which five items were deliberately removed from store shelves to measure customer responses to stockout situations. Results were that 14% of customers left the store to purchase the item from a competitor, 21% substituted a different brand of the same item, and 18% substituted a different variety and brand. Emmelhainz et al. concluded that when customers face repeated stockout conditions, they are more likely to switch stores permanently.

Gaur et al. (2005) investigated the relationship between inventory turnover, capital intensity, and sales from 1987 through 2000 and discovered a high correlation

between inventory turnover, gross margins, capital intensity, and sales surprise in retail environment. Inventory turnover had declined between 1987 and 2000, whereas capital intensity increased during the same period. Gaur et al. also concluded that, in the same period, only 43% of the firms considered in the study improved their inventory turns performance.

In a study performed to analyze the effects of process improvement principles, Goldsby et al. (2006) compared simulation scenarios of three supply chain strategies: lean, agile, and leagile. The lean strategy relies on demand forecast, agile relies on customer demand, and leagile is a hybrid of lean and agile strategies. Goldsby et al. concluded that each provides strong advantages under certain supply chain circumstances, but that lean strategy holds higher levels of inventory than the other two.

In a nongrocery retail environment stockout caused customer dissatisfaction and led to loss of retailer profits (Grant & Fernie, 2008). Grant and Fernie also explored the issue of inventory shrinkage, which is normally caused by inventory management errors or product theft. An investigation of changes in customer purchasing patterns as a response to experiencing stockout was that responses to stockout included switching stores, delaying purchases, lost sales, switching brands, or buying a substitute product. Grant and Fernie concluded that on-shelf availability has not been an issue of focus for retailers and that a number of inventory management factors influence or lead to product stockout on shelves.

Stockouts can exceed 10% in a normal operating retail environment (Gruen et al., 2002). Customers who experienced stockouts abandoned up to one-half of their intended purchase. Gruen et al. discovered that 21% to 43% of customers who experience

stockouts purchase their item from another store. Gruen et al. concluded that new inventory management technology such as RFID has made little difference in the overall out of stock rate and that more than 70% of the stockout problem is caused by store inventory management practices.

Stockout rates can vary between fast-moving and low-demand products. Gruen and Corsten (2007) examined the implications of stockout of fast-moving consumer goods (FMCG) within the retail industry and discovered that high-demand items had much higher out of stock rate than low-demand items. Consequently, loss of sales or revenue to retailers from high-demand items is much higher than those generated from low-demand items. Gruen and Corsten also discovered that stockout causes distortion in future demands and leads to inaccurate inventory forecasts.

In *Becoming Lean*, Husby (2007) discussed process improvements through achieving optimum system operations by using the lean process, which includes value-stream mapping. Eliminating the non-value-added steps is achieved through managing the seven wastes: overproduction, transportation, motion, inventory, over processing, and defects. Husby ascertained that all participants across the supply chain share the benefits of practicing lean principles.

Responses to items out of stock varied between customer segments (Jing & Lewis, 2011). Jing and Lewis suggested that reducing stockout rate by 5% for loyal customers leads to a 23.6% improvement in customer equity compared to only 15.7% improvement in early customers. Small improvement in stockout fill rates can lead to large gains in customer responses.

Stock loss and stockouts can be caused by inaccurate inventory information, and stock numbers reflected in retailers' inventory data systems are not always correct (Kang & Gershwin, 2005). Kang and Gershwin explored both known and unknown stock losses. Known losses are losses in stocks caused by store personnel and recorded into the system, such as out-of-date products taken off the shelves and not recorded on the system. Unknown losses include undetected changes in inventory caused from theft, poor tracking, packaging, and record keeping during both inbound and outbound operations across the supply chain. Inaccurate stock information leads to false inventory information and can cause stockout. Kang and Gershwin also concluded that the impact of stock loss could be more substantial in a lean retailing environment.

Using a study to evaluate the lean performance, Koumanakos (2008) investigated the effects of inventory management on firm profitability and analyzed the relationship between a firms' inventory and profitability. Data used in this study were obtained from the ICAP database, which contains financial information on medium-to-large size Greek manufacturing companies in the food, textile, and chemical sectors. Information used in this study covered the 2000 to 2002 business cycles. The results indicated a strong linear link between lean inventory practices and profits only 66% of the time, with only the chemical sector demonstrating a consistently strong linear relationship.

Martichenko (2007) addressed the process of transitioning to lean strategy, highlighting the effects of inventory reduction, relationship building, and revolutionizing the incentive process. Martichenko outlined specific steps for adopting the lean strategy: supportable vision, strategy, tactics, and establishing specific goals. The researcher

advocated a holistic view of the entire system rather than looking at the business as a series of separate functions.

A positive relationship exists between lean and green supply chain strategies because lean focuses on removing waste out of the process (Mollenkopf et al., 2010). Mollenkopf et al. highlighted the benefits of adopting the global, green, and lean sourcing strategies, and leveraging profitable production and marketing capabilities. Companies operating along the global supply chain are adopting green standards such as compliance with environmental regulations and standardized hazardous waste management processes.

Firms can leverage transshipment of safety stocks between two locations to reduce costs and mitigate retailer stockouts (Nasr, Salameh, & Moussawi-Haidar, 2012). In their research, Nasr et al. investigated a single source supplying two locations where different levels of safety stocks were held to reduce the impact of interruptions from the supplier. Nasr et al. concluded that in some cases transshipment of stocks from one location to the other might be required to address the stockout problem, maintain optimum stock levels, and reduce operating costs.

Stockouts can affect customers' shopping attitudes and not only purchasing behaviors (Rani & Velayudhan, 2008). During a study conducted in India, variable were discovered that significantly affect shoppers' attitudes after experiencing a stockout. These variables included item price, store location, store and brand loyalty, and individual shopping habits. Rani and Velayudhan concluded that customer responses to stockout situations are less severe when the shopping experience is pleasant.

Using a study of the effects of product availability, Schary and Christopher (1979) discovered the costly impact of stockout on revenue for both retailers and suppliers and noted that stockout occurrences negatively affect customer-purchasing behavior and weaken the relationship with both the store and the brand. Schary and Christopher also discovered a connection between inventory replenishment of products and store marketing effort, concluding that stockout can be a source of frustration and potentially drive customers to switch to competitors to buy their preferred brand. The conclusion was that broader implications of stockout could affect supplier performance and brand loyalty.

Svensson (2000) explored the conceptual qualitative and quantitative disturbances in the supply chain and identified qualitative disturbances as related to outside factors affecting supply chain performance and quantitative disturbances as functions related to inbound materiel. Svensson found disturbances to be a common phenomenon in the supply chain and concluded that firms normally plan for best-case scenarios and may ignore potential disturbances that could negatively affect their operations. Svensson concluded that events happening both upstream and downstream in the supply chain affect retailers and that the effects of disturbances are more evident in a lean environment.

In another study, Svensson (2003) analyzed the relationship between inventories and disturbances in inbound and outbound logistics flows in the automotive industry. Svensson concluded there was a linear relationship between inventory levels and inbound and outbound logistics disturbances. Lower levels of inventory lead to higher

disturbances, and vice versa. Svensson argued that financial benefits gained through lean inventory could be lost from increased disturbances.

Collaboration is a critical aspect of a responsive supply chain. Teague (2007) addressed some of the causes of retailers maintaining excessive inventory by analyzing the effects of collaboration on inventory management. Teague concluded that best-practice companies incorporate their inventory optimization plan into their cultural and business strategy and that collaboration with vendors improves forecasting and reliability of the supply chain.

The bullwhip effect distorts and amplifies true demand as orders flow between activities across the supply chain including manufacturers, suppliers, and retailers (Towill, 2005). The bullwhip effects increased overall risk to stakeholders and that the more distant the player is from where the demand originates, the higher the level of risk. Towill recommended procedures such as an automatic pipeline inventory and an order-based production control system to reduce the effects of bullwhip.

Vasconcellos and Sampaio (2009) explored the causes and effects of stockouts in the supermarket environment and discovered that the stockout problem is becoming increasingly challenging because of product proliferation and shorter product lifecycles. Vasconcellos and Sampaio learned that information disparity between what is on the shelf and in the storeroom creates inventory management problems because items in the storeroom are considered to be in the store. Considering the consumer perspective, if the item is not on the shelf, the product is out of stock, regardless of where it is located in the store.

Customers responded differently when they experienced stockout while shopping for their preferred brand (Verbeke, Farris, & Turik, 1998). The three customer responses included switching stores, switching brands, or postponing the purchase. The researchers found that 24% of customers switched stores to purchase their item, as there was a relationship between customer loyalty and response to stockout. Store-loyal customers were more likely to switch stores, and customers who shopped more frequently were more likely to postpone their purchase. Verbeke et al. also concluded that the presence of a competitor in close proximity did not influence customers' decisions to switch retailers.

Demand variability is a key factor in providing customer service. Yang, Ruben, and Webster (2003) investigated demand variability and the implications of vendor-managed inventory strategy. In a high-demand variability environment, a retailer must hold a high level of inventory for the best customer service, adding that levels of inventory are directly proportional to the level of customer satisfaction.

Customers who experienced stockout occurrences reacted in three responses: delay the purchase, go to a competitor, or leave the establishment and not pursue the purchase (Zinn & Liu 2008). Zinn and Liu discovered that the intended behavior in some cases differed from actual demonstrated behavior. Results of the study indicated that 44% of customers intended to go to competitors, 43% delay the purchase, and 13% leave and quit looking for the product.

Transportation. Time, distance, and cost of transportation directly affect the global supply chain. Transportation in the supply chain affects delivery timeline; affects inventory levels, and can cause stockouts. The global transportation system is also affected by variations in fuel costs caused by global conflicts as well as speculation.

Carter and Ferrin (1996) explained transportation costs and the implication on lot sizing, using global companies to highlight the exceptionally high cost of transportation in the supply chain. Carter and Ferrin explored cost differences within the supplier-managed transportation system and addressed the relationship between carrier rate structure and total transportation cost that affects the ordering policy and the lot size. A small increase in order quantity could lead to significant savings in the cost of transportation.

Exploring the cost of retail demands and timely deliveries, Evans and Harrigan (2005) analyzed the relationship between delivery time and the distance between where the item was made and its final destination. Some items should be sourced from closer manufacturers even though wages might be higher than a more distant, cheaper production facility. The additional cost for higher production wages allows retailers to hold leaner inventory and rely on timely replenishment from nearby suppliers. The conclusion was that countries close to market are not negatively affected by higher wages because they can get goods to retailers more quickly.

The rising transportation costs as a result of increase in fuel prices are causing retailers to increase inventory levels to mitigate higher transportation costs (Hoffman, (2008). Many companies are adopting the lean and JIT strategies by stripping out inconsistencies from the inventory management process. Hoffman also explored implications and complications of the global trade and the extended supply chain and recommended mitigating negative effects by using IT, risk management, and demand forecasting tools.

Information technology. IT has been used in inventory management and for collaboration between stakeholders across the supply chain. IT has a direct affect on supply chain performance including visibility of on-hand inventory, demand forecasting, and the ordering process. IT has had a profound effect on the efficiency of the supply chain.

The growing complexities of lean retailing operations necessitate use of IT. Abernathy et al. (2000) investigated the effects of IT in the supply chain in both the manufacturing and lean retailing environments. Retailers are able to exchange point-of-sale information with their suppliers as an accurate reflection of changing consumer demands. IT has enabled retailers to refine their ordering process and make necessary adjustments to respond quickly to variations caused by the uncertainty of shifting customer demand.

Speier et al. (2008) investigated the theoretical link between the strategic-structure performance paradigm and the information systems integration within the supply chain. Speier et al. considered the effects of strategic structure and alignment on maximizing supply chain performance and profits and analyzed the supply chain orientation, which is the company's link to external organizations. The results of the study indicated an increase in supply chain orientation as companies extended their orientation outwards to external linkages with other supply chains. The need for information system integration increased as the firm extended its relationships from information sharing to information synchronization along the information systems integration continuum.

To explore balancing resources between IT and lean inventory, Ward and Zhou (2006) investigated the relationship between IT and the supply chain process and discovered that IT integration within and between firms leads to reducing lead time and facilitates the performance of lean JIT practices. IT integration with suppliers and customers leads to improved performance and that IT integration reduces uncertainty in both external and internal environments.

Zylstra (2006) explored lean distribution issues affecting the supply chain and the challenges of the IT transformation process, including the benefits of supply chain collaboration. Zylstra highlighted benefits of the ERP capability that links collaborative commerce with enterprise optimization for warehousing and transportation and emphasized the importance of technology infrastructure in optimizing the distribution process. ERP is a planning tool that improves forecasting and impacts the entire planning process.

Transition and Summary

The purpose of Section 1 was to highlight the risks of lean inventory on retailers and to discuss customers' responses to stockout experiences. As retailers compete in a global market, they are looking for ways to reduce operational cost and improve efficiency. Competition is not a choice but a matter of survival for retailers, as the shape of market competition has evolved from a local to a global marketplace. Retailers have used lean inventory as a strategy to reduce cost and increase efficiency and profits (Wright & Lund, 2006). As the lean process is adopted for use in the retail environment, associated risks must be considered. Unlike the stable manufacturing environment, the retail industry is subject to the volatility and unpredictability of customer demand. The

lean inventory process requires a highly flexible supply chain to support demand variability and more frequent deliveries. The lean process advocates that retailers hold minimal inventory and create a responsive supply chain system to mitigate risks of stockouts that negatively affect customer services and retailer profits.

Experiencing stockout could cause customers to go to competitors, which could affect retailers profitability and cost long-term customer revenue, as the customers may choose not to return. Customer reactions to stockout can lead to switching retailers or canceling the purchase completely, which causes a loss of sale and revenue (Sloot, Verhoef, & Frances, 2005). The effects of stockout can have economic consequences on retailers as dissatisfied customers leave without making their purchase (Olsen & Parker, 2008). Retailer losses from stockouts disproportionately increase with higher frequency and longer duration (Campo et al., 2004). Stockout experiences have greater implications beyond retailer's revenues and can drive up costs across the supply chain (Corsten & Gruen, 2003).

The data collection process for this qualitative inquiry included a survey questionnaire completed by customers shopping at a retail mall in eastern Pennsylvania, which has national retail stores like Macy's, Sears, and JCPenney. The data analysis process was based on participant feedback, without prompting, or influence from me. Data analysis was conducted in a manner consistent with proper validity and reliability procedures. In Section 2, the literature was reviewed to identify the best approach to conduct this study and explore a suitable research design, methodology, data collection, and information analysis plan.

Section 2: The Project

The qualitative method was selected as the appropriate approach for this research project because it provides varied perspectives of customer behavior changes from experiencing stockout. Data were collected from a survey questionnaire completed by customers after shopping at retail department stores at a shopping mall in eastern Pennsylvania. The results could be limited because of regional demographics. The data was coded and analyzed for themes, trends, conclusions, and recommendations. The research was conducted in a manner that preserved data integrity, reliability, and validity.

Purpose Statement

The purpose of this research was to explore the effects of lean inventory practices on customer service to determine and analyze the qualitative relationship between stockout experiences and changes in customer purchasing behaviors. Customers who experience stockout routinely go to a competitor to purchase a desired product, which causes a loss of retailer revenue. Anderson et al. (2006) ascertained that stockouts negatively affect profits in both the short and long run for retailers. The problems associated with lean inventory, such as stocking out and the additional expenses from more scheduled deliveries, could be causing some retailers to stop using lean practices. Some companies hold additional safety stocks and audits to mitigate the issue of stockout and demand uncertainty (Janssens & Ramaekers, 2011; Nasr, Salameh, & Moussawi-Haidar, 2012). Results of this research will highlight to retailers specific customer and profit-related problems associated with lean practices and identify possible venues to mitigate the negative effects of stockout. Retailers will be encouraged to continue to or begin using lean inventories with fuller understanding of its implications. The goal of

this research was to discover the qualitative relationship between stockout experiences

from lean inventory and effects on customers' purchasing behaviors.

Role of the Researcher

The qualitative researcher gathers data through observing participants behaviors

and focuses on learning meaning about the problem (Creswell, 2009). My personal

knowledge of the subject and dealing directly with participants increased the risk of

diminishing distance with participants (Eriksson & Kovalainen, 2008). As a result, I

guarded against any personal influence on participants by maintaining a position of

neutrality and not offering any personal opinions or information to potential participants.

The qualitative researcher reflects on the research topic while analyzing the information

(Carcary, 2009). The questionnaire was presented to participants in an unbiased and

ethical manner. To improve validity of the data, I used multiple data collection venues

within the mall. According to Creswell (2009), the qualitative researchers normally

collect multiple forms of data to build trends and patterns and not depend on a single

source. The research outcome was based solely on the data collected from participants.

No prior personal or professional connection existed between the participants and me.

Participants

Participants were randomly selected customers at a typical shopping center. The

random sampling method was used to identify participants. Onwuegbuzie and Leech

(2007) considered the random sampling process where "participants are selected in such a

way that every person in the population has the same probability of selection for the

study, and the selection of one individual does not affect selection of any other

individual" (p. 110). In this study, every 10th customer who walked by the survey table

was invited to participate to ensure random representation of local demographics. The

sampling process was chosen to gain a representative sample from a larger customer

population. Customers who agreed to take the survey were given a confidentiality and

consent to participate form to ensure full compliance with privacy laws. After reading

the consent form, participants were asked if they fully understood the content and intent

of the confidentiality and consent form and were invited to ask any questions about the

form or the survey.

     Data collection was conducted on two dates at the same survey site and at the

same time and day of the week. Two hundred customers were asked to participate during

each period, a number that represented the overall demographics of customers and

encouraged diversity of the participants. A qualitative sample should represent the

diversity of the phenomenon under study within the target population (Jansen, 2010, p.

8). Customers were asked whether they had experienced a stockout at a major retail

stores during the past 7 days and would like to participate in a survey. If the answer was

'yes,' the participant was asked to first read the consent form and then complete the

survey stating his or her response to the stockout experience. The responses provided

independent and unbiased perspectives regarding stockout experiences.

     Participants provided no personal information for completing the survey. The

responses from participants were numbered, dated, and immediately filed in a folder

containing the survey data and placed in a fireproof safe in my home, and will be kept for

a period of five years. No one but me will see the original data. I will shred the surveys

and consent forms at the conclusion of the 5-year period.

Research Method and Design

The qualitative method was the most appropriate approach for this exploratory research, as the purpose was to ascertain changes in customers' purchasing behaviors from experiencing stockout. The quantitative method was not selected because it focuses mainly on variance, correlation, and variables (Maxwell, 2010). The qualitative method was appropriate for this study because in qualitative inquiry, the researcher focuses on discovering the meaning that participants hold about the issue or problem and does not consider his or her own views (Creswell, 2009, p. 175). The survey instrument used in this research was composed of 25 questions constructed in various formats that included multiple choice, scaled, and open-ended questions. The questions allowed participants to articulate how the stockout experience affected their purchase behaviors during their shopping trip and how a stockout situation might influence future purchasing plans.

Method

The qualitative method was the best approach to support achieving the goals of the central research question. Barnham (2010) indicated that the qualitative method enables analysis of consumers' attitudes and changes in perceptions following certain events. Eriksson and Kovalainen (2008) confirmed that the qualitative approach has been used in business research for long time. According to Sandelowski, Voils, and Knafl (2009), qualitative research studies are "generally considered to be qualitative modes of sampling, data collection and analysis and interpretation" (p. 210). The validity of the qualitative approach is maintained through accuracy of the findings and the use of disciplined process, while reliability is attained through consistency in the research approach (Gibbs, 2007). A pilot study was also conducted to improve validity and ensure

reliability of the survey instrument. Deros, Khamis, Rahman, and Ismail (2009)

considered pilot study an appropriate process for validation of clarity and content of a

survey. The research questions explored stockout experiences in stores that practiced

lean inventory principles. The effects of customers' actions in relation to retailers were

analyzed for themes and descriptions. The data were coded and collated into various

categories and analyzed for trends, themes, and patterns for conclusions and

recommendations. Creswell (2009) stated, "Qualitative researchers build their patterns,

categories, and themes from the bottom up by organizing the data into more abstract units

of information" (p. 175).

Research Design

Creswell (2009) viewed research design as "the intersection of philosophy,

strategies of inquiry, and specific methods" (p. 5). According to Klopper (2008), "The

research design is the plan or blueprint that the researcher will use in conducting the

research" (p. 68). The case study research design is a strategy of inquiry that explores a

phenomenon in depth with a real-life context (Yin, 2009). The qualitative method under

the constructivist worldview is an appropriate approach for this research. The qualitative

survey determines diversity, not distribution, in a population (Jansen, 2010). The main

goal of this research was to gain customer perspectives on the effect a stockout

experience had on them. Creswell (2009) viewed the qualitative research approach as a

venue in which "the researcher seeks to establish the meaning of a phenomenon from the

views of participants" (p. 16). The survey questionnaire was designed with questions that

included multiple choice, yes or no, open-ended, and scaled questions to allow

participants to express the full range of behavior and attitude changes of participants.

The survey questions were designed to provide answers to the central research question and subquestions of this study. This study was originally planned as a qualitative survey design, but the research process proved that a case study is the most suitable research design, and consequently the research design was changed to case study. The case study approach has been used to explore business and social issues including organizational and managerial processes, and changes in group behaviors in response to specific phenomenon (Yin, 2009).

Population and Sampling

The population for this research was drawn from customers shopping at a retail mall in eastern Pennsylvania. Permission to question customers was coordinated with mall management. The mall service fee to conduct this survey was paid by me, from personal funds. The simple random sampling scheme was used to ensure authenticity of the sample, as everyone in the population had the same possibility of selection without any bias or prejudice (Onwuegbuzie & Leech, 2007). Random survey of every 10th person ensured every customer had the same opportunity to be selected. The sample size in a qualitative research must be based on the concept of saturation (Mason, 2010). A qualitative researcher may use a large and random sample when the intent of the study is to provide general interpretation of the population (Creswell, 2002; Johnson & Christensen, 2004). Two hundred customers were asked to participate during each of the survey periods. Two separate survey periods were conducted during different weeks, though on the same day of the week and at the same time of the day, to ensure consistent data collection environments. The two data collection periods provided a wider population base and more diverse customer perspectives. Asking every 10th customer to

participate equated to surveying a population of 2000. This sample size was considered

large enough to explore the important perceptions and opinions and represent the full

spectrum of customers who frequent large retail stores at the mall. A relevant

relationship exists between customers purchasing behaviors and this inquiry. Opinions

and feedback from these customers led to the results of study.

This random sample attained data saturation level (Onwuegbuzie & Leech, 2007),

provided adequate representation of the social diversity of customers, and addressed the

depth of this qualitative inquiry. The eligibility criterion for participation was whether

the customer experienced stockout at any time during the preceding 7 days or on the

current day. Individuals or families were approached as they walked by the table set up

conveniently near the doors of the establishments. I approached target customers, made

an introduction, and asked if they would be willing to participate in a short survey. If the

answer was 'yes,' the participant was asked if he or she had experienced stockout at a

retail store during the past 7 days or in the mall that day. Those customers who answered

'no' were thanked, and no further action was taken. Customers who answered 'yes' to

the stockout question were offered a chair at the table and asked to read a consent form,

then complete the questionnaire. The completed surveys were collected and filed into a

completed surveys folder.

Ethical Research

To ensure appropriate consent was obtained from participants, every participant

was provided a consent form prior to completing the survey. Participants were required

to read the consent form before starting the survey. The consent form included the

Walden University Internal Review Board approval number for this study, 02-06-12-

0153901. After reading the consent form, participants were asked whether they fully

understood the intent of the consent form and if they had any questions. Participants

were also reminded that by completing the survey they were consenting to the use of their

information in the research. No personal information was required. Participation in the

study was voluntary, and participants could have chosen to withdraw from participation

at anytime. During the survey, they could have expressed desire to stop and return the

form. If they chose to do so, the survey would not have been used in the data coding and

analysis. After completing the survey, participants could have contacted me in writing to

remove their survey answers, and I would not have considered their information for

analysis.

To ensure an auditable trail, collected information is in a fireproof safe in my

home for 5 years. No one other than me will have access to the information unless

credentialed authorities from Walden University request a review. To encourage

participation in the survey, potential participants were offered a $2.00 gift certificate to

several major mall stores to thank them for participation and as compensation for their

time. Cost of the gift certificates was provided from my personal funds. The gift

certificate was presented after the survey was completed.

Data Collection

Instruments

The primary tool for information collection was a 25-question survey

questionnaire (see Appendix A) that included several demographic questions at the

conclusion. According to Keller, Savitskie, Stank, Lynch, and Ellinger (2002), survey

techniques have been used to explore business logistics concepts. The self-designed

survey was validated through a pilot study to ensure clarity and lack of ambiguity.

Teijlingen and Hundley (2001) considered pilot study as a crucial element of a good

research. A pilot study is tested with a small number of participants to evaluate and

uncover unforeseen issues with feasibility, content, format, and construct of the survey

(Wonken, 2011). Rubio, Berg-Weger, Tebb, Lee, and Rauch (2003) considered a pilot

study with three to 10 participants to be adequate to address clarity, phrasing, and other

content issues. Potential pilot study participants were contacted via e-mail to request

participation and consisted of 10 academic associates and professional colleagues who

shop at retail malls. The survey was administered on hard copy paper and in person, in a

setting similar to the actual data collection venue. The following questions designed to

solicit validation of content and format of the survey questions were asked:

1. How long did it take you to complete the survey?

2. Did any of the questions contain vague or double meaning?

3. Were there any words that you considered offensive?

4. Were the questions easy to follow?

5. Were the questions appropriate to cover wide range of age, cultural, and social

characteristics of participants?

Responses from the pilot study were analyzed using a 4-point scale, the Content

Validity Index, as suggested by Polit and Beck (2006). The 4-point relevance scale

advocated by Davis (1992) used an item rating range on a 1 to 4 continuum, with 1= *not*

relevant and 4= *highly relevant*. The answers that contributed to improving clarity,

content, and flow of the questionnaire were incorporated into the survey. Pilot study

participants were excluded from participation in the actual data collection process

(Lancaster, Dodd, & Williamson, 2004). The validated survey was used to collect information after appropriate changes were made. The survey consisted of 25 questions that varied in style and format to allow participants to adequately express experiences. In a qualitative survey, the researcher looks for empirical diversity in the properties of members, even if these properties are displayed in numerical values (Jansen, 2010, p. 4). The questionnaire included multiple choice, yes or no, open ended, and scaled questions to allow participants to express a wide range of behavior and attitude changes. Multi-item scales data collection instruments are appropriate for exploring logistics concepts (Keller et al., 2002). Corbin and Strauss (2007) listed four broad categories of questions as appropriate for use in a qualitative inquiry: practical, theoretical, sensitizing, and guiding. The scaled questions were answered on a rating scale to evaluate participant responses for possible trends and patterns. Some of the rating scale questions were answered on a range from 1-5, with 1= *not disappointed* to 5= *very disappointed*. The survey asked questions that would reveal participants' responses to stockout experiences by both their purchasing behaviors and their attitudes toward the store and the brand.

Participants completed the survey using permanent ink to ensure the data could not inadvertently be erased or changed after submission. Changes made by the participant were lined through and initialed to ensure authenticity, reliability, and validity of the responses. I used NVivo-9, a qualitative data analysis software package, to code and then analyzed responses for conclusions and recommendations. The information coding process was transparent and is provided in detail in the information analysis portion of the study. The raw information can also be obtained from me upon official request from the Walden University academic staff.

Data Collection Technique

The data collection instrument was a self-designed survey constructed of 25

questions of varied styles and format, to allow participants to express the full range of

behavior and attitude changes and answer the research central question and subquestions.

To ensure validity and avoid problems with ambiguity, the survey was first validated

through a pilot study with a group of 10 academic colleagues and professional associates

to ensure there is no ambiguity, double meaning or misunderstandings in any of the listed

questions. Rubio et al. (2003) considered using 10 participants in a pilot study to be

adequate to address clarity, phrasing, and other content issues. Responses from the pilot

study were evaluated, and responses that improved clarity, format, and content were

incorporated into the survey.

When I approached every 10th customer who walked by the survey table, I asked

if he or she had experienced stockout today or in the 7 days prior to today. If he or she

had experienced a stockout situation up to seven 7 days, prior to that day, he or she

qualified to participate in the study and were asked to read a consent form prior to

beginning the survey. After completing the survey, participants were also reminded of

the consent statement. Participants were asked to write their responses on the paper-

survey in black ink to ensure their writing was permanent and could not be erased or

altered by anyone after they had answered. Participants who wanted to change an answer

were told to line through the changed response and initial the change.

Data Organization Techniques

The information collected was collated, coded, and analyzed for trends, themes,

and changes in purchasing habits. The NVivo-9 qualitative data analysis software was

used to organize and analyze the answers collected from participants through the survey. Information was coded into three major categories: customer product loyalty, store loyalty, and mitigating processes. These categories to detect purchasing behaviors and attitude changes were downward coded. Further downward coding was into subgroups based on gender, age, income level, education, and stated ethnicity.

Eriksson and Kovalainen (2008) considered coding and organization of the data an essential part of qualitative research process. The three sequential stages for this inquiry consisted of open coding, axial coding, and selective coding as the final stage of the data-coding process (Creswell, 2009). Coding the answers by collection periods, major categories, and subcategories, allowed me to highlight changes, themes, or trends based on gender, age, other demographics, and social indicators. The information collected was analyzed for coherent results and presentation of findings and conclusions. The three major categories explored included customers' behavioral changes in store and brand loyalty and potential mitigation. Downward coding to explore changes in purchasing behaviors in each of the categories was conducted. An audit trail clearly listing research decisions that relate to major topics, including collection and analysis of data and research methodology was used. According to Koch (2006), a researcher can create an audit trail by making known decisions relating to theory, methodology, and analysis of data.

Data Analysis

Ensuring credibility is an essential element of qualitative research, which is achieved by consistent, valid, and reliable interpretation of the data. Carcary (2009) considered the challenge for many qualitative researchers to provide convincing analysis

based on the interpretation of empirical data. In this current study, I explored the qualitative effects of stockout experiences on customers' loyalty and purchasing behaviors. A four-part survey questionnaire, with 25 questions, per Appendix A, addressed the main research question and the three subquestions. The information collected was analyzed to determine the level of customer satisfaction and effects of stockout on customers using retailers who practice lean inventory principles. Eriksson and Kovalainen (2008) viewed information coding as a critical part of the qualitative data analysis process. Data coding for this qualitative research consisted of three sequential stages that included open, axial, and selective coding (Creswell, 2009). The initial data were coded into three major categories: brand loyalty, store loyalty, and mitigating process. Downward coding for each of the categories was conducted to discover effects on customers' behaviors and the connection between stockout and changes in customers' purchasing patterns. The data were further downward coded into subcategories that addressed general social characteristics such as employment, marital status, age, and gender.

Reading, analyzing, and interpreting the data was accomplished in a consistent and unbiased manner. All answers were captured, including discourse and out of the norm responses, to ensure all responses were considered in the overall analysis. Creswell (2009) considered qualitative analysis as "The process of data analysis involves making sense out of text and image data" (p. 183). The data collection and interpretation was based solely on respondents' answers transcribed verbatim without bias or influence from me. Integrity of the data was maintained and presented accurately in the observations, conclusions, and recommendations. My personal knowledge of stockouts and supply

chain was suspended and was not conveyed to participants or considered in the analysis of results. NVivo-9, a qualitative data analysis software for data organization and coding, was used to facilitate data exploration and rigorous analysis.

Reliability and Validity

Reliability

Qualitative reliability is measured by whether a researcher's approach is consistent with other researchers and across different projects (Gibbs, 2007; Riege, 2003). The questions used in the survey were reviewed carefully for possible double meanings or ambiguity, and the same questionnaire was used with all participants. The same setting was maintained for all participants while taking the survey and during both collection periods to ensure uniformity and absence of variations in the data collection environment. Responses from the customers were carefully transcribed and separately coded for consistency. Results were separated to analyze differences of customer attitudes toward the retailers who were out of stock for a product the customers had come to the store to purchase. The data was analyzed for trends and implications from the perspective of customers.

Validity

The data collection questionnaire was validated through a pilot study with a group of 10 academic colleagues and professional associates to ensure the meaning of the questions was clear and there were no misconceptions or misunderstandings. Establishing the validity of a survey instrument strengthens the data yielded from the data collection process, which allowed for greater confidence in the interpretation of the results (Burton & Mazerolle, 2011, p. 27). The pilot study was used to determine clarity,

interpretation, and completion time of the survey (Oliver, Tucker, Gupta, & Yeo, 2008).

Survey questions were adjusted based on feedback received from the test group to ensure

clarity of meaning and no misunderstandings by participants.

According to Creswell (2009), "Qualitative validity means that the researcher

checks for the accuracy of the findings by employing certain procedures" (p. 190).

Triangulation between data groups and existing literature was used to verify consistency

of data and to enhance confidence in the results. The transactional validity approach used

in this study is both interactive and grounded between inquiry and participants through

several methods, including member checking, triangulation, and bracketing (Cho &

Trent, 2006).

I transcribed the answers verbatim as participants wrote them, including outliers

and answers outside the parameters of the question. I was aware of my personal expertise

in supply chain management and knowledge garnered during the writing of this research,

and was mindful to guard against any influence or personal interpretations on the

conclusions of the research. Acknowledging personal knowledge reduces bias in

presenting conclusions. Major decisions made in this study were clearly explained in the

body of the research. A decision trail that includes the researcher's personal and

professional prejudices can contribute to the rigors of the qualitative research process

(Koch, 2006).

Transition and Summary

Section 2 was a presentation of the research methodology, design of the study,

and data collection plan. This section began with an explanation of the main objective of

this qualitative research: learning what, if any, changes in customers' immediate and

future shopping behaviors occurred after they experienced stockout. The data were

collected from customers shopping at a large shopping mall that hosted national retail

chains using a questionnaire to collect information from customers during two data-

collection periods. Survey participants were randomly chosen by selecting every 10th

person or group as they walked by the survey table. The information was coded into

three categories--product loyalty, store loyalty, and mitigation process. Further coding of

participants' planned changes in purchasing behaviors and attitudes toward the retailer or

the brand was further organized into subcategories based on social characteristics such as

income, age, and gender. Observations of trends, conclusions, and recommendations

were based on consideration of reliability and internal and external validity. The research

process was transparent, and each major decision made within the body of the research

was explained. Section 3 highlights results and presents conclusions and

recommendations.

Section 3: Application to Professional Practice and Implications for Change

This section contains results of the study showing changes in customers' purchasing behaviors and intentions from stockout experiences. The information was collected using a survey questionnaire completed by randomly selected customers at a retail mall in eastern Pennsylvania. The content, flow, format, and construct of the survey was validated through a pilot study. The validated survey was administered to participants in a random and consistent manner to preserve integrity of the research and reliability of the information. The data collection process was conducted with strict adherence to ethical qualitative research data-collection protocol. The information from completed surveys was transcribed into a spreadsheet exactly as provided by the respondents and was imported into the NVivo-9 software for qualitative analysis. A number of codes, such as customers' loyalty to brand and retailer, and attributes of preferred retailer were created in NVivo-9 to facilitate data exploration and analysis. Multiple queries were used to explore qualitative implications, themes, and connections between responses to develop conclusions and recommendations. The results were based solely on participants' answers. Analysis of the results that specifically address the central research question and the three subquestions listed in Section 1 are presented in this section. Implications and applicability of the results to social change and professional practice are also presented in this section.

Overview of the Study

The purpose of this qualitative case study research was to explore the effects of stockouts on changes in customers purchasing behaviors and loyalty to their preferred brand and retailer. Customers who experience stockout either delay purchasing the

product or buy from a competitor, which causes a loss of retailer revenue. Anderson et al. (2006) concluded that the effect of stockout on retailer profits is not limited to the stockout item and extends to other products. Campo et al. (2000) further suggested that loss of revenue might not be limited to sales during the stockout experience but can also extend to later periods if a customer chooses another retailer or product.

The information collected in this study provided a unique view into personal responses of participants who experienced stockout and told how the experiences influenced their future shopping habits and loyalty to retailer and brand. Conclusions included details of changes in customer loyalty to retailer and brand and recommended measures for retailers to use to mitigate effects of the stockout problem to maintain customer loyalty to both the store and brand. Insights provided in this study can enable retailers to address the stockout problem and continue to use lean inventory principles with reduced risk of losing customers to competitors.

The central research question for this study explored the following: How do stockout experiences affect customers' purchasing behaviors and loyalty to their favorite brand or preferred retailer? The following subquestions were explored as major elements of the central research question:

Subquestion 1. How does stockout affect customers' brand loyalty and future purchasing behaviors?

Subquestion 2. How does stockout affect customers' short- and long-term loyalty to retailers?

Subquestion 3. What can retailers do to mitigate the negative effects of stockout on customers?

Analysis of answers to the central research question and subquestions confirmed an existing qualitative relationship between stockouts and customers shopping behaviors. After experiencing stockouts, 24% of respondents in this study indicated they bought a substitute product, whereas 39% decided to wait and buy the stockout item during their next shopping trip. Responses also indicated that 15% of customers decided to abandon their purchase and go elsewhere to purchase the stockout item. Some of the recommended stockout mitigation measures included tools such as monetary incentives, personal contacts, and coupon discounts. Personalizing the stockout experience can be used as a tool to turn a bad shopping experience into a positive one. Results of the study also indicated that female shoppers are less tolerant of repeated stockouts and are more likely than male shoppers to switch retailers or brands. The stockout problem must be addressed through two parallel means, which include reducing stockout occurrences and ensuring stockout experiences are mitigated through improved customer service measures.

Pilot Study

A pilot study was conducted to validate the content, format, flow, and construct of the survey questionnaire. Ten participants completed the pilot study in person at locations that included a local library, home office, and a local retail mall. Rubio et al. (2003) considered using 10 participants in a pilot study to be adequate to address clarity, phrasing, and other content issues. The pilot study focused on exploring participants' responses to the following list of questions:

1. How long did it take a participant to complete the survey?

2. Did any of the questions contain vague or double meaning?

3. Were there any words that you consider as offensive?

4. Were the questions easy to follow?

5. Were the questions appropriate to cover wide range of age, cultural, and social characteristics of participants?

Results of Pilot Study

Responses from pilot study participants were analyzed using the Content Validity Index (CVI). The survey content was evaluated on a 1 to 4 relevance rating scale, as advocated by (Davis, 1992), with 1 being *not relevant* and 4 *highly relevant*. The mean Item CVI rating for the pilot study was .96, as shown in the CVI analysis table in Appendix B. According to Lynn (1986), for a sample of 6 to 10 participants, a mean Item CVI over .78 is considered an acceptable rating, and no change to the document is was necessary.

Participants in the pilot study recommended changes to two survey questions to improve clarity and prevent double meaning. Participant 2 recommended that Question 3 be modified to reflect customer purchasing experience at a retail store located in a "mall" rather than at a freestanding "store." This change was accepted because the survey was administered at a retail mall. Another recommended adding the word "stockout" before the word "item" in Question 21 for clarification. This change was appropriate because it clarified that the item of discussion was the stockout item. Even though the Item CVI was calculated at .96, considerably above the acceptable CVI of .78, as advocated by Lynn (1986), the recommended changes were incorporated into the survey for clarity. All pilot study participants reported completing the survey in 5 to 7 minutes, as planned.

Data Collection Information

Two separate data collection periods were conducted on the same day of the week and at the same time and location to ensure consistency and reliability. The second set of data was collected for the purpose of comparison to examine reliability and validity of the information collected during the first session. During each of the data-collection periods, 200 individuals who walked by the survey table in were asked to participate in the study. Participants were randomly selected using the simple random sampling scheme, where every 10th person was asked to participate. During both sessions, respondents were receptive to supporting the academic study, and no incidents or disagreements were experienced with any of the participants.

During the first data collection session, of the 200 people asked to participate, 156 (78%), agreed, and of that group, 21 (13%) stated had experienced stockout in the prior 7 days and qualified to take the survey. During the second session, of the 200 invited, 126 (63%) responded favorably. Of those, 19 (15%) had experienced stockout in the prior 7 days and took the survey, resulting in a participant group of 40.

The percentage of participants who experienced stockout, 13% to 15%, is slightly high as compared to a global range of 5% to 10% and a U.S. average of 7.9%, as reported by Gruen and Corsten (2007). The higher numbers could be attributed to (a) end-of-season sales, where out of stock regularly exceeds 10%, (b) the expanded number of retailers in the mall, or (c) the 7-day stockout qualification period. Appendix C highlights the results and shows differences in participant information on both data collection days. Table 1 shows the demographic data for the combined survey groups.

Table 1

Combined Demographics for Both Survey Groups

Gender	M	F	No answer	
	47%	48%	5%	
Income	<$75,000	$75,001- $100,000	>$100,001	No answer
	27%	48%	21%	4%
Ethnicity	Caucasian	African American	Hispanic	Other
	60%	23%	12%	5%
Education	High school grad.	Some College	College grad.	No Answer
	15%	27%	48%	10%
Employed	Yes	No		
	94%	6%		
Age range	15-30	31-40	41-60	No answer
	12%	38%	55%	5%

Presentation of the Findings

Analysis of the results in this qualitative study revealed similar responses of both groups in most categories, which supports the assertion of validity of the data collection setting and self-selection of participants. Because of the minimal difference observed between the two groups, responses were combined and presented as one data collection group. Participants varied in their responses to stockout experiences, with three categories emerging in responses to a stockout: They postponed buying the item, bought a substitute, or abandoned the purchase at the store and bought the item elsewhere. Table 2 outlines percentages of responses to the non open-ended survey questions. The open-ended questions are listed and lined-through in Appendix A.

Table 2

Responses to Non Open-Ended Questions for Both Survey Groups

Survey questions	Response options	Results
Did you try to buy an item in the past 7 days that was out of stock?	Yes	10%
	No	71%
	No response	14%
You went to the store to?	Buy stockout item	67%
	Look for similar item	15%
	Browse	18%
What did you do after you experienced stockout?	Bought substitute	24%
	Decided to wait	39%
	Bought from competitor	15%
	Other	22%
Who you think is responsible for causing stockout?	Retailer management	71%
	Brand availability	14%
	Other	15%
How did this experience affect your attitude towards brand?	Will continue to buy same brand	80%
	Will buy substitute brand	10%
	Other	10%
How often do you buy the stockout brand?	All the time	30%
	Once in while	52%
	Not usually	18%
What is the main reason you buy this brand?	Reasonable price	18%
	Good quality	64%
	Unique product	11%
	Fits my personality	7%
Will this experience change your loyalty to the brand if stockout does not happen again?	Yes	10%
	No	90%
Will future stockout experiences of the same brand cause you to consider changing brands?	No	43%
	Yes, temporarily	52%
	Yes, permanently	5%

(table continues)

Survey questions	Response options	Results
How often do you shop at the retailer where the stockout happened?	Weekly	32%
	Monthly	43%
	Other	25%
How disappointed did you feel about the retailer not having the desired item in stock?	Not disappointed	10%
	Neutral	10%
	Somewhat disappointed	32%
	Disappointed	35%
	Very disappointed	13%
Because of this stockout experience, you are less likely to visit this retailer in the next 30 to 60 days.	Strongly agree	12%
	Agree	15%
	Neutral	34%
	Disagree	29%
	Strongly disagree	9%
Will this experience change your purchasing habits at this retailer in the future?	No	75%
	Yes	25%
Will future stockout experiences at the same retailer cause you to change retailers?	No	47%
	Yes, temporarily	43%
	Yes, permanently	10%
What is the most important aspect of a favorite retailer to you?	Responsiveness	27%
	Competitive pricing	35%
	Proximity to residence	17%
	Pleasant shopping trip	20%
Will you accept a free delivery if retailer offers to order and ship the item to your residence within 10 days?	Yes	95%
	No	5%

Note. Participants' demographics responses are displayed in Table 1. Table 2 only shows

percentage responses of non open-ended questions of the survey. Responses to the open-

ended questions are included in the comprehensive analysis of all participants' responses,

and the results are captured and addressed throughout Section 3.

Central Research Question

The central research question was designed to explore this question: How do stockout experiences affect customers' purchasing behaviors and loyalty to their favorite brand or preferred retailer? Responses to this question explored general changes in customers shopping behaviors after experiencing stockout. Three subquestions were used to support elements of the central research question. The three subquestions explored details of how customer purchasing behaviors and loyalty changed in response to stockout. Further, the subquestions explored mitigating measures retailers can use to reduce stockout occurrences and maintain customers' loyalty. Three categories emerged in customers responses after experiencing a stockout. Customers postponed buying the stockout item, bought a substitute, or abandoned purchase and bought the item at a competitive retailer or online.

Some customers postponed purchase of the stockout item, with 39% deciding to wait to buy the item from the same retailer on a later shopping trip. This desire to wait and return was explained by factors such as perceived lower prices at that retailer, personal preference for the product, overall satisfactory perception of the retailer, and proximity of the retailer to customers' residences. Another reason for waiting to buy the product from the same retailer was that the customer did not need the item immediately. This finding was similar to research conducted by Zinn and Liu (2008) that concluded 43% of customers who experience stockout delay their purchase. The type of item and aim of the shopping trip also influenced whether a customer decided to postpone the purchase. Zinn and Liu determined that most customers who did not have the item on

their shopping list decided to wait to buy, and if the item was not needed immediately, they were likely to postpone the purchase and buy from the same retailer on a later trip.

If the stockout item was needed immediately, and an acceptable substitute was found at the same retailer, 24% customers bought the substitute item. Customers who bought substitute product responded that they were influenced by factors such as suitability of the product, immediate need, or price of the substitute. This finding was in line with earlier research by Emmelhainz et al. (1991) who discovered that 21% of customers who experienced stockout bought a substitute brand of the same item. Also, some customers who bought a substitute product indicated they found the substitute to serve their needs better and abandoned the original brand in favor of the substitute product. In these cases, loyalty to the brand was abandoned long-term because of the stockout experience.

Thirty-seven percent of respondents who were determined to buy the same brand went to a competitor or shopped online for the item. Those who decided to abandon their purchase and go elsewhere were measured at 15%. The finding was in line with results from Emmelhainz et al. (1991), who reported that 14% of customers abandoned the retailer and bought the stockout item from a competitor. Results were lower than (Corsten & Gruen, 2004; Verbeke et al., 1998) who reported a range of 21% to 43% of customers who experienced stockout switched stores and went to competitors for the product. Factors that influenced customer's decision to go elsewhere to purchase the stockout item included high level of disappointment, loyalty to original brand, and perception of retailers' less-than-satisfactory customer service.

Subquestion 1

This subquestion supported the central research question and explored: How does

stockout affect customers' brand loyalty and future purchasing behaviors? The aim of

this subquestion was to discover whether customer loyalty to the brand was affected by

the stockout experience at retailers. The purpose of the shopping trip influenced whether

customers bought a substitute item or brand. Most customers who did not have the

stockout item on their shopping lists or did not need the item immediately were likely to

postpone their purchase and buy the item from the same retailer on a future trip.

Customers who thought about buying the item while browsing were also more likely to

wait to purchase the item. Customers who planned to buy the stockout item were more

likely to either buy a substitute or switch brands. Campo et al. (2004) supported this

correlation between types of shopping trip and whether customers decided to buy a

substitute item or brand. There were basically two responses: While some customers

decided to remain with the brand, others viewed the brand as unreliable and decided to

purchase a substitute product. Significant difference was observed in customers'

responses to this question based on whether the stockout occurrence was an isolated, one-

time incident or a frequent occurrence as higher number of participants revealed their

intent to abandon the brand if stockout occurrences happened frequently.

Customers seemed to be forgiving if the stockout was an isolated one-time

occurrence. If stockout happened only once, 80% stated they would continue to buy the

same brand and that the stockout experience did not affect their loyalty to the brand. This

finding was supported by Sloot et al. (2005), who concluded that customers who prefer

high equity brands are normally loyal to their brand and are willing to wait or switch

stores to purchase the preferred brand. Most customers, 64% considered brand quality to be more important than price, uniqueness, or personal fit. Only 18% of participants considered uniqueness of the brand and personal fit of the item to be a factor to their brand loyalty. This finding indicated that retailers can absorb at least one stockout occurrence without significant risk in customer brand loyalty.

A single stockout experience did not significantly alter customers' attitudes toward the brand, with over 90% stating they would not consider switching to another brand if the stockout happened only once. Only 10% considered this brand unreliable and they might switch to a more reliable brand. This finding is considerably different from the 21% and 26% of customers switching and buying different brands as reported by Emmelhainz et al. (1991) and Gruen et al. (2002) respectively.

Repeated stockout occurrences increase risks to customer brand loyalty. Frequent stockout experiences can lead 52% of customers to switch brands temporarily, and 5% of respondents indicated they would consider permanently switching to a more reliable brand. The percentage of customers who planned to switch temporarily to other brands is considerably higher than the 26% first-time stockout responses reported by Gruen et al. (2002). This finding is a clear indication that customers' repeated stockout experiences are less tolerated and place the brand at higher risk of reduced customer loyalty.

Subquestion 2

Loyalty to retailer is an essential element of exploring the central research question. This subquestion supported the central research question and explored: How does stockout affect customers' short- and long-term loyalty to retailers? Over 75% of respondents stated they normally visit the retailer where the stockout occurred weekly or

monthly to purchase a variety of products. Frequency of visits indicated stronger preference and loyalty to that retailer.

Stockout experiences caused varied levels of customer disappointment; with 35% of respondents disappointed with stockout. A smaller number, 13% expressed strong disappointment after the stockout experience. Stockout experiences have a direct influence on whether customers revisit the retailer. Customers consider reliability and responsiveness to be an important attribute of a retailer. When asked to state the most attractive attributes of a preferred retailer, 27% considered responsiveness and reliability as most important. When questioned about stockout affects on future loyalty to the retailer, about a fourth of respondents stated they were less likely to return to the same retailer. This finding was supported by both early and more recent researchers (Schary & Christopher, 1979; Vasconcellos & Sampaio, 2009), who agreed that after stockout experiences, customers are less likely to return to the retailer in the future.

Most customers were willing to tolerate a one-time stockout and give the retailer the benefit of the doubt, but 25% expressed intent to possibly change retailers after one stockout occurrence. The majority of customers, 75% expressed no change in shopping habits or attitude toward the retailer after a single stockout experience. Participants responded differently to frequent stockout occurrences, with some 43% of respondents stating they would temporarily change retailers, and 10% saying they would permanently change retailers as a result of repeated stockout experiences. Those who would change retailers permanently were all of European American ethnicity, with 100% claiming household income of $75,000 or greater. No Hispanic, African American, or Other ethnic group participants indicated intent to change retailers permanently. Those who

decided to switch retailers permanently were customers who expressed a high level of disappointment and perceived the retailer as one who provided poor customer service. This specific element of customers' response to stockout appears not to have been explored in previous scholarly and professional research.

Jing and Lewis (2011) concluded, "The impact of stockouts cannot be fully evaluated without understanding how inventory shortages influence long-term customer behavior" (p. 342). Previous research efforts focused on whether customers switched stores after stockout experience but did not conclude whether the intended switch was short or long-term. Mckinnon et al. (2007) concluded that there is high probability that customers will abandon the retailer and purchase the item elsewhere. Other researchers were more specific, Zinn and Liu (2008) discovered that 44% of customers intended to go to another store after experiencing stockout; where Emmelhainz et al. (1991) concluded only 14% of customers abandon their purchase after stockout and go to other retailer. Long-term loss of revenue is not limited to customers who abandon the retailer. Stockouts can also have long-term effects on retailers through reduced patronage and negative word of mouth effects (Zinn & Liu, 2001). Retailers should view the first stockout occurrence as a signal from customers for the need to mitigate or avoid future stockouts to maintain customer loyalty.

Subquestion 3

Stockout can cost retailers revenue, reduction in customer loyalty, and increased costs across the supply chain (Corsten & Gruen, 2003). Subquestion 3 supported the central research question and explored: What can retailers do to mitigate the negative effects of stockouts on customers? The stockout problem was considered poor customer

service by 43% of customers in the surveys. The answer to this subquestion was based

on what participants said retailers could do to reduce the effect of stockout on customers

and help ensure satisfactory shopping experience after a stockout. Customers who leave

the store after stockout without shopping there further are doubtless dissatisfied and less

likely to return (Schary & Christopher, 1979). Vasconcellos and Sampaio (2009)

suggested that retailers make an effort to minimize stockout and offer customers some

form of compensation to retain loyalty. The following four retailer actions are suggested

mitigating measures that could ensure good customer service and customers leave the

store after stockout without disappointment or negative feelings toward the retailer.

Make an effort to find the stockout item for the customer. Customers have

suggested that in a stockout situation, the retailer should help them find the stockout

product, even if the item is located across town or at another retailer. Customers expect

the retailer to either look online or make phone calls to help them find an item.

Customers do not differentiate whether the other store is a competitor or from the same

corporate chain. If unsuccessful, customers expect the retailer to special order their item

and have it shipped free of delivery charge to their residence. Offering or helping the

customer find a substitute was also considered a good customer service gesture. The

majority of respondents, 95% stated that a retailer special ordering an item and shipping

it to the customer's residence free of delivery charge is an acceptable solution and a good

customer service gesture to mitigate stockout experience.

Personalize the stockout problem. Respondents across the board believed a

manager or customer service employee personally explaining the stockout issue is a

customer service gesture that would mitigate the negative effects of stockout and improve

attitude toward the retailer. Rani and Velayudhan (2007) confirmed a relationship between customer attitudes and the degree of negative feelings they have after a stockout occurrence. Telling the customers when the stockout item will be in stock again, or taking customer's contact information and contacting the customer when the item becomes in stock also demonstrates positive customer service. Showing a personal interest and attempting to mitigate the problem enables retailers to turn the negative stockout into a positive experience. Customers stated they would remain loyal if store management showed an effort to personalize the product for them.

Offer customers a discount or loyalty reward. One response from customers was they felt they had wasted time and money for transportation going to the retailer to purchase a specific item that was not in stock. Providing a discount on other items in the store, a coupon for a future purchase, or a discount on other items bought that day were recommended as ways to mitigate the negative experience and support retailer and brand loyalty. Bhargava et al. (2006), who concluded that stockout compensation policy delivers retailers better profits than a noncompensation policy, confirmed this finding. Offering a discount on a substitute product was also considered a positive gesture and good customer service response. Providing the customer a rain-check with a store discount was suggested as a solution to mitigate stockout experiences.

Customers expect the retailer to take responsibility for the stockout and compensate them in some way. Results of this study indicated that retailers could turn the stockout experience from negative to positive by offering loyalty incentives in the form of personalizing the issue and offering some financial reward as a compensation for the customers' time and effort. If the item was on sale during the stockout period,

customers expect to be offered the same discount when the item becomes available.

Providing customers who experience stockout a discount if they purchase the item online

or when the item becomes available in the store was also suggested as a good customer

service action to mitigate the negative effects of stockout. This finding is in line with

Anderson et al. (2006), who discovered that 10% off coupons were an effective

mitigation measure in preserving customers' orders for stockout items.

Retailers should review their inventory management process. The question

of who is responsible for stockout occurrence has been attributed to manufacturers,

distributors, and retailers. Some of the reported causes of stockout also include faulty

inventory information (DeHoratius & Raman, 2008), lack of brand availability

(Svensson, 2000), global transportation delays (Hoffman, 2008), poor retailer inventory

planning (Yang, Ruben, & Webster, 2003), or inventory management policy (Ailia,

Ondiek, Mise, & Odera, 2012). The customer does not care where the fault lies but

nonetheless holds the retailer responsible. The majority of respondents, 71% believed the

retailer did not plan carefully enough. This finding is in line with Gruen et al. (2002),

who discovered that 70% to 75% of the stockout problem was caused by poor planning.

Customers expect the retailer to have items in stock they advertise or typically carry. If a

stockout event happens, customers expect retailers to get the item back in stock and on

the shelves quickly and to inform them so they can return to buy items.

Themes Resulting From Analyses

Themes are major issues that have been repeatedly noted by participants.

Bradley, Curry, and Devers (2007) identified themes as "Recurring unifying concepts or

statements about the subject of inquiry" (p. 1761). Themes in this qualitative study were

developed as statements provided from participants or as issues generated from queries

using the NVivo-9 qualitative data analysis tool. Themes and representative participant

statements are listed in Table 3. The following themes expressed consensus, common

ideas, and frequently used words or connections in opinions described by participants.

Frequent Stockouts Negatively Affect Customer Attitude Toward Brand

Customers' attitude toward the brand became more negative after multiple

stockout experiences. After a single stockout experience customers' attitude toward the

stockout brand remained generally positive. Responses were similar between both male

and female customers. Attitude toward the brand significantly changed after repeated

stockout experiences. Responses from both men and women indicated that shoppers

attitude toward the brand became more negative after frequent stockout experiences.

Women held less loyalty to the brand and indicated higher degree of negative feeling

about the brand, as more of them indicated they would switch brands than did men.

Responses indicated that women customers are over twice as likely to change brands

after repeated stockout experience as men by a ratio of 29% to 11%. Some participants

expressed concerns over lack of reliability and thought there could be a problem with or

flaw in the out of stock item as the reason it was no longer available.

Repeated Stockout Experiences Reduce Customer Loyalty to Retailer

Customers' responses indicated that loyalty to retailer became more negative as a

result of frequent stockout occurrences. After a single stockout experience customers'

attitude toward the retailer remained generally neutral with few customers indicating

intentions to switch retailers only temporarily. Customer loyalty and responses from both

men and women became more negative after more frequent stockout experiences. Most

participants, both men and women, indicated their intent to switch retailer in the short-term. About 10% of shoppers showed higher level of frustration and indicated intent switch to a more reliable retailer permanently. Participants who intended to change retailers permanently were all Caucasian customers with 75% of them reporting over $100K in household income, and 25% reporting $75-$100K. Women indicated a higher degree of negative feeling, and more of them indicated the intention to switch retailers than did men. Responses indicated that women were more than twice as likely to buy the stockout item from a different retailer after repeated stockout experience as males, by a ratio of 52% to 21%. This theme is supported by responses from other participants who considered reliability and responsiveness key retailer attributes.

Personalizing Stockout Experiences Affects Customer Loyalty to Retailer

Personalizing the stockout experience can be an effective mitigating measure. Customers generally held retailers responsible for the stockout problem. Customers expected retailers to show empathy and take responsibility for the stockout problem by helping customers locate their desired product. Making the stockout problem personal by helping the customer locate and purchase the stockout product is considered a positive action and could lead maintaining or even improving customer loyalty. This action involves having some management or customer service person from the retailer staff take personal interest in the customer's stockout issue and make an effort to help locate the item, explain the problem, or discuss solutions. Customers who feel the retailer is taking personal interest in helping to mitigate or resolve the stockout issue are more likely to remain loyal to the retailer.

Rewards and Discounts Can Affect Customer Loyalty After Stockout Experience

Retailer loyalty rewards and discounts can mitigate negative effects of stockouts on customers. Customers consider stockout to be a customer service problem and expect retailers to take necessary steps to mitigate it. Retailers can mitigate the negative effects of stockout by providing customers with loyalty rewards in the form of discounts, store credits, or coupons. Offering discounts on substitute or other purchased item could also be considered as positive gesture to mitigate stockout effects. Providing rain-check with a store discount for the customer to use when the item becomes in stock has also been recommended as a solution to mitigate stockout experiences. Retailers can turn the experience from negative to positive by offering loyalty incentives or financial rewards as compensation for customer disappointments.

Retailers' Inventory Management Believed To Be Reason for Stockout

Majority of customers believe that a retailer's inventory management is the main cause for stockout (Yang et al., 2003). When participants experienced stockout, they held the retailer responsible. Retailers need to first identify the depth of a stockout problem to discover seams in their inventory management process and take appropriate measures to ensure adequate stocks are on hand, especially during major sales events or seasonal and holiday demands.

Stockout Experiences Disappointed Customers

The stockout experience is a cause of disappointment and inconvenience to customers (Vasconcellos & Sampaio, 2009). Responses from customers were consistent in expressing disappointment after experiencing stockout. Levels of disappointment varied with some customers expressing they were very disappointed after experiencing a

stockout. Customer disappointments were focused on either brand or retailer. In either case, the retailer is negatively affected.

Reason for Shopping Trip May Influence Customer Response to Stockout

Customers responses to stockout varied depending on the reason of their shopping trip. Majority of customers who did not have the stockout item on their shopping list decided to postpone their purchase. If the item was not needed immediately, customers were also likely to postpone their purchase and buy the item from the same retailer on future shopping trips. Customers who decided to buy the stockout item while browsing other products also decided to wait and purchase the item from the same retailer during a future shopping trip. The majority of customers who went to the store with intent to purchase the stockout product decided to either buy a substitute from the same retailer or abandoned the retailer and bought the stockout item from a competitor. Customer gender affected how participants responded. More women customers decided to purchase the stockout item from competitors; more men purchased a substitute from the same retailer.

Men Prefer Responsive Retailer; Women Prefer Pleasant Shopping Experience

Attributes of a preferred retailer differed between male and female customers. Men demanded a higher level of responsiveness from the retailer, and women shoppers reported they were happier with better customer service. Women considered a pleasant experience the most important element, but men preferred retailers to be responsive to their demands. Retailer responsiveness was considered as low stockout rates and having the needed inventory on-hand to meet customers' demands. Responses suggest that retailers should pay more attention to women shoppers because they react more negatively to stockout experiences.

Table 3

Themes and Supporting Statements

Themes	Supporting statements
Theme 1. Frequent stockout experiences negatively affect customers' attitude toward the brand	"Yes, I will buy substitute product and consider this brand unreliable"
	"Yes, I will buy substitute brand but temporarily only"
Theme 2. Repeated stockout experiences reduce customers' loyalty to retailer	"Yes, I will probably not return to this retailer"
	"Yes, long term or temporary, I have not decided"
	"Yes, only temporary, I will come back I like this retailer"
Theme 3. Personalizing customers' stockout experiences have positive effects on customer loyalty	"Yes, this is very important it makes me feel they care"
	"Yes, that is an acceptable solution"
	"Yes, this is good customer service"
Theme 4. Rewards and discounts after stockout can affect customers' loyalty	"10% discount is not enough, it should be at least 20%"
	"Provide something for wasting my time like a gift card or coupon or 10% off"
Theme 5. Retailers' inventory management is the reason for stockout	"Retailer inventory management is a problem"
	"Retailer poor inventory planning is definitely the problem here"
Theme 6. Stockout causes varied levels of disappointment for customers	"Disappointed, they really should have the products in stock they are supposed to have"
	"I was very disappointed, I called, and they said they had it"
Theme 7. Reason for the shopping trip can influences customers' responses to stockout	Conclusions from NVivo-9, qualitative data analysis queries to the established nodes of "Shopping Trip Reasons"
Theme 8. Men prefer retailer responsiveness, and women prefer pleasant shopping experience	Conclusions from qualitative data analysis through NVivo-9 queries to an established node of "Attributes of Preferred Retailer"

Applications to Professional Practice

In this study, effects of the enduring business problem of retail stockout on customers' shopping behaviors were explored. Results are relevant to the business community and can be useful to stakeholders operating across the supply chain, including retailers and manufacturers. Retailers should understand the effects of the stockout problem and make every effort to reduce stockout occurrences on customers. The impact of stockout can only be evaluated with the full understanding of its effects on customers (Jing & Lewis, 2011). Firms should make an effort to better manage and plan inventory to reduce stockout occurrences. Jing and Lewis (2011) discovered that by reducing stockout occurrences by 5%, retailers could increase the level of customer service by 23%. In cases of stockouts, customers should be offered some measure of compensation to retain loyalty. Revenue lost from stockout can extend to later shopping trips and other product categories (Campo et al., 2000). Results of this research enable retailers to improve customers' shopping experiences and reduce the negative effects of stockout through personalized customer service and reduced stockout occurrences.

Customer Loyalty to Retailer and Brand

Information regarding how customers respond to stockout can be very useful to retailers and brand owners especially those using lean inventory principles. The lean inventory principles improve firm performance by allowing firms to hold fewer inventories (Eroglu & Hofer, 2011). Holding fewer inventories on-hand increases the risk of stockouts (Rani & Velayudhan, 2008). Stockout effects on customers can be measured in changes in customer loyalty to retailer and brand. Repeated stockout occurrences can lead to customers abandoning a favorite brand in favor of a substitute

(Sloot et al., 2005). Stockouts can also cause customers to replace their preferred retailer with a competitor, either temporarily or permanently (Blazenko & Vandezande, 2003). Campo et al. (2004) suggested that stockout losses could grow disproportionately with stockout occurrences. Either way, retailer and brand can be affected by changes in customer purchasing behaviors after a stockout experience. Through good customer service, retailers can reduce the negative effects of stockout experiences for customers. In some cases, these experiences can be used to the retailer's advantage to demonstrate superior customer service and strengthen the customer's loyalty to the retailer. The information discovered in this research will enable companies using the lean inventory principles to use the recommended mitigation practices to minimize the stockout problem and maintain customer loyalty through improved customer service.

Supply Chain Implications

Results of this study will give retailers insight into customer reactions to stockout. Stockout problems usually go unreported or mitigated, because customers who experience a stockout situation often abandon their purchase and go to a competitive retailer or buy the item online. A stockout problem adds to the uncertainty of true customer demand, can give an inaccurate inventory demand signal, and can cause inaccurate demand forecasts (Gruen & Corsten, 2007). The effects of this action distort customer inventory demand and cause retailers to under stock inventory or try to mitigate the stockout problem by overstocking inventory. Both actions distort true demand and cause manufacturers and transporters to respond unnecessarily to short notice demand changes, consequently increasing cost of the product. The out of stock problem is a source of disappointment to customers and drives up costs across the supply chain

(Corsten & Gruen, 2003). Retailers can effectively address the stockout issue and continue to reap the financial benefits of using lean inventory management, by using some of the actions recommended in this study. Using the lean principles can help companies to benefit greatly (Womack & Jones, 2005). Results will also inform retailers of the effects of stockout experiences. Showing the specific relationships between stockout occurrences and customer satisfaction allows retailers to plan better inventory levels and use recommended actions to mitigate the risks of lean inventory operations. This study was conducted at a retail mall in Eastern Pennsylvania. The study compared and cross-referenced the results with existing academic and professional literature from around the globe makes results of this study valid beyond the regional boundaries of the state of Pennsylvania.

Customer Benefits

Results of this study illustrate the effects of the stockout problem. As businesses gain understanding of customers' responses to stockout, retail managers can explore suitable actions to mitigate the negative effects on customers. When retailers implement some of the mitigating measures to address the issue of stockout, customers can benefit from this action through better customer service and reduced frequencies of stockout occurrences.

<div align="center">

Implications for Social Change

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The lean inventory management process is beneficial to both the business community and the environment; however, lean inventory can increase the risk of stockout. Results from this study offer stakeholders operating across the supply chain a view of how customers respond to stockout, and offer mitigating measures, which include

personalized customer service and improved inventory planning, to help retailers address the stockout issue and to continue to use the lean principles. Using the lean inventory system enables businesses to stock limited inventories and rely on responsive and more frequent deliveries to ensure shelves remain stocked with products to meet customers demand (Evans & Harrigan, 2005). Consuming less and improving quality are two cornerstone principles of social change and corporate responsibility. Results of this study enable retailers to address the stockout problem and continue to use lean inventory. Through implementing lean and using best practices, companies reduce inventory costs and increase profitability (Blanchard, 2007). Pagell and Wu (2009) confirmed that using best practices principles and increasing efficiency normally lead to a sustainable supply chain. Keeping fewer inventories in stock allows manufacturers to produce only needed quantities, resulting in use of less raw material and energy to make products, and contributing to global sustainability and social change.

Stockout Effects in Lean Inventory Environment

The lean process offers companies financial benefits (Womack & Jones, 2005). Retailers using the lean inventory strategy have increased risk of stockouts and losing customers (Rani & Velayudhan, 2008). Results from this study provide recommendations that enable retailers to continue to optimize the various elements of their lean inventory process and minimize stockout effects on customers. Considering the global interconnected nature of the supply chain, interruptions in deliveries, uncertain customer demand, and inaccuracies in inventory management systems information, retailers might frequently experience inventory shortages. Customers who experience stockout will change shopping behaviors and have less loyalty to both brand and retailer.

Customers who experience stockout might buy a substitute product, abandon their

purchase, or go to a competitor. Stockout experiences caused some customers to

abandon retailers either temporarily or long-term, which led to lost business and reduced

profit. Results of this study offer retailers and other stakeholders answers to how the

stockout implications affect customers and offer mitigation measures. Results can enable

retailers to address the negative implications of stockouts and continue to successfully

use the lean inventory principles and contribute to global sustainability and social change

Lean, Sustainability, and Corporate Social Responsibility

Lean advocates stocking fewer inventories and contributes to a balance in

consumption of global raw material resources. As a response to the stockout problem,

some retailers are abandoning the lean inventory process and increasing their inventory

levels, a reaction that leads to tying up excess capital and consuming more natural

resources in products that could become obsolete. Through continuing to use lean

inventory practices, companies can achieve monetary gain while exercising corporate

social responsibility. Mollenkopf et al. (2010) advocated a connection between lean

principles and green supply chain to be evident through the reduction of waste. Using

lean inventory creates a winning strategy for retail companies and positive effects for the

environment, as retailers can save money by not holding unnecessary inventory, improve

operational efficiency, and contribute to long-term sustainability of the global

environment. Continuing to use the lean inventory principles allows companies to make

money while exercising social responsibility.

Impact on Corporate Responsibility and Social Change

Results of this research will provide retailers insights into how the problem of stockout affected customers shopping behaviors. Results from this research highlighted customers responses to the perceived poor customer service caused by stockouts and provided retailers with recommended actions to mitigate the stockout problem and to provide better service to customers while maintaining customer loyalty and preserving profit margins. Leaders of successful global companies understand that stakeholders across the chain must reduce environmental impact to ensure a robust and sustainable supply chain (Senge et al., 2008). Results and recommendations of this study enable firms to gain deeper understanding of the stockout problem and provide mitigation measures and improve their customers shopping experience. As retailers benefit from the reduced affects of stockout on their customers, customer service can also improve. Vasconcellos and Sampaio (2009) advocated that by reducing and effectively mitigating stockout occurrences, organizations could gain sustainable competitive advantage and maintain loyalty of their affected customers. Some of the recommended mitigation measures introduced in this study should reduce customers' negative responses to stockout and maintain customer loyalty to retailer and brand. As retailers understand the effects of stockout, they can better manage their demand and inventory levels and continue to effectively use the lean inventory process. Reducing effects of stockout also helps keep down cost across the supply chain. Additionally, by operating more efficiently through effectively managing inventory and using lean best practices principles, retailers and manufacturers can reduce consumption of natural resources and

pass on cost savings to their customers. Those actions can improve the quality of life for customers with lower incomes and positively affect social change.

Recommendations for Action

Results of this study indicated that customers perceive retailer's inventory management to be responsible for the stockout problem and expect retailers to take appropriate actions to mitigate the effects. This research highlighted the continued significance of the stockout problem and identified actions retailers can take to mitigate the effects of the stockout on customers. Review of the findings lead to the following recommendations for action:

1. Retailers should review existing inventory-management process and ensure adequate inventory levels are on hand to accommodate customer demand, especially during seasonal and special sales events.

2. In a stockout situation, if the item is available through the store's website or inventory, the retailer should offer to special order the item and have it delivered to a customer's residence free of handling and delivery charges.

3. During a stockout situation, retailers need to make an effort to help customers find the stockout item by researching online and making phone calls on behalf of the customer.

4. Retailers need to make the stockout issue personal, take the customer's contact information, and call or e-mail to let them know when the item becomes in stock.

5. Retailers provide customers with a discount coupon or special loyalty reward of at least 10% of the value of the stockout item. The discount should be for current or future purchases and for either in store or online.

The results of this study are primarily useful to retailers and brand owners. Retailers must be aware of the total cost of the stockout problem and make every attempt to ensure customer stockout experience does not risk loyalty to either brand or retailer.

Results from this study can benefit retailers using the lean inventory management system and to a lesser extent stakeholders operating across the supply chain, including manufacturing and transportation. An executive summary of the findings of this study will be sent via -email to public relations officers of retail organizations such as Macy's Sears, and JCPenney. Results from this study will also contribute to the body of academic knowledge and be shared with professionals and academics through publishing the results in peer-reviewed logistics journals such as the *Journal of Business Logistics*, *Transportation Journal*, and the *International Journal of Physical Distribution and Logistics Management*. More exposure will be attained by seeking to publish the results on professional logistics websites like the *Council of Supply Chain Management Professionals* and the *Institute for Supply Management*.

Recommendations for Further Study

In this study I explored the effects of stockout on customers in a retail environment. The case study research method allowed for collection and analysis of rich qualitative information from participants in a retail shopping environment. Using the qualitative method allowed for exploration of changes in customers' purchasing behaviors after experiencing stockout. This research focused on the traditional brick and mortar retail settings within a shopping mall and excluded online retail venues.

A connection between results of this research which focused on the customers shopping experiences at traditional retail stores and online shopping venues was

discovered. Some participants indicated they purchased the stockout item online. Learning the changes in purchasing behavior of online shoppers after experiencing online stockout would also be useful to online retailers and would complement the results of this study by providing retailers and stakeholders across the supply chain a more complete picture of the effects of stockout. The business community would benefit from the full understanding of stockout effect, especially with the current business model of retailers selling through both traditional stores and online venues. A full understanding of the stockout problem including online implications can be helpful to the retail community and other supply chain stakeholders. A comprehensive knowledge of the stockout effects can provide full mitigating measures to accommodate customers and ensure pleasant shopping experiences in both online and traditional stores.

Reflections

This study focused on exploring customers change in purchasing behaviors after a stockout experience. The participants and data collection settings at the retail mall were confirmed as an appropriate way to explore customers' personal thoughts and experiences. I had full knowledge of the research topic and made every effort to guard against influencing participants or displaying any bias. Clarity and validity of the survey questionnaire were gained through a pilot study. The raw data were transcribed exactly as written by the participants with special care to ensure all responses, including outliers, were captured. The NVivo-9 software was used through codes and queries to gain answers to the research questions and to explore themes from the responses of participants' firsthand experiences. Every attempt was made to ensure data collection and analysis was completed accurately and in complete adherence to research protocols.

The two data collection periods were conducted in similar settings for the purpose comparison, analysis, and triangulation with existing literature. The depth of the information collected allowed for detailed and thorough analysis of the information. The development of the themes from analysis of participant responses enabled me to better understand the stockout problem from a shopper's point of view and to develop coherent solutions from participants' responses. The research process and results of this study have enriched my knowledge of the topic of stockout and lean retailing. Themes and conclusions derived from participants' answers have also strengthened my belief that the stockout problem could be mitigated by retailers in a manner that preserves customer loyalty to both retailer and brand.

Summary and Study Conclusions

The lean inventory concept has been shown to streamline operations and improve efficiency in a retail environment. The negative side of this is that limited inventories increase the risk of stores' not having items the public has been accustomed to having. The stockout problem is costly for retailers because it negatively affects brand and retailer loyalty. Customers who experience frequent stockout experiences abandon their purchase and go to other retailers temporarily or even permanently. Repeated stockout experience also negatively affect customer loyalty and cause large numbers of them to switch retailers temporarily or permanently. Retailers should view the first stockout occurrence as a clear signal from customers for the need to mitigate or avoid future stockouts to maintain customer loyalty. Participants' responses confirmed an existing qualitative relationship between stockouts and customers shopping behaviors. After experiencing stockouts 24% of participants indicated, they bought a substitute product,

whereas 39% decided to wait and buy the stockout item during their next shopping trip. Responses also indicated that 15% of customers decided to abandon their purchase and go elsewhere to purchase the stockout item.

Women responded differently to stockout experiences than did men and were more likely to switch retailers and have decreased brand loyalty after experiencing more than one stockout. Results from the survey also indicated that women value pleasant shopping experiences and respond more negatively to stockout, and are more likely to switch stores when they think they are receiving bad customer service.

Retailers must address the stockout problem through two parallel venues: reducing stockout occurrences through better inventory management and improving customer service. Some of the recommended stockout mitigation measures included monetary incentives, personal follow-up contact, and discount coupons. Personalizing the stockout experience can be used as a tool to turn a bad shopping experience into a positive one. This research highlighted the continued significance of the stockout problem and identified some actions retailers can take to mitigate the effects of the stockout problem on customers. Answers to the research questions and themes highlighted in this study can provide stakeholders a detailed view of the effects of stockout on customers. The recommended actions of this study are a direct means for retailers to address the stockout problem and to mitigate the risk of reduced customer loyalty to both retailer and brand.

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Appendix A: Survey Questionnaire and Participants' Responses

1- Did you try to buy an item in the past 7 days that was out of stock?
    If yes then continue with the survey
    If not, please stop and return the survey

2- What item was out of stock?

3- You went to the store to:
    Specifically buy the stockout item
    Look for something similar to that item
    Browse but thought of the item when I was in the store

4- What did you do after you experienced the stockout occurrence?
    Bought a substitute product from the same retailer
    Decided to wait until your next shopping trip
   Bought the same item at another retailer
    Other (please list)-

5- Who do you think is responsible for causing the stockout?
    Retailer inventory management process
    Brand manufacturing availability
    Other (please explain)

6- How did this experience affect your attitude towards the brand?
    I will continue buy the same brand as usual
    I will buy substitute product and consider this brand unreliable
    Other (please explain)

7- How often do you normally buy products from the stockout brand?
    All the time   Once in a while   Not usually

8- What is the main reason you buy this brand?
    Reasonable price
    Good quality
    Unique product cannot be found elsewhere
    The product fits my personality

9- Will this experience change your loyalty to the brand if stockout does not happen again?
    Yes, please explain why   No

10- Will future stockout experiences of the same brand cause you to consider changing to a substitute brand?

No   Yes, temporarily   Yes, permanently

11- How often do you shop at the retailer where the stockout happened?
  Weekly
  Monthly
  Other (please specify)

12- How disappointed did you feel about the retailer not having the desired item in stock?
  Not Disappointed   Neutral   Somewhat disappointed
  Disappointed   Very Disappointed

13- Because of this stockout experience, you are less likely to visit this retailer in the next 30 to 60 days.
 Strongly Agree   Agree   Neutral
 Disagree   Strongly Disagree

14- Will this experience change your purchasing habits at this retailer in the future?
 No
 Yes, please explain

15- Will future stockout experiences at the same vendors cause you to change retailers?
 No   Yes, temporarily   Yes, long term (permanently)

16- What is the most important aspect of a favorite retailer to you?
 Responsiveness and having available products when I want them
 Competitive pricing
 Proximity to my residence
 Pleasant shopping environment and friendly customer service

17- Do you consider stockout a sign of bad customer service?

18- How do you think the retailer should mitigate your stockout situation?

19- How can the retailer keep you as a loyal customer despite this stockout experience?

20- What actions should the retailer take to accommodate those customers who experience stockout to maintain good customer service?

21- Will you accept a free delivery if the retailer offers to order and ship the item to your residence within 10 days?
 Yes No, if no, please explain-

22- Would you feel a store manager showing personal attention and concern to your situation and providing you adequate explanation of the stockout problem to be adequate to maintain good customer service?

23- Would you consider a 10% discount coupon on your item, when it becomes in stock, an acceptable gesture from the retailer to make up for your stockout inconvenience?

24- Please provide the following background information
   Gender   M   F
   Approximate age--
   Years of education
   Ethnicity, please circle one:
      Hispanic   White   Asian   African American   Other---------------------

25- Approximate household income
   Less than $75,000 $75,000-100,000   Over $100,000

Thank you for your participation in this academic research project. The information you provided in this form will be added to other responses and published in aggregate. Your personal responses are confidential and will not be shared with anyone.

In order to protect your privacy, your signature is not required on this form. Completion of this survey indicates your consent.

   Researcher's signature--
   Today's date --

Thank you for your participation in this survey!

Customer Responses to Survey Non Open-ended Questions

1. Did you try to buy an item in the past 7 days that was out of stock?

      10% If yes, then continue with the survey

      71% If not, please stop and return the survey

2. ~~What item was out of stock?~~

3. You went to the store to

      67% Specifically buy the stockout item

      15% Look for something similar to that item

      18% Browse but thought of the item when I was in the store

4. What did you do after you experienced the stockout occurrence?

      24% Bought a substitute product from the same retailer

      39% Decided to wait until your next shopping trip

      15% Bought the same item at another retailer

      22% Other

5. Who do you think is responsible for causing the stockout?

      71% Retailer inventory management process

      14% Brand manufacturing availability

      15% Other

6. How did this experience affect your attitude towards the brand?

      80% I will continue buy the same brand as usual

      10% I will buy substitute product and consider this brand unreliable

      10% Other

7. How often do you normally buy products from the stockout brand?

      30% All the time

      52% Once in a while

      18% Not usually

8. What is the main reason you buy this brand?

      18% Reasonable price

      64% Good quality

11% Unique product cannot be found elsewhere

7% The product fits my personality

9. Will this experience change your loyalty to the brand if stockout does not happen again?

10% Yes

90% No

10. Will future stockout experiences of the same brand cause you to consider changing to a substitute brand?

43% No

52% Yes, temporarily

5% Yes, permanently

11. How often do you shop at the retailer where the stockout happened?

32% Weekly

43% Monthly

25% Other

12. How disappointed did you feel about the retailer not having the desired item in stock?

10% Not Disappointed

10% Neutral

32% Somewhat disappointed

35% Disappointed

13% Very Disappointed

13. Because of this stockout experience, you are less likely to visit this retailer in the next 30 to 60 days.

12% Strongly Agree

15% Agree

34% Neutral

29% Disagree

9% Strongly Disagree

14. Will this experience change your purchasing habits at this retailer in the future?

75% No

25% Yes,

15. Will future stockout experiences at the same vendors cause you to change retailers?

47% No

43% Yes, temporarily

10% Yes, long term (permanently)

16. What is the most important aspect of a favorite retailer to you?

27% Responsiveness and having available products when I want them

35% Competitive pricing

17% Proximity to my residence

20% Pleasant shopping environment and friendly customer service

17. Do you consider stockout a sign of bad customer service?
18. How do you think the retailer should mitigate your stockout situation?
19. How can the retailer keep you as a loyal customer despite this stockout experience?
20. What actions should the retailer take to accommodate those customers who experience stockout to maintain good customer service?

21. Will you accept a free delivery if the retailer offers to order and ship the item to your residence within 10 days?

95% Yes

5% No

22. Would you feel a store manager showing personal attention and concern to your situation and providing you adequate explanation of the stockout problem to be adequate to maintain good customer service?
23. Would you consider a 10% discount coupon on your item, when it becomes in stock, an acceptable gesture from the retailer to make up for your stockout inconvenience?
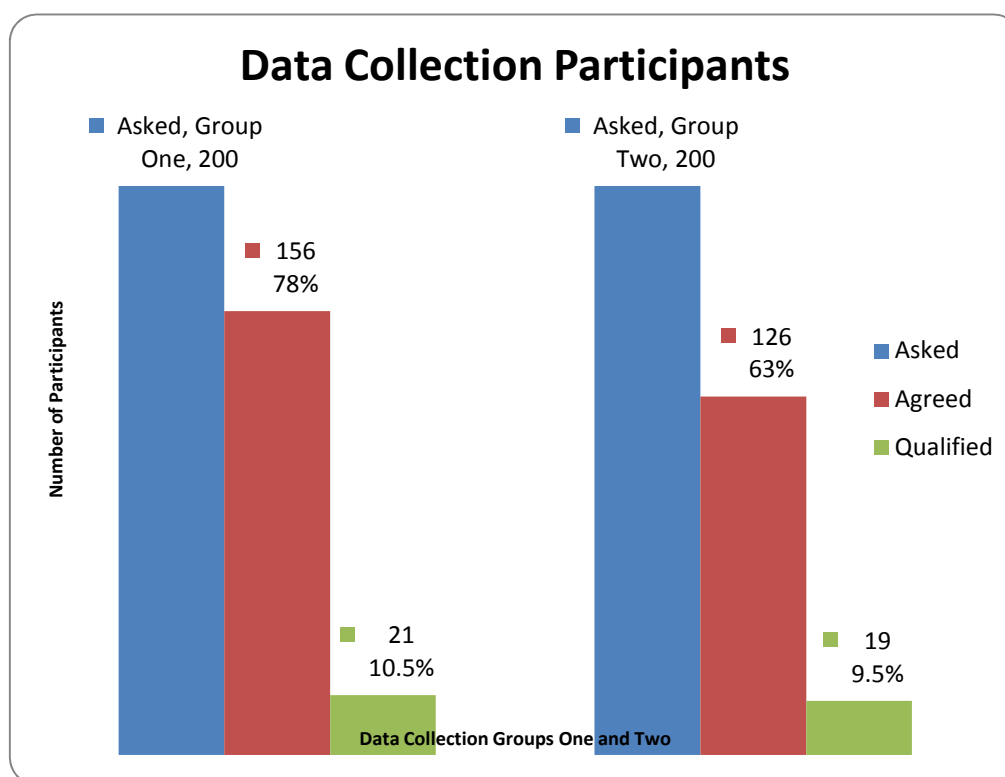
Appendix B: Content Validity Index Analysis for Pilot Study

The below table provides rating information for pilot study responses from participants. Items in the table were rated values 3-4 on the Point Relevance Scale of the Content Validity Index (CVI).

Pilot study Members	Time to take survey (5-7 minutes)	Double meaning	Offensive language	Easy to understand and logical flow	Cultural and social impact on participants
1	X	X	X	X	X
2	X	X	X	_	X
3	X	X	X	X	X
4	X	X	X	X	X
5	X	X	X	X	X
6	X	X	X	X	X
7	X	X	X	X	X
8	X	X	X	X	X
9	X	_	X	X	X
10	X	X	X	X	X
Item-CVI	1.00	.90	1.00	.90	1.00

Note. The mean Item CVI value is .96. The mean CVI s calculated by adding the Item-CVI values and dividing the total by the five measured categories (.96). The CVI rating was measured on a scale of 1 = not relevant, 2 = somewhat relevant, 3 = quite relevant, and 4 = highly relevant. The 2 or 3 ratings are considered in the above table.

Appendix C: Participants Information for the Two Data-collection Periods

Two separate data collection periods were conducted on different weeks but on the same day of the week and at time of the day using the same settings to ensure consistency. The above figure provides statistical information for the two data collection periods conducted for the purpose of detecting validity or deviation in the data collection effort. No major difference between the two data collection periods was observed. Data collection period one showed slightly higher number of participants who agreed to take the survey and a higher number of participants who qualified to participate in the study. The following categories were used: Asked = participants who were asked to participate, Agreed = participants who agreed to participate in the study, and Qualified = participants who experienced stockout within 7 days and qualified to participate in the study.

Curriculum Vitae

Jeffery I. Turk

PROFESSIONAL PROFILE

Effective and results-oriented leader with excellent communications and organizational skills. Extensive background in planning and managing responsive and highly effective global supply chain operations. Exceptional ability and results in project management, building, and leading teams. Demonstrated expertise in strategy development and strategic planning.

TEACHING PHILOSOPHY

The accelerated development in information technology has created an increasingly interconnected global market, complicated business operations, and has expanded the supply chain. It is essential that we teach students the art of critical thinking and the importance of life-long learning if they are to succeed in a challenging and constantly changing market environment. With the right teaching tools, faculty patience, and mentorship, every student can achieve higher education. It is our responsibility as educators and mentors to provide our students with the necessary skills to solve complex business problems and lead them to personal and professional success. I am eager to provide engaging, interactive and intellectually stimulating instruction to undergraduate/graduate business and supply chain management students by combining advanced academic knowledge with real-world experience**.**

EDUCATION

Doctor of Business Administration.. April 2012
      Specialization: Global Supply Chain Management
      Doctoral Study Topic: *Implications of Stock-out Occurrences on Customer Loyalty and Retailer's Profits in Lean Inventory Environment*
      Walden University, Minneapolis, Minnesota

Master of Business Administration, Global Supply Chain Management.September 2008
      Strayer University, Woodbridge Campus, Virginia

Bachelor of Science, Mechanical Engineering Technology**...................................**July 1985
      Oklahoma State University, Stillwater, Oklahoma

Previous Research

As a thesis for my MBA, in summer of 2008, I conducted extensive research to examine the reengineering, deployment and operations of the newly fielded Defense Travel System (DTS). The research concluded that the Re-engineered DTS provided seamless and paperless travel system that met the needs of individual travelers. Detailed analysis of the system highlighted the need for DTS improvements in the areas of unused ticket program, training, and closing the cultural bias between younger and older generations of travelers. Copies of this research were provided to the DOD DTS management team for review and possible action. Two of the three recommendations highlighted in the research were later mitigated through system improvements.

Relevant Graduate Coursework

Supply Chain: Global supply chain management, E-commerce in supply chain management, managerial issues in supply chain, project management.
Business Administration: Leadership and organizational behavior, marketing management, managerial economics and globalization, managerial accounting, business in multicultural environment, marketing management, managerial accounting, strategic human resources, applied research methods, and quantitative methods.
Information Technology: IT for competitive advantage and information system decision-making.

Specialty Courses and Training

Lean Six Sigma Green Belt training .... March 2009
Continuous Process Improvement .... February 2009
Marine Corps fellowship, Kansas City Southern Railway .... June 2002
Advanced logistics operations course, ... April 1998
Joint Logistics Officer course, ... December 1996

TEACHING EXPERIENCE

Ashford University, Associate Faculty...2010 – Present

- Teaching Essentials of Strategic Management The Competitive Quest for Competitive Advantage through asynchronous venue. The course focuses on strategy development and corporate strategic planning in a global business environment.
- Approved to teach 20 courses in management, business, and the social sciences.

COURSES TAUGHT

Throughout my 24 year military career, as a unit Commander, Logistics Officer, Division Director, and Officer in Charge, I frequently held classes to train and educate my team. I performed as the facilitator and presenter during briefings, conferences, and extended war-games.

Training and Education Classes

- 2002-2005, Strategic Planning, Joint Planning and Operations System, Strategic and Multinational Planning, Global Sourcing, and Global Sealift Operations.
- 1998-2001, Global Supply Chain Operations, Ship to Shore Operations, Financial Management, Global Sourcing, Joint and Multinational Operations, Maintenance Management, Leadership, and Personal Finance.
- 1995-1998, Facilities Management, Global Logistics Operations, Global Supply Chain Management, Financial Management, and Procurement, Purchasing, and Contracting Procedures.
- 1991-1994, Hazardous Waste Management, Embarkation, Supply Support Procedures, and Financial Management.
- 1988-1990, Professional development subjects such as Leadership, Motor Transport Operations, Vehicle Maintenance, and Personal Finance.

BRIEFINGS AND PRESENTATIONS

Turk, Jeffery I. (January 2010), "Courses of Action to Procure Over the Snow Fleet." Presented to Major General Spiese and Senior Training and Education Command staff at Quantico, VA.

Turk, Jeffery I. (May 2009), "New Headquarters Annex Occupation and Movement Plan." Presented to Senior Training and Education Command Staff, Quantico, VA.

Turk, Jeffery I. (September 2008), "Logistics Support to Training Command." Presented to Unit Commanders during commander's conference at Lansdowne, VA.

Turk, Jeffery I. (July 2008), "Marine Corps Vision and Strategy 2025." Admiral Hogg and members of the Navy Strategic Studies Group, Quantico, VA.

Turk, Jeffery I. (August 2008), "Global Trends and Marine Corps Strategy for 2025." Presented to mid-level Marine Corps Leadership at Quantico, VA.

Turk, Jeffery I. (March 2008), "Trends and Patterns 2025." Presented to master's students Strayer University, Woodbridge, VA.

Turk, Jeffery I. (June 2007), "Shocks and Trends." Presented to senior Marine Corps leadership at the Pentagon.

Turk, Jeffery I. (March 2007), "Sea Basing Capacity Shortfalls." Presented to senior DOD leadership during Sea Basing Conference at Lansdowne, VA.

Turk, Jeffery I. (2004), "Sealift 2004 week long War-Game Events." Presented to Senior Military and Civilian Subject Matter Experts, in Honolulu, HI.

Turk, Jeffery I. (2002), "Sealift 2002 week long War-Game Events." Presented to Senior Military and Civilian Subject Matter Experts, in Newport, RI.

PROFESSIONAL EXPERIENCE

Booz Allen Hamilton...2010 to present
Business Consultant, Logistics and Supply Chain Management operations, Marine Corps Combat Development Command, Quantico, VA**.**

- Supported Marine Corps capabilities planning, development, acquisition and management of supply chain services across the Marine Corps enterprise.
- Supported Development of funding strategies and risk based assessment for capabilities management to introduce new capabilities and manage existing fleets of engineer equipment within the Marine Corps

United States Marine Corps... 1986 to 2010

Executive Director/Logistics, Training and Education Command, Quantico, VA. 2008-2010

- Managed complex logistics operations that included extensive supply chain management, purchasing, contracting, and facilities management.
- Supported 62 Marine Corps formal schools and training detachments, consisting of 5,200 instructors and support personnel, operating throughout the United States, providing training to over 80,000 Marines and sailors a year.
- Formulated courses of action, conducted analysis, and provided conclusions and recommendations to replace a fleet of 70 over the snow tactical vehicles. Saving the Marine Corps over $35 million.
- Planned and executed an enterprise wide equipment modernization plan worth over $72 million, to modernize all training personnel field equipment, which enhanced the effectiveness of entry-level training pipeline.
- Re-organized the logistics directorate to a more lean and effective division that focused on strategic and policy level logistics issues resulting in streamlined functions and allowed the division the clarity and focus to pursue major strategic and policy level logistics issues across the enterprise.
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Strategic Analyst, Strategic Vision Group, Marine Corps Combat Development Command, Quantico, VA. 2007-2008

- Researched, drafted, and co-authored the Marine Corps' Vision and Strategy 2025 document.
- Researched and analyzed major global trends and patterns that included the affects of globalization, scarcity of resources, urbanization, global aging, and future technology. Findings were used in support of USMC forecasting efforts to identify the global security environment implications in the year 2025.

- Reviewed, analyzed, and provided personal input to strategic service level documents to include the Maritime Strategy, Naval Operating Concept. Analyzed projects published by Office of Naval Research and the Center for Naval Analysis.
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Chief of Strategic Plans Division, Operations and Plans Directorate, Marine Corps Combat Development Command, Quantico, VA 2006-2007

- Performed as the senior Marine Corps planner, responsible for strategic planning effort which covered all DOD Contingency Plans and Defense Planning Scenarios. This effort spanned the full range of logistics planning to include establishing a global supply chain process that drew resources from regional and global sources to provide responsive sustainment in support of extended military operations overseas.
- Led Marine Corps planning effort to create new Marine Corps service level plans in support of DOD, Combatant Commanders and Joint Strategic Plans. Planned the total logistics requirement needed to include planning an extended global supply chain operations needed in support of military operations, to include sealift and airlift transportation to support over 13,000 troops for extended operations.
- Principle Marine Corps planner in drafting, reviewing, and publishing the Joint Integrating Concept for Military Operations in Urban Environment. Effort included numerous multi-service, DOD and inter-service working group sessions and presentations throughout the process to senior leadership for approval.

Director of Plans and Strategic Studies Division, Military Sealift Command, Washington Navy Yard, Washington, DC.. 2002-2006

- Director of Joint Plans, Strategic Studies and War-games for Military Sealift Command in support of 9,500 personnel, 120 ships, and an annual operating budget of $2.8 billion.
- Created new strategic sealift support plans to support deployment and force rotations for Operations Iraqi and Enduring Freedom. Resulted in the safe, effective and expeditious sealift of more than 45 million square feet of military cargo and sustainment supplies, representing 335 ship missions.
- Conducted analysis of national sealift capacity, for cargo ships and tankers, against wartime requirement, in support of National Security Strategy. Highlighted critical shortfall of over 33 fuel tankers in the national capacity to transport fuel in support of contingencies and troop deployment and employment overseas.
- Planned and executed two Strategic Sealift War-Games. These week long war-games accommodated over 320 participants and provided recommendations to solve global DOD sealift issues to include capacity availability, sea-basing of capability, mooring sites overseas, and multinational sealift support to NATO

countries and US allies. Many strategic level sealift issues were captured during this war-game for subsequent action.

- Led the collaborative discussions as a senior US government representative during Bilateral Shipping Agreements conferences with Republic of Korea government officials. This agreement expanded the US shipping fleet capacity during wartime in support of contingency operations in the Korean theater of operations.

Assistant Logistics Plans Officer, II Marine Expeditionary Force, Camp Lejeune, Jacksonville, NC. 2000-2001

- Planned of all logistics and transportation requirement, for a unit over 18,000 personnel, operating worldwide.
- Lead logistics planner for two Operational Planning Teams that reviewed and modified operations for employment of over 20,000 personnel overseas.

Director of Logistics Operations, 24th Marine Expeditionary Unit, Camp Lejeune, Jacksonville, NC 1998-2000

- Conducted numerous national and global support operations. Spanning two deployments provide sustainment and directed logistics support to a unit of 2,200 personnel, deployed aboard navy vessels, in the Mediterranean Sea, conducting unilateral and bilateral operations with allied forces ashore in Middle Eastern and European countries.
- Established and maintained a global supply chain process that supported timely and responsive requisitioning and delivery from vendors/contractors across Europe and the United States. This support was coordinated through various delivery venues including air, land, and sea transportation systems from multi-national vendors to customers aboard Navy ships and operating in countries across the Mediterranean. Procured over 13,000 supply items, for a unit that traversed over 36,000 miles through 17 countries.

PROFESSIONAL AFFILIATIONS

Institute for Supply Chain Management (ISM)

Council of Supply Chain Management Professionals (CSCMP)