

**The impact of a delivery option in a physical retail space on
shopper likelihood**

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A thesis submitted to Auckland University of Technology in
partial fulfilment of the requirements for the degree of

Master of Business (MBus)

2019

Faculty of Business and Law

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Abstract

Retail stores have grown rapidly in the past few years. And the growing number of technologies which widely used in retail space. It is the subtle changes like online or mobile shopping options to the retail environment that could significantly increase the likelihood of purchase by the consumer. However, this research debate that because of the addition of a technology purchasing option (e.g. service delivery option) made available to the customers in the physical retail stores, it could potentially influence the purchasing situation. In addition, retailers who provide a delivery service in-store may attract more customers and increase sales transactions. This research aims to investigate whether adding a delivery option - as an alternative to customers carrying their purchased goods home - can significantly change the likelihood of shoppers making a purchase.

This research conducts an experiment uses an online survey Amazon Mechanical Turk (MTurk) to measure and analyse data by using SPSS. The results of the study indicated that with the provision of a delivery service in the physical sector, purchase likelihood marginally increased, however, purchase methods (e.g. taking items after purchase by the shopper, or using a delivery service) are affected significantly. For example, when there is no delivery service option, almost every participant chooses to take items home by themselves and after the delivery services option was provided, a large proportion of participants choose to use the delivery service. In addition, the study indicated that when customers were provided with a delivery service, the perceived value was higher than those without. Perceived risk is similar between those two groups who were providing a delivery service and those who were not providing a delivery service.

Although some of the hypotheses were not supported and were consistent with prior literature, the research is still beneficial to retailers considering delivery services, as this research result shows that delivery services can improve perceived value which is very attractive to customers. Besides, these research results also show that different types of customers have different acceptance levels of a delivery option integrated with a technology device. In addition, this research is also marginally beneficial to other researchers who are interested in studying the effect of a delivery service in the physical sector as it can provide directions and suggestions for future research. This study also provides insight for retailers, in that, providing a delivery service in the physical sector can enhance customers' perceived value and therefore may increase the competitive

advantage compared with competitors. However, guaranteeing efficient, timely and safe delivery is also very critical.

Keywords: delivery option; perceived risk; perceived value; attitudes towards technology adoption; purchase likelihood; shopper behaviour; retail environments; retail technology

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Attestation of Authorship

“I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person, nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.”

Li FanLong (Derek)

25/05/2019

Ethical Approval

Ethics Approval from the Auckland University of Technology Ethics Committee (AUTEC) was granted on 15 November 2018 for a period of three years until 15 November 2021. The AUTEC ethics application number is 18/421. Information regarding ethics approval can be found in the appendix.

Acknowledgements

On the very outset of this thesis, I would like to extend my sincere thanks to thesis advisor Dr Megan Phillip of the Auckland University of Technology. Dr Megan Phillip's suggestions and comments which are very useful and helpful during the completing this research. I would like to say thank you so much with her helping and supporting.

I would also like to thank my second supervisor Dr JungKeun Kim who was involved in the whole thesis especially the research part. Without his active guidance and help, I could not complete this research.

Finally, I must express my very profound gratitude to my parents and my girlfriend for providing me with unfailing support and continuous encouragement throughout my years of study and through the process of researching and writing this thesis. This accomplishment would not have been possible without them.

Thank you

Chapter One: Introduction

1.1. Background

The retail space has changed dramatically in the way items are sold and purchased (Roy, Balaji, Sadeque, Nguyen, & Melewar, 2017). Many rising high-tech purchasing options have pushed the retail sector to a new stage of development (Doherty & Ellis-Chadwick, 2010) remarkably changing the way shoppers' purchase products. These new technology options have brought shoppers online shopping, mobile shopping, home-delivery, and delivery anytime anywhere (e.g., Amazon's delivery service to your car). Due to this everchanging retail space, retailers and retail researchers have begun to focus their attention on such technologies and the behaviours that they produce.

Nowadays, customers use a variety of channels in the process of researching products or services in order to choose the best. As Mcgoldrick and Collins (2007) mentioned, it is more convenient for customers to purchase across multiple channels (e.g. internet, store, catalogue) and use more diverse services than traditional purchasing channel. Multichannel retailing provides customers more shopping options, for example, customers can go to a physical store to buy or purchase via the mobile application. In addition, omni-channel retailing enables customers to purchase in a seamless manner across different channels which contains physical, online and mobile (Brynjolfsson, Jeffrey & Rahman, 2013). For example, customers can go to a physical store to trial and use a product, then purchase via the mobile application to take advantage of a delivery service. The technology delivery option can be a fast and efficient delivery service for customers (Niu, 2017). For example, more and more offline retailers start to use a delivery service in China. For instance, JD launched a two-hour delivery service in Beijing, which is called "JD Express Point." Its model is in cooperation with the surrounding community of retail stores, which provide the supply of goods, and then JD uses self-operated and third-party logistics to complete the distribution.

To remain competitive in today's multi-channel business environment, companies need to satisfy customer demand (Mentzer & Williams, 2001). Customers want multiple options available to them in across channels to ensure that they can shop when, how and where they want. Delivery purchasing services, one of the many options available to consumers, has begun to be adapted to the retail sector (Baron, Harris, & Davies, 1996).

With delivery options, customers can buy in-store and have the purchase shipped to their home or buy in-store on their app and take the purchase home with them. If very heavy goods or semi-cooked foods are purchased, the delivery service could guarantee that the purchased goods would be delivered to the home or another place safely, and in a timely manner. For instance, Alibaba Box Maxiansheng home-delivery service, offers “24-hour delivery service” at 25 retail shops in Beijing and Shanghai. Orders can be delivered within 30 minutes providing shoppers with convenience and ease of transport.

As Huang and Oppewal (2006) suggest, a delivery option in a retail store could improve customers’ perceived value such as quality of service, fast delivery and reasonable fees. However, some customers hesitate to make an order with delivery option because of the perceived risk in the delivery process. Risks like the traffic conditions, delivery fees, user’s expectation and demand can become some of the potential issues between customers and retail owners (Yu, 2009). So the delivery service needs to consider how to make timely, efficient and accurate deliveries. In addition, because of adding a new purchasing option to the retail environment, some customers could potentially suffer from choice overload (Chernev, Böckenholt & Goodman, 2015). According to Schwartz and Ward (2004), it can be difficult for people to make decisions when they are faced with multiple options. For instance, they could delay the decision or make no choice due to uncertain characteristics or the assortment of options offered. Thus, delivery service options can provide benefits and/or drawbacks for customers, and therefore this is an area that needs to be further studied.

This research is going to investigate whether adding a delivery service option via technology devices in a physical retail space can affect purchasing likelihood. This is beneficial for retailers, as with the intensified competition from both online and offline retailers, the wide adoption of technology by society and business and the evolving needs of consumers (shop from anywhere, anytime), retailers are starting to implement more technology and more services to remain competitive and to stay relevant to consumers. However, currently, it is not proven whether the addition of all technology and delivery service options are beneficial to physical retailers. For example, it is not definite whether providing a service option via technology devices can increase sales. Therefore, this is the motivation for the research. And the results can help retailers to improve business strategies to attract more customers and fulfil their demands. The establishment and development of a delivery service option in the physical retail sector

could be a large advantage for retail owners. However, guaranteeing efficient, timely and safe delivery is also very critical.

1.2. Research Objective

Researchers have intensively studied the changes in purchase behaviours influenced by the development of advanced technology (Koufaris, 2002; Li & Zhang, 2002), for example, purchase attitudes and behaviours about online and mobile shopping. Additionally, the factors that affect customers' purchase behaviours in online shopping have also been studied (Han & Kim, 2017; Jarvenpaa, Tractinsky, & Saarinen, 1999; Ma, 2017; To & Sung, 2015). In particular, how the delivery services quality affect customer's online purchasing behaviours have also been fully studied (Rao, Goldsby, Griffis, & Iyengar, 2011).

However, concurrently with the development of technology, and the changing needs of customers' needs and their expectations, it has become important for retail researchers and retail managers to begin to understand how the integration of a physical delivery service via an in-store mobile application can drive purchasing behaviour. Customers are no longer satisfied with long wait times for online shopping delivery. There is an expectation for greater service delivery quality and quicker service time (Ma, 2017). Thus it begins the question: if the delivery option is offered in the physical retail space via a technological device (e.g. a mobile phone), how will the purchase behaviour of shoppers be affected? Hence, the purpose of this study is to investigate the impact of a delivery service option via a mobile application on customer purchasing behaviour in the physical retail space. The objective is to study the effect of delivery service in physical retail space. Specifically, the objective is to study the effect of delivery services integrated with technologies on customers' purchase behaviours.

This will be beneficial for retailers, as it can help them to understand customers' thoughts and then improve business strategies to attract more customers and fulfil their demands.

Based on the objective of this study, the following research is presented, covering six interrelated areas. First, this research studies the effect of providing a delivery option in a physical store via mobile phone on a customer's purchase likelihood and behaviour. Second, this research investigates whether the delivery option in the physical store has a significant influence on consumers' perceived value. Third, whether the delivery option

in the physical space has a significant influence on consumers' perceived risk. Fourth, how the perceived risk and the perceived value affect the customers' purchasing likelihood and behaviour in the retail space. Fifth, the role of customers' attitudes towards technology relating to a delivery option and customers' purchase behaviour. Lastly, the relationship between the variables of the new delivery option, perceived value, perceived risk, and customers purchasing behaviours.

1.3. Research question

To study both the effect of a delivery service option in the physical retail sector on customers' purchasing behavior and the role of perceived risk, perceived value, and attitudes towards technology adoption, the following questions will be tested:

1. How does adding a delivery option via mobile phone to the physical retail space influence shoppers' likelihood and behaviours of purchase in comparison with no delivery option?
2. How does perceived risk, perceived value and customers' attitudes toward technology adoption impact on shoppers' likelihood and behaviours when confronted with a delivery purchasing option in the physical retail space.

1.4. Methodology

This research theoretically tests how perceived risk, perceived value and customers' attitudes towards technology adoption impact on shoppers purchase likelihood and behaviours when confronted with a delivery purchasing option, specifically within the physical retail sector. To address the research questions and examine the hypotheses, an experimental research design using an online survey via Amazon Mechanical Turk (MTurk) has been completed. The overall research design is a 2 (purchase option: with delivery option versus no delivery option) x 2 (purchase intention: purchase versus not purchase) x 2 (purchase method: take items home versus use delivery service) between-subjects design. Actually, the factor of purchase method (take items home versus use delivery service) is based on the chosen of respondents. Two hundred consumers participated in the study and after, SPSS was used to analyse the data. Additionally, frequency test, Chi-square test, ANOVA method and Hayes method were used to test the hypotheses.

1.5. Research contributions

This research will contribute to retailers' understanding as it tested the effect of a delivery service option on customers' purchasing likelihood and behaviour in the physical retail sector with the integration of technology devices. As businesses need to consider providing more convenient services to attract and retain customers, they may need to adopt technological innovations such as mobile applications that assist with ordering, purchasing and delivery. However, at the same time, the costs for adopting that technology and service need to be considered. If retailers were to blindly adopt a new technology without relevant knowledge, they may suffer the adoption cost. In addition, this research contributes to future studies. It provides retail researchers with insights into how a delivery service option impacts shopper purchase likelihood and behaviour, specifically showing that, when a delivery option is added to the physical retailing space customers' perceive this to be valuable which can take positive effect on customers' purchase behaviour. This is the first known study to focus on the integration of a mobile application service delivery option into the physical retailing space and how it can impact shopper purchasing behaviour.

1.6. Organization of the Thesis

The research is organized into six chapters. First, an introduction presenting the research background, objective, question, and methodology is covered. Secondly, chapter two is the literature review about the role of technology integration into the retail environment and the benefit of a delivery service. Also, the literature review considers how customers' behaviours change when faced with a new purchase option, the factors that affect customers' technology adoption, as well as customers' perceived risk and perceived value in the retail sector with a delivery option.

After this, in Chapter 3, this research created a research model with several hypotheses for testing how customers' purchasing likelihood and behaviours may be influenced by adding a delivery option via mobile phone in the retail sector. This research set up 4 hypotheses. Hypothesis one aimed to test whether providing a delivery option in the physical sector could influence customers' purchase likelihood and behaviour. Hypothesis two aims to test whether the effect of a delivery option on customer's purchase likelihood would be mediated by perceived risk. Hypothesis three aimed to test whether the effect of a delivery option on customer's purchase likelihood would be

mediated by perceived value. Hypothesis four tests whether the level of customers' attitudes towards technology adoption would moderate the impact of a delivery option on purchase likelihood in the physical field via technology devices (e.g. smartphone). The research methodology is in chapter 4. The analysis processing steps and tested results are written in Chapter 5. Chapter 6 focuses on the discussion about how delivery options affects customers purchasing likelihood and behaviours and the underlying reasons and thoughts. Lastly, Chapter 7 consists of the research limitations, implications, future research directions and conclusions.

Chapter Two: Literature review

This chapter will review literature on the role technology plays within the retail environments and its impact on shopper behaviour. This chapter is organized as three sections. The first section draws upon literature from multi-channel and omni-channel service retailing to explain how service motivates customers to purchase, then the review of the retail industry with technology used will be introduced. The second section draws upon literature about the benefit of delivery services and customer purchase behaviour when facing new purchase options. After that, factors regarding the impact of a delivery option on customer purchasing behaviour and factors affecting technology adoption will be reviewed. In the third section, customer perceived risk and perceived value will be studied.

2.1. Multi-channel and omni-channel service retailing

As the development of technology affects people's lives, customers are increasingly using various technological devices to shop anywhere and anytime. The increasing use of mobile devices by customers has resulted in a retail revolution (Avery, Steenburgh, Deighton, & Caravella, 2012). Retailers use technology to adopt multi-channel strategies, then customers use multiple channels to purchase (Dennis, Alamanos, Papagiannidis, & Bourlakis, 2016). According to Geyskens, Gielens, and Dekimpe, (2002), multi-channel strategies mean that retailers add new channels and organise them in a variety of ways to improve customer experience. These strategies can be named multi-channel retailing or omni-channel retailing (Beck & Rygl, 2015).

Multi-channel retailing is "the set of activities involved in selling merchandise or services through more than one channel or all widespread channels, whereby the customer cannot trigger channel interaction and/or the retail does not control channel integration" (Beck & Rygl, 2015, p. 174). Therefore, customers cannot control channel integration, but retailers can. The key point of multi-channel retailing is to provide various channels for customers to purchase goods. Multi-channel retailing has both advantages and drawbacks. According to Stem, El-Ansary, Andersso, and Coughlan (1996), multi-channels have benefits for customers and retailers. From the customers' perspective, additional channels mean more convenience, time saving and reliability. For retailers, additional channels enable cost reduction, flexibility and cross-selling.

Further, multi-channel retailing provides benefits for retailers, such as producing more connections with customers (Schramm-Klein, 2003). However, it also involves drawbacks. In the process of adding additional channels, retailers may confuse pricing policies, and brand building between channels, eventually leading to a negative customer experience (Wilding, 2013). An additional drawback stems from diverging customer satisfaction levels across channels (Shih & Venkatesh, 2004). In order to meet increased customers' demands, and to optimize customers' experience, omni-channel retailing has gained attention in many studies.

Omni-channel retail is defined as “the set of activities involved in selling merchandise or services through all widespread channels, whereby the customer can trigger full channel interaction and/or the retailer controls full channel integration” (Beck & Rygl, 2015, p.175). The key point of omni-channel is that it removes boundaries of different sales channels to create a unified and integrated whole. Besides, as Verhoef, Kannan, and Inman (2015) suggested, different channels interact with each other at the same time to improve customers' experience. Omni-channel enables customers to move from one channel to another seamlessly (Rigby, 2011). As customers want to assemble their own purchasing process to optimize shopping experience, retailers have started to adopt different omni-channel retailing strategies which is providing an integrated shopping experience online and offline (Gao, Cui, & Agrawal, 2018).

2.2. The role of technology in the retail sector

The retail industry has continued to develop over decades, started to involve high - tech service or management from early 1990 (Du, 2007). Zheng SuRong (2010) divides the processing of retail technological development into three stages: ancient, contemporary and modern (see Table 1). It shows the integration of technology into the retail environment and the development process of the retail industry.

Table 1: The impact of different technology development stages on the retail industry.

Development Stage	Features	Technology Effective	Development of Retail industry
Ancient	<ul style="list-style-type: none"> Manual technology only, use of some simple and homemade tools. Animals are the main transport tool. 	<ul style="list-style-type: none"> Manual-based technology with fewer product variety and numbers. The backwardness of transportation and transport technology could not establish a delivery service. 	<ul style="list-style-type: none"> Early Retail shop created.
Contemporary	<ul style="list-style-type: none"> The Machine starts to replace labour and mechanize production. Electronic information technology used in the retail industry 	<ul style="list-style-type: none"> The mechanized production results in massive product variety and numbers. The electronic information technology affects shopper's behaviour. 	<ul style="list-style-type: none"> Build-up of Shopping mall stores, supermarkets and retail chain stores.
Modern	<ul style="list-style-type: none"> POS -Point of sale MIS-Management Information system CRM-Customer relationship Management ECR-Efficient consumer response 	<ul style="list-style-type: none"> These technology tools help retailers develop their business effectively. 	<ul style="list-style-type: none"> Pushed the retail sector to a new stage.
	<ul style="list-style-type: none"> Online, mobile, barcode etc. technology widely used in retail industry. Online data, Cloud technology used in the retail sector. 	<ul style="list-style-type: none"> Online, mobile, face ID payment is widely used in retail industry. And it results in delivery options becoming becoming a possible purchasing option for customers. Collecting shopper transactions and browsing data, information and payment transaction with technology. 	<ul style="list-style-type: none"> Online, mobile stores established. Pushed the retail sector to a new business model which combines offline and online stores.

Sources: adopted from the Professor ZhengSuRong research (2010), Scientific view of the Modern retail from Informationized to Intelligentize.

In the 21st century, Internet technology-led information has flourished, and pushed the retail industry into a new stage. Because of growing information technology customers' purchasing options now include online, mobile, and barcode information. New

technology enables retail owners to arrange business more efficiently with monitoring stores, controlling stock, optimization, and autonomy (Porter & Heppelmann, 2014). Technology also supports a new way of connecting with the offline and online stores, and modern retailing enables real-time interaction with purchasers (Gregory, 2015). Because of the technology involved in the retail setting, retailers understand customer demand more easily, and have the capability to establish real value about what customers want and utilize each of these capabilities to make profit for their business (Kim, Li, & Kim, 2015). These capabilities also allow retailers to iteratively develop their business models and create an augmented shopping experience for shoppers. As a result of the additional purchasing options the retail service has developed rapidly in the past few decades. In addition, as the growing of various chain operations and e-commerce, logistic service has also developed rapidly.

2.3. The benefit of delivery service

Physical distribution of goods connects retailers and customers. Mentzer et al. (1989) pointed out that a physical distribution service include three dimensions: the availability of goods, quality of service, and timeliness. Based on this, Binstock et al. (1997) proposed that physical distribution services capture the dimensions of availability of goods, condition of the products delivered, and timeliness. Although the quality dimension of physical distribution services cannot be unified, the importance of it cannot be denied. Physical distribution service quality is a key role in customers' purchase satisfaction and retention (Rao et al. 2011). Also, physical distribution services are crucial to customers in that they can provide time, place and utilities (Grant & Grant, 2006).

Concurrently with the tremendous growth of E-commerce, physical distribution has also developed quickly. The cooperation of E-commerce and physical distribution services enables customers to stay at home and receive the expected products they had purchased. Customers perceive that the physical distribution service quality is extremely high as this is directly linked with the quality of products. In the whole process of successful online retailing, one of the determining factors is logistics service quality (Ma, 2017). Furthermore, excellent logistics services have become a critically important factor to maintain and develop the competitive advantage for online retailers (Yazdanparast, Manuj, & Swartz, 2010). In addition, e-business success is based on the quality of the logistics service provided to their customers (Mentzer & Williams, 2001). The physical

distribution service is not only beneficial to customers, it is also beneficial to retailers. As Thompson, DeSouza, and Gale (1985) indicate a high-quality delivery service is beneficial for any organization, as it can save time and cost, and also allow retailers to increase market share and profitability. Physical distribution service quality plays a significant role in customer satisfaction and company profitability in e-commerce (Rabinovich & Bailey, 2004).

In a normal small retail store, if the store has delivery services, this can be an extremely attractive point to customers. For example, if customers want to get an item quickly but they would not like to go out themselves, they can just call the retail shop that is near their house and get the items promptly delivered. This service reduces the customer's time and effort and can fully satisfy the customer's demand and gain their trust. As Aurier and N' Goala (2010) suggest, that service could be one of the main factors for building a customer's trust and their willingness to purchase again in a retail sector. Therefore, with this service, retailers could have a competitive advantage compared with competitors with no delivery service, and it could increase a retail store's sales and profits.

Mehmood and Najmi (2017) also state that for every organization, the key point to success is satisfying customers. They say that now customers are demanding services that can save their time and effort. Delivery services in a retail space can truly help customers save effort and time. Providing a delivery service in a retail space can satisfy customers and therefore, could lead to increased profits.

2.4. The impact of overload options on consumers behaviours

Past research reviews indicate that decision-makers often make choices by using familiar information (Johnson et al., 2012). When customers are facing a new purchasing option, they could delay their choice or even make no choice (Kim, Yu, Kulik, Shih, & Scully, 2000). This research is arguing that when adding a new purchasing option in a retail space, customers could suffer from choice-overload issues. The concept of choice overload was originally proposed by Jean Buridan, (1982) research, in her research, a donkey cannot decide which to eat when the donkey has to choose between two attractive piles of hay. According to Lewin (1951) and Festinger (1857), the overload attractive options and items but not available at the same time can lead to psychological conflicts.

In an experiment by Iyengar and Lepper (2000), two groups were provided a variety of expensive jams to taste and they were given discount coupons with that they can purchase with lower price. One group was provided six types of jams and the other group was provided 24 types of jams. The results showed that 30% of jams were sold in the first group and only 3% of jams were sold in the second group. The results indicated that too many choices make it difficult for customers to make choices as they will consider “is the next one better than this one?” to make the best decisions. The choice overload and its effect are also been confirmed by other studies. Iyengar and Lepper (2000) found that interviewees tended to choose nothing when they faced too many flavors of jams.

The increased number of purchasing methods could increase customers’ purchasing likelihood in a retail space (Kahn & Isen, 1993). Customers feel more freedom to choose their customary products when they are providing more purchasing options (Broniarczyk & Griffin, 2014). However, more choices could lead to negative shopping experience that they may delay or make no choices (Chernev, 2003; Iyengar & Lepper, 2000). Besides, Boatwright & Nunes (2001) also indicated that too many purchasing options would reduce the items selling in retail space. Scholars named the choice of overload effect as the problems of too many choices (Fasolo, Carmeci, & Misuraca, 2009) and over-choice effect (Gourville & Soman, 2005). Miller (1994) indicated that it is psychological conflict to give up an attractive option to choose another. Besides, some scholars define the phenomenon as the overload of attractive options when people hard to choose between two attractive items (Lewin ,1951 & Festinger, 1957). In addition, Lipowski (1970) indicated that customer’s psychological conflicts will be too intense to make choices when the number of options increases. Therefore, increased number of options could lead to negative effects on customers’ experiences and satisfaction (Broniarczyk, Hoyer, & McAlister, 1998; Iyengar & Lepper, 2000). Furthermore, according to Schwartz (2004), the more options and choices customers have, the less satisfaction they will derive from their decisions.

2.5. Factors affect purchase intention online and off-line

Several pieces of research have studied the factors that affect customers’ purchase intention both online and off-line (Tarn, 1999; Swait & Sweeney, 2000; Tam, 2004; Chin & Goh, 2017). According to Ha and Janda (2014), purchase intention online is the consumer’s willingness to purchase products using online technology. Further, it has

been suggested that four major factors, social, cultural, personal and psychological can influence customers' behaviours (Schiffman, O'Cass, Paladino, D'Alessandro & Bednall, 2011). Psychological factors have been studied extensively. For example, trust and perceived risk have been found to be two determinants of a buyers' willingness (Jarvenpaa et al., 1999). In addition, customers' value has also been considered as an essential factor in consumer decision making (Dodds, Monroe, & Grewal, 1991; Chang & Wildt, 1994). The effects of service quality, perceived value and customer satisfaction on behavioural intentions have also been studied (Tarn, 1999; Tam, 2004).

According to Edelman (2011), trust is regarded as trust intentions and trustworthiness, and is also a prerequisite of purchasing behaviour. For example, in e-commerce, trust makes customers more confident to trust the website and e-retailers not to share their private information. Trust is also found to be an essential element in online trading (Gao, Wang, Sirgy, & Bird, 2002), and once a trust relationship has developed between customers and retailers, the perceived risk will be reduced. Celik and Yilmaz (2011) found that trust has a positive effect on customers' attitudes in online shopping.

Service quality is found to be a quality to develop a competitive advantage in the retail industry (Brown & Swartz, 1989). Service quality can directly affect customers' satisfaction and then influence customers repurchase decision. Parasuraman and Grewal (2000) indicated that service quality can increase customers' perceived value. In the physical retail space, the quality of retailers service and products can directly affect customers' attitudes in purchase behaviours. In e-commerce, e-service quality is an overall customer assessment and judgement in virtual marketplace (Santos, 2003) and it affects customers purchasing behaviours.

According to Chang and Wildt, (1994) suggested that consumers perceived value has been regarded as a major contributor to purchase intention. In addition, perceived value has been proved to be a key driver of customer loyalty and significantly influences customers' satisfaction (Yang & Peterson, 2004). Bauer (1967) stated that perceived risk theory is the key point of understanding consumer behaviours. There is a direct negative relationship between perceived risk and willingness to buy from an e-retailer (Jarvenpaa, Tractinsky, & Vitale, 2000). In the retail environment, retailers who can offer a low level of risk with products or services will have a strong competitive advantage (Mitchell, 1998). The detailed review about perceived value and perceived risk will be interpreted in following sections.

2.6. Factors regarding delivery services impact on customers purchasing behaviour

Delivery service quality is an extremely important part of the retail industry. Delivery service quality is a key role between customer's purchase satisfaction and retention (Rao et al. 2011). Ma (2017) indicated that delivery service quality is one determinant that promotes the success of online retail. Mentzer, Gomes, and Krapfel (1989), proposed that because the object of a delivery service is the customer, it should be reasonable to define the quality of a delivery service from the perspective of customer demand. Mentzer et al. (1989) proposed that delivery service quality in the retail sector include three dimensions: the availability of goods, quality of service and timeliness. Other research indicated that the criteria of timeliness, availability and condition of products delivered significantly influence purchasing managers' perception of delivery service quality (Bienstock, Mentzer, & Bird, 1997). However, consumers may value the criteria of a physical distribution service quality differently, preferring delivery charges, quality of products, order accuracy and timeliness.

Xia and Monroe (2004) concluded that delivering and servicing cost had a direct influence on customers' satisfaction, perceived value and purchase intention. Consumers may regard shipping fees as overcharging by online retailers (Neuborne, 2001). A survey from Metro Pack's "Research on the Status of E-commerce Logistics Consumers in 2018", found that 62% of consumers purchase products from online shopping because of the free shipping service, 49% of consumers said they are not willing to pay for "standard delivery", 75% of consumers said they would buy more products to get free shipping. According to this survey, the fast and convenient delivery service could be a main factor for customers whether they choose to use the delivery service or not. This survey also found that 70% of online shoppers said they were willing to pay for one-hour delivery, same-day delivery or Sunday delivery for courier services. For example, if customers are receiving same day deliveries then they naturally expect this of other businesses. If not, then the expectation is not there, so therefore there may not be as big an impact. This could also impact willingness to select the delivery option. Also, 44% of consumers said they would try new delivery methods, such as picking up their goods from local stores. Moreover, a survey conducted by Price Waterhouse Coopers (2017) showed that around 46 % of shoppers believe free delivery to be the most critical factor in grocery service with the logistics industry. As Huang

and Oppewal (2006) stated, a delivery charge is one determinate of the choice of a purchase channel.

As the fast growing of e-commerce, recent research has shown that purchasing online and waiting delivery at home is becoming the default option. Consumers expect quick and timely delivery after purchasing online. Timely delivery means that the goods are delivered to the customer within a specific time (Wittke, Wittke, Mazur, & Mazur, 2010). For instance, SF Express company's slogan is "delivering the right amount of goods in the right place at the right time." Timely delivery mostly focuses on certain time (King & Penlesky, 1992). For example, Box Ma xiansheng guarantees "24 hours service" and delivery within 30 minutes. This kind of business model could significantly improve customer satisfaction about new purchasing options and attract more new customers in the retail industry. The new purchasing option used by the retail store has become the foremost position of logistics and distribution. This model can reduce delivery time significantly compared with delivery from the company warehouse. For instance, JD (the same as Amazon) created a great management system to improve the timely delivery service in China (Ren & Dong, 2013). In order to deliver on time, JD developed the "211" delivery system, which means that when online customers order before 11:00 am, JD will guarantee delivery by the end of the day. When a customer orders between 11:00 am to 11:00pm, delivery will be by 14:00pm the next day. The "211" delivery system is totally reliant on sophisticated information technology and "physically present" retail store. (Ren & Dong, 2013).

Adding the delivery service option to the retail industry could improve the quality of service for customers. Factors are a quality delivery service and speed of delivery. However, convenience is a more important value factor that positively influences customers (Mehmood & Najmi, 2017). Adding a delivery service option in retail stores significantly promotes convenience as customers can purchase at anytime, anywhere. Consumers only need to purchase goods by phone call or app to organize the delivery service. This allows customers to purchase especially heavy products without having to carry them themselves from the retail store. This saves customers time and increases customers' willingness to purchase. According to Niu (2017), purchasing products with a delivery option from the retail store is a simple operation, which operates the same way as the online shopping purchasing process. Therefore, consumers have multiple purchasing choices as by adding delivery option consumers can purchase products without worrying about frozen food thawing or carrying heavy products.

To sum up, this research believes that adding a delivery option in retail stores can have a positive influence on customers' perceived purchasing value. There are four factors: quality of delivery service, speed of delivery, free shipping and convenient purchasing. This research will develop and expand factors impacting on perceived value and perceived risk to measure how they impact on customers purchasing likelihood and behaviours in retail stores.

2.7. Factors affect consumer technology adoption

Technology today is widely used as it is useful and efficient. Technology can not only save labour costs and time, but also can change lifestyles. Technology changes how services are conceived, developed and delivered (Meuter, Bitner, Ostrom, & Brown, 2005). From the service providers' perspective, the use of technology is attractive as it can standardize service delivery, save labour costs and expand the options for delivery (Curran & Meuter, 2005). However, from the perspective of customers, the attitude towards technology adoption is hard to unify as people have different demands and acceptance levels towards it. The cost is significant if the technology is not accepted by customers. Therefore, more and more researchers have begun to study this topic and explore customer perceptions and demands. Some researchers have studied customer's attitudes toward technologies as a method to predict customers' behavioural intentions (Davis, Bagozzi, & Warshaw, 1989; Curran, Meuter, & Surprenant, 2003; Plouffe, Vanderbosch, & Hulland, 2011). Hebert and Benbasat (1994) found supporting evidence for a relationship between attitude and behavioural intention. The factors that affect customers' attitudes towards the use of technology have been studied extensively (Legris, Ingham, & Collerette, 2003; Meuter, Bitner, Ostrom, & Brown, 2005; Blut, Wang, & Schoefer, 2016).

Among the factors that affect customers' attitudes towards the use of technology, perceived usefulness and ease of use have been recognized as the most important factors. According to Davis (1989), perceived usefulness and ease of use are important determinants of technology. Apart from these two factors, convenience and availability also play a significant role in customer satisfaction with technology (Meuter, Ostrom, Roundtree, & Bitner, 2000). Other beneficial factors are saving waiting time, saving costs, as well as fun and enjoyment from using technology.

However, some disadvantages that obstruct people from using new technology also

exist, such as perceived risk, complexity and incompatibility. People intend to minimize expected loss when they make decisions and the expected loss includes time, financial, and psychological factors (Peter & Tarpley Sr, 1975). Based on Ellen, Bearden and Sharma's opinion (1991), the increased perceived risk will reduce the individual's motivation to learn and use self-service technologies. A complicated self-service technology is difficult to operate and this will make it less attractive to customers (Eastlick, 1996). Most people dislike making efforts to learn new things, especially complicated things. In addition to these factors, individual differences also affect an individual's attitude towards use of technology. Individual differences include age, habit, gender, previous experience, education, income, need for interaction, inertia, technology anxiety and so on. Technology anxiety may lead to avoidance of technology use (Parasuraman, 2000). According to Mick and Fournier (1998), technology-based service options could cause anxiety and stress for individuals who are not familiar and comfortable with the use of technologies. In addition, several studies indicate that the younger generation is more easily able to accept new technology. Also, males, a high level of income and education positively impact acceptance of new technologies (Zeithaml & Gilly, 1987; Sim & Koi, 2002). Another factor is whether an individual has a high need of personal interaction, in which case the desire to use self-service technology will be reduced (Meuter et al. 2000).

In conclusion, technology adoption could be affected by many factors. The degree of influence varies from person to person. Along with the development, use of technology is an inevitable trend. Therefore, when a company wants to adopt technology, how to design and manage the new technologies to satisfy different groups of consumers is the most important thing. For this research, the factors affecting customers' attitudes to purchase or not in a physical store by using their mobile phone will be studied.

2.8. Customers' perceived value of the retail sector with delivery options

The definition of perceived value has not been agreed. The most common definition of perceived value is the ratio or trade-off between quality and price (e.g., Chain Store Age, 1985; Cravens, Holland, Lamb & Moncrieff, 1988; Monroe, 1991). However, customer perceived value is defined as balancing the overall benefits of a product or service with what the consumer perceives to be the cost of acquiring the product or services (Zeithaml, 1988). It is a trade-off between "give" and "get" components.

Normally, price is often regarded as the key measure to represent the cost to obtain the service or product, however, according to Lovelock (2001), non-monetary costs such as effort and time are considered as costs to obtain the service or products. For previous research on perceived value, Zeithaml's definition has been the most common basis.

Customer perceived value is an important factor in marketing activity. Customer perceived value has been regarded as a major contributor to purchase intention (Chang & Wildt, 1994). Besides, customer perceived value is a prerequisite for satisfying customers' certain demand, and it is also a prerequisite for building customers' loyalties (Bloemer, De Ruyter, & Wetzels, 1999). In addition, perceived value has been tested as key driver of customer loyalty and significantly influences customers' satisfaction (Yang & Peterson, 2004).

Perceived value is posited to be related with service quality. Generally, delivery of high quality service has been recognized as a basic retailing strategy in today's competitive retail environment (Berry, 1986; Hummel & Savitt, 1988; Reichheld & Sasser, 1990). Also, service quality is regarded as an important predictor of behavioural intention, for example, repurchasing, recommending to others and so on (Bitner, 1990). The Retail service quality scale includes five dimensions: physical aspects, reliability, personal interaction, problem solving and policy (Dabholkar, Thorper, & Rentz, 1996). Once providing a delivery service in a retail store, the retail service quality from the customers' perspective may change. Free, fast and safe delivery services can enhance the quality of service. Huang and Oppewal (2006) suggest that a delivery option in a retail store could improve customers' perceived value such as quality of service, fast delivery and reasonable fees..

Everyone has different values, beliefs, and preferences. In the experience of shopping especially in the retail sector, different customers have different experiences and different loyalties, so even though the retailer provides the same services, customers may still have different attitudes in store. The core of customer value is the customer's individual value judgment, and it is affected by many aspects. For example, delivery options, self-image, price and function, customers' personal opinion about a delivery option, and perceived risks such as a psychological risk or a privacy risk. In addition, in the retail industry with delivery services, customer perceived value is related to the delivery time, service, and payment (Gil-Saura, Servera-Francés, & Fuentes-Blasco, 2010). Therefore, the purpose of this study is to investigate the relationship among these

variables, as well as the effect of perceived value on behaviour intentions when a delivery service is provided in the retail sector.

2.9. Customer perceived risk in the retail sector with a delivery option

The concept of perceived risk has been studied by many researchers. The original concept of perceived risk was an extension from psychology by Raymond Bauer of Harvard University in 1960. He suggested that most customers after their purchase, may not be sure whether the results matched their expectations or not. According to Bauer's (1960) definition of perceived risk, it can be seen that perceived risk includes two factors: (1) uncertain results, for example, if a customer buys a mobile phone, how does he determine it is the right mobile phone system for him to use in the next year? Moreover, (2) the consequence of the wrong decision. For example, if the mobile phone system which the customer purchased is not familiar, will it effect on the customer's daily use? After Bauer's work, perceived risk has been a common construct that is studied in consumer behaviour.

In consumer behaviour literature, there are many different definitions of perceived risk. Based on Stone and Gronhaug's (1993) concept, perceived risk is defined as the expectation of loss. Cunningham (1967) indicated that consumers subjectively feel perceived risks if they realize that a purchase may not be able to match their purchase objective and the consequences will be unfavourable. Perceived risk can also be defined as the likelihood of uncertainty and adverse consequences perceived by the purchase of a product or service (Dowling & Staelin, 1994).

Perceived risks may include social consequences, financial losses, physical damage, or loss of time (trouble) (Barach, 1969). Jacoby and Kaplan (1972) proposed five perceived risks: financial, performative, physical, psychological, and societal. Based on this, Murray and Schlacter (1990) added time risk. The perceived factors cover a wide range of researchers findings. Stone and Gronhaug (1993) pointed out that the six perceived risks of financial performance, privacy, psychology, time, and social impact could be the main factors for explaining the total perceived risk. Most of the researchers' concepts include financial risk, psychosocial risk, privacy risk and time risk.

D'Alessandro, Girardi, and Tiangsoongner (2012) stated that it is evident that perceived risk has been used in several studies considering both online and offline purchasing behaviour and in a variety of product categories. Jacoby and Kaplan (1972) tested

different types of products, such as apparel products (i.e. dress, shoes) and recreational (i.e. sports cars, playing cards) and concluded that similar types of products had similar risk types, for example financial risk and performance risk. Additionally, high value, personal involvement and more complicated products were riskier than those products with fewer characteristics (Kaplan, Szybillo, & Jacoby, 1974; Laurent & Kapferer, 1985). Miyazaki and Fernandez (2000) tested 17 products from an online channel but their results showed that privacy and security was not related with perceived risk; however, a percentage of privacy and security statements were positively related to purchase intention.

Bauer (1967) stated that perceived risk theory is the key point of understanding consumer behaviours. Perceived risk and trust were antecedents of a buyer's willingness (Jarvenpaa, Tractinsky, & Saarinen, 1999). There is a direct negative relationship between perceived risk and willingness to buy from an e-retailer (Jarvenpaa, Tractinsky, & Vitale, 2000). In the retail environment, retailers who can offer products or services with a low risk level will have a strong competitive advantage (Mitchell, 1998). Some prior research studies have provided evidence that services are perceived as riskier than products (Guseman, 1981; Lewis, 1976; Mitcell & Boustani, 2015). Providing a delivery option via technology, delivery services have a certain level of uncertainty, for example, the products may not be delivered in a timely way, or the quality of the product delivered may be damaged. All these uncertain and unexpected results will increase the perception of risk. As stated by Crosby and Stephens (1987), customer's satisfaction and purchase intentions can be affected by uncertainty. The quality of delivery services is an extremely important factor that influences a customer's satisfaction and repurchase intention. Therefore, with providing a delivery option via technology in a retail store, it can be expected that perceived risk will be increased and maybe even affect customers' purchase intention.

2.10. Conclusion

In conclusion, with the intensified competition from both online and offline retailers, the wide adoption of technology by society and business and the evolving needs of consumers to shop from anywhere, anytime, retailers are starting to implement more technology and more services to remain competitive and attractive to consumers. For example, retailers are considering providing a delivery service via a technology device

in the physical sector. However, currently, it is unsure whether the addition of a technology and delivery service option is beneficial to physical retailers.

This research primarily believes that adding a delivery option in the retail sector could positively influence customers perceived value when there is a reasonable delivery fee, good quality of service. But it brings perceived risk at the same time. For example, financial risk when they are going to make an order, privacy risk owing to filling in a delivery address and personal information, psychological risk because of the new purchasing option, and a time risk with the expectation of waiting. Therefore, in order to have a clear understanding about the relationship between a new delivery service option and purchase likelihood through the effect of perceived value and perceived risk in retail stores, this research developed a research model and hypothesis which are explained in the following chapter.

Chapter Three: Research Model and Hypothesis

To study the effects of a delivery service option on customers' purchasing likelihood and behaviors in the physical sector, this chapter puts forward a conceptual framework based on the literature review. Also, four hypotheses associated with the model were generated. These hypotheses focus on the relationship between the delivery option, customers' purchase behaviour, perceived risk and perceived value. In addition, the moderating effects of customer's attitudes towards technology adoption on the purchase behaviours with a delivery option via mobile have been proposed.

3.1. Conceptual framework and hypothesis

The conceptual framework guiding this research is presented in Figure 1 and Figure 2. In addition, based on the prior literature review and objectives, this research develops a conceptual framework based on the model of Jarvenpaa, Tractinsky, and Saarinen (1999). Four hypotheses will be presented associated with the model.

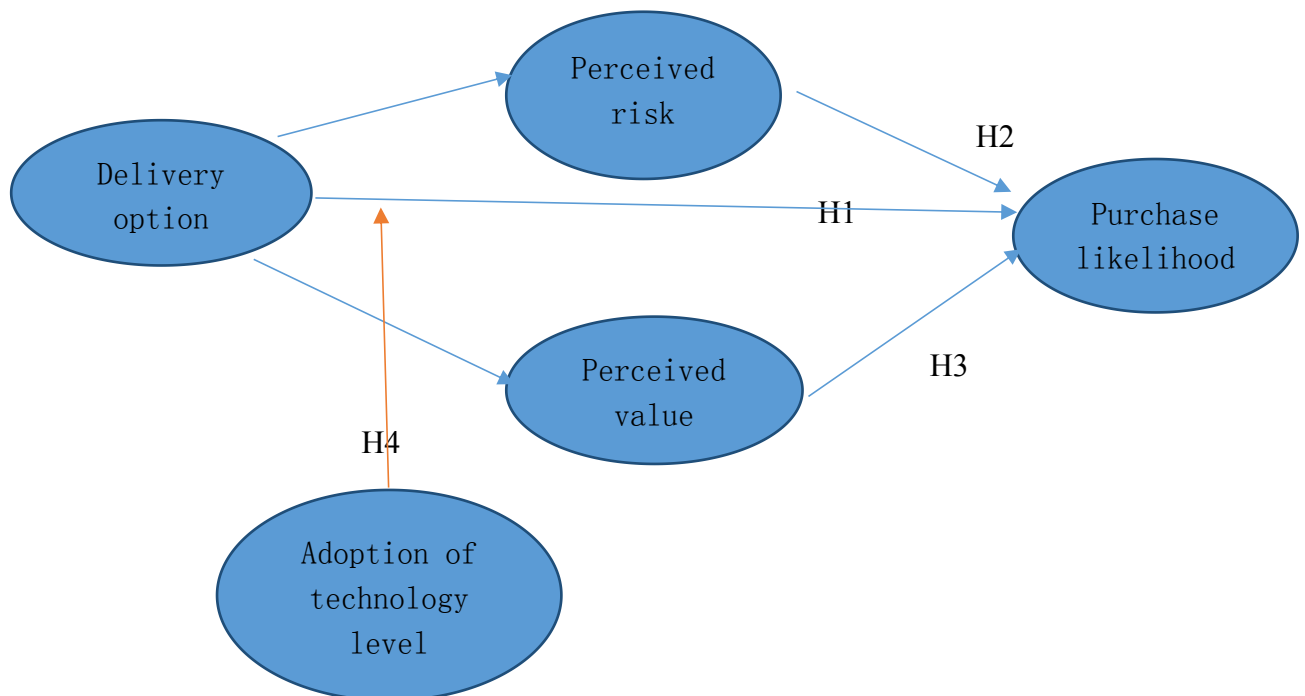




Figure 1: Delivery option and purchase likelihood conceptual framework

Note:

Moderating effect (H4) 

Direct effect (H1 H2, H3) 

3.2. Main Hypothesis

The delivery service has developed rapidly because of the growing retail chain business, especially in the online and offline business sector (Wang & Zhang, 2013). According to Aurier and N’Goala’s (2010) study, a delivery service could be one of the main factors for building customer trust and customer’s willingness to purchase again. For example, as customers are getting busy for a party after work or do not have enough space for carrying food home with them from retail stores, they extremely desire the delivery service option to take food with their home. This is very attractive for the customers because it saves them time and effort, and it is also convenient.

Sung (2015) stated that customers increasingly see shopping as an activity to seek fun, enjoyment and happiness in both offline and online environments. Because of the changes in consumer demand for goods and services and their own customized patterns, some of the traditional service models may no longer be sufficient to achieve the customer’s needs. The traditional retail business model (Figure 1), has customers commonly visit a retail store to purchase products and then carry them by themselves without having any delivery service. It sometimes could not satisfy customer demand. For example, if customers purchase goods that are too heavy, then they could not easily carry those items back home. On the other hand, frozen food like ice-cream, could melt on the way home because of weather conditions and distance. However, the demand for convenience could be achieved by adding a delivery option from retail stores (Figure 2). The food purchases in the retail store will be integrated with online and offline activity (Figure 2). The arrow in Figure 1 and Figure 2 means customers’ potential activity once they have purchase demand.

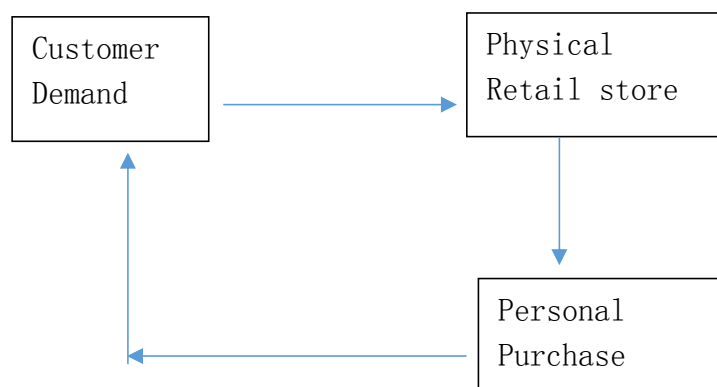


Figure 2: The retail channels without delivery option

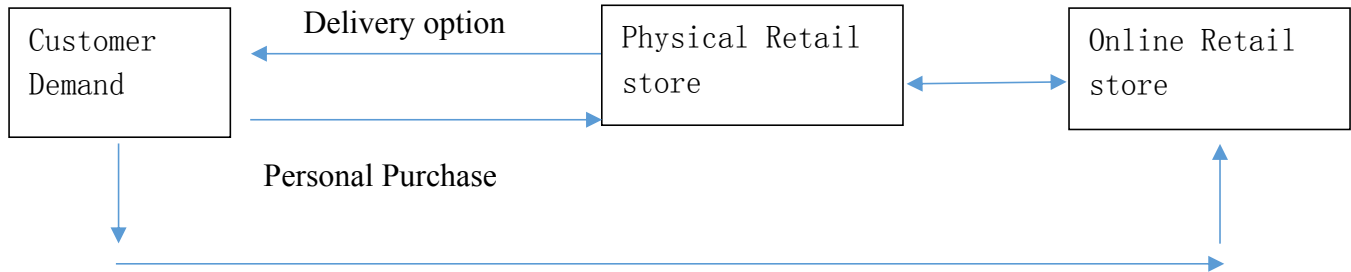


Figure 3: The retail channels adding purchase delivery option

One method is that after the customer demand is generated, consumers can order on an online website or via a mobile APP and the purchase can be delivered to the consumers by a professional delivery option within the specified time from a physical retail store that is near the customers' address. The other way is that if customers in a physical store buy too many items to take home, they can choose delivery services via a mobile phone. More importantly, physical stores could also have a primary function to receive orders and arrange delivery to customers. As physical stores become the "initial point of sale" function, once customers make an order online or using a mobile app, retailers can make a door-to-door service delivery within the specific time from the nearest physical store. The reduced delivery time is an advantage for attracting customers. On the other hand, customers can also pick up or have delivery to their home at a specific time. Consumers can place orders online through mobile phones, computers, tablets and other tools. The system automatically sends the order information to the nearest offline store, and the store completes the packaging. And then, when customers leave work, they could pick up the products that they ordered, or they can ask retailers to deliver the products before they arrive home. Providing a delivery service in a retail store, can better satisfy customers' demand.

As the development of internet information technology and E-commerce, physical stores have also joined the online market such as Carrefour online supermarket, Shanghai Lianhua Online Supermarket, and Suning Shopping mall (Zhao, 2017). These are well-known physical stores in China, which have created their online stores. At this stage, Alibaba proposed a new concept by Mr Ma Yun (Alibaba CEO), which is called

new retail business (Guo & Zhang, 2014). Hong Ye, the vice president of Nelson China 2017, has defined 'New retail' as the online and offline communication channels which are the new modes of logistics and linked by retail stores. Alibaba believes that the new retail is a combination of online and offline business models through data algorithms, intelligent supply chains and artificial intelligence technologies able to complete customers' online and offline orders within a 30-120 minute timeframe (Guo & Zhang, 2014). Now, in well-developed cities in China, physical stores with a delivery option have achieved great success.

In the context of the current research, to choose the delivery option, customers must use a mobile device to select the goods, order and provide their address. Therefore, there is a combination of delivery option and technology. Although customers could perceive risk towards the use of technology and the process of delivery service quality, providing a delivery service in the physical retail sector is a necessary trend as this can better satisfy customers' demand. As Yrjölä, Saarijärvi, and Nummela (2018) emphasise that in today's business environment, retailers are developing, testing, failing, and succeeding in diverse multi- and omni-channel strategies, to remain competitive in attracting shoppers such as satisfying customers' demand. And now customers prefer a convenient shopping environment and providing a delivery service in the physical retail space can provide convenience for customers (Mehmood & Najmi, 2017). Besides, the risk regarding the use of technology and physical distribution quality will decrease as the well-developed distribution service and well-monitored technological system improves. Therefore, the following hypothesis is presented.

Hypothesis 1: Adding a new delivery option via mobile in physical retail space will be positively related to shoppers purchase likelihood.

3.2.1 The effect of perceived risk on purchase likelihood

Perceived risk is regarded as the expectation of loss. And perceived risk is also regarded as the likelihood of uncertainty and adverse consequences perceived by the purchase of a product or service. There are different dimensions of risk based on different researchers. Jacoby and Kaplan (1972) proposed five perceived risks (Finance, Performance, Physical, Psychological, Society) while Murray and Schlacter (1990) added time risk. The perceived risk factors could cover a wide range of researchers findings, however most of the researchers' concepts include financial risk, psychosocial

risk, privacy risk and time risk. In the retail and delivery service industry, financial risk refers to the loss of money. Time risk is the amount of time required to purchase or the time wasted as a failure result, and psychosocial risk refers to the risk that friends or family may think that a consumer has made a poor or inferior choice (Mitchell, 1998). Perceived risk has been identified as one of the critical factors that can affect consumer purchase intention (Ting, Goh, & Isa, 2016). Several researchers show the result that consumers' perceived risks are negatively related with trust and purchase intention (Eid, 2011; Kim, Ferrin, & Rao, 2008). Bianchi and Andrews (2012) state that perceived risk refers to the feeling of uncertainty when making a purchase decision when there are new purchasing options. Due to this research, when presented with a delivery option via technology devices in the physical retail space, the uncertainty about quality of the delivery service and the unfamiliarity with technology devices could increase customers' perceived risk. The increased perceived risk felt by the shopper could have negative effects on customers' purchase likelihood. Therefore, to test the relationship of customer perceived risk between delivery option and purchase behaviour in the physical retail space, it is proposed that:

Hypothesis 2: The effect of a delivery option on customer's purchase likelihood will be mediated by perceived risk.

3.2.2 Effect of perceived value on purchase likelihood

Zenithal (1988) points out that consumers' perceptions of value increase as the benefits of products or services, and high perceived value increases the consumers' willingness to purchase products. Customers' value perceptions are considered to be an important factor of their purchase behaviours (e.g., Zeithaml 1988). According to Levin (2003), shoppers believe that technology with delivery services could bring perceived value. Huang and Oppewal (2006) suggest that a delivery option in a retail store could improve customers' perceived value of quality of service, fast delivery and reasonable fees. As customer perceived value has been regarded as a major contributor to purchase intention (Chang & Wildt, 1994), it is assumed that the increased perceived value will positively affect purchase likelihood because of the presenting of a delivery option in physical retail space. To test the relationship of customer perceived value between delivery option and purchase intention and behaviour in physical retail space, it is proposed that:

Hypothesis 3: The positive effect of a delivery option on customer's purchase likelihood will be mediated by perceived value.

3.2.3 Attitude towards technology adoption

Researchers have studied customer's attitudes toward technologies as a method to predict customers' behavioural intentions (Davis, Bagozzi, & Warshaw, 1989; Curran, Meuter, & Surprenant, 2003; Plouffe, Vanderbosch, & Hulland, 2011). Hebert and Benbasat (1994) found evidence for a relationship between attitude and behavioural intention in a model for adoption of information technology. Adams, Nelson and Todd (1992) tested the relationship between ease of use, perceived usefulness and usage of information technology. As a result, they posited that perceived usefulness and ease of use of technology will affect customers' attitude and then influence the usage of technologies. Curran and Meuter (2005) hypothesized four antecedent beliefs to influence attitudes toward the individual technologies. The four beliefs are usefulness, ease of use, need for interaction, and risk. They also tested the relationship between attitude toward ATMs, online banking, phone banking and intention to use them. They proposed and verified the hypothesis that attitudes toward a more widely adopted technology will be more positive than those toward a less widely adopted form. In addition, they proposed and verified the hypothesis that attitude toward a specific self-service technology will influence a consumer's intentions to use that SST. Curran and Meuter (2005) indicated that the impact of antecedent beliefs varies depending on the technology. For example, people will worry about online banking but not ATMs. For this research, the scene setting is using mobile phones to choose a delivery option, thus the technology is a mobile phone. This part will study the effect of attitude towards using mobile phones on the relationship between a delivery option and purchase behaviours. Therefore, the hypothesis is as below.

Hypothesis 4: the level of customers' attitudes towards technology adoption will moderate the impact of a delivery option on purchase likelihood in the physical store via mobile phone

Chapter Four: Research methodology

To test the hypotheses in chapter three, the fourth chapter gives an outline of the overall research design and methodology that will be used to examine the effect of a delivery option on customers' purchase likelihood and behaviours. Also, this research design and methodology were used to examine the effect of perceived risk, perceived value and attitudes towards technology adoption. The first section of the chapter details the research objects about what types of people can be the participants in this research. The second section of the chapter provides details of data collection. The third section is the measurements of the scale items about perceived risk, perceived value and attitudes towards technology adoption. The fourth section is the research design. Then the next section is about sample size of the participants and the data collection procedure. Additionally, data screening and cleaning, the data analysis method, reliability and validity of data will be introduced. In addition, ethical issues are also considered in this research.

4.1. Research participants

The main purpose of this research is to measure the relationship between a new delivery service option and purchase likelihood through the effect of perceived value and perceived risk in the retail sector. The supermarket has been selected as the object of study as supermarkets are the place where people go most frequently to purchase groceries (ref). As stated in prior parts, high value, involvement and more complicated products were riskier than those products with less characteristics (Kaplan, Szybillo, & Jacoby, 1974; Laurent & Kapferer, 1985). Therefore, to avoid extremely high-risk products affecting the research results, the scenario setting will be supermarkets.

This research suggests that ideal participants are supermarket consumers with purchase experience, and this research requires that participants who have shopping experience could be better as those customers can truly rate the shopping experience and generate corresponding purchase behaviors according to their own feelings.

Based on prior studies, age, gender, occupation, education, and personal income often have an impact on individual purchase behaviour (Nagarkoti, 2014). Different types of

people have different perceived risks when they are buying the same product (Hoover, Green & Saegert, 1978). Prior studies have pointed out that perceived risk has a relationship with customers' individual purchase behaviour (Spence, Engel & Blackwell, 1970). Spence's (1970) studies also showed that perceived risk is related to customers' education and income level. Customers with a higher education and income had a lower customers' perceived risk than customers with a low education background and income level. People with low incomes and low educational background prefer to purchase low risk products or familiar products (Kelly & Conant, 1991). It was found that older people are likely to be more conservative in actions compared with the younger generation when in risky situations (Kogan & Wallach, 1964). Younger people are happy to try new things rather than older generations, and young people learning and accepting new things quickly than the senior people (Kinnaman & Lyons, 2007). Based on this prior knowledge, the demographic information of supermarket consumers also needed to be collected and then analysed. Importantly, a broad range of people needed to participate to ensure the collected information came from a broad range of perspectives.

4.2. Data Collection

Data can be collected many ways, such as by online survey, interviews, ethnography, experiments and so on. Data contain primary data and secondary data. Primary data is original data collected for a specific research purpose and secondary data is the data was originally collected for a different purpose and reused for another research question (Hox & Boeije, 2005). Primary data can be collected from survey, mailed questionnaires, personal interviews and so on. Secondary data can be collected from someone's report, journal articles, websites and so on. For this research, primary data is relevant and essential as this research will test new things and need to collect original relevant data. And for this research, questionnaires will be used to collect primary data.

4.3. Participants and procedures

In order to get reliable data for this research, two hundred people were randomly recruited from an online panel named Amazon Mechanical Turk (Amazon MTurk). There was no limitation on their age, income, gender, or social status. This method and this panel source are preferred because they are a cost-effective way to gather a large

sample of respondents to provide enough data for statistical analysis. Also, the process can be finished fast. However, there are some limitations by using Amazon MTurk. For example, the participants may not be truly voluntary and they may do it for money or fun. Character misrepresentation occurs when participants distort their identities to get access to a study to gain money (Wessling, Huber, & Netzer, 2017). In the research, it also provides evidence that character misrepresentation by Amazon Mechanical Turk Workers can affect distort research findings significantly.

Two scenarios are developed (refer to appendix C) for the experimental design. One scenario was in a store where customers could only purchase items and take them home themselves. The other scenario was a store with an extra delivery service option where customers could choose whether they take items home by themselves or use the delivery service. Participants were evenly and randomly assigned to one of the two conditions. The purpose of random and even assignment is to avoid bias. After introducing the scenario, there were several questions regarding perceived risk, perceived value and attitudes towards technology use (e.g., mobile phone) and their purchase decision. The respondents were requested to answer the questions based on their perceptions. The online questionnaires (refer to Appendix c) measured with the 7-point Likert scale (1= extremely disagree / 7= extremely agree or 1= extremely low/ 7= extremely high 5= neutral). The reason for using 7-point Likert Scale is that many researchers have stated that it is better than five-point or nine-point. For example, Johns (2010) indicated that data from Likert items becomes significantly less accurate when the number of scale points drops below five or above seven.

4.4. Research design

In this research, a quantitative research method was used. The quantitative research approach uses numerical data to quantify and measure phenomena, and is a formal, objective, and systematic process (Duffy, 1985). Because quantitative research aims to control or eliminate variables in the process of the study, it is considered more reliable than other investigation methods e.g., qualitative research (Duffy, 1985). Hence, in this study, a quantitative research design was undertaken to identify similarities and differences in purchase likelihood with adding a delivery option.

To test the effects of adding a delivery option via mobile phone in a physical space on consumer's purchase likelihood, this research presents a scenario-based online survey.

There are two scenarios and respondents were randomly shown only one scenario. After the scenario, respondents were required to answer whether they would purchase or not. And in scenario 2, respondents could choose whether they would purchase or not, and if they chose to purchase, then which method they would purchase, take the goods home by themselves or pay by mobile and get the goods delivered. After that, some scale questions about the items of perceived risk and perceived value were asked. Further, some questions about the attitudes towards technology adoptions were answered. Comparing these two scenarios results, the effect of providing a delivery option via mobile phone in a physical place would be shown. The overall research design is a 2 (purchase option: with delivery option versus no delivery option) x 2 (purchase intention: purchase versus not purchase) x 2 (purchase method: take items home versus use delivery service) between subject design. The details of the two scenarios are as below.

Scenario 1: Imagine that you are purchasing several items at a grocery store. The store only provides you with one option for payment and delivery: to pay for the items in the store and bring them home with you.

Scenario 2: Imagine that you are purchasing several items at a grocery store. The store provides you with two options for payment and delivery: to pay for the items and bring them home with you, or alternatively purchase the items in-store via your mobile phone and have them delivered to your home. The delivery fee is free and the delivery can be completed within 30 minutes.

4.5. Measurements

Scale items that are assessing the key constructs, such as perceived risk, perceived value and personal attitudes towards adoption of technology are from past studies. Independent variable for this thesis is delivery option, and dependent variable is purchase likelihood. Based on the prior research, perceived risk does contain 5 aspects, from these, psychological, financial, social and privacy risk will be selected as the main risks. Perceived risk was adapted from Venkatraman, Aloysius, and Davis (2006) with a five-item scale about the above five aspects. Those items were, “what are the chances that you stand to lose money if you try this method of payment”, “what is the likelihood that there will be something wrong with this method of payment or that it will not work properly”, “what are the chances that this method of payment may not be safe”, “what the chances that this method of payment will not fit in well with your self-image or

self-concept”, and fifthly “what are the chances that this method of payment will affect the way others think of you”. And after these, an overall perceived risk question was asked, that is “on the whole, considering all sorts of factors combined, how risky would you say it was to buy with this method of payment?”. A high score indicated a high level of perceived risk.

Perceived value was adapted from Levesque and McDougall (1996) literature. The dimension of perceived value has 4 scale items which are also 7-point Likert-type and three of them were used. Those items were “the store provides attractive services”, “the store provides more free services”, “the store provides me with good value”, “please indicate how the perceived value of this grocery store to you would change with adding a delivery option via mobile phone”. A high score indicated a high level of perceived value, also meaning that they think the store provides high value services to them.

To test respondents’ personal attitudes towards adoption of technology, some items were adapted from Meuter, Bitner, Ostrom, and Brown (2005). In their studies to test the factors that affect the trial of self-service technologies, technology anxiety, inertia, need for interaction, previous experience and demographic characteristics were included. Some of the scale items were selected. Those items were “For me, the cost in time, effort and grief to switch payment methods is high,” “ I have avoided technology because it is unfamiliar to me”, “ it bothers me to use a machine or app when I could talk to a live person instead”, “ I do not have much experience using the internet or new technology. (e.g. mobile shopping)”. A high score indicated that respondent’s unwillingness to adopt new technology.

At the end of the questionnaire, additional information about the gender, age, occupation, education level, and income was listed. Participants were given the instruction to circle the most appropriate answer that applied to them. For example, in order to find out the participant’s accurate age, the age groups are as follows: “under 18 years old”, “18-24 years old”, “25-34 years old”, “35-44 years old”, “45-54 years old”, “55-64 years old”, “65-74 years old”, “75-84 years old”, “85 or older”. To collect data about their income, they were asked to select the category that was suitable for them. It included “less than \$10,000”, “\$10,000-\$19,999”, “ \$20,000-\$29,999”, “ \$30,000-\$39,999”, “ \$40,000-\$49,999”, “ \$50,000-\$59,999”, “ \$60,000-\$69,999”, “ \$70,000-\$79,999”, “ \$80,000-\$89,999”, “ \$90,000-\$99,999”, “ \$100,000-\$149,999” and “more than \$150,000”. Questions about social roles included “employed full time”, “employed part time”, “unemployed looking for work”, “unemployed not looking for

work”, “retired”, “student” and “disabled”. Additionally, some questions about the respondent’s purchase experience were listed (e.g. how often do you go grocery shopping?).

4.6. Data screening and cleaning

Before using the data to analyse and test hypotheses, it was essential to check the data that was collected from the questionnaires.

Data screening are the process of ensuring the data are clean before conducting statistical analyses. The purpose of data screening is to ensure the data are reliable and valid for testing. Data screening can be done manually to check all questionnaires whether all the questions had been answered. If some questionnaires contained too many unfinished answers, then these questionnaires were not valid or reliable. That data cannot be used for the final data analysis.

Data cleaning are the process of identifying inaccurate records, unfinished, and unreliable data. Then, correcting this data by replacing, modifying or deleting it. For example, the missing data can be replaced by mean numbers if there are only a few incomplete questions in some questionnaires.

4.7. Data Analysis

Based on the research purpose and hypotheses, this research mainly used SPSS software and statistical methods to analyse collected data. The independent variable was the delivery option and the dependent variable was purchase behaviours. The mediators were perceived risk and perceived value. To analyse the data and test the hypotheses, frequency test, Chi-square test, ANOVA method and Hayes method were used to test the effect of a delivery option on purchase behaviour, also the mediator role of perceived risk and perceived value and the moderator role of technology adoption.

The reason for using Chi-Square test is that it is commonly used for testing relationships between categorical variables (e.g. gender) whether one variable is related to another. In this hypothesis test, both the independent variable and dependent variable were categorical variables. Also, the purpose was to test whether a delivery option had a relationship with purchase likelihood. The reason for using one-way ANOVA analysis is that it is used to determine whether there is statistically significant differences between the means of the groups. The one-way ANOVA compares the means between

the groups and determines whether the means are statistically significantly different from each other. To test the mediator role of perceived risk and perceived value, Haye's method was conducted. As there are two mediators, a mediation analysis based on Preacher and Hayes (2008) was conducted. Preacher and Haye's SPSS macro modules (model #4, with 5000 bootstrapped samples) were used.

4.8. Reliability and Validity

For a research study, testing reliability and validity of research data is extremely important. Reliability and validity are considered to be the two fundamental elements in the process of evaluation measurement (Tavakol & Dennick, 2011).

Reliability concerns the extent to which an experiment or test yields the same results on repeated trials (Carmines & Zeller, 1979). It is commonly measured by internal consistency by using Cronbach alpha coefficients. Alpha is a measure of internal consistency of a scale which is expressed as a number between 0 and 1, and the closer the coefficient alpha value is to 1, the greater the internal consistency of the scale items. It indicates how closely related a set of items are as a group and it is regarded as a measure of scale reliability. In the other words, a small figure of coefficient alpha indicates that the items do not fully capture the construct. A high alpha coefficient suggests that the items have relatively high internal consistency. Alpha value above 0.7 means that it is an acceptable value of alpha (Jum, 1978; Tavakol & Dennick, 2011).

Validity analysis measures the degree to which it measures what it is supposed to measure. Validity includes three categories: criterion validity, content validity and construct validity (Calder, Phillips, & Tybout, 1982). Among these three categories, construct validity is the most important. Convergent validity and discriminant validity are the subtypes of construct validity. In this study, both convergent validity and discriminant validity were performed by exploratory factor analysis. According to Thompson (2007), factor analysis is a statistical method for identifying the structure underlying measured data, such as variables.

4.9. Ethical considerations

There are four ethical issues that need to be addressed in conducting research (Fouka & Mantzorou, 2011) and three of them pertain to this research. The first one is informed

consent, which means all participants should knowingly, voluntarily and intelligently and in a clear way give consent (Armiger, 1977). The second is respect for anonymity and confidentiality which means all information of participants should be kept confidential. The third ethical issue is respect for privacy.

A consent form was provided to the participants to gain approval for this survey. They were told that all their information would be kept confidential. Also, their privacy information would be maintained confidentially. No personal information was to be collected regarding the participant. In addition, the researcher clearly stated that responses would be anonymous and all information pertaining to them would be kept confidential and data would be stored in a locked file at AUT, and no one else except the researcher could access the information. Furthermore, participants had the right to ask for a copy of the research once completed. If participants felt uncomfortable during the process, they could stop answering the questions immediately. The ethical considerations for this survey were approved by the Auckland University of Technology Ethics Committee and is attached in the Appendix A.

Chapter Five: Findings

This chapter will analyse demographic information of the participants. It will also test the validity and reliability of scales items of perceived risk, perceived value and attitude towards technology adoption. In addition, the most important part is the analysis of the four hypotheses being tested. The purpose of the chapter is to display and interpret the results of the hypotheses tests. The hypotheses include:

Hypothesis 1: Adding a new delivery option via mobile in a physical retail space will be positively related to shoppers' purchase likelihood.

Hypothesis 2: The effect of a delivery option on customer's purchase likelihood will be mediated by perceived risk.

Hypothesis 3: The positive effect of a delivery option on customer's purchase likelihood will be mediated by perceived value.

Hypothesis 4: The level of customers' attitudes towards technology adoption will moderate the impact of the delivery option on the purchase likelihood in a physical field via mobile phone.

The purpose of the chapter is to display and interpret the results of the hypotheses tests. Also, based on the results, the pertinent findings are also listed.

5.1. Demographic information

A total of 200 surveys were returned and the effective sample size was 200. In this study, 53% of the respondents were male and 47% were female; 92 participants were between the ages of 25 and 34 making a percentage of 46%. 16.5% and 13.5% were in the age brackets of 35 to 44, and 18 to 24 respectively. 70% of participants were employed full time and 73.4% of participants had a bachelor's degree or higher. 41.2% of participants had an earned income over \$50,000 while 79.8% were the main household shopper which satisfied the criteria. 57.5% of the respondents went shopping once a week (see Table 2).

Table 2: Demographic profiles of respondents

Demographics	Number	Percentages
Gender		
Male	105	53%
Female	93	47%
Age		
under 18	1	0.5%
18- 24	27	13.5%
25- 34	92	46%
35- 44	33	16.5%
45- 54	25	12.5%
55- 64	17	8.5%
65- 74	3	1.6%
75- 84	1	0.5%
Education		
less than high school	2	1.0%
High school graduate	18	9.0%
Some college	33	16.5%
2-year degree	17	8.5 %
4-year degree	99	49.5%
Professional degree	28	14%
Doctorate	2	1.0%
Income		
less than \$10000	13	6.5%
\$10000- \$19999	22	11.0%
\$20000- \$29999	31	15.5%
\$30000- \$39999	25	12.5%
\$40000- \$49999	26	13.0%
\$50000- \$59999	25	12.5%
\$60000- \$69999	8	4.0%
\$70000- \$79999	5	2.5%
\$80000- \$89999	10	5.0%
\$90000- \$99999	15	7.5%
\$100000- \$149999	15	7.5%
More than \$150000	4	2.0%
Main Household Shopper		
Yes	158	79.8%
Maybe	22	11.1%
No	18	9.1%

Source: Authors Estimation

5.2. Reliability Analysis

Table 3 shows the internal consistency of the questionnaires that were completed by 200 respondents. A Cronbach's analysis was conducted on the subscale of the survey. It was found that the subscale's alpha level of perceived risk was 0.953. Also, if any one of the items was deleted, the alpha of perceived risk was smaller than 0.953 which indicates that the scales of perceived risk had an adequate level of inter-item reliability. For example, if the question "What are the chances that you stand to lose money if you try this method of payment?" was deleted, then the alpha of perceived risk was 0.943 which is smaller than 0.953, so this means the reliability is reduced. The alpha level of perceived value was 0.821 and alpha level of attitudes to technology adoption was 0.807 and they are both larger than 0.7 which is an acceptable value. These results showed that scales of perceived value and attitude towards technology adoption had an adequate level of inter-item reliability.

Table 3: Cronbach Alpha Table

Cronbach's Alpha if item deleted	Component		
	Perceived risk	Perceived value	Attitude to TA
Perceive risk			
PR1	0.943		
PR2	0.939		
PR3	0.950		
PR4	0.947		
PR5	0.944		
PR6	0.938		
Perceive value			
PV1		0.714	
PV2		0.808	
PV3		0.738	
PV4		0.829	
Attitude to technology adoption			
TA1			0.769
TA2			0.741
TA3			0.771
TA4			0.748
Cronbach Alpha	0.953	0.821	0.807

Source: Authors Estimation

5.3. Validity

According to Hair Jr, Hult, Ringle, & Sarstedt (2016), factor loading of each dimension and average variance extraction (AVE) above 0.50 can be regarded as an acceptable level of reasonable convergent validity. In table 3, all the factors' loading are above 0.5 which indicates significant cross loading. For example, the factor loading of the question "What is the likelihood that there will be something wrong with this method of payment or that it will not work properly?" is 0.936. The factor loading of question "I do not have much experience using the new technology (e.g., mobile shopping)" is 0.733.

In addition, AVE (average variance extraction) figures of these factors are between 0.622 and 0.813 which are all larger than 0.50. For example, the AVE of perceived risk is 0.813 and the AVE of perceived value is 0.687. Besides, the AVE of attitudes towards technology adoption is 0.622. Therefore, it meets the recommendation criteria (Hair et al., 2016).

In terms of discriminant validity, based on Fornell & Larcker's study (1981), if the square root of the average variance extracted (AVE) is larger than its correlations with other constructs it can be proved. In table 4, it is shown that all the square roots of AVE figures are larger than inter-construct correlations. For example, the square root of AVE of perceived risk is 0.902 and the correlation between perceived risk and perceived value is 0.208, whereas the correlation between perceived risk and attitudes towards technology adoption is 0.550. 0.902 is greater than 0.208 and 0.550. In addition, 0.829 which is the square root of AVE of perceived value is greater than 0.208 which is the correlation between perceived risk and perceived value and 0.105 which is the correlation between perceived value and attitudes towards technology adoption. Therefore, it matched the requirement of discriminant validity.

Table 4: Result of convergent validity measures

	Factors loading	AVE
<i>Perceived Risk</i>		0.813
What is the likelihood that there will be something wrong with this method of payment or that it will not work properly?	0.936	
What are the chances that this method of payment may not be safe?	0.926	
On the whole, considering all sorts of factors combined, about how risky would you say it was to buy with this method of payment?	0.922	
What are the chances that you stand to lose money if you try this method of payment?	0.915	
What are the chances that this method of payment will affect the way others think of you?	0.838	
What are the chances that this method of payment will not fit in well with your self-image or self-concept? (The term self-concept is a general term used to refer to how someone thinks about, evaluates or perceives themselves).	0.783	
<i>Perceived Value</i>		0.687
The store provides me with good value.	0.890	
The store provides attractive services.	0.883	
The store provides more free services.	0.753	
Please indicate how the perceived value of this grocery store to you would change with adding a delivery option via mobile phone.	0.714	
<i>Attitude to Technology Adoption</i>		0.622
It bothers me to use a mobile app when I could talk to a live person instead.	0.852	
I have avoided technology because it is unfamiliar to me.	0.753	
I do not have much experience using the new technology (e.g., mobile shopping).	0.733	
For me, the cost in time, effort and grief to switch payment methods is high.	0.728	

Table 5: Discriminant validity

	Perceived Risk	Perceived Value	Attitudes to TA
Perceived Risk	0.902		
Perceived value	0.208	0.829	
Attitudes to TA	0.550	0.105	0.789

Note: Diagonal: square root of AVE Off-diagonals: correlation between latent variables

5.4. Research questions and hypothesis tests

To test hypothesis 1, which predicted that adding a new delivery option via mobile in a physical retail space will be positively related to shoppers purchase likelihood and behaviours, a Chi-square test was performed. In this hypothesis test, the independent variable and the dependent variable are both categorical variables. Also, the purpose was to test whether a delivery option has a relationship with purchase likelihood.

To perform Chi-Square test, firstly, the scenario conditions were set in rows and buy or not buy and the dependent variable for condition one and two in columns. The null hypothesis for Chi-square test is that there is no relationship between the two variables. The alternative hypothesis for Chi-square test is that there is a relationship between the two variables.

In these results, the Pearson chi-square statistic between the scenario condition and buy or not buy is 3.107 and the p -value is .078. Therefore, the null hypothesis can be rejected and the alternative hypothesis that there is marginally significant association between the variables as the p -value is greater than .05 and smaller than .10 can be supported. This indicated that providing a delivery option via mobile phone in a retail store marginally increased the percentage that people buy or do not buy. More specifically, when providing a delivery service option to customers, the percentage of purchasing marginally increased. We can also prove this result by the data from the question “How likely are you to purchase items from this grocery store?” Among the 100 respondents in group one (store with no delivery service), 98 respondents choose to buy and in group two (store with delivery service), 100 respondents choose to buy (see Table 6). The difference between 98 and 100 is minimal.

Table 6: First chi-square analysis

	No Purchase	Purchase
No delivery option	2	98
Online delivery option	0	100

Besides, the Pearson chi-square statistic between scenario condition and dependent variable (how customer purchase, e.g. take items home or use a delivery service) is 46.385 and p -value is 0.000. Therefore, at a significance level of 0.001, we can reject the null hypothesis that there is no significant association between the variables. This indicated that providing a delivery service option via mobile phone in a physical retail sector affects the way that customers purchase. For example, once providing a delivery service option, around 40% of participants would choose to use it. This can also be proved by the data from the questions “How likely are you to purchase items from this grocery store?” Among the 100 respondents in group one (store with no delivery service), 98 respondents chose to buy and take items home by themselves; Among 100 respondents in group two (store with delivery services), 36 people chose to use delivery services and 64 people would like to take items themselves (see Table 7).

Table 7: Second chi-square analysis

	Take Items by self	Online delivery
No delivery option	98	0
Online delivery option	36	64

However, there is a limitation that can not be ignored based on the simple scenario. The first scenario put everyone who decided to purchase were classified as ‘take items home directly’ by default, whereas the second scenario divided 100 respondents into two conditions based on their selection. Respondents’ answer for main dependent variable, i.e., no-purchase/purchase and take items home/ purchase and online delivery, are very limited. For example, 98 out of 100 chose purchase and take items home. In addition, 100% chose purchase (36% take items home, 64% choose online delivery). therefore, the data is skewed. However, the overall effect of new delivery option via mobile on purchase likelihood and behaviour has been successfully tested.

5.5. Mediator role of perceived risk and perceived value

To examine the mediating role of perceived risk, first, the relationship between independent variable and perceived risk was tested. A one-way ANOVA was performed to test whether the types of perceived risk related to an independent variable (scenario condition: with delivery option or not). That is, whether financial risk, functional risk, security risk, social risk, psychological risk were related to a scenario condition. The reason for using one-way ANOVA analysis is that it is used to determine whether there is statistically significant difference between the means of the groups. The one-way ANOVA compares the means between the groups and determines whether the means are statistically significantly different from each other. This research wanted to compare the mean number of financial risks, functional risk, security risk, psychological risk, social risk and overall risk between the two groups. The two groups were the participants who were randomly assigned to a store without delivery services or a store with a delivery service.

The result showed that customers did not show greater financial ($F(1,198)= 0.183, p= .669$), functional ($F(1,198)=0.494, p= .483$), security ($F(1,198)= 0.154, p= .695$), psychological ($F(1,198)= 0.177, p= .675$), social ($F(1,198)= 0.007, p= .936$) and overall risk ($F(1,198)= 0.004, p= .950$) when they had a delivery option via mobile phone or not (see Table 5).

The result showed that the mean value of financial risk between scenario without delivery option and scenario with delivery option was 2.57 versus 2.68. Also, the mean value of functional risk was 2.63 versus 2.81; the mean value of security risk was 2.75 versus 2.84; the mean value of psychological risk was 2.57 versus 2.67; the mean value of social risk was 2.42 versus 2.45. In the 7-point Likert-type, these mean values are all lower than 3 which means that the perceived risk in both conditions was very low.

Table 8: respondent's perceived risk responses

	Scenario 1 Mean (SD)	Scenario2 Mean (SD)	F	P
Financial risk	2.57 (1.836)	2.68 (2.039)	0.183	0.669
Functional risk	2.63 (1.838)	2.81 (1.896)	0.494	0.483

Security risk	2.75 (1.618)	2.84 (1.770)	0.154	0.695
Psychological risk	2.57 (1.814)	2.67 (1.806)	0.177	0.675
Social risk	2.42 (1.773)	2.45 (1.942)	0.007	0.936
Overall risk	2.68 (1.766)	2.69 (1.896)	0.004	0.950

Based on the above results, the score of perceived risk in the two groups are similar. This means that there is no strong relationship between IV (scenario condition) and perceived risk.

To test the mediator role of perceived value, the same procedures as testing perceived risk were performed. To examine the mediation role of perceived value, first, the relationship between independent variable and perceived value was tested. A one-way ANOVA was performed to test whether the types of perceived value related to IV (scenario condition). The results showed that customers showed greater attractive services ($F(1,191) = 32.724, p < .001$), free services ($F(1,196) = 45.703, p < .001$), or good value ($F(1,198) = 13.833, p < .001$) when they had a delivery option via mobile phone than no delivery option (see Table 6). However, about the question “please indicate how the perceived value of this grocery store to you would change with adding a delivery option via mobile phone” the results show ($F(1,198) = 1.3, p = .256$), which indicates that the difference between these two groups’ scores is not significant.

The result showed that the mean value of attractive service between the scenario without a delivery option and the scenario with a delivery option is 4.58 versus 5.60. Also, the mean value of free services is 3.66 versus 5.09; the mean value of good value is 4.76 versus 5.44; the mean values of perceived value scale items in the scenario with a delivery option were all greater than in the scenario without a delivery option.

Table 9: Respondent’s perceived value responses

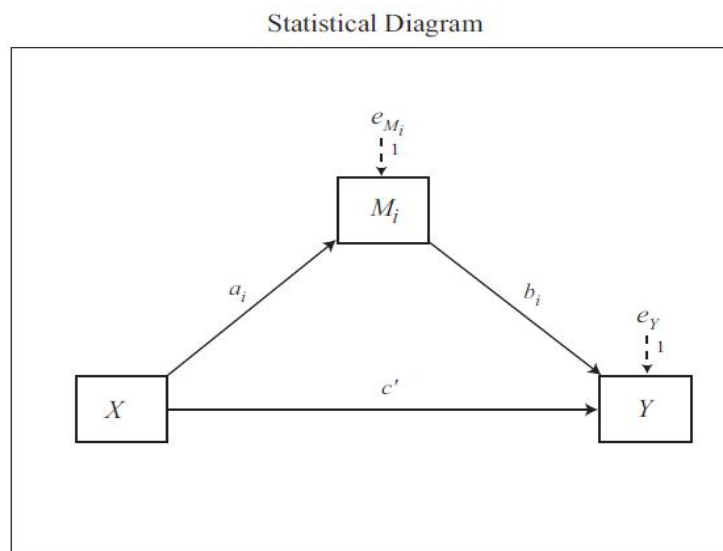
	Scenario 1	Scenario2	F	P
	Mean (SD)	Mean (SD)		
Attractive services	4.58 (1.318)	5.60 (1.206)	32.724	0.000
Free services	3.66 (1.546)	5.09 (1.422)	45.703	0.000
Good value	4.76 (1.294)	5.44 (1.284)	13.833	0.000

Overall value changes	5.05 (1.119)	5.25 (1.315)	1.3	0.256
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The above results show that there is a strong relationship between IV (scenario condition) and perceived value. And when adding a free delivery service option in a physical store, the average amount of perceived value is greater than no delivery option.

Before testing the mediating role of perceived risk and perceived value, knowledge about mediation should be acknowledged. Mediation includes full mediation and partial mediation. Full mediation means with a controlling mediator, there is no longer a significant direct effect of an independent variable on a dependent variable (Kim et al., 2018; Kim, Cui, Jang, Spence, & Park, 2019). In contrast, if there a significant direct effect between an independent variable and a dependent variable remains after controlling the mediator but the effect is reduced, then the mediator is partial mediation. The Hayes method and Baron and Kennys' regression analysis can both test mediator roles. However, nowadays, the more accurate and popular method is the Hayes method.

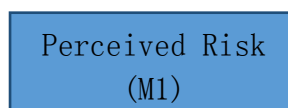
Below is a simple statistical mediation model of Hayes.



Indirect effect of X on Y through $M_i = a_i b_i$
 Direct effect of X on $Y = c'$

Note: Model 4 allows up to 10 mediators operating in parallel.

Based on the above conceptual diagram, the conceptual model used in this research is below (Figure 3).



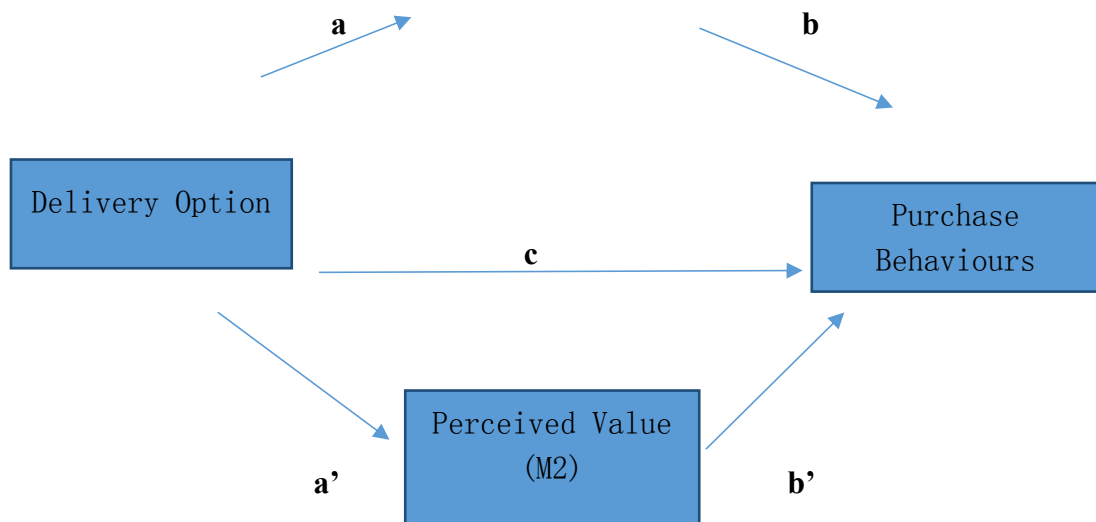


Figure 4: The mediator role of perceived risk and perceived value conceptual model.

To test the mediator role of perceived risk and perceived value, Hays's method was used. As there are two mediators, a mediation analysis based on Preacher and Hayes was conducted (2008), using Preacher and Hayes's SPSS macro modules (model #4, with 5000 bootstrapped samples). The independent variable is the scenario condition (with delivery option or not), the dependent variable is buying or not buying, and two mediators are perceived risk and perceived value. The results indicate that the mediator role of perceived risk is not significant ($p=0.6670$) and include zero (90% bootstrap confidence interval (CI): -0.2653,0.1591). While the direct effect is also not significant (90% bootstrap confidence interval (CI): -507.9276, 536.2844). The results also indicate that the mediator role of perceived value is not significant ($p=0.3493$) and include zero (90% bootstrap confidence interval (CI): -2.6046,0.7977). Therefore, it supports that neither perceived risk nor perceived value are mediators of delivery option and purchase likelihood. Therefore, hypothesis 2 and hypothesis 3 are not supported.

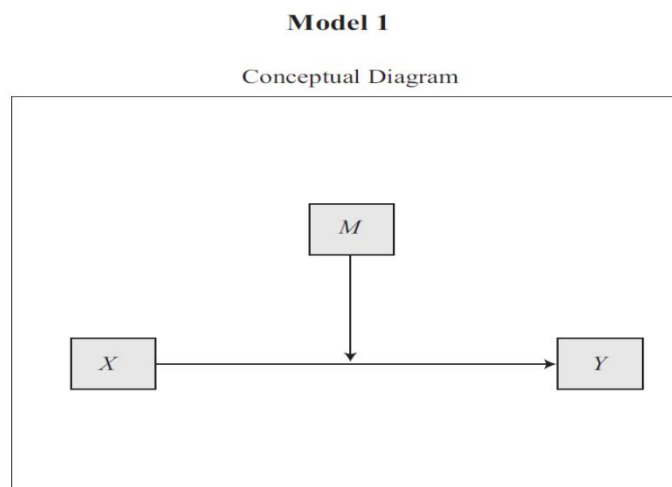
However, was the customer's perceived risk and perceived value related to their behaviours? For example, whether those people who chose to carry items home and those who chose a delivery option had a similar perceived risk and perceived value. To test this, the data collected only from scenario two has been used. In SPSS, first data were selected -then case, and then the condition that IV condition equal two was set, which meant that only data based on scenario two was used. One-way ANOVA was performed. The dependents were perceived risk and perceived value. And the factor column is the result of how customers purchase (e.g. take items home or use delivery options). Thus the number of perceived value and perceived risk between customers who use delivery service and customers who take items home were compared. The

results are shown in table 7. The results showed that the difference of customers' perceived risk between those who chose to carry items home and those who chose the delivery option is not significant ($F(1,99) = 0.374, P = .542$). Also, the mean value of perceived risk between these two groups is 2.61 versus 2.82. Besides, the results showed that the difference of customer's perceived value between those who chose to carry items home and those who chose the delivery option is significant ($F(1,99) = 26.224, p < .001$). It also indicates that customers who chose a delivery option had larger perceived value ($M = 5.98, SD = 0.768$) than those who chose to carry items home ($M = 4.98, SD = 1.03$).

5.6. Moderator role of adoption technology

Before testing the moderator role of adoption technology, the knowledge about using a moderator should be understood. A moderator is an independent variable that influences the strength or direction of the relationship between independent variables and dependent variables (Bennett, 2000). According to Dardas and Ahmad (2015), a moderator could be a variable that increases, decreases or reverses the effect of the predictor on the outcome.

To test the moderator role of adoption technology, Preacher and Hayes' SPSS macro modules #1 with 5000 bootstrapped samples was used. The independent variable is the scenario condition, while the dependent variable is buying or not buying, and the mediator is adoption technology. Below is the simple statistical moderator model 1 of Hayes.



Based on the above conceptual diagram, the moderator conceptual model used in this research is below (Figure 4)

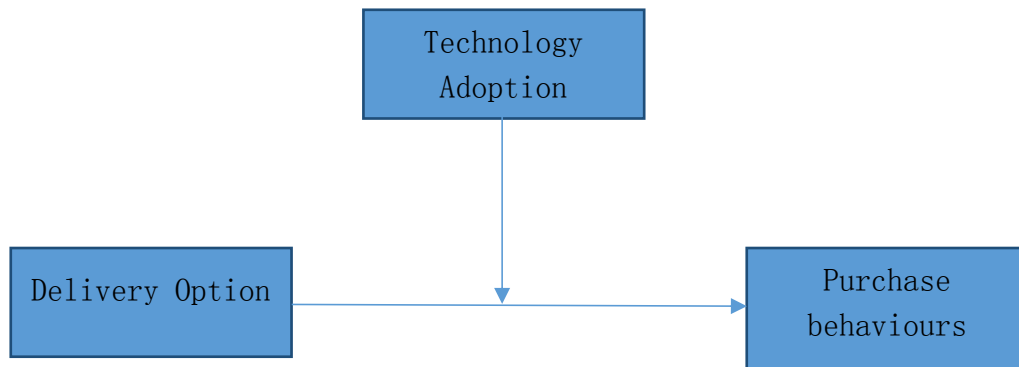


Figure 5: The moderator of adoption technology conceptual model

Based on the results, no significant interaction of scenario condition (delivery option) and technology adoption in that 95% bootstrap confidence interval (CI) include zero (95% CI: -397.3663, 396.0817) was found. Also, the p value of technology adoption was 0.99. Therefore, it indicates that the attitudes towards technology adoption is not a moderator between delivery option and purchase likelihood. However, do personal attitudes towards technology adoption affect the way that customers would like to purchase? To test this, only the data collected from scenario two was used. In SPSS, first data, then case were selected, then the condition that IV condition equal two was set, meaning that data was only based on scenario two. One-way ANOVA was performed. The factor is DV for condition one and two, and dependent list is technology adoption. The results are shown in table 8. The results showed that customers' anxiety about technology adoption between those who choose to carry items home and those who chose the delivery option is significantly different ($F(1,99) = 5.334, P = .023$). In particular, those who choose to carry items home had greater anxiety about technology adoption than those who choose the delivery option ($M = 3.65$ VS $M = 2.92$). The mean number stands for the level of unwillingness to use technology. The higher figure means that customers are not willing to use technology options. This result indicates that customers' attitudes towards technology influence their purchase behaviour when shopping.

Table 10: Respondent's responses from scenario two

Carry home	Delivery	F	P
Mean (SD)	Mean (SD)		

Perceived Risk	2.61 (1.705)	2.82 (1.583)	0.374	0.542
Perceived Value	4.98 (1.03)	5.98 (0.768)	26.224	0.000
Technology Adoption	3.65 (1.426)	2.92 (1.70)	5.334	0.023

5.7. Demographic information analysis

Several studies indicate that the younger generation more easily accept new technology. Also, males, and people with a high level of income and education will accept new technologies more easily (Zeithaml & Gilly, 1987; Sim & Koi, 2002). To verify whether this theory applied to this research, a Chi-square test was performed. The tested data was based on only scenario two data as only this group participants face two options. Part of the results are shown in table 8. The p-value for these aspects (age, gender, income, education, shopping frequency) are all larger than 0.1 which means the difference of these aspects between the carry items home group and the choose delivery group is not significant. However, it is hard to arrive at the conclusion that the results did not accord with Zeithaml and Gilly's theory. The results show that the younger generation has a higher percentage of customers who choose the delivery option than other age groups. For example, 22% respondents in group 25-34 years old choose the delivery option and only 12% respondents in group 55-64 years old choose the delivery option. The percentage of respondents who choose the delivery option who had a high level of education was higher than those with a lower level of education. For example, in the 2-year degree group, 60% choose the delivery option but in the high school graduate and some college group, the percentages are 36% and 42% respectively. Additionally high-level income respondents were more likely to choose the delivery option. For example, the results show that 71% respondents with an income between \$40,000 to \$49,999 would prefer a delivery option and this figure is higher than those respondents whose income was between \$10,000 and \$29,999. Besides, the results show that the more money that people spend, the more likely they are to use a delivery option. 50% of respondents who purchase between \$150-\$200 choose to use delivery service option and only 22% of respondents who purchase between \$10-\$50 choose to use delivery service option. It can be assumed that the more money they spend, the heavier items will be, and the demand for delivery will be higher.

Table 11: Demographic information analysis

Demographics		Carry items (Percentage)	Delivery (percentages)
Gender	Male	34 (64%)	19 (36%)
	Female	30 (64%)	17(36%)
Age	under 18	1 (100%)	0 (0)
	18- 24	22 (81%)	5 (19%)
	25- 34	71 (78%)	20 (22%)
	35- 44	27 (82%)	6 (18%)
	45- 54	19 (83%)	4 (17%)
	55- 64	15 (88%)	2 (12%)
	65- 74	3 (100%)	0 (0)
	75- 84	1 (100%)	0 (0)
Education	less than high school	1 (100%)	0 (0)
	High school graduate	7 (64%)	4 (36%)
	Some college	11 (58%)	8 (42%)
	2-year degree	6 (40%)	9 (60%)
	4-year degree	31(67%)	15 (33%)
	Professional degree	9 (60%)	6 (40%)
	Doctorate	0 (0)	1 (100%)
Income	less than \$10000	7 (87%)	1 (13%)
	\$10000- \$19999	8 (73%)	3 (27%)
	\$20000- \$29999	9 (53%)	8 (47%)
	\$30000- \$39999	7 (64%)	4 (36%)
	\$40000- \$49999	4 (29%)	10 (71%)
	\$50000- \$59999	11 (79%)	3 (21%)
	\$60000- \$69999	1 (50%)	1 (50%)
	\$70000- \$79999	1 (33%)	2 (67%)
	\$80000- \$89999	2 (50%)	2 (50%)
	\$90000- \$99999	6 (75%)	2 (25%)
	\$100000- \$149999	6 (86%)	1 (14%)
	More than \$150000	1 (100%)	0 (0)
How often go shopping	Two weeks for once	14 (61%)	9 (39%)
	Once a week	37 (65%)	20 (55%)
	Twice a week	13 (62%)	8 (38%)
How much spend	\$10- \$50	18 (78%)	5 (22%)
	\$50- \$100	23 (58%)	17 (43%)
	\$100- \$150	17 (65%)	9 (35%)
	\$150- \$200	4 (50%)	4 (50%)
	More than \$250	1 (33%)	2 (67%)

Source: Author's Estimation

Chapter Six: Discussion

This chapter focuses on discussing the results from the hypotheses tested in chapter five. Also, this part provides insight and justify for why the results occurred and possible reasons and explanations. In addition, this chapter will discuss the findings and relate them back to previous research.

6.1. Hypothesis 1

Hypothesis1: Adding a new delivery option via mobile in a physical retail space will be positively related to shoppers' purchase likelihood.

Contrary to expectations, the result did not find significant difference of purchase likelihood between two groups, one being a store and the other one a store with a delivery service. Among the 100 respondents in group one (store with no delivery service), 98 respondents chose to buy and in group two (store with a delivery service), 100% respondents choose to buy. It shows only a marginal difference. This finding is inconsistent with Schwartz (2000) who found that more choices for customers made them tend to delay making a choice. The possible reason for this result is perhaps that providing a delivery service option is only one more option and it did not result in choice overload. Adding a delivery service option did not negatively influence customers' purchasing decision.

Another reason behind the marginally significant difference could be because each participant was only provided one physical store. For the group with people that were randomly assigned with the scenario without a delivery option, they did not know about the existence of the other store with a delivery option. Under that circumstance, they may have chosen to buy as there was no other more attractive choice. However, if each participant had been provided with two scenarios (one without a delivery option and the other one with a delivery option) and they needed to choose in the two scenarios the results may have been different.

Although purchase likelihood did not change significantly in this research, purchase behaviours do change significantly. In group two (providing delivery options), 37 respondents out of 100 chose the delivery option via mobile phone, and p- value is

0.000 which is significant. This means with the delivery option provided, customer behaviours about the purchase method changed.

6.2. Hypothesis 2

Hypothesis 2: The effect of a delivery option on customer's purchase likelihood will be mediated by perceived risk.

The results show that perceived risk is not a mediator. Regarding perceived risk, the findings indicate that financial risk, functional risk, security risk, psychological risk and social risk have no effect on customers' attitudes toward shopping in the physical field providing a delivery option. The mean number of these types of risks in the two groups are similar and low. One of the possible reasons is that the risk figures are based on the respondent's option choice in each scenario. The mean number of perceived risks in two groups may not really reflect the real risk. The data from scenario 2 shows that the mean number of perceived risks between the respondents who choose the delivery option or the carry items home option is still similar and low. Those results indicate that in a physical retail store, customers do not perceive high risk when there is delivery option via mobile phone. This is inconsistent with prior studies that perceived risk has a relationship with customers' individual purchase behaviour (Spence, Engel & Blackwell, 1970). The reason may be compared with online shopping with a delivery option, when customers have more trust and less anxiety in the physical retail space.

6.3. Hypothesis 3

Hypothesis 3: The positive effect of a delivery option on customer's purchase likelihood will be mediated by perceived value.

The results show that perceived value is not a mediator. However, there is an interesting finding that the mean number of perceived values in group 2 (with delivery option) is much higher than group 1 (without delivery option). Also, the focus was on analysing the data from group 2 (with delivery option). Among the 100 respondents in group 2 (with delivery option), people who choose the delivery option had a higher number of mean values of perceived value than those people who choose to carry items home. Even though perceived value does not affect purchase likelihood, the results indicate that it has influence on customers' purchase behaviours (take items home or use

delivery service). For example, the perceived value increased for those who had their groceries delivered? This is consistent with Zeithaml's (1988) opinion that customers' value perceptions are an important factor of their purchase behaviours. This supports previous findings that technology changes how services are conceived, developed and delivered (Meuter, Bitner, Ostrom, & Brown, 2005). Also, it supports the opinion that technology is changing people's lifestyle. With providing a delivery service in physical space, a proportion of customers would like to choose delivery services when shopping.

6.4. Hypothesis 4

About hypothesis 4, to test the moderator role of attitudes toward technology adoption between delivery option and purchase likelihood. The results show that attitudes toward technology adoption is not a moderator. However, among the 100 respondents in group 2, people who choose the delivery option had a lower level of concern about technology adoption than those who choose to carry items home. This result reflects that the attitudes towards technology adoption can influence customers' purchase behaviour (e.g., purchase method). It is consistent with previous findings that customers' attitudes towards technologies are a method to predict customers' behavioural intentions (Davis, Bagozzi, & Warshaw, 1989; Curran, Meuter, & Surprenant, 2003; Plouffe, Vanderbosch, & Hulland, 2011). In the scale of attitudes towards technology adoption, four questions about inertia, technology anxiety, need for interaction and previous experience are listed. These questions focus on individual differences towards the use of technology (not perceived usefulness) and perceived ease of use. This result also indirectly indicates that individual differences would influence customer's purchase behaviours. It is consistent with Dabholkar and Bagozzi's (2002) finding that consumer traits difference can affect an attitudinal model of technology-based self-service.

In the analysis of the demographic information, the statistical results show that there is no significant difference between customers who choose a delivery option and those who choose to carry items home. However, the figure shows that young people, high income earners, and well as educated respondents have a higher percentage of people who choose the delivery option than others. To a certain extent, it is consistent with the study that a high level of income and educated people will accept new technologies easier (Zeithaml & Gilly, 1987; Sim & Koi, 2002). Why is this do we think? Also, it

found that the more money that customers spend, the items could be much heavier, and the demand for a delivery service would be high.

Chapter Seven: Limitations, implications, future research directions and Conclusion

It is the last chapter for this research. This chapter mainly divided into two sections, the first section for the research conclusion and implications. This paragraph mainly discussed the contributes to retail research, such as how do retail researchers have a better understanding of the service delivery option and what problems do this research results help to solve. The second section is the statement of research limitations and future studying.

7.1. Conclusion and implications

This research aimed to identify whether providing delivery services in the physical store via a mobile phone application would affect purchase likelihood and behaviour. The results represent that a delivery option did not increase customer's purchase likelihood significantly, only marginally. However, the results show that it does influence customer purchase behaviour. For example, when physical retail store provides a delivery option, then some customers will change their behaviour from taking items home by themselves to using the delivery service.

The result also indicated that although the delivery option was provided via a technology device in the physical space, customers' perceived risk did not increase significantly. Besides, customers who choose the delivery option via mobile phone do not perceive higher risk than other customers who chose to take items home by themselves. In addition, customers perceive high value when the physical field provides a free and fast delivery service.

Based on the results and discussion of this research, it provides further understanding to retailers on whether it is necessary to provide delivery services or not. For general retail stores, providing a delivery service option can increase its value from customer perspectives. Besides, customers' perceived value has been found to be a major contributor to purchase intention (Chang & Wildt, 1994). In addition, Bhatnagar, Misra, and Rao (2000) indicated that the internet is seen as a risky proposition, and the risk outweighs the convenience that it offers. However, it was found that although the integration of technology and a delivery service does have risks, customers do not perceive a high risk when it is related to a physical space. Therefore, the managers of

physical retail outlets do not need to worry as much about consumers' perceptions of risk when considering whether to providing a delivery option to customers. However, the precondition is that the security of technology should be guaranteed. At the same time, retailers should guarantee the quality of delivery services, as many studies have proved that the quality of a delivery service has a direct effect on customers' satisfaction and customers repurchase intention. Based on prior research, the quality of delivery services is measured on the delivery charge, order accuracy delivery time, and the quality of delivered products. Each process should be monitored and well-maintained.

This research also provides insights to physical retailers on how the different types of customers will respond to a delivery option in a physical space via technological devices. It was found that being male, and people having a high level of income and being well educated will accept new technologies easier which is consistent with prior studies (Zeithaml & Gilly, 1987; Sim & Koi, 2002). In terms of younger people, this research generally believe that maybe those people who are more highly educated can see the benefits of using such a service or in terms of convenience, those people who are more educated and paid more tend to have less time to go grocery shopping, therefore being able to use a service delivery option would be more useful for them.

Therefore, when physical retailers are considering whether to provide delivery services integrated with technology, they can distinguish between their targeted customers types, and consider their targeted customers' acceptance level of use of technology.

With the changing of the retail environment, retailers must meet the demand of their customers better than their competitors to survive. As Sung (2015) stated customers increasingly see shopping as a pursuit of fun, enjoyment and happiness in both offline and online environments.

This research also provides theoretical implication for future studies that it did prove that delivery service can have effect on customers' purchase behaviors. Also, it also verified prior theory that highly educated people and younger people and male are more easily to choose the delivery option than others. Besides, it also provide theoretical implication for future studies that provide free and high quality delivery service can highly increase customers' perceived value.

7.2. Limitations and Future Research

In terms of the results, the research has several limitations that need to be considered. First, the sample of this study was conducted in the United States of America, it may be biased toward this group of people. Also, it may only reflect customer purchase likelihood and behaviour in this country because the demand for a delivery service is affected by many factors. For example, if almost every customer has a car, then their demand for a delivery service in a supermarket is probably much lower than customers who do not have cars. Second, the sample is limited and in demographic information analysis, the limited quantity may not fully reflect the truth. Third, as mentioned in the literature review section, there are several definitions and scales of customer perceived risk and perceived value, therefore the scales that were used in this research may not fully reflect and represent them. Fourth, regarding attitudes towards technology adoption, most other research studies of perceived ease of use and usefulness as factors that affect customers' attitude, however, this study focused only on the difference of customers' traits. The scales do not fully reflect the attitudes towards technology adoption. Also, it did not prove Aurier and N'Goala's (2010) study that a delivery service could be one of the main factors for building customers' trust and customers' willingness to purchase again as customers' thoughts after the purchase were not tested.

Fifth, the scenario condition setting is for free delivery for customers. The delivery cost is also an important factor that affects customers' purchase decisions. As Huang and Oppewal (2006) stated a delivery charge is one determinate of the choice of purchase channel. Sixth, the scenario condition setting is that delivery can be completed within 30 minutes which is an ideal assumption. And this ideal delivery time may also positively affect respondents' purchase decision.

The delivery time probably takes much longer and customers may consider and worry about it when making decisions about taking items home or using delivery options in our real life. As Huang and Oppewal (2006) stated the time available for shopping and travel time to a physical store influences consumers' purchasing channel preference. Lastly, the scenario condition is only located in supermarkets, however, different types of industry have different demands for delivery services. For example, a delivery service might not be strongly demanded by customers in a jewellery store because of the high value of the goods and the possible delivery risk. Therefore, these research results are not applicable for all the physical field areas, but only for general physical retail stores. For example, grocery store, supermarkets and clothing store. Service

delivery and expectations around it can differ depending on the type of retailer or the category of products sold. Therefore, the current study contributes to the literature on retailing specifically in the grocery/supermarket context. Further studies could investigate across categories of products and store types (i.e., big box retailing, homeware, fashion). The last but not the least limitation is the scenario design. The first scenario put everyone who decided to purchase were classified as 'take items home directly' by default, whereas the second scenario divided 100 respondents into two conditions based on their selection. Respondents' answer for main dependent variable, i.e., no-purchase/purchase and take items home/ purchase and online delivery, are very limited. The data collected is skewed.

This research has provided direction for future research for a scenario condition setting that could be the luxury sector. For example, gemstone stores, luxury bags and physical jewellery stores, because high value, personal involvement and more complicated products are riskier than those products with fewer characteristics (Kaplan, Szybillo, & Jacoby, 1974; Laurent & Kapferer, 1985). For example, when customers would like to buy luxury products, they may not be willing to use a delivery service option because of the existing perceived risk. Once the problem is in the delivery process, the loss could be large and unacceptable. Besides, these participants of the online survey are all located in America, and reflects the demand and reactions of those people. Future research may consider customers from other countries such as comparing the data from people located in New Zealand (a developed country) with people located in India (a developing country). The characteristics of New Zealand is that it is a country where almost each family has cars and the delivery cost is high. The demand for a delivery service in the physical retail sector would be extremely low. The characteristics of India is that it is a country with a larger quantity of people and labor costs and delivery costs are low. The demand for a delivery service in some well-developed cities could be very high. It is difficult to know based on previous research, therefore this is an area ripe for exploration.

In addition, future research could study the effect of a delivery option in physical space on customers' purchase likelihood and behaviour without the requirement of technology devices (e.g. mobile phone). If there were two stores, one of them with a delivery option and the other one without, then the effect of a delivery option could be studied. Also as it was found that the more money customers spend, the heavier items could be, and the higher the demand for a delivery service. A possible direction for future research could

be to study how several situational factors affect customers' decisions of whether to choose the physical store with a delivery option. For example, the situational conditions could be delivery charges, delivery time, the weight of the products and so on.

Furthermore, future research could improved the research questions and designs. A recommendation for future research is that it can include 'off-line delivery service with small fees' for no online delivery option, even though they are not comparable directly, the effect of new technology could be seen. For example, mobile online delivery, as opposed to old technology, i.g., offline delivery. Besides, future research can study the factors of delivery service that could affect customers' purchase behaviours. For example, specific delivery time, delivery charge and so on.

In conclusion, this chapter lists some limitations of this research, and also provides some future research directions and suggestions. This research tests the effects of a delivery service option on customers' purchase likelihood and behaviors in the physical retail sector. The results show that a delivery service option can marginally increase retail sales, but significantly affect the purchasing method. Furthermore, with providing a delivery service option in the physical retail sector, perceived value increased significantly, while perceived risk was scarcely changed. In addition, customers' attitudes towards technology adoption was seen to have an have effect on customer purchasing methods when providing a delivery service option integrated with technology devices.

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Appendix A Ethics Committee (AUTEC)



AUT

TE WĀNANGA ARONUI
O TĀMAKI MAKĀU RAU

Auckland University of Technology Ethics Committee (AUTEC)

Auckland University of Technology
D-88, Private Bag 92006, Auckland 1142, NZ
T: +64 9 921 9999 ext. 8316

E: ethics@aut.ac.nz
www.aut.ac.nz/researchethics

15 November 2018

Megan Phillips
Faculty of Business Economics and Law

Dear Megan

Ethics Application: **18/421 How technology options in the retail space can influence shoppers purchase likelihood**

I wish to advise you that a subcommittee of the Auckland University of Technology Ethics Committee (AUTEC) has **approved** your ethics application.

This approval is for three years, expiring 15 November 2021.

Non-Standard Conditions of Approval

1. Be consistent with the targeted number of respondents is it 100 as per C.3.2, or 60 as described in K. 6.1.
2. A careful review of the Information Sheet and survey for clarity of expression and typographical errors.
3. Change question nine in the survey from 'gender' to 'sex'.

Non-standard conditions must be completed before commencing your study. Non-standard conditions do not need to be submitted to or reviewed by AUTEC before commencing your study.

Standard Conditions of Approval

1. A progress report is due annually on the anniversary of the approval date, using form EA2, which is available online through <http://www.aut.ac.nz/research/researchethics>.
2. A final report is due at the expiration of the approval period, or, upon completion of project, using form EA3, which is available online through <http://www.aut.ac.nz/research/researchethics>.
3. Any amendments to the project must be approved by AUTEC prior to being implemented. Amendments can be requested using the EA2 form: <http://www.aut.ac.nz/research/researchethics>.
4. Any serious or unexpected adverse events must be reported to AUTEC Secretariat as a matter of priority.
5. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTEC Secretariat as a matter of priority.

Please quote the application number and title on all future correspondence related to this project.

AUTEC grants ethical approval only. If you require management approval for access for your research from another institution or organisation, then you are responsible for obtaining it. If the research is undertaken outside New Zealand, you need to meet all locality legal and ethical obligations and requirements. You are reminded that it is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard.

For any enquiries please contact ethics@aut.ac.nz

Yours sincerely,

Kate O' Connor
Executive Manager

Auckland University of Technology Ethics Committee

Cc: znw6272@aut.ac.nz; Jungkeun Kim

Appendix B Participant Information Sheet

AUT

TE WĀNANGA ARONUI
O TĀMAKI MĀKAU RAU

Date Information Sheet Produced:

01/11/2018

Project Title

The impact of a delivery option in a physical retail space on shopper likelihood

An Invitation

My name is Derek (LiFanLong). I am a Master of Business student from Auckland University of Technology. I invite you to participate in my research, “How the number of purchasing options in the retail space influence on shopper purchase likelihood.” This research will contribute as partial credit towards the completion of my Master of Business qualification. Your participation in this research is entirely voluntary. Your participation will be anonymous as no personal knowledge, location or IP address will be obtained for this research.

What is the purpose of this research?

This research plans to investigate how the availability of the number of technologies purchasing options at the retailer can bring negative effects to the shoppers purchase likelihood. Specifically, how the purchasing of a new option can affect the individual’s decision in a retail setting. How does adding a multi options to the physical retail space influence shoppers’ likelihood of purchase?

This proposed research will answer and test the following research questions: What negative impact does add a new purchase option to the physical retail environment have on shopper’s likelihood to purchase? Do customers suffer by choice overload issues? Do customers purchase more items because of new purchasing option?

How was I identified and why am I being invited to participate in this research?

You were identified because you are an Amazon Mturk panel member. To be included in this research you need to be over the age of 18 and a United States citizen.

How do I agree to participate in this research?

Your participation in this research is voluntary (it is your choice) and whether you choose to participate will neither advantage nor disadvantage you. Active participation in the survey means that you agree to take part in the research. If you feel uncomfortable at any stage of the investigation, you may stop doing the study. You do not have to answer any questions. No personal information will be collected regarding the participants. The researcher will not be able to connect any information provided during the survey to the individual participant who gave the information. The researcher will not have any knowledge regarding anyone who has taken part in the study. Information provided by participants cannot be excluded from the survey once the survey is complete.

What will happen in this research?

The research takes roughly five minutes to complete. You will be asked to read the have different purchasing options supermarkets scenarios and respond to each question. Consent for participation in this research will be completion of the survey questionnaire.

What are the discomforts and risks?

This process should not post any discomfort or risk to you. I am not collecting your personal name or workplace, so you will never be personally identified. You will be totally anonymous-and your anonymity will not be compromised. Overall, your responses will be added to other employees from the United states and be analysed at the aggregate level only.

How will these discomforts and risks be alleviated?

If you do not feel comfortable during the research, you may discontinue involvement in this survey at any time. Moreover, you do not have to answer any questions if you do not wish to.

What are the benefits?

This research will build on previous research about added new options in retails shops could negatively effect on the customers the percentage of purchasing. Participants might enjoy the opportunity to participate in an academic research project which will contribute to my Master of Business qualification.

How will my privacy be protected?

As stated above, responses are anonymous and all information pertaining to you will be kept confidential and data will be stored in a locked file at AUT. No one other than the researchers will have access to this information.

How do I agree to participate in this research?

Completing the online questionnaire will be taken as consent to participate.

What are the costs of participating in this research?

Cost is 5 minutes of your time.

What opportunity do I have to consider this invitation?

You will be given three weeks to consider this invitation.

Will I receive feedback on the results of this research?

We will send you a synopsis of the results at your request. So, if you want to find out the results of this research, please send an email to Megan Phillips, megan.phillips@aut.ac.nz or Jungkeun Kim, jkkim@aut.ac.nz.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Dr Megan Phillips, email: megan.phillips@aut.ac.nz, phone: +64 9 921 9999 ext. 5428.

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTEK, Kate O'Connor, ethics@aut.ac.nz, 921 9999 ext. 6038.

Whom do I contact for further information about this research?

Please keep this Information Sheet and a copy of the Consent Form for your future reference. You are also able to contact the research team as follows:

Researcher Contact Details:

Derek Li (LiFanLong), email: znw6572@autuni.ac.nz,

phone: +64 21 185 5318

Project Supervisor Contact Details:

Dr Megan Phillips, email: megan.phillips@aut.ac.nz, phone: +64 9 921 9999 ext. 5428.

Approved by the Auckland University of Technology Ethics Committee on

15 November 2018, AUTECH Reference number 18/421

Appendix C (Questionnaire)

Delivery purchasing option in retail stores

Start of Block: Scenario with questions

Scenario 1 Imagine that you are purchasing several items at a grocery store. The store only provides you with one option for payment and delivery: to pay for the items in the store and bring them home with you.

Q1 How likely are you to purchase items from this grocery store?

- Yes - Purchase items in-store to carry home with you
- No - Do not purchase items

Scenario 2 Imagine that you are purchasing several items at a grocery store. The store only provides you with two options for payment and delivery: to pay for the items and bring them home with you, or alternatively purchase the items in-store via your mobile phone and have them delivered to your home. The delivery fee is free and the delivery can be completed within 30 minutes.

Q2 How likely are you to purchase items from this grocery store?

- Yes - Purchase items in-store to carry home with you
- Yes - Purchase in-store via mobile to be delivered to your home
- No - Do not purchase

End of Block: Scenario with questions

Start of Block: Perceived risk

For the following questions, please consider the hypothetical scenario and the purchase option you have just selected.

Q3 What are the chances that you stand to lose money if you try this method of payment? (please indicate your answer on the scale below)

	1	2	3	4	5	6	7	
low chance of losing money	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High chance of losing money

Q4 What is the likelihood that there will be something wrong with this method of payment or that it will not work properly?

	1	2	3	4	5	6	7	
low functional risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High functional risk

Q5 What are the chances that this method of payment may not be safe?

	1	2	3	4	5	6	7	
Very safe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very unsafe

Q6 What are the chances that this method of payment will not fit in well with your self-image or self-concept? (The term self-concept is a general term used to refer to how someone thinks about, evaluates or perceives themselves).

	1	2	3	4	5	6	7	
Low psychological risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High psychological risk

Q7 What are the chances that this method of payment will affect the way others think of you?

	1	2	3	4	5	6	7	
Low social risk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High social risk

Q8 On the whole, considering all sorts of factors combined, about how risky would you say it was to buy with this method of payment?

	1	2	3	4	5	6	7	
Not risk at all	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely risk

End of Block: Perceived risk

Start of Block: Perceived Value

For the following questions, please consider the hypothetical scenario and the purchase option you have just selected. (1= Extremely Disagree 7= Extremely Agree)

.....

Q9 The store provides attractive services.

	1	2	3	4	5	6	7	
Extremely Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely Agree

Q10 The store provides more free services.

	1	2	3	4	5	6	7	
Extremely Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely Agree

Q11 The store provides me with good value.

	1	2	3	4	5	6	7	
Extremely Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely Agree

Q12 Please indicate how the perceived value of this grocery store to you would change as with adding delivery option via mobile phone. (1= would change extremely negative; 4= would not change at all; 7= would change extremely positive)

	1	2	3	4	5	6	7	
Extremely Negative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely positive

End of Block: Perceived Value

Start of Block: Perceived ease of use mobile purchasing option

Below questions is about your personal attitude towards adoption of new technology and can be justified based on your own experience and knowledge.

Q14 For me, the cost in time, effort and grief to switch payment methods is high.

	1	2	3	4	5	6	7	
Extremely Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely Agree

Q15 I have avoided technology because it is unfamiliar to me.

	1	2	3	4	5	6	7	
Extremely Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely Agree

Q16 It bothers me to use a machine or app when I could talk to a live person instead.

	1	2	3	4	5	6	7	
Extremely Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely Agree

Q17 I do not have much experience using the new technology. (e.g. Mobile shopping)

	1	2	3	4	5	6	7	
Extremely Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extremely Agree

End of Block: Perceived ease of use mobile purchasing option

Q16 What is your sex?

Male

Female

Q17 What is your age?

Under 18 years old

18 - 24 years old

25 - 34 years old

35 - 44 years old

45 - 54 years old

55 - 64 years old

65 - 74 years old

75 - 84 years old

85 or older

Q18 Which of the following is most appropriate to describe your social roles?

Employed full time

Employed part time

Unemployed looking for work

Unemployed not looking for work

Retired

Student

Disabled

Q19 What is your highest education degree?

- Less than high school
- High school graduate
- Some college
- 2-year degree
- 4-year degree
- Professional degree
- Doctorate

Q20 Please select your Socioeconomic status (average net income level per year)

- Less than \$10,000
- \$10,000 - \$19,999
- \$20,000 - \$29,999
- \$30,000 - \$39,999
- \$40,000 - \$49,999
- \$50,000 - \$59,999
- \$60,000 - \$69,999
- \$70,000 - \$79,999
- \$80,000 - \$89,999
- \$90,000 - \$99,999
- \$100,000 - \$149,999

- More than \$150,000
-

Q21 Are you the main decision household shopper?

- Yes
- Maybe
- No

Q22 How often do you go grocery shopping?

- Two weeks for one time
- Once a week
- Twice a week

Q23 how much do you often spend for one-time shopping?

- Less than \$10
- \$10-\$50
- \$51-\$100
- \$100-\$150
- \$150-\$200
- More than \$250