

**T.C.
ISTANBUL AYDIN UNIVERSITY
INSTITUTE OF SOCIAL SCIENCES**



**DETERMINANTS OF CONSUMER SATISFACTION OF MOBILE
COMMERCE IN TURKEY**

MSc. THESIS

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**Department of Business
Business Administration Program**

Thesis Advisor: Assist. Prof. Dr. Farid HUSEYNOV

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SOSYAL BİLİMLER ENSTİTÜSÜ MÜDÜRLÜĞÜ



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DECLARATION

I hereby declare that all information in this thesis document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results, which are not original to this thesis.

Muhammad Ali BALOCH





*To my beloved parents,
Who are always next to me
No matter what ...*

FOREWORD

First of all, I would like to express my endless gratitude to Allah for being who I am right now and helping me to find patience, strength within myself to complete this thesis.

I would also like to thank my family not only for encouraging me to go abroad for Master's degree, but also for teaching me to chase my dreams and never give up. I cannot express how grateful I am for having such a loving family that always believes in me. Moreover, my family is my source of inspiration and engine that helps me to improve and move on. I cannot mention the patience and support that they showed within this period of my life. Behind of any my success there is a hard work of my dear parents.

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June 2019

Muhammad Ali Baloch

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ABBREVIATIONS

B2B	: Business to Business
B2G	: Business to Government
B2C	: Business to Consumer
C2B	: Consumer to Business
C2C	: Consumer to Consumer
C2G	: Consumer to Government
CFA	: Confirmatory Factor Analysis
E-Banking	: Electronic Banking
E-Business	: Electronic Business
E-Commerce	: Electronic Commerce
E-Loyalty	: Electronic Loyalty
E-Pay	: Electronic Payment
E-Satisfaction	: Electronic Satisfaction
E-Transaction	: Electronic Transaction
EDI	: Electronic Data Interchange
E-Store	: Electronic Store
E-Service	: Electronic Service
E-Transaction	: Electronic Transaction
G2B	: Government to Business
G2C	: Government to Consumer
G2G	: Government to Government
ICT	: Information and Communication Technology
IQ	: Information Quality
IT	: Information Technology
AMOS	: Analysis of a Moment Structures
SPSS	: Statistical Package for the Social Sciences
CRM	: Customer Relationship Management
SEM	: Structural Equation Modeling

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DETERMINANTS OF CONSUMER SATISFACTION OF MOBILE COMMERCE IN TURKEY

ABSTRACT

The concept of customer satisfaction points out the satisfaction that customers gain from working with a business. In other words, the concept describes how satisfied customers are with their transaction and their overall experience with the company. In order to retain existing customers, spread brand awareness through them and convert current customers to loyal ones, customer satisfaction is a key requirement to be met. Any business entity attempts to reach high level of customer satisfaction through their customer relationship management activities.

Mobile commerce (m-commerce) are among young business entities that struggle with customer satisfaction concept known as m-satisfaction. M-commerce is the subsection of e-commerce that contains all e-commerce transactions that can be performed with the help of a mobile (handheld) devices.

The objective of this thesis is to identify characteristics of m-commerce and to recognize factors that affect customer satisfaction (m-satisfaction) in m-commerce through well- founded empirical studies. Mobile user's discernments and satisfaction are clarified in regards to versatile trade in Turkey.

First, based on previous literature, this thesis builds sets of customer satisfaction factors for both e-commerce and m-commerce. Second, features of m-commerce are identified by comparing it with current e-commerce. Third, significant factors that affect m-satisfaction are examined by employing structural equation model. The data for the study have been collected through a self-administrated questionnaire where 204 respondents from Turkey (mainly from İstanbul city) have participate.

According to the research findings, mobility, ease of use, security and privacy are positively correlated to customer satisfaction while both content reliability and service quality have no relationship with customer satisfaction. M-retailors and m-commerce service designers can utilize findings of this study to know about how to improve customer satisfaction level of their customers and as a result gain competitive advantage based on a better understanding of their customers' needs and expectations.

Keywords: *M-Commerce, E-Commerce, Structural Equation Model.*

TÜRKİYE’DE MOBİL TİCARET MÜŞTERİ MEMNUNİYETİ BELİRLEYİCİLERİ

ÖZET

Müşteri memnuniyeti, müşterilerin bir işletmeyle çalışmaktan duydukları memnuniyeti ifade eder. Diğer bir deyişle, müşterilerin gerçekleştirdikleri işlemlerden ve şirketteki genel deneyimlerinden ne kadar memnun olduklarıyla ilgilidir. Mevcut müşterileri elde tutmak, marka bilincini onlar aracılığıyla yaymak ve mevcut müşterileri sadık müşterilere dönüştürmek için müşteri memnuniyeti elde edilmesi gereken en önemli hususlardan biridir. Her işletme, müşteri ilişkileri yönetimi ile olabildiğince yüksek müşteri memnuniyetine ulaşmayı hedefler.

Mobil ticaret (M-ticaret) bir mobil cihaz yardımı ile yapılabilecek tüm e-ticaret işlemlerini kapsayan e-ticaretin bir alt bölümü olarak tanımlanabilir. M-ticaret, “m-memnuniyeti” olarak bilinen müşteri memnuniyeti anlayışıyla mücadele eden yeni işletmeler arasında yer almaktadır.

Bu çalışmanın en önemli amacı; m-ticaretin özelliklerini incelemek ve m-ticarete müşteri memnuniyetini etkileyen faktörleri belirlemek ve değerlendirmektir. Çalışmanın ilk kısmında, daha önceden gerçekleştirilmiş olan m-ticaret ve e-ticaret ile ilgili araştırmalardan ortaya çıkan müşteri memnuniyet sonuçları incelenerek oluşturulacak modelin değişkenlerine karar verilmiştir. Ayrıca m-ticaretin özellikleri, mevcut e-ticaret ile karşılaştırılarak değerlendirilmiştir. Bunlara ek olarak m-memnuniyeti etkileyen faktörler yapısal eşitlik modeli kullanılarak incelenmiştir. Çalışmada kullanılan veriler anket yöntemiyle toplanmıştır. Geneli yansıtabilmesi adına genel olarak İstanbul ağırlıklı olmak üzere 204 kişinin değerlendirmesi dikkate alınarak çalışma gerçekleştirilmiştir.

Çalışmadan elde edilen bulgulara göre mobilite; kullanım kolaylığı, güvenlik ve mahremiyet, müşteri memnuniyeti değişkenleri ile uyumlu bir ilişkide olduğu gözlemlenmiştir. Ayrıca içerik güvenilirliği ve hizmet kalitesi değişkenlerinin de müşteri memnuniyeti değişkeni ile herhangi bir ilişkisinin olmadığı gözlemlenmiştir.

Bu çalışmadan elde edilen bulgular; M-perkandeciler ve/veya m-ticaret servis tasarımcıları tarafından, müşteri memnuniyetini arttırmak ve müşterilerin ihtiyaçlarını daha iyi karşılayabilmek adına geliştirecekleri stratejilerde kullanılabilir.

Anahtar Kelimeler: Mobil-Ticaret, E-Ticaret, Yapısal Eşitlik Modeli.

1. INTRODUCTION

1.1 Statement of the Problem

The definition of Mobile Commerce (M-commerce) means using the mobile phone to accomplish any transaction to obtain goods or services. Nowadays the smartphones occupy a prominent place in people's lives. Smartphone is a mobile phone based on a mobile operating system with advanced computing capabilities and connectivity. In reality, the interaction between technologies such as the internet, mobile computing devices, and wireless networks (e.g. mobile network) simplifies the existence of M-commerce to offer many services to mobile consumers (Siau & Shen, 2003). M-commerce is strongly linked to Electronic Commerce (E-commerce) (Tiwari, Buse, & Herstatt, 2006).

Whereas E-commerce provides "anytime" access to online services, M-commerce potentially allows users to perform online transactions "anytime and anywhere" (Zhang & Yuan, 2003). This concept of "anytime and anywhere" transacting and accessing important business information can be considered as one of the most significant advantages of M-commerce that draws the attention of businesses and their employees (Alfahl, Sanzogni, Houghton, & Sandhu, 2012).

Since the evolution of any nation depend on the M-commerce, it is clear that there is competitive market in all over the world. The number of M-stores has been increasing and competition grows rapidly. To maintain competitive advantage in the marketplace, the companies are looking new methods of service deliveries. Figure 1.1 illustrates the growth of mobile phone subscriber in Turkey between 2010 and 2015.

In the past years, mobile industry in Turkey continued to grow rapidly, with 73.6 million subscribers in 2015 with 93.5% market penetration rate. Turkey had 41.5 million smartphone users in 2015; a market penetration rate of 56.7%.

The share of postpaid subscribers in the market was 49%, compared to around 62% in Europe (investinggroup, n.d.).

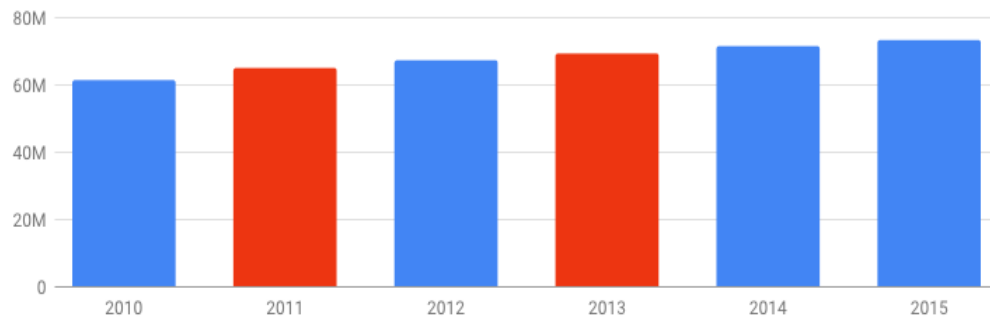


Figure 1.1: The Growth of Mobile Phone Subscriber between 2010 and 2015 in Turkey

Source: <https://investinggroup.org/data/13/mobile-phone-subscriber-growth-in-turkey/>

In the past years, mobile industry in Turkey continued to grow rapidly, with 73.6 million subscribers in 2015 with 93.5% market penetration rate. Turkey had 41.5 million smartphone users in 2015; a market penetration rate of 56.7%. The share of postpaid subscribers in the market was 49%, compared to around 62% in Europe (investinggroup, n.d.).

Moreover, Internet Live Stats' reports reveal that internet penetration rate in Turkey is (56 Million users) 58% (3.8% in 2000, 68.5% in 2016) from 2000 till 2016 (stats, 2018). The data lays bare that internet usage has been rapidly growing in Turkey, and lead to development into national and international market for selling and exchanging goods.

According to the statistics mentioned hereinabove, it is proven the success of M-commerce in Turkey and revealed excellent development since the beginning. Although there are many challenges in M-commerce in Turkey, the number of M-retailers and rate of adoption is increasing.

The reason why this impressive increase in the number of M-commerce and online shopping is hiding behind the existing broad range of goods and services. On the other hand, identifying factors influencing customer satisfaction in M-commerce platform and conducting appropriate strategies to employ them are considered as important factors in improving services provided by B2C organizations. The vast expansion of online shopping in Turkey highlights the noteworthiness of working on customer satisfaction topic, which is considered

as a key factor in M-stores. The explosive growth of M- shopping in Turkey underlines the remarkable role of customer satisfaction as a vital factor in M-shops (Grönroos, 1991) stated that customer satisfaction plays a crucial role and is a useful tool for interpreting customers' responses and ideas in the long-term with respect to the evaluation cycle of usage, shopping, service or product consumption.

It is significant that satisfied customer be taken into consideration in behaviour of customers. Previous shopping depends on upcoming purchase. The cost of customer retention is more than customer acquisition, that is, it is of importance for business in order to improve customer satisfaction level to find out the assumed factors influencing the M-customers. Customer behaviours have been scrutinized in so many areas including product features affection, service quality and so on. However, E-retailers also take an important place in M-commerce.

Therefore, understanding the underlying determinants of M-commerce customer satisfaction including decision-making behaviors of customers, defining their requirements and effective components of satisfactory service can remarkably avail M-stores' managers and M-commerce service providers to upgrade their presented service, to modify operational strategies and to build satisfying M-commerce platforms in order to satisfy consumers' needs and expectations more and in a better way. Regarding the importance of customer satisfaction in M-commerce platforms, however, few scholars have studied on domestic online shopping and far too little attention has been paid to this matter.

Thus, the number of related studies introduced is few and there is very little information with regard to these factors that are the most predominant in terms of increasing customer satisfaction in Turkey. Therefore, there is distinct lack of research in this area. Based on the arguments hereinabove, in this study, we stepped beyond consumers' behavioral factors and sought to enlighten the factors, which affect satisfaction level of customers in a Turkey B2C E-commerce platform and are of importance for them as deciding to shop online.

1.2 Purpose of the Research

The main purpose of this research is to examine and identify the effects of factors on customer satisfaction as well as their relationships and the degree of influence on the Turkish M-commerce platforms.

To show the effects of factors and to prove the hypothesis related with the customer satisfaction, as a sector, M-commerce has been chosen and also one reason to choose this sector is due to the fact that it takes a big share from the market. In addition to this, M-commerce can be considered as one of the most famous platforms in Turkey. To analyse and to understand the situation in this sector, a questionnaire was conducted to collect the data.

The findings of this study will make contributions to insights of predominant factors that affect online customer satisfaction in M-commerce of E-retailors in Turkey. The findings to improve customer satisfaction can facilitate better understanding of customers' needs, wants and expectation for those who gain competitive advantage.

1.3 Significance of the Study

The importance of the study can be summarized as the following points:

- The main purpose of this study is to explore the main factors that affect the level of customer satisfaction in M-commerce platform in Turkey and examine their relationship in order to build a structure through which the hypotheses can be verified and evaluated for their relationships.
- There might be some suggestions for managers or owners of Turkish M-retailers to how they can understand the perceptions of customers and improve their satisfaction in order to expand their business and achieve competitive advantages.
- The outcome of the study may inspire the local Turkish authorities to give serious attention to increase customer satisfaction in the M-commerce platform.

- While most of the studies in the literature were conducted in customer trust, they were used to examine factors influencing customer satisfaction.
- I hope that, it will guide to more researches in the domain of customer satisfaction in the environment of the M-commerce platform in Turkey.

1.4 Research Questions

According to the purpose of the study, the following research question aiming at answering is formulated:

- Which factors influence consumer satisfaction level in M-commerce?

1.5 Outline of the Thesis

The thesis contains six chapters as follows:

The first chapter introduces the topic of the thesis, states the problem and research question, and explains the main and important purpose of the research.

To understand the general situation, second chapter is the literature review and make a brief comparison between M-commerce and E-commerce. Furthermore, a number of pervious works, theories and studies carried out in the field were discussed.

Third chapter deals with theoretical framework of this research through related hypotheses provided.

Then, the following fourth chapter deals with the methods of the research including research design, procedures, study sample, the instruments of the survey and the techniques.

In the chapter five, data collected from the questionnaire were analysed and results were interpreted.

Finally, in the sixth chapter, conclusion and discussion were carried out and recommendations for future researchers were made.

2. LITERATURE REVIEW

There are several researches, which have been conducted in customer satisfaction in M-commerce, and various literature sources are available to study (e.g. Amin, Rezaei, & Abolghasemi, 2014; Choi, Seol, Lee, Cho, & Park, 2008; Lin, 2003; Amin, et al., 2014). In order to understand similar areas of research in depth, it is important to review similar previous studies and develop a theoretical background for this research. Therefore, this chapter presents some definitions of M-commerce, along with its features and challenges, as well as the definition of customer satisfaction. In addition, it shows how consumer behavior is affected by M-commerce. Finally, the chapter comes to the end with identifying of several basic factors affecting customer satisfaction.

2.1 The Comparison of Mobile Commerce and Electronic Commerce

E-commerce is the concept used to define any economic activity, such as the sale of products and services over the Internet (Barnes, 2002; HU, 2006; Chan & Chong, 2012). Thus, M-commerce can be defined as an extension of E-commerce. As sharing basic business principles, the two concept are similar (Zhao, Lu, Zhang, & Chau, 2012). More precisely, M-commerce is a new type of E-commerce where all the transactions are linked via handheld devices and are interacting in a wireless mode (Lee, 2005). “M-commerce is not a ‘better’ E-commerce” (Hu, Yeh, Fu, & Yang, 2006); however, M-commerce itself outperforms E-commerce in terms of interaction styles, usage patterns and the value chain (Lee, 2005).

In addition to these, M-commerce provides users with anytime, anywhere access. From this point of view, there is restriction on time or geographic limitations as searching products from mobile devices. With the usage of M-commerce, data is transferred wirelessly between mobile phones and computers, enabling users to use services flexibly and without wired connection requirement (Choi, Seol, Lee, Cho, & Park, 2008).

Table 0.1: Comparison Chart of M-commerce and E-commerce

Basis for Comparison	E-commerce	M-commerce
Meaning	Any kind of commercial transaction that is concluded, over the internet using electronic system is known as e-commerce.	M-commerce refers to the commercial activities which are transacted with the help of wireless computing devices such as cell phone or laptops.
Which device is used?	Computers and Laptops	Mobile, tablets, PDA's, iPad etc.
Developed	In 1970's	In 1990's
What is it?	Superset	Subset
Ease of carrying device	No	Yes
Use of internet	Mandatory	Not mandatory
Reach	Narrow i.e. is available only in those places where there is internet along with electricity	Broad due to its portability

Source: <https://keydifferences.com/difference-between-e-commerce-and-m-commerce.html>

2.1.1 Electronic commerce

E-commerce, also known as electronic business (E-business), is the simple sale and purchase of services and products through an electronic medium, such as the internet. This also includes the electronic transferring of data and money between two or more parties. Simply put, it is online shopping as we generally know it (Susmita, 2018). The history of E-commerce dated back to 1960s, when corporations began utilizing Electronic Data Interchange (EDI) to transfer their business documents back and forward. In the 1990s, online shopping began to be established, which is a popular nowadays. However, with constant growth of the sector, E-commerce turned into business activity performed via World Wide Web. Although the Web was introduced in 1994, it was available for users after four years.

When we consider the concept of E-commerce, in our mind we had the idea that the European countries and USA introduce to community (East Asia Countries).

Amazon and eBay are known as an important source of E-commerce. Furthermore, Amazon is the first organization to develop a business model for online merchants and sold its first product in 1995. Amazon's performance is quite impressive as sales across the USA and abroad were only available in the first month of service. Although Amazon has many reasons to retain its engine status, the most significant one among the reasons is the timing. The market entry in those days without competition focused on creating a customer-focused online store that could search by product name, category and customer ratings.

By 1997, Amazon extended the range of books' products to all other goods that could come to the buyers' mind.

As to EBay, it joined the world of E-commerce at the same time as Amazon joined, but with a different name - The Auction Web. In 1996, a feedback feature was introduced to the website, enabling both sellers and buyers to share their experiences. In 1997, The Auction Web was changed to eBay and consumers around the world continue to visit the site today (EBay, 1995).

2.1.2 Type of E-commerce

Jeewon, Choi (2013); Karlygash (2018); Giti, Irantaj (2018); considered following commonly known e-commerce classification:

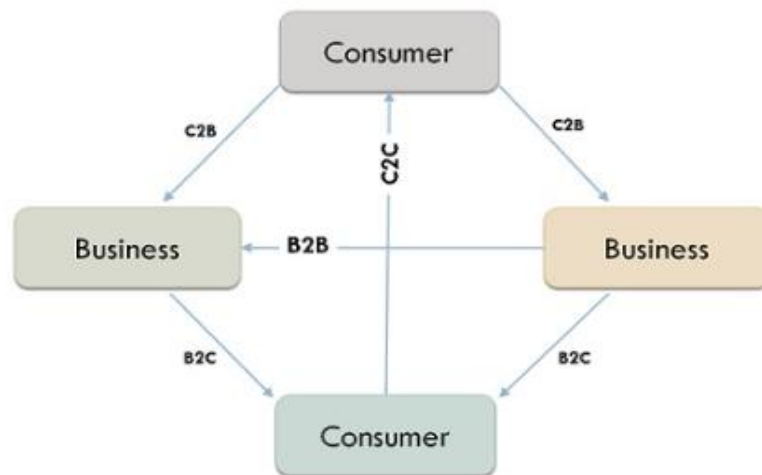


Figure 2.1: E-Commerce Classification

Source: <https://keydifferences.com/difference-between-e-commerce-and-m-commerce.html>

- Business-to-Business (B2B) is an E-commerce type in which business transactions take place between two different companies. A wholesale transaction taking place through the website is a clear example of this phenomenon.
- Business-to-Consumer (B2C) refers to the process of the direct selling of goods and services between consumers who are the final consumers of their products or services.
- Consumer-to-Business (C2B) is an opposite model to B2C where individuals offer products and services to businesses over the internet.

- Consumer-to-Consumer (C2C) in this model, two end users can interact directly with each other.
- M-commerce has its origin since 1997 and refers to online purchasing and selling activities via wireless mobile devices (mobile phones, tablets, etc.). Without the need to find a place to plug in, users can involve selling and buying activities online. M-commerce activities are constantly evolving and providing a wider range of options such as M- shopping, M- banking, E-retailing, E-advertisement and so on.

2.1.3 Mobile commerce

M-commerce can be considered as the next generation of E-commerce. In order to understand M-commerce as a modern concept, it is important to be aware of the E-commerce definition, i.e., the exchange of business information, the maintenance of business relationships and the conduct of business transactions via computers which are connected by a telecommunication system (Arikan, 2013). These telecommunications systems can be a secure private network or a public network such as the Internet (Arikan, 2013).

On the other hand, M-commerce can be understood as any transaction (such as data entry and purchase) or content delivery (such as reporting and notification) with monetary value that is performed over mobile networks and devices (Belanger, 2002; Casalo, Flavia'n, & Guinalí'u, 2007; PwC, 2017).

M-commerce is directly linked to E-commerce (Alfahl, Sanzogni, Houghton, & Sandhu, 2012). While E-commerce provides "anytime" access to online services, M-commerce may allow users to perform online transactions "anytime and anywhere" (Zhang & Yuan, 2003). This concept of "anytime and anywhere" transaction and access can be seen as one of the key advantages of M-commerce, attracting the attention of firms and their employees (Alfahl, Sanzogni, Houghton, & Sandhu, 2012). According to (Siau & Shen, 2003) M-commerce is all about "delivering the right information to the right place at the right time", which gives it inherent characteristic like ubiquity.

There are many applications for M-commerce enabling users to engage in various activities; to download music, buy tickets, perform banking or e-transactions, shop for goods, send or receive emails, play interactive online

games, and trade stocks (Kim, Mirusmonov, & Lee, 2009). The M-commerce market would reach about \$119 billion, holding the rate of 8% of the total E-commerce market. M-commerce can also improve productivity so that the companies and organizations have preferred to innovate and adopt M-commerce to provide larger and more comprehensive services to their various stakeholders. M-commerce is not only an extension of E-commerce, but also a different business philosophy that demands the introduction of new business models (Stoica, Miller, & Stotlar, 2005; Tsalgatidou & Pitoura, 2001). Moreover, Nohria, (2001) stated that M-commerce is a modern channel of consumer behavior and a highly effective way to reach the customers. According to Nohria (2001) M-commerce provides ideal opportunities for companies that understand how consumers can benefit from collaborative marketing such as the mobile services market.

Accordingly, Alfahl et al. (2004) said that “in today’s marketplace, where more and more organizations are decentralized and workers are increasingly more mobile, the ability of an organization to equip its workforce with access to vital information, anytime and anyplace, is becoming a strategic asset”. Siau et al. (2001) was one of the first to foresee the current movement towards mobile business and stated that “M-commerce will likely emerge as a major focus of the business world and telecommunication industry in the immediate future” but embracing M-commerce has its difficulties.

2.1.4 M-commerce distinctions from E-commerce

There are two user-oriented core-dimensions that M-commerce has advantage over E-commerce such as localability and mobility communication. IP devices offers mobility in M-data networks. They also employ geographical locating in systems or in user-network elements to pin-point cell (mobile). By the help of this mobile devices, the user can offer his/her geo-locations in localability communication or information payment. The dimensions create a range of distinctions between M-commerce and conventional E-commerce.

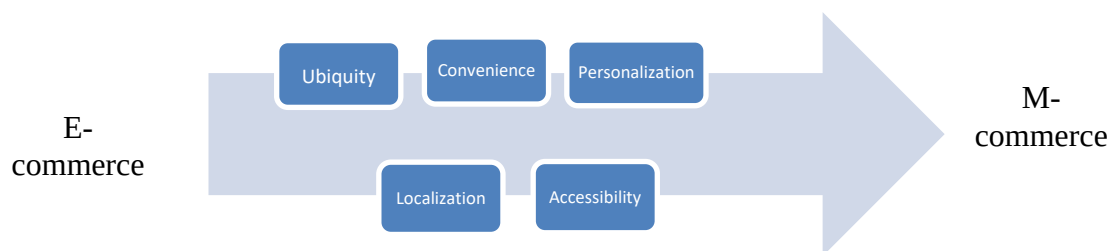
Table 0.2: The Distinction between M-Commerce and E-Commerce

Dimension	E-Commerce	M-Commerce
Core Dimensions		
Mobility	Limited: User can transact from location with Internet access	Ubiquitous: User can transact from anywhere with mobile network area
Localability	Client-specific: Client computer locatable via IP address	User-specific: User, device, and geographic location can be identified.
Behavioral, Strategic, and Leadership Dimensions		
Key customer concern	Money: Because of “free Internet” culture, E-commerce users are money conscious	Time: Evolving from mobile telephony culture, m-commerce users are time conscious. They are used to paying for mobile services.
Customer location and market served	Fixed Locations: Customers can be served at locations where they have Internet-linked computer access.	Ubiquitous and Global: Customers can be served anywhere within the mobile network coverage area.

Source: (DifferencesKey, 2008)

2.1.5 Attributes of M-commerce

Following is the Figure 2.2 showing five key attributes for M-commerce painted, including ubiquity, convenience (Irvine , 2008; Siau, et al., 2003; Panneerselvam, 2013) personalization, localization, and accessibility.

**Figure 0.2:** E-commerce to M-commerce

Source: (Junglas & Watson, 2003)

Initially, ubiquity may be a key improvement of M-commerce (Siau & Shen, 2003). It is stated as being invisible or seamless (Anh, 2015). Additionally, ubiquity is also defined as presence of technology at any time or any place, whose characteristic gives it not to be noticed by us (Barnes, 2002). To put it simply, the feature of ubiquity permits cell users to get data, purchase product

or use service independently of their location. Additionally, these electronic gadgets enable customers to access Internet without a necessity to search out an area to plug in which enable M-commerce users to be omnipresent (Clarke, 2001)

The characteristic of ubiquity allows users to take less time to finish unique task (Okazaki, et al., 2012). M-trade programs allow those who benefits from a variety of actions; for instance, quick interaction with buddies and circle of relatives through several messaging applications like, Facebook, Viber, WhatsApp (and many others), easily monitoring their shares, comfortably shopping on-line with several applications and so on. In other words, there are some limited properties which are connected with mobiles, such as application software and also their interface design for mobile changing between providers (Arikan, 2013).

Although, these mobile software application's limits are regularly being to address in line with the increase of M-commerce revenue, there are various companies have recognised the customer satisfaction (Arikan, 2013). Furthermore, context-aware applications for E-commerce offer attentive alerts, which try to help out users to aware about friends' status, team member's information or some valued and relevant updates within time. Such information about jobs and location are sensitive to have benefit to manipulate the ubiquitous. M-commerce may increase the increasing the revenue (Clarke, 2001)

The concept of availability is ability to easily access to the recourses. Availability is a quality that gathers up the accessibility and Ease of Use (EU). To put it simply, it is mutual approach to obtain to reach. Mobile business provides its users with direct messaging and services. The feature of availability provides users to receive real-time instant messaging information; in the opposite case it will be use-less. Owing to usage of GPRS, mobile users can be always in touch and connected with world and can have an "always online" (Clarke, 2001).

Generally, the mobile business associate the many attributes like ubiquity, personalization, convenience, localization and accessibility, these provide advantages it over internet business. Attributes detailed above offer mobile

consumers capability to reach the internet and information with information about their location or position.

In addition, thanks to context-aware application's attributes, M-commerce are of importance for businesses by enabling them to reach the users, employees and suppliers in any circumstances (Siau & Shen, 2003). With remarkable development in environment of technology; it is essential to conduct more researches on M-commerce attributes. In the end of research, it will help to gain an inclusive detailed asset of mobile-commerce to increase efficacy in the m-market.

2.1.6 Mobile devices challenges

Mobile devices have many challenges such as software designing for mobile computing (Forman & Zahorjan, 1994), application development (Joorabchi, 2013). Due to the fact that malicious spasms spring from PC to mobile phones and its applications, security is a critical part of protecting sensitive user-context and information. Mobile companies are aware of these facts and carry out the studies for the solution about security.

The unique qualities of mobile business are several major difficulties for users such as physical security, secure data storage, multiple-user logging M-browsing, app-isolation, system updates (SU), m-device, coding issues, malware rise. Although there are serious threats, connectivity, screen size, display resolutions, and limited capability and power will be explained (Keengwe, 2015). Figure 2.3 illustrates the challenges here in below:

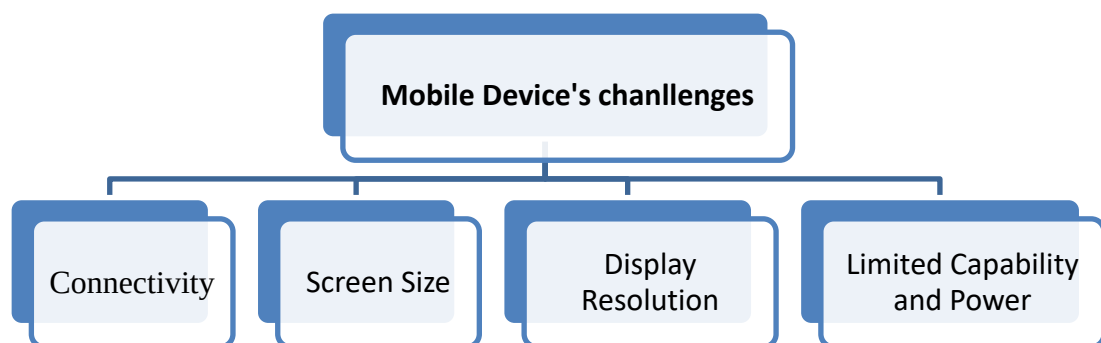


Figure 2.3: Challenges and Issues of Mobile Devices

Source: (Anh, 2015)

The wireless linking can contrast subjected on different issues, time, day, weeks, years, locations, document's file size, latency rate or bandwidth. Above issues might be causes of delays to access information through wireless connection at mobile devices. The delays will increase feelings of loss and grievances to negative impression for end-users, (Sears & Jacko, 2000).

2.2 Mobile User Behaviour

Customer satisfaction is one of the significant indications of customer behaviour. Well-satisfied mobile user is more likely to shop online and it is more possible that they will carry on shopping in the upcoming future again. The virtuous circle improves the effective factors in customer satisfaction and ends up with more satisfy and loyal user of the future. There are lot of studies conducted that explain how to scale user behaviour and how to measure E-customer satisfaction. Some of them classifies the customers based on their shopping behaviour's which indicate attributes affecting the customer satisfaction.

2.2.1 Mobile user behavior for decision making

The single user behaviour cannot set apart from other's remarks. Definitely, consumers' opinions influence from various ideas as well as environment around them, (Hall, 2014). Traditional impacts on consumer decision making is also subject on which the researchers study and define consumer behaviour and reveal that it is a study of products, peoples or groups which help to outline their characteristics (Ashman, Solomon, & Wolny, 2015) The Figure 2.4 shows service consumption model step by step.

In the decision making process for mobile users, there are three stages (Tsiotsou & Wirtz, 2015). The stages can be categorized respectively as pre-purchasing level, service meeting stage and post-purchase. In this research, these three stage model of consumer behaviour has been adopted.

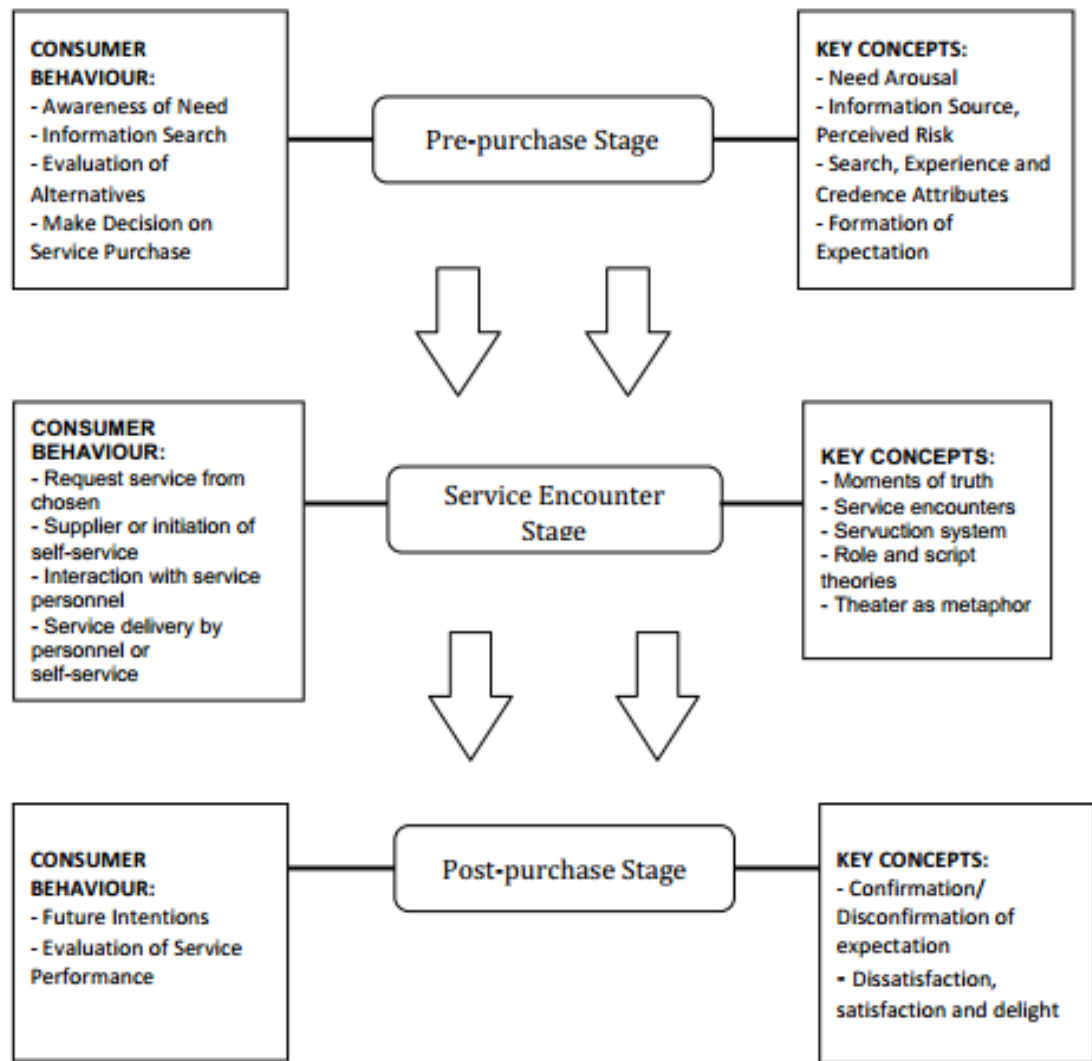


Figure 2.4: Service Consumption Model

Source: (Tsiotsou & Wirtz, 2015).

The first phase of pre purchase contains set of activities and factors (Tsiotsou & Wirtz, 2015). In pre-purchase phase, there are four stages of the user's behaviour: in the start with information about product or services needed, data search, assessment of another possibility, and to decide on whether to purchase the product or not. In this phase, consumer's action is stimulated by a need arousal. Motivated users are to start searching data about product information to catch the solutions about their want and need. There are numerous ways for mobile users to collect information from support system (friends or family & surrounding) or using the WWW to match products, analyse consumer reviews and rating from trusted websites.

Some alternative opinions may come to mobile users mind and they may utilize another possibilities. When the evaluating process start, then, users are ready to make decision to purchase and move next stage which is the service meeting. This phase is a period of after users are in interaction directly with product. As a stated by Coye (2004) “service encounters are complex process”. It can form the users’ potentials satisfaction, reliability, re-purchase intentions (Meuter, Ostrom, Roundtree, & Bitner, 2000).

The next phase is post-encounter stage in other words post-purchase stage. In this stage which is product consumption process, users assess the product, compare it with the others and get information about product’s prior potentials. Users are more likely to be satisfied when their expectations are met with needs or demands.

While users are happy, then, they might buy the service again and again, remain their loyalty and suggest the products to their environment (friends & families), etc. In contrast, less satisfied user might complain about quality service, lose trust on service, and switch the service supplier.

2.2.2 Mobile user behavior in M-commerce (E-Advertising)

Anytime and anywhere access to the internet have impact on mobile user’s behaviour. It influences user’s actions either directly or indirectly and the influences may occur in a substantial manner. It has influenced the way a customer searches and purchases products, conducts any transactions, plans or carries out activities, communicates and interacts with others; and entertains (Mennecke, 2003). For instance, one-sided users have to be available physically in store to buy or pay for anything.

Moreover, M-commerce allows to customers to pay for their choice regardless of time or location. That’s why the users should install mobile applications and access to various E-commerce services, such as M-commerce, E-banking or M-banking, E-shopping, or so. The mobile user behaviour is a critical issue for E-marketing (E-advertisement) processes. From this point, if sellers know the users’ behaviour patterns, entity, time, location etc., as well as how users distinguish their choices to buy a product and utilize etc., they may have better knowledge about whom to target. A seller can arrange important material about

product accordingly; Moreover, the sellers seek to influence consumers' decisions about purchase by taking advantages of attractive interaction and showing the shiny images for a satisfying shopping knowledge. Eventually, user's context and M-consumer behaviour about purchase will facilitate the marketing activities, make them more positive, and increase the revenue of the sellers (Swarbrooke & Horner, 2006).

There is a variety of E-advertisement E-marketing tools to create awareness about product in the attention of the customer. There are ways of advertising in communication to convince audience for their purchase decision about product or service (Niazi, Siddiqui, Alishah, & Hunjra, 2012). Additionally, E-advertising pop up influences the users' attitudes, minds and buying behaviours in the order to increase their attention in the goods and income for the final purchase choice (Niazi, Siddiqui, Alishah, & Hunjra, 2012).

2.2.3 User trust on M-commerce

User trust on M-commerce is a critical factor in building a relationship. The benefit of user trust is to build up strong commitment with them. The trust factor are divided into two phases, one is pre-use of product trust, which is related to pre purchase level. The second is Post-Use (PU) for product trust, which belongs to the post-purchase stage (Choi, Seol, Lee, Cho, & Park, 2008)

The WWW has twisted an extraordinary business chance for E-commerce, user's trust is reflected a major remark on customer relations. Due to security concerns, to build trust in e-business is highly difficult. Mobile users feel insecure on internet to conduct E-commerce activities rather to in-person interaction and touch to check products. In addition, M-commerce is subset of E-commerce; M-commerce used over web-based apps at E-commerce sites. To create mobile user or consumer, trust on the mobile platform, to narrow down the interface design of mobile, speedup the communication rate etc. The issues in E-commerce and M-commerce are addressed by some researchers who have acknowledged trust factors (Siau & Shen, 2003; Lai, 2004; Hsu, et al., 2007).

Building the trust on M-commerce depends on user satisfaction. Some researchers are studied a number of varieties on subject of reliability in M-commerce, some causes upsetting satisfaction in the mobile business and

culture. Due to this research, the factors addressed above will promote to improve user satisfaction and trust in the mobile user or M-vendors.

- Pre-purchase phase; the pre-use trust impacts on the customer's intention before making purchase decisions, directly and indirectly. Perceived risk or benefit, trust on products or services can influence user's willingness for transactions. In the user-context for M-commerce, customers are often concerned about product, the seller may convince them about transaction. The trust enables user to involve in E-business despite the occurrence of risks (Wang & Liao, 2007)

Additional, secondary effects of trust operate over observed risk and profit. The observation risk is defined by Kim (2009) as a "subjective expectation loss" and it may appear to conduct transactions through mobile phone, the trust will reduce through observation risk or any uncertainty occur and consumers are concerning about seller parties might refuse their responsibilities about loss or faults. Due to the accessibility of M-commerce, customers can purchase online and save their efforts, it is easy for user to collect information about desired product from suppliers and compare with others competing products and services holders. The E-shopping offers significant benefits and provides potential motivation to buy a product.

- Post-purchase phase: The post-purchase phase is a little bit different from the pre-purchase phase due to the significant experience that the consumer previously made. After purchasing, customers confirm expectations through evaluation, customers evaluate the product by comparing between expectations and actual show after consume product. The process of evolution ends up with customer satisfaction, the satisfaction can improve post-use trust of customer and influence user for future usage, that is, repurchase. It might be possible that satisfied customer is to repurchase online in the future although there are numerous uncertainties of risks in the M-commerce or mobile services.

There are numbers of factors emphasized by researchers (Siau, et al., 2003). Some M-commerce factors influence users' trust, including reliability of communication, and technology of devices in mobile devices, M-commerce

websites and its usability, trust on product of vendors and other influences. Building trust does not emerge itself, it takes time.

The emotional trust is also a factor where a user can feel confidence on product things that it will benefit him. Some researcher, for instance Schweitzer (2004) specified that emotional trust have some aspects like empathy, security, good will or beliefs, where a user can guess advantages and disadvantages about product (Dunn & Schweitzer, 2005).

2.2.4 Quality of service

The quality of services and products take place in our everyday lives and it is received high attention by customers as well as firms. As customers watching their desires for quality, businesses take quality into account as a main policy for developing product and providing services in order to have advantages from competition among the business (Awwad & Agti, 2011)

Customers' perception about the quality of service differ from one to another for because of different aspects towards it. It depends on the customers' approach the service quality. Thus, the initial points of consuming service constitutes basis of those observations. Immediately service provider satisfies their users with the best goods, services of quality is accomplished.

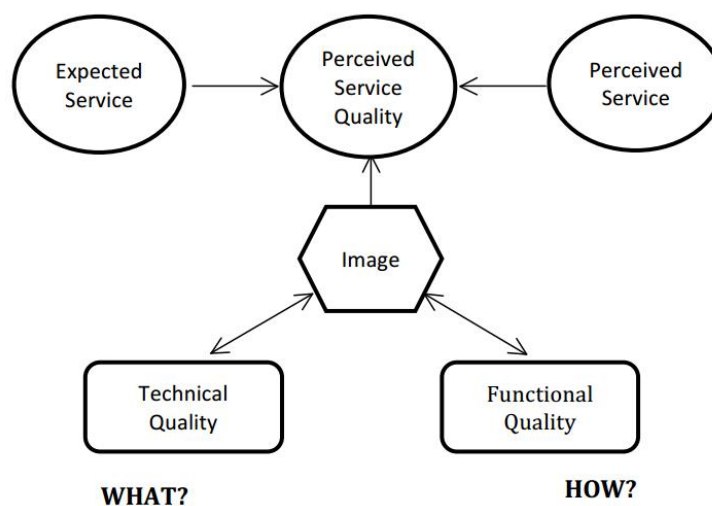


Figure 2.5: Functional Quality and Technical Quality Mode

Source: (Grönroos & Gummerus, 2014)

Some conceptualization on quality of service model was developed by Gronroos (1982). Mr. Grönroos's functional model where customer compare their potentials experience and expectations about quality of product is shown in Figure 2.5. Consumers have three dimensions about quality of services; one of functional dimensions second is technical dimension and third image of the company.

Functional quality responses the question “how” the service is delivered by the consumers as technical quality services focus on “what” services is provided. It means the assessing services during performance, and “what” is interrelated with quality output and services assessment after the performance. The last factor of the image, the image is cut by functional quality and technical qualities also affected by outside influences, likewise marketing communication, customer needs and pricing etc. According to (Siu & Cheung, 2001) assessing quality of service should comprise above attributes to achieve validation quality of service.

2.2.5 Quality of mobile

A research model proposed by Fred Davis , (Davis, 1989) which interrelated with adoption and usage if the new technologies is named as TAM - technology acceptance model, which is used to support in reading and understanding mobile customer's' behaviour to technology. Davis' technology acceptance model was improved further by Park, (Park, 2009) and then (Anh, 2015). The improved model is established to be achievable for users' acceptance and to assess improved user acceptance approaches. The Figure 2.6 illustrates Davis's “Technology Acceptance Model” for understand the mobile user behaviors.

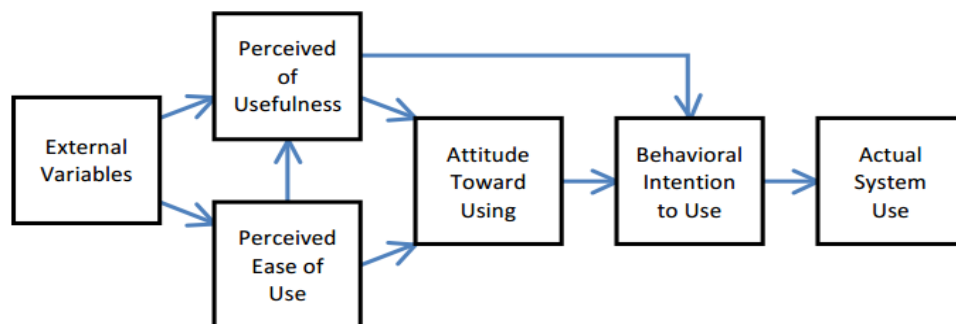


Figure 2.6: Davis's “Technology Acceptance Model” For Understand The Mobile User Behavior
Source: (Huang, Lin, & Chuang, 2007)

There are two significant intellectual remarks suggested in TAM namely usefulness and perceived ease of use (EU). These elements are directly related to the intention of user and attitudes of user to using computing. The other elements may influence both via “mediator effect” on observed ease of use (Park, 2009).

2.3 Customer satisfaction

Customer satisfaction is an important role in marketing activities and is accepted as the primary outcome. Customer satisfaction is a concept used to describe a situation in which an exchange meets the needs and expectations of its customers. It covers the supply of products or services that meet the customer's demands for the quality and service of the price paid. Customer satisfaction, as a business concept, can also be used to measure how the delivery of goods or services exceeds customer expectations (Harvard Business Review, 2007).

According to the classification of the satisfaction concept, satisfaction can be achieved by conceptual criteria and reference methods. The conceptual criterion describes satisfaction with processes and types of consumer responses, while the reference criteria represents aspects of the conditions under which these responses and processes take place (Anckar, Carlsson, & Walden, 2003).

3. RESEARCH MODEL DEVELOPMENT AND HYPOTHESES FORMULATION

This chapter explores each one of the dependent factors as well as the definition of the hypothesis that is the base of our research questions. In addition to these, literature review and an overview of M-commerce in Turkey will be given in this chapter.

3.1 Definition of Variables

This study examines five independent variables that is mentioned below and customer satisfaction which will be the dependent variable of the study. Below defined the each of the independent variables as:

Independent variable:

- **Mobility:** is one of the key advantages of mobile technologies and its benefits influence consumer's intention to use m-commerce (Liébana-Cabanillas, 2016).
- **Content Reliability:** The content reliability of an essay is accordingly defined as being independent of the reader reliability. Formulas are derived for reader reliability and content reliability (Gulliksen, 1936).
- **Service Quality :** SQ is considered as a critical determinant of competitiveness. Attention to SQ can help an organization to differentiate itself from the other organizations and gain a lasting competitive advantage. High quality of service is considered as an essential determinant of the long-term profitability which is not only service organizations, but also manufacturing organizations. In some manufacturing industries, SQ is considered as more important order winner than "product quality". Superior "SQ" is a key to improved profitability, and not the cost of doing business. Exemplary service is the next sale in the making (Ghobadian, 2008).

- **Ease of Use :** Ease of use is a straightforward concept –it's a measurement of how easy the finished product is to use by its intended users. Design is often a battle between trying to deliver functionality and trying to deliver ease of use.
- **Security and Privacy :** It can be defined as a post-choice evaluative judgment concerning a specific purpose decision and is mostly used as part of the confirmation/disconfirmation paradigm (Bettray, Suessmair, & Dorn, 2017). Satisfaction has been analyzed in-depth in the marketing literature (Edvardsson, Johnson, Gustafsson, & Strandvik, 2000).

3.2 Adapted Research Framework and Stated Hypotheses

The adapted research framework given in Figure 3.1 which is constructed upon the previous literature and objectives of the study, is used to figure out the influential factors effectively and it also provides us with an operational relationship among the different variables.

The model includes five main variables namely mobility, content reliability, service and quality, ease of use, security and privacy in the engagement of virtual economic activity among E-commerce customers. Therefore, based on the literature, five hypotheses are propounded in order to analyse the influence of each variables on customer satisfaction in one of the M-Commerce platforms.

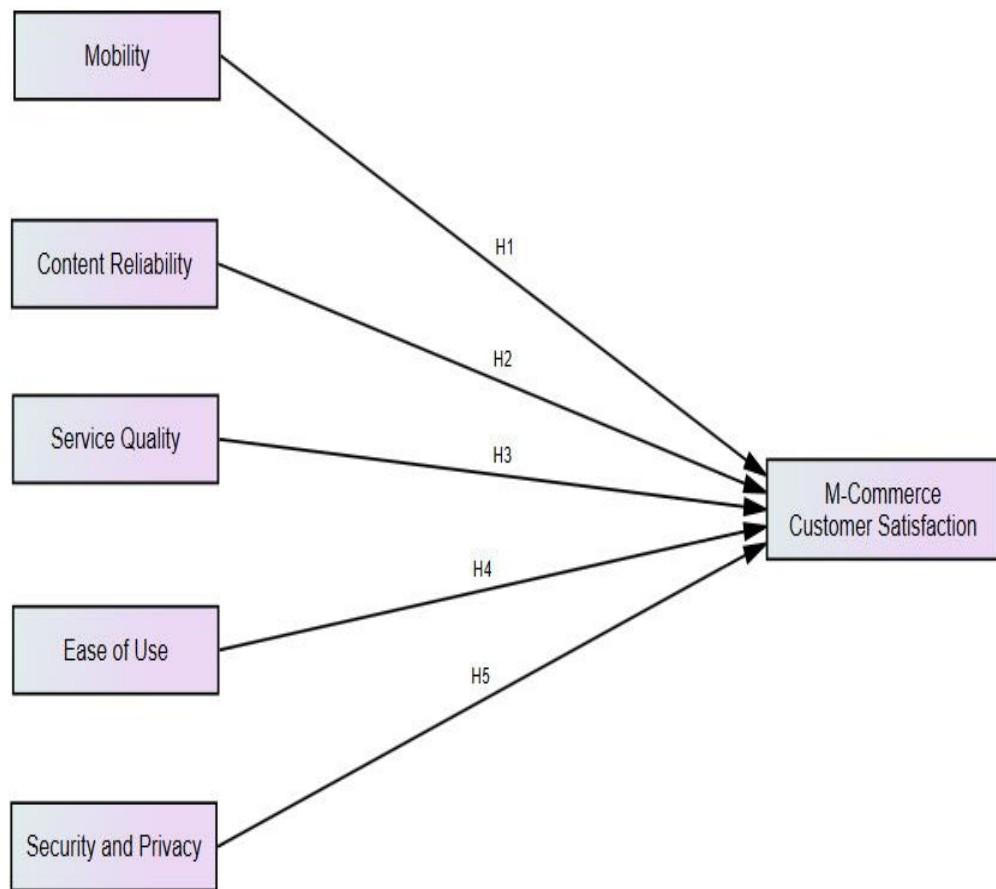


Figure 3.1: Conceptual Framework

3.2.1 Mobility

The essential role of the mobility in daily lives of the users can be only understood in terms of increasing value of M-commerce. Although wireless technology is regarded as an improvement tool rather than brand new medium, successful players in M-commerce market should take much broader space in the technology, market and potential consumers. M-commerce is currently facing increasing challenges. On one hand, as ones take mobility efficiency providing freedom for granted, on the other hand, the other ones are of the opinion that this freedom comes at a price too high to pay. The most interesting feature of M-commerce is to have potential for launch services which have value in essence only through a mobile medium for those in need of such services as in motion.

As example routing, tracking or analytical, and roadside services such as parking payment machines or paying the bills from mobile banking application

within few seconds, as these types of services whose values are exclusively in mobile settings believed that they are more likely to constitute core of M-commerce value proposition. Individual mobility often considered as one of the key drivers of M-commerce acceptance (Schierz, 2009). By the year 2000, M-Commerce has changed from assumption to an economic reality, particularly in Japan or European countries. The term of mobility defined as benefits of time and place and independent service access (Mallat, Rossi, Tuunainen, & Oorni, 2006).

M-technologies might serve customers in two ways: they might increase consumer's mobility by ensuring anytime and anywhere access, however, they might also reduce consumers' need to travel or move to buy or pay for goods or services (Mallat, Rossi, Tuunainen, & Oorni, 2006).

Furthermore, the most important feature of mobile technology is mobility characterized as ability to access services usability in motion. Through wireless networks and various devices such as Personal Digital Assistant (PDA) and m-phones used on a large scale, consumers refresh to measure of technologies where they can assess information and mobile-technologies to give facilitate this movements, in this environment services will come to users' need emerging at any time and place.

M-commerce is extension of E-commerce, where additional capabilities enabled through use of a mobile platform and a wireless network (NormanShaw, 2018). M-commerce refers to any transaction taking place at any time and any place that may lead to the buying and selling of goods and services via a wireless device (NormanShaw, 2018). Mobile platforms are so important phenomenon that the value of them cannot be ignored. The changes of consumer traditions are plain, people expect shopping experience to be fast and simple with excellent service, customer support, and product information as well. All in one place, accessible immediately found that mobility is important antecedent of attitude towards intent to use, and perceived usefulness in the case of mobile payment services (Schierz, 2009). As the proper use and ability are the most advantageous part of technology, there are some differentiations between them; in which proper use takes the advantage of being always changeable and in contrast, mobility merely benefits from the mobile technology. Services enable

mobile customer to connect from different access devices and to stay-connected during movement ensuring mobility and locate-ability called location and mobility management.

Mobility through mobile devices facilitates businesses to reach their target audience faster. There are no restrictions by physical or geographical location as doing any kind of commerce. Customer mobility has emerged as an important catalyst, triggering a new paradigm shift that is redefining the way conducts business; M-commerce is a recent offspring of E-commerce (Shi, 2003). According to the author there are many studies discuss edit and examined the influence of mobility on customer satisfaction, but the present paper assumes that benefits of mobility would produce higher intention to use the customer satisfaction levels. Therefore, the following hypothesis is proposed:

Hypothesis 1 (H₁): Mobility has a positive impact on M-commerce Customer Satisfaction.

3.2.2 Content reliability

CR is delivery of content that is correct, relevant, optimized for online users. CR adds value for customer, improves users' experience and enables them to make well purchase decision; higher quality of content will make it more likely that product is found purchases.

The reliability refers to a measurement that provides consistent results with equal values. Furthermore, information quality refers to the available M-commerce that is a complete, personalized, relevant, secure and easy for consumers to understand. System quality defined in terms of mobile usability, availability, reliability, response time and adaptability, service quality refers to the support delivered by online service supplier to consumers (Hsu, Chang, Chu, & Lee, 2014).

As to classification of content, basic content, increased content and the last, user generated content come into discussion.

With respect to content personalization: recent mobile apps have begun to supply a content tagging feature into their styles (Barnes, 2002) . Also, with respect to content rating, commenting and sharing, an outsized variety of mobile

apps permit their users to love rate, investigate their contents, and to share the contents with external social networks (Zhao & Balague, 2015).

- **Basic Content:** this phenomenon contains the title/product name, images, and temporary description, embody bullet points either world conjointly take pictures for instance whether the image shows the right product, color, quantity or it is the most effective resolution, properly size, focused and cropped appropriately. With such a lot of people looking on mobile devices, pictures have to be intelligible on a little screen. Promoting and commerce content plays the primary role in mobile portals, which includes software engineer development, service delivery and client care. For instance, the Yahoo! Mobile net portal provides a one-stop buy an outsized variety of services (Barnes, 2002).
- **Increased Content:** Sometimes-called as media content, which includes probably further pictures by showing totally different angles. The hepsiburada.com for instance, offers variety of pictures, and the ability to take a glance on every image and temporary animations/ videos showed, however, the item appearance is in motion, conjointly too several merchandise have documentation, enclosed pdfs of the construction/instruction manual. There is example like mediamarkt.com.tr.
- **User Generated Content (UGC):** in this class customer contributes contents about products to retailer in sites, including rating and reviews.

M-commerce, content, portal phase of the worth chain shows not solely the very best dynamics however is additionally to draw in an outsized variety of players from outside the telecommunication industry; as an example, within the trade, the monetary service sector is similarly within the media (Franz & Martin, 2004). In the future, dependableness of the M-commerce content may be a second basic variable in client satisfaction to increase client satisfaction through improved quality of service and a larger kind of content. Still, it looks that they are not in an exceedingly position to play a crucial role as a mobile portal supplier (Franz & Martin, 2004). Interactions among users via mobile apps might take very different forms like following or unfollowing people, peer-to-

peer speech communication, and welcoming contacts from existing social networks. Some forms that have recently begun to be incorporated in app styles, can eventually cause building a community for socialization (Kim et al., 2013).

The factors exclusive to M-commerce, as well as “content reliability”, “Service Quality” and “Mobility” reflect the distinctive options of M-commerce. In terms of “content reliability”, this analysis has sensible positive contributions within the M-commerce market by providing important factors. Supported this discussion following hypotheses were proposed:

Hypothesis 2 (H₂): Content reliability has a positive impact on M-commerce customer Satisfaction

3.2.3 Service quality

Today service quality (SQ) is one of the most important key strategy in business atmosphere, (Wang, Ou, & Chen, 2018). In definition, service quality have specific notion because the service consummates the shoppers demands and properly guarantees their wants. Researchers have emphasized the importance of service quality in client acquisition and retention and in encouraging customers to comment positively (Dwivedi, Papazafeiropoulou, Brinkman, & Lal, 2010). The mobile service quality analyses indicated that mobile service quality has distinction from and superior to traditional physical services. Due to the fact that they will offer location client and context-based services taking advantage of key attributes of M-commerce.

There are important analyses that makes efforts for examining M-service quality by considering that it will be consumers’ overall perceptions concerning the relative performance level of the service compared to rival substitutes by employing a multi-dimensional approach (Zhao, Lu, Zhang, & Chau, 2012).

This study indicated that interaction quality, environment quality, satisfaction, and inertia are all significant factors that directly or indirectly influence M-service consumers’ continuance intentions (Wang, Ou, & Chen, 2018). Also, previous studies examined that there is direct effects of mobile service quality factors on the formation of satisfaction and inertia concerning a particular service successively shoppers influence. Consequently, this study proposes a comprehensive model. Mobile Service Quality constructs, as well as interactive

quality, environmental quality, and outcome quality; have an effect on M-service customers' continuance intention via user satisfaction (Wang, Ou, & Chen, 2018).

Nevertheless, there is limited research in the area of M-commerce service quality. Therefore, there is an increasing need to focus on the factors that can ensure the Service Quality (SQ) of M-commerce to emphasize that it is necessary to explore service quality, customer satisfaction, and customer behavioral goals and their inter-relationship in using M-commerce Service (MCS) in future. Such a study would benefit to salespersons and researchers in services technology in their attempts to measure customer's satisfaction (CS) and to appreciate its underlying dimensions.

This study proposes a Service Quality model for M-commerce in a commercial environment. A comprehensive analysis of the literature in the area of marketing, service quality (SQ), and systems service quality were carried out to identify the interrelated factors that lead to the service quality of M-commerce in a commercial environment. In a Dependent and Independent, variables as well as their potential relationship are also identified from the literature analysis to conceptual model.

Hypothesis 3 (H₃): Service Quality has a positive impact on M-commerce Customer Satisfaction.

3.2.4 Ease of use

It is measurement of how easy finished product is to use by its front-end user. Design is often a challenge between trying to deliver functionality and trying to deliver Ease of Use (EU). Its import to study Ease of Use during to design phase and the needs for end users. The design requires connecting with users and discovering what they mean by Ease of Use while there is no one size fits at all. However, its simplifies the problem and provides little guidance for the interface designers, and more detailed definition can be used to understand user's criteria by formulating usability goals, and deciding on the best techniques for usability assessments.

EU of an M-commerce favours trust levels, and makes the product more comprehensive, including characteristic, which must be met for users of an M-

commerce. There are studies about online purchasing intentions and the studies showed that perceived Ease of Use has a significant and positive effect on attitude of user (Zhao, Lu, Zhang, & Chau, 2012). Likewise concept of Ease of Use is measurement of how easy the finished product is to use by its intended users. Ease of Use defined as the user's belief in the degree to which a particular technology is Easy to Use. This model, which affects the adoption of the new model, is the fourth vital factor in customer satisfaction. Numerous studies in the mobile adoption trade field demonstrated that the perceived Ease of Use is highly important. Therefore, in context of M-commerce level of obtain ability can help person to obtain a level of ability to increase the level of customer satisfaction in e-commerce. According to previous claims, the following hypothesis was proposed:

Hypothesis 4 (H₄): Ease of Use has a positive impact on M-commerce Customer Satisfaction.

3.2.5 Security and privacy

The major data security challenge introduced is data stored and processed at clouds that are located at services providers. Thus, the challenges data related is about losing data, breaching data, data recovery, data locally and data privacy, (Mollah & Vasilakos, 2017). Security and safety concerns is basic issue around security.

Users' are to begin afraid that viruses could attack these devices, following theft of users-data. People are interested in M-commerce which seems to be most comfortable, so customer can buy anything from anywhere; also buying from home setting gives the buyer familiarity. In addition, M-commerce has privacy about their customers. Likely data breach situation, user's data are stolen, copied and used by any other unauthorized users, (Franz & Martin, 2004).

However, it seems that mobile security has been evolved into a big concern but still those who have trade activities are moving from the traditional ancient way of personal computer to the up to date mobile platforms. Moreover, it has known that there are worldwide arrangements to reduce these concerns and strength the cyber and security issues, (Lau, 2017). While doing online transaction, or typing debt or credit card, the most of customer become hesitant

to provide their personal information for fear that this application is fraud. Security becomes a quickly growing concern for all customers (Belanger, Hiller, & Smith, 2002).

Furthermore, people can make m-payment and access its interior networks and cultural systems so far the wireless communication networks are open-channel, also it brings freedom of communication and flexibility to any users. Such those significance of security and privacy in M-commerce, customer is to make result either he/she purchase or not-purchase. Therefore, M-commerce is present and future platforms, where it plays important role in building safe shopping, faster, easy at any time and place. Therefore above all research and context down hypotheses formed.

Hypothesis 5 (H₅): Security and Privacy has a positive impact on M-commerce Customer Satisfaction.

To sum up, with increasing value of M-commerce, Mobility characterized as ability to access services usability in motion. From this point of view, the hypothesis that Mobility has a positive impact on M-commerce Customer Satisfaction has been proposed.

As to Content Reliability, the hypothesis that Content Reliability has a positive impact on M-commerce Customer Satisfaction has been proposed.

Although there is limited research in the area of M-commerce Service Quality, with the increasing focus on the challenge, as hypothesis 3, Service Quality has a positive impact on M-commerce Customer Satisfaction has been proposed.

Due to the fact that nowadays, perceived Ease of Use is one of the most important factor of Customer Satisfaction, as hypothesis 4, it has been proposed that Ease of Use has a positive impact on M-commerce Customer Satisfaction.

Moreover, it has known that there are worldwide arrangements to reduce concerns and strength the cyber and security issues, as nowadays issue, hypothesis 5, Security and Privacy has a positive impact on M-commerce Customer Satisfaction has been proposed.

4. RESEARCH METHODOLOGY

4.1 Research Design

The objective of this study is to determine the impact of M-commerce functions on customer satisfaction in the scope of B2C (M-commerce). At the same time, it is designed to measure the relationship between the variables that can influence consumer attitudes.

To meet research objective, quantitative research methods were implemented for this study. Primary data was obtained via self-administered online questionnaire. Online surveying has following advantages: elimination of survey related cost, time efficiency, less social pressure on respondents as they feel anonymous (Smith & Albaum, 2004) This research requires the collection of data from a wide range of Turkey customers who are currently participating in online shopping.

The Structural Equation Model (SEM) is regarded as a proper method to reach the objectives of this study as it uses different types of models to describe relationships within observed variables and to perform quantitative tests for a research model. One of the benefits of SEM was that it can be employed universally for various research topics. Moreover, SEM is able to test and evaluate various and complex models (Schumacker & Lomax, 2010). SEM includes regression, path and confirmatory analysis. The variables in current research can be divided as latent and observed. Latent variables are those variables that cannot be measured directly. Since latent variables cannot be observed directly, they are being signified by observed variables which are being measured by means of surveys.

4.2 Procedures

The survey participants were required to complete an online survey consisting of two main parts: first, demographics of respondents and second, variable

questions. However, before the questionnaire distributed to the participants, necessary approvals obtained from Istanbul Aydin University Ethics Committee. The participants given information about the objectives of the survey in advance along with guidelines.

4.3 Study Sample

The online survey supported by Google forms was distributed among online shoppers in Turkey. The sample was selected according to the nonprobability method. This technique is based on the researcher's judgment and does not include probability techniques (Smith and Albaum, 2005).

Barnes (2002) stated that multiple regression techniques require large sample size for generalization purposes and suggested to use following formula proposed by (Tabachnick & Fidell, 2012).

$$N > 50 + 8m$$

Where:

N = sample size

m = number of independent variables

Based on this formula, the sample size needed for current research is $N > 82$ (number of independent variables equals four). On the other side, according to the Hoelter index, the sample size for SEM method should exceed 204 because it presents the data in a suitable way (Byrne B. M., 2001). Thus, current studies aim to obtain at least 204 responses in order to meet both of the above requirements.

4.4 Survey Instruments

As the current research focuses on quantitative research techniques, Likert type inquiries were conducted for the survey data. In the first part of the survey, participants asked specific type of the questions in order to obtain information that will reflect demographics features and customer profiles.

The first part of the survey includes questions aimed to measure demographic features of the participants as gender, age, education level, internet usage,

frequently used device for online shopping, online shopping experience, and online purchased product category and name E-retailers.

The second part of survey includes question aimed to measure the research variables like: Mobility, Content Reliability, Service Quality, Ease of Use and Security & Privacy.

Likert point 5 scale was used for measurement of research items as follows:

- strongly disagree
- disagree
- neutral
- Agree
- Strongly Agree

Survey questions were prepared based on antecedent studies that validated research items. The survey was implemented in English language. Full version of the questionnaires and table that depicts the sources of the adapted questions are provided in Appendixes A, B and C.

4.5 Statistical Techniques

The statistical methods and tools that were applied to this research are: Confirmatory Factor Analysis (CFA) and Structural Equational Model (SEM).

Thanks to Confirmatory Factor Analysis, relationship between the factors as well as their observed variables can be measured. At the same time Confirmatory Factor Analysis is able to evaluate the validity of the measures. Confirmatory Factor Analysis is tightly linked to Structural Equational Model which is one of the widely used data analysis technique.

Structural Equational Model provides an ability to test the theories in a quantitative manner and relies on error factor (Byrne B. M., 2013). The main difference that exists between CFA and SEM is that CFA concentrates on latent and observed variables relationship, while SEM covers structural path among focus (latent) variables. Confirmatory Factor Analysis is able to stand out as a

solely analysis as well as part of Structural Equational Model (Byrne B. M., 2013).

IBM SPSS version 19 and IBM SPSS AMOS version 22 statistical software were used to conduct the analysis for this research. AMOS stands for “analysis of moment structure” and integral part of SPSS that can be used both for SEM and CFA in this study. This software provides an ability to design a path diagram as well as reflecting the estimates on illustrated graphics (Byrne B. M., 2013). On other hand SPSS is one of the oldest and commonly used statistical software. SPSS is appropriate for analysis of primary data obtained through questionnaire and able to carry our wide range of statistical techniques (Byrne B. M., 2013) SPSS analysis has been applied in order to process the data and prepare it for further SEM analysis carried out in AMOS.

5. DATA ANALYSIS

Table 5.1 illustrates the demographic profiles of the responders of the survey with the respond of 204 participants most of whom from İstanbul.

Table 5.1: Respondents of Demographic Profile

Demographics Profile		Frequencies	Percentage %
Gender	Male	155	76
	Female	49	24
Age	20 - Under	4	2
	20-29	113	55.4
	30-39	78	38.2
	40-49	7	3.4
	50 - Over	2	1
Education	High School	8	3.9
	Collage Graduate	57	27.9
	University Graduate	139	68.1
	No Qualifications	0	0
E-Shopping Experience	1-3 Year	112	54.9
	4-6 Year	85	41.7
	+ 7Year	7	3.4
Device Mostly used	Smart phone	164	80.4
	Personal Computer	36	17.6
	Tablet	4	2
Have you ever done online shopping	Yes	199	97.5
	No	5	2.5

* Note: The sample size (n) is 204.

**Note: Percentages may not add up to 100% due to missing data.

The 24% of the responders is female and the 76% of the responders is male. There are various groups of respondents; holding different age level. As easily seen from Table 5.1, the 55.4 % of the responders of the survey is between the age of 20-29 and the 38.2% of them is between the age of 30-39.

Since the level of education is an important issue, in demographic part of the questionnaire we asked their education level and most of the participants (68.1%) have bachelor's degree. The second highest percentage of education level consists of the people who have collage graduate with 27.9%. The rest of the responders with 3.9% has high school degree.

The question that measures the experience of online shopping has different frequencies. The most of the responders has experience from 1 to 3 year experience with 54.9.7%. The 41.7% of responders has experience from 4 to 6 years and the rest of them has experience greater than 7 years.

Also from Table 5.1, it can be easily seen that the 80.4% of the responders prefer to use their smart phones, 17.6% prefer to use personal computers and 2% prefer to use their tablets while they are making online shopping. In addition, upon the question whether they have an experience with online shopping, the 97.5% responded as they had an experience before and 2.5% responded as they have not any experience before.

The most interesting finding from the demographic part of the survey is that 97.5 % participants make online shopping.

The second section intended to search users' frequent activity context with mobile devices. Turkish purchasers' behavior towards with handheld devices has been discussed here. As one of the important factor that affects users when they are using the devices, at first, the survey contestants were asked to select best three regular activities performed in devices (Figure 5.7).

As an outcome, the largest figures communicating with friends and family of 90.7%, searching on the Internet 60.8%, placing orders 49%, shopping online 58.8%,

For now, the part of people who use these devices to pay bills is 42.2%, comparing products online 39.2% and transfer money 42.2% respectively.

Above top user-context, activities of user are also most popular regular activities on mobile in many countries. The top activities performed with mobile devices are illustrated below in figure 5.1.

Top activities performed with mobile devices

204 responses

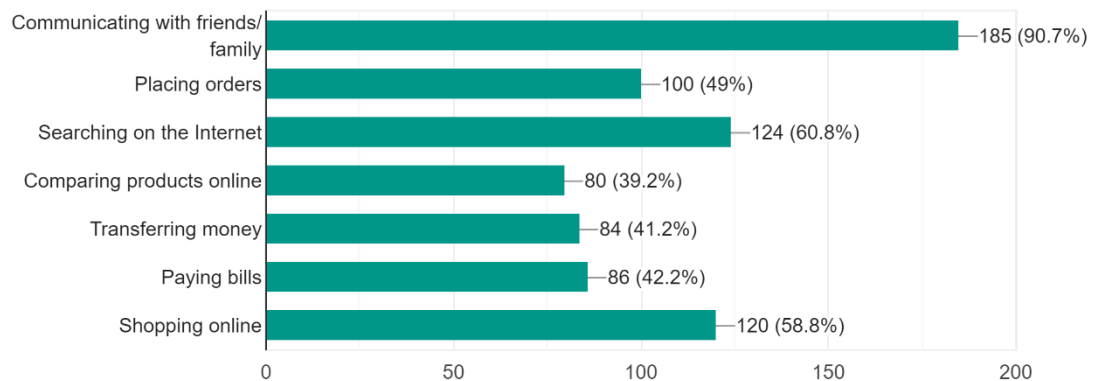


Figure 5.1: Time Spending User with Mobile Device per Day

5.1 Validity and Reliability Assessment

Validity and reliability that mainly concentrate on measurement aspects are valuable part of quantitative research. Validity focuses on checking if the variables measured in an accurate manner. The role of validity is critical, as certain abstract factors (latent variables) cannot be measured directly due to their nature. This is the reason that such variables should not be evaluated and measured indirectly with a help of instruments like questionnaires.

Each question serves as a manifest variable allotted to disclose the latent variable as much as possible. Hence, development of accurate measurement instrument along with proper manifest is vitally important and not easy task to fulfill. As a result, in case the measurement of latent variable was not designed in a correct way, all further analysis will have no value (Muijs, 2010).

While measuring the instruments for validity, the degree of freedom from systematic error is taken into consideration. Systematic error may occur based on many reasons like measuring instrument, the environment within the research is being conducted. In general, validity can be assessed in many forms:

- Construct validity
- Content validity
- Criterion validity.

Current study concentrates on construct validation, specifically focusing on:

- Convergent validity
- Discriminate validity

In order to demonstrate convergent validity, measures (at least two) dedicated to measure latent variable should be related within the same construct. While for demonstration of discriminate validity, the measures that represent different latent variables should not be more related than they are within the same construct (Smith and Albaum, 2005).

The second way of evaluating the quality of the measurement instrument is reliability assessment. Within measurement process, the measurement error always takes place. Accordingly, reliability is related to the degree to which test results are free of this error. In case of unreliability, moving to further tests will be pointless. Moreover, the measurements that are not reliable will cause insignificant relationship between other variables that consequently prevent the ability to have a clear picture about the outcomes. Likewise, unreliability is a common reason for insignificant relationship among variables in a research (Muijs, 2010) and refers to the fact that the scale cannot be valid as well. Additionally, the reliability examines how consistent the measured item is among respondents and steadiness of the characteristics across time period, (Smith and Albaum, 2005). The thresholds suggested by (Hair, 1984; Gefen & Straub, 2000) to assess validity and reliability are as follows:

Reliability:

- (CR) Composite Reliability > 0.7

Convergent Validity:

- (AVE) Average Variance Extracted > 0.5

Discriminate Validity:

- (MSV) Maximum Shared Variance $< AVE$
- Square root of AVE $>$ inter-construct correlations

For conducting CFA, it is important to ensure reliability. Following the Table 5.2 depicts the resume of validity and reliability assessment conducted for this research. It was carried out based on Correlations and Standardized Regression Weights Tables withdrawn with a help of Amos software. Convergent validity has been established and evidenced by AVE which is above 0.5.

The reliability also has been established and evidenced by CR, which is above 0.7. In general, discriminate validity has been revealed as well and evidenced by MSV being less AVE, except Complaint Handling (CH) where slight fluctuation took place (as MSV and AVE difference for this factor was insignificant, this flaw was not, taken into consideration).

5.2 Normal Assessment

Multivariate data normality is one of main assumptions of SEM. The current study utilized kurtosis statistics to assess normality. Rescaled standardized kurtosis index for each individual scale items was obtained in AMOS 22 and given in Table 5.2.

Table 5.2: Descriptive Statistics

Variable	Skewness	Kurtosis
M1	-1.546	3.622
M2	-1.297	2.389
M4	-1.266	2.049
CR1	-.443	-.537
CR2	-.762	.286
CR3	-.843	.397
CR4	-.856	.175
SQ1	-.892	.116
SQ2	-.812	.231
SQ3	-.673	.188
SQ4	-.919	.312
EU1	-.780	.954
EU5	-.999	1.682
EU6	-1.133	2.706
EU7	-1.081	2.255
SP1	-.725	.073
SP2	-.636	.173
SP4	-.750	.382
SP5	-.550	.073
SP6	-.831	.444
CS1	-1.087	1.358
CS2	-.920	1.781
CS3	-.977	1.177
CS4	-.927	1.244
CS5	-.900	1.209
CS6	-.907	1.509

5.3 Multi co linearity Assessment

Multi co linearity is a phenomenon in which high inter correlations exist between independent variables in statistical ideal. It can be lead to misleading results in an attempt to determine independent variables predict as well dependent variable in statistical model. Multi-co linearity can presumed to cause by serious problems if the simple correlation between independent (Arikan, 2013). In given Table 5.3 Correlation between models factors in independent variables of this study are Mobility (MM), Content Reliability (CR), Service Quality (SQ), Ease of Use (EU), Security and Privacy (SP) and final variable Customer Satisfaction (CS). Correlation among these six variables is well below the recommended threshold of 0.8. Therefore, multi co linearity is not considered to be concern in this study.

Table 5.3: Correlations Between Factors

		Estimate
MM	EU	.601
MM	SP	.334
MM	CS	.510
CR	EU	.109
EU	SP	.601
EU	CS	.721
SP	CS	.779

5.4 Assessment of Validity and Reliability

In Confirmatory Factor Analysis (CFA), it is necessary to establish reliability, combining validity, and distinguish validity. On the other side, discriminant validity attempts to shows those measures should not be related in with reality. Convergent and differentiate validity are subtypes of construct validity.

Several measures used for testing reliability and validity in Confirmatory Factory Analysis CFA. Composite reliability (CR), Maximum Shared Variance (MSV), Average Variance Extracted (AVE) and Average Shared Variance (ASV) are some of these measures. In the relevant literature threshold, values for this measure identified and suggested. To ensure reliability, CR value must be greater 0.7. To ensure convergent validity AVE measure must be greater than

0.5. For discriminant validity to hold MSV measure must be less than AVE. (Hair, et al. 2010; Malhotra and Dash, 2011).

Table 5.4: Reliability and Validity Assessment

	CR	AVE	MSV	MaxR(H)	MM	CR	SQ	EU	SP	CS
MM	0.812	0.593	0.361	0.834	0.77					
CR	0.791	0.591	0.296	0.799	0.099	0.686				
SQ	0.875	0.637	0.008	0.883	-0.069	0.028	0.798			
EU	0.8	0.509	0.52	0.831	0.601***	0.109	-0.076	0.713		
SP	0.877	0.589	0.606	0.882	0.334***	0.018	0.012	0.601***	0.768	
CS	0.907	0.661	0.606	0.915	0.510***	0.064	-0.092	0.721***	0.779***	0.813

Not: Correlations of Significance: † $p < 0.100$, * $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$

Table 5.4 illustrates the results of validity and reliability assessment test of the variables. Showing that CR-Values for all factors are above suggested that Threshold is 0.7.

Table 5.4 also shows that convergent validity for all factors is holding as AVE values are all above the minimum acceptable point of 0.5. Discriminant validity also held as MSV values of all factors are well below from AVE values of these factors. By considering the values of the measures were it can be concluded that concepts of statistical model are both reliably and valid.

5.5 Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) is a multi-variate statistical formula. It is singular form of factor analysis. In CFA are used to test whether, methods of a construct are consistent with nature of hypothesis under question. For this study, Confirmatory Factor Analysis (CFA) conducted in SPSS AMOS (version 22).

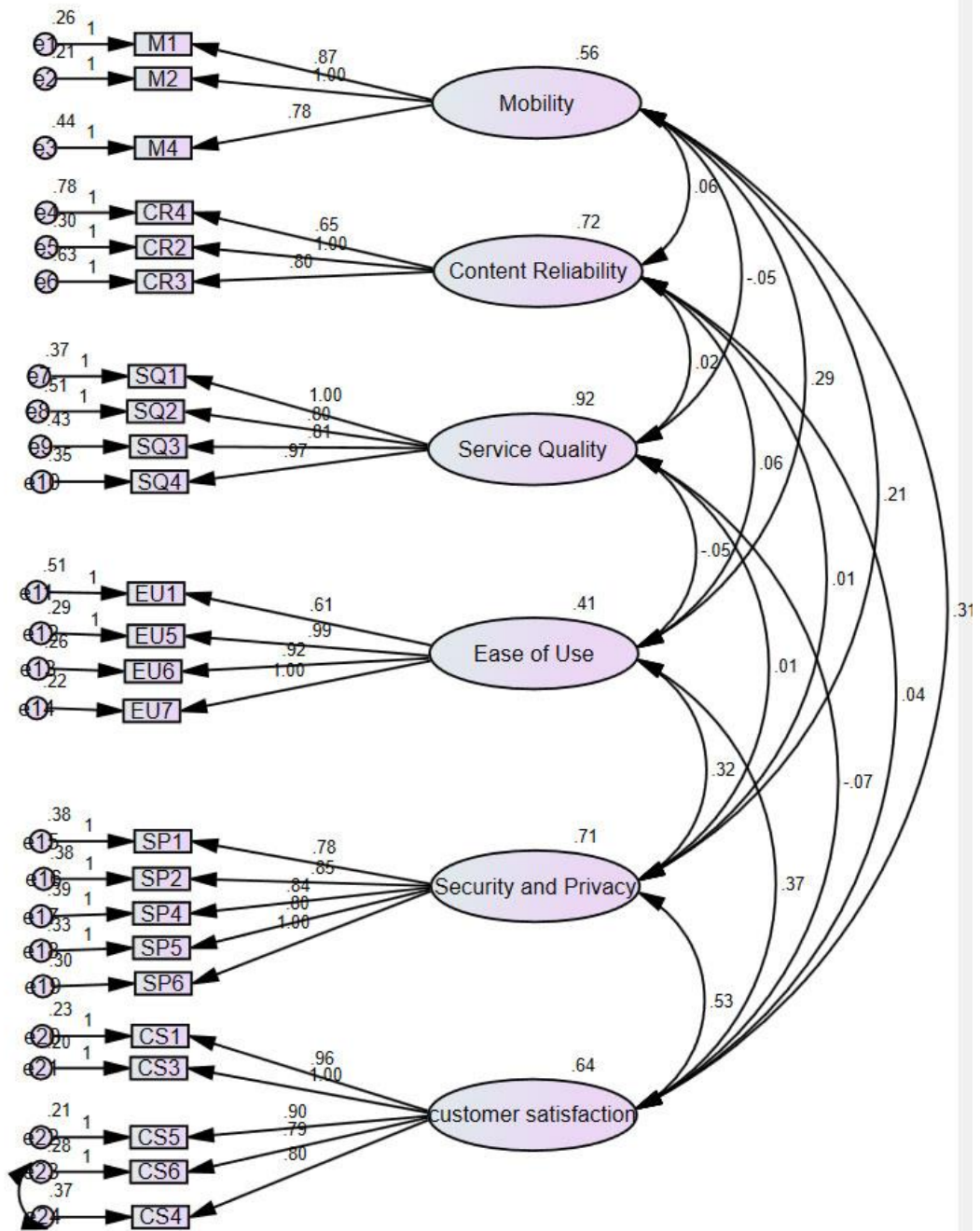


Figure 5.2: CFA Model

The hypothesized CFA model is given in Figure 5.2. After the various re-statement and re-estimations based on the changes indices, this model was obtained main objective of CFA is to testing extent to which observed variables depend on the underlying secret structures.

Table 5.5 given below shows that all regression weights are highly significant with $p < 0.001$ where 99% confidence interval used.

Table 5.5: CFA - Unstandardized Regression Weights

Items	Variables	Estimate	S.E.	C.R.	P
M4	MM	.778	.085	9.151	***
M2	MM	1.000			
M1	MM	.870	.081	10.707	***
CR3	CR	.804	.141	5.714	***
CR2	CR	1.000			
CR4	CR	.646	.120	5.379	***
SQ2	SQ	.800	.071	11.316	***
SQ1	SQ	1.000			
EU1	EU	.605	.093	6.522	***
SP2	SP	.845	.071	11.981	***
SP1	SP	.782	.068	11.424	***
CS3	CS	1.000			
CS1	CS	.960	.061	15.739	***
EU5	EU	.986	.090	10.955	***
CS5	CS	.898	.057	15.649	***
CS6	CS	.786	.059	13.273	***
SP4	SP	.843	.071	11.898	***
SP5	SP	.799	.066	12.065	***
SQ3	SQ	.814	.068	11.958	***
SP6	SP	1.000			
EU6	EU	.916	.084	10.866	***
EU7	EU	1.000			
SQ4	SQ	.966	.072	13.427	***
CS4	CS	.797	.066	12.067	***

Standardized regression weights (coefficients) are given in Table 5.6. These coefficients are the estimate values of items and variables which were standardized before.

Table 5.6: CFA - Standardized Regression Weights

Item	Variables	Estimate
M4	MM	.658
M2	MM	.851
M1	MM	.789
CR3	CR	.652
CR2	CR	.842
CR4	CR	.526
SQ2	SQ	.733
SQ1	SQ	.846
EU1	EU	.477
SP2	SP	.756
SP1	SP	.729
CS3	CS	.874
CS1	CS	.848

Table 5.6: (con) CFA - Standardized Regression Weights

Item	Variables	Estimate
EU5	EU	.763
CS5	CS	.845
CS6	CS	.767
SP4	SP	.752
SP5	SP	.759
SQ3	SQ	.765
SP6	SP	.838
EU6	EU	.758
EU7	EU	.807
SQ4	SQ	.843
CS4	CS	.722

The squared-multiple correlations which given in Table 5.6 shows percent of the alteration in given indicator all variables explained by it is latent variable factor. Also it can use to assess the reliability of the indicator. The higher this indicator is, the more reliable the given indicator is.

Table 5.7 shows that squared multiple correlations of all indicators are above 0.50. For example, it is estimated that the predictors of CS1 explain 71.8 percent of its variance

Table 5.7: CFA - Squared Multiple Correlation

Items	Estimate	Items	Estimate
CS4	.522	CS3	.764
SQ4	.711	SP1	.532
EU7	.651	SP2	.571
EU6	.574	EU1	.228
SP6	.701	SQ1	.715
SQ3	.585	SQ2	.537
SP5	.577	CR4	.277
SP4	.565	CR2	.708
CS6	.589	CR3	.425
CS5	.714	M1	.622
EU5	.583	M2	.723
CS1	.718	M4	.434

In Several model fit metrics that be used to determine the goodness of fit proposed in study model, the suggested threshold for these metrics (Hu and Bentler, 1999; Hair et al. 2010).

In goodness of fit statistics of proposed model is given in table 5.8 below. By considering, the metrics of CMIN/DF, CFI and RMSEA where those be concluded with proposed model is a well-fitting model.

Table 5.8: Model of Fit Metrics for CFA Model

Measure	Estimate	Interpretation
CMIN/DF	1.299	Excellent
CFI	0.971	Excellent
SRMR	0.05	Excellent
RMSEA	0.039	Excellent
PClose	0.946	Excellent

* CFI>0.95, SRMR<0.08, RMSEA<0.06.

5.6 Hypotheses Testing Structural Equation Modeling (SEM)

SEM concentrates on data analyzing and evaluating relationships between hypothesized latent in variables. Moreover, structural Equation Modeling provides huge extent of options connected to relationship among used variables comparing to CFA and imply two components:

- measurements model (basically CFA itself)
- structural model

While the measurement model (i.e., CFA) examines where relationship between latent variables and their measures, the structural model is the relationship between the latent variables of the proposed model.

Structural model of the study is given in Figure 5.3. In this research, standardized regression weights (i.e., beta coefficients) were utilized to discuss the results. These standardized coefficients are given on the arrows in the below given figure. The standardized coefficients refer to how many standard deviations a dependent variable will change, per standard deviation increase in the predictor variable (Schreiber, Nora, Stage, A. Barlow, & King, 2006).

In order to examine hypotheses, global and local tests will be conducted. For hypothesis to be supported, it is critical for local test to be passed. At the same time, it is essential to note that initially global test be met for local test to make sense.

Another global test to be conducted is R-squared. Respectively, in case of significant p-value and model fit, but low R-square hypotheses cannot be supported as relationships tested do not reflect adequate variance in endogenous variable (Dick & Basu, 1994).

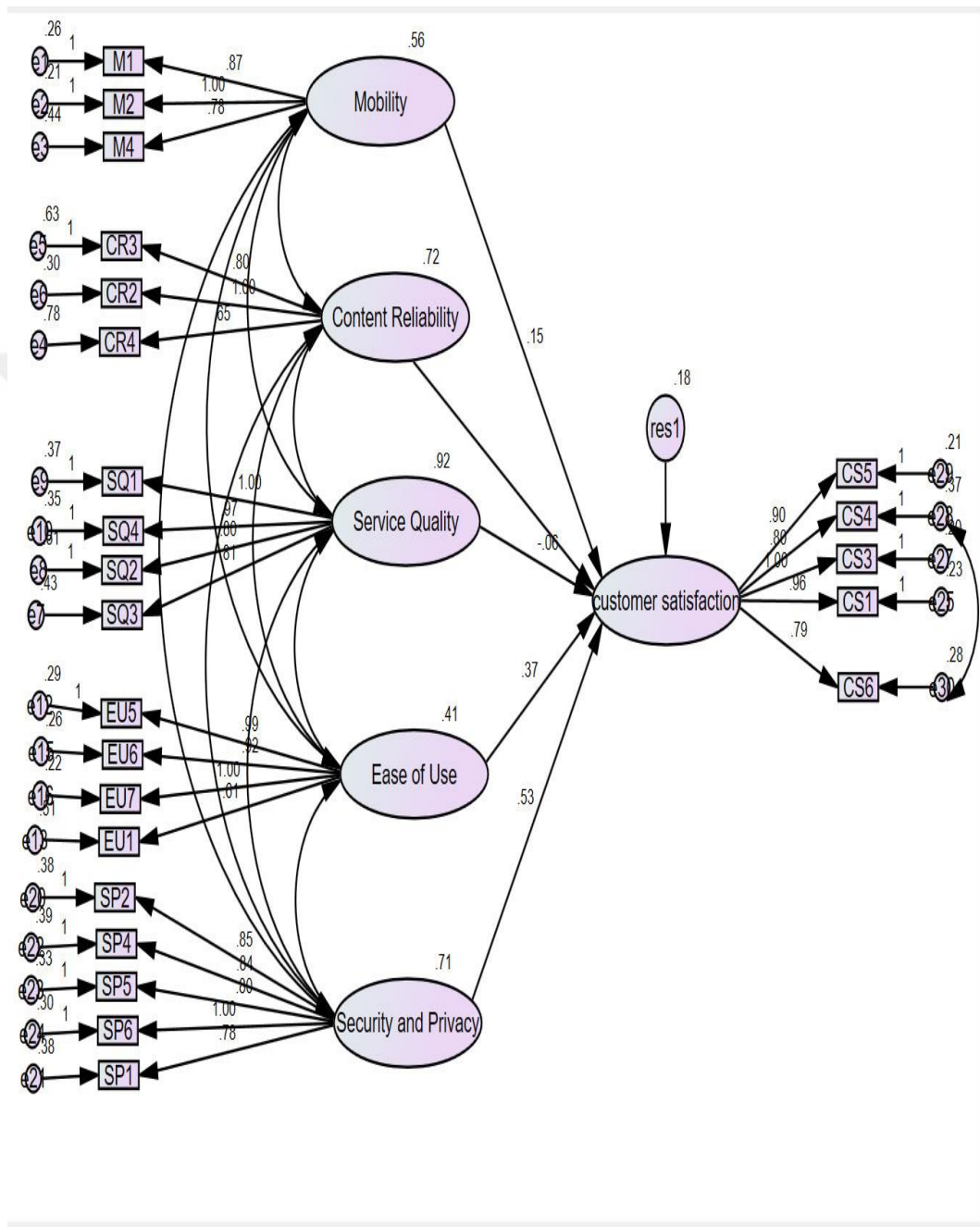


Figure 5.3: Structural Model

5.7 Model of Fit Metrics for Structural Model

Model of fit metrics for structural model is given in Table 5.9. By considering the metrics of CMIN/DF, CFI and RMSEA it could be concluded that proposed structural model as a well-fitting model.

Table 5.9: Model of Fit Metrics for Structural Model

Measure	Estimate	Interpretation
CMIN/DF	1.299	Excellent
CFI	0.971	Excellent
SRMR	0.05	Excellent
RMSEA	0.039	Excellent
PClose	0.946	Excellent

Table 5.9 which is given below shows the regression weights of the structural model.

Mobility has a positive impact on M-commerce Customer Satisfaction (**H₁**: $\beta=0.224$, S.E. =0.071 and $p<0.05$). However, Content Reliability has a no any impact on M-commerce Customer Satisfaction (**H₂**: $\beta=0.009$, S.E. =0.051 and $p>0.05$). At the same time, Service Quality has no any impact on M-commerce Customer Satisfaction (**H₃**: $\beta=-0.055$ S.E. =0.042 and $p>0.05$). And also, Ease of Use has a positive impact on M-commerce Customer Satisfaction (**H₄**: $\beta=0.373$ S.E. =0.113 and $p<0.001$). Finally, Security & Privacy has a positive impact on M-commerce Customer Satisfaction (**H₅**: $\beta= 0.527$, S.E. = 0.072 and $p<0.001$).

Table 5.10: Structural Model Regression Weights

Dependent Variable		Independent Variables	Estimate	S.E	C.R	P
CS	<---	MM	0.244	0.071	2.712	.005
CS	<---	CR	0.009	0.051	0.183	0.855
CS	<---	SQ	-0.055	0.042	-1.321	0.187
CS	<---	EU	0.373	0.113	3.298	***
CS	<---	SP	0.527	0.072	7.357	***

Note: *** refers to $P < 0.001$

Table 5.11 illustrates the findings from the hypothesis tests.

Table 5.11: Summary of Hypotheses Results

Hypotheses	Result
H₁: Mobility has a positive impact on M-commerce Customer Satisfaction.	Supported
H₂: Content Reliability has a positive impact on M-commerce Customer Satisfaction.	Not Supported
H₃: Service Quality has a positive impact on M-commerce Customer Satisfaction.	Not Supported
H₄: Ease of Use has a positive impact on M-commerce Customer Satisfaction.	Supported
H₅: Security and Privacy has a positive impact on M-commerce Customer Satisfaction.	Supported

6. DISCUSSION AND CONCLUSION

6.1 Discussion of the Findings

From the customer satisfaction of M-commerce, factors affecting on M-commerce in customer satisfaction results from data-analysis. “Mobility, Ease of Use, Security and Privacy” were proven as the most main factors in “Customer Satisfaction” and other factors in accordance with the results of data in categorizing customers are “Content Reliability and Service Quality” were not found to be significant predictor.

Most of respondents are categorized in same group, also they perceived their overall satisfaction according to degree of satisfaction with operation process. Based on this result, we also find out that they are essential, bottom line factors to satisfy customers.

The main purpose of this study is to examine the relationship between dependent and independent variables of the model. In our model Mobility, Content Reliability, Service Quality, Ease of Use, and Security and Privacy are the independent variables and Customer Satisfaction is the dependent variable. To examine the relationship between these variables, we construct 5 main hypothesis and to test their relationship we collect data by the help of the questionnaire (survey). The survey has been conducted 204 responders most of whom from İstanbul. According to demographic factors of customers 24% were female and 76% were male.

The responders who are in the age 20 to 29; have under graduate degree and have mostly 1-3 year experience in M-commerce. They mostly use smart device to use online chats and to pay their bills.

As search on internet and doing shopping, they use internet most of the time done shopping mostly with in smart device.

Later were analyzed via CFA and SEM analysis processed through SPSS (version 19) and SPSS AMOS (version 22) statistical software. Within the scope of CFA standardized regression weights were calculated. It intends to measure the extent to which observed variables represent latent variables. Overall, outcomes represent a considerable contribution. According to the summary of hypotheses testing, three of the proposed hypotheses were statistically and significantly supported and two hypotheses were unsupported.

6.2 Implications

Most of the companies are focusing on customer satisfaction for awareness. Current online shoppers should not be treated according to old standards. Nowadays, customers have a power of information, especially when it comes to E-commerce business. It is vital to understand needs and wants of the online shoppers as well as meeting of their expectations for generating security and privacy and customer satisfaction respectively. M-commerce is tool that meets requirements mentioned above in certain extent. By defining, among the most common features of M-commerce, five of them in the study have been focused on: mobility, content reliability, and service quality and ease of use and finally, security and privacy.

All of mentioned features demonstrated either direct or indirect impact on M-commerce customer satisfaction. It is important findings for M-retailers that they believe their meet customers' expectations, needs and wants without paying attention to the features mentioned above in their M-commerce strategies. The M-retailers that allocated big portion of the budget and effort for marketing activities to create an image of caring company about m-commerce customer satisfaction should make sure that their background in terms of M-commerce framework is indeed performing in order to create satisfaction of customers.

At the same time, the results of this study should alert M-retailers that they do not have strong M-commerce framework and content reliability and rethink existing strategies and reconsider available information of M-commerce approach for further improvements. Another important finding is the fact that M-commerce features like mobility, ease of use and security and privacy have

positive impact on perceived usefulness and on the other hand, content reliability and service quality were not found to have any significant effect on customer satisfaction. This demonstrates importance of customer satisfaction in M-commerce features that may enhance customer M-shopping experience one way or another. Thus, the M-retailers that are concerned with perceived usefulness of their smart device should consider M-commerce features as one of the critical measures.

6.3 Limitations and Recommendations for Future Researches

Primarily, this thesis work seek to depict the effects on M-commerce features on customer satisfaction. Even though obtained results seem encouraging as any study, it has its limitations.

First of all, the data that was used for analysis has been obtained based on accessibility and subjective opinion of the researcher.

Secondly, despite the fact that respondents prior filling in surveys were given detailed information about its purpose and objective, survey carried self-reported nature.

Thirdly, only five M-commerce features (based on collected literature within the scope of the study) have been analyzed in current study. There might other critical M-commerce features that impact Turkish customers' satisfaction in considerable way.

Fourthly, as M-commerce has dynamic nature, obtained results might be after certain period and the model require specific updates and modifications in the future.

Finally, the limited time was another constraint that researcher faced during research period. Taking into consideration above-mentioned limitations researchers may conduct new studies with improved models and hypotheses that will let to have better understanding to Customer Satisfaction in m-commerce in Turkey.

It will be interesting to direct future researches to have mixed outcomes that will include both customer and M-retailer perspectives. In this way, we will be

able to see the picture as a whole and fill in existing gaps in a more efficient manner. Despite the fact that structural equation modeling requires minimum of 204 responses as a sample size, covering large samples will help to represent bigger portion of the population and generalize outcomes.

Current and earlier researches determined apparel sector as one of the most demanded in M-commerce of Turkey, however, it will be interesting to focus on another segments as well. In this way, the results within M-commerce concepts can be generalized and represent segments that are absent in the literature at the moments.



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APPENDIX

APPENDIX A: Survey Questionnaire

APPENDIX B: The Result of the CFA on Customer Satisfaction (Factor Loadings and Measures of Research Variables)

APPENDIX C: The Result of the SEM on Customer Satisfaction



APPENDIX A: Survey Questionnaire

Dear Respondents:

I am the student of Istanbul Aydin University Istanbul, going to write the thesis about the **Customer satisfaction of M-Commerce**; I want to get your views and opinions regarding customers who shop online. I hope that you will give us few moments to contribute in my thesis. I will very thankful for you to contributing some time and efforts when you answering the questionnaires.

Part I - Demographic Information

1. Genders

- a. Male
- b. Female

2. Age

- a. Under 20
- b. 20 – 29
- c. 30 – 39
- d. 40 – 49
- e. Over 50

3. Education

- a. High school
- b. College graduate
- c. University graduate
- d. No qualifications

4. Online Shopping Experience

- a. 1-3 Years
- b. 4-6 Years
- c. 7+ Year

5. In which device do you access shopping to make purchase.

- a. Smart phone
- b. Personal computer
- c. Tablet

6. Have you ever done online shopping.

- a. Yes
- b. No

7. Top activities performed with mobile devices:

- a. Communicating with friends/family
- b. Placing orders
- c. Searching on the Internet
- d. Comparing products online
- e. Downloading apps
- f. Transferring money
- g. Paying bills
- h. Shopping online

Part II - Level of Customer Satisfaction in M-commerce

Please answer by use using Likert scale from 1= Strongly Disagree to 5= Strongly Agree. Just mention your views with any number by 1 to 5.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

V-code	Mobility	
M1	mobile-commerce can be used anytime	(Liébana-Cabanillasa & Marinkovi, 2016)
M2	mobile-commerce can be used anywhere	
M3	mobile-commerce can be used while traveling	
M4	Using mobile-commerce is convenient because my phone is almost always at hand	

V-code	Content Reliability	
CR1	Various kind of content that I want are offered via mobile-commerce	(Choi, Seol, Lee, Cho, & Park, 2008)
CR2	Services and content from mobile-commerce are valuable for me	
CR3	Services and content I want always available in mobile-commerce	
CR4	Information about content I want can be offered always in mobile-commerce	
V-code	Service Quality	
SQ1	The mobile-commerce responds to your requests fast enough	(Wang & Liao, 2007)
SQ2	The mobile-commerce site provides convenient payment procedures	
SQ3	The mobile web site provides good after-sales services	
SQ4	The mobile site provides adequate Frequently asked questions (FAQ) services	

V-code	Ease of Use	
EU1	The mobile web site has many interactive features	(Wang & Liao, 2007)
EU2	The mobile web site has adequate search facilities	
EU3	The mobile web site can be personalized or customized to meet one's needs	
EU4	Learning mobile-commerce would be easy for me.	(Chan & Chong, 2013)
EU5	I would find it easy to use mobile-commerce to do what I wanted to do.	
EU6	It would be easy for me to become skillful at using mobile-commerce.	
EU7	I find mobile-commerce easy to use	

V-code	Security and privacy	
SP1	I believe that m-commerce is secure.	(Chan & Chong, 2013)
SP2	Data on our mobile devices are at security and privacy there is no risk if we use mobile-commerce.	
SP3	I am concern possible security and privacy no risks involved using mobile-commerce.	
SP4	I think mobile-commerce shows great concern for the security of any transactions	(asaló Ariño, Flavián, & Guinalíu, 2007)
SP5	I think mobile-commerce shows concern for the privacy of its users	
SP6	I feel safe when I send personal information to mobile-commerce	

V-code	Customer Satisfaction	
CS1	I am quite satisfied with mobile-commerce services	(Marinković & Kalinić, 2017)
CS2	M-commerce services meet my expectations	
CS3	My experience with using mobile-commerce is positive	
CS4	I think that I made the correct decision to using mobile commerce	(Thakur, 2014)
CS5	The experience that I have had in using mobile commerce has been satisfactory	
CS6	In general, I am satisfied with the service I have receive from mobile-commerce app	



T.C.
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Tez çalışmanızda kullanmak üzere yapmayı talep ettiğiniz anketiniz İstanbul Aydın Üniversitesi Etik Komisyonu'nun 11.03.2019 tarihli ve 2019/04 sayılı kararıyla uygun bulunmuştur.
Bilgilerinize rica ederim.

e-imzalıdır
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APPENDIX B: The Result of the CFA on Customer Satisfaction (Factor Loadings and Measures of Research Variables)

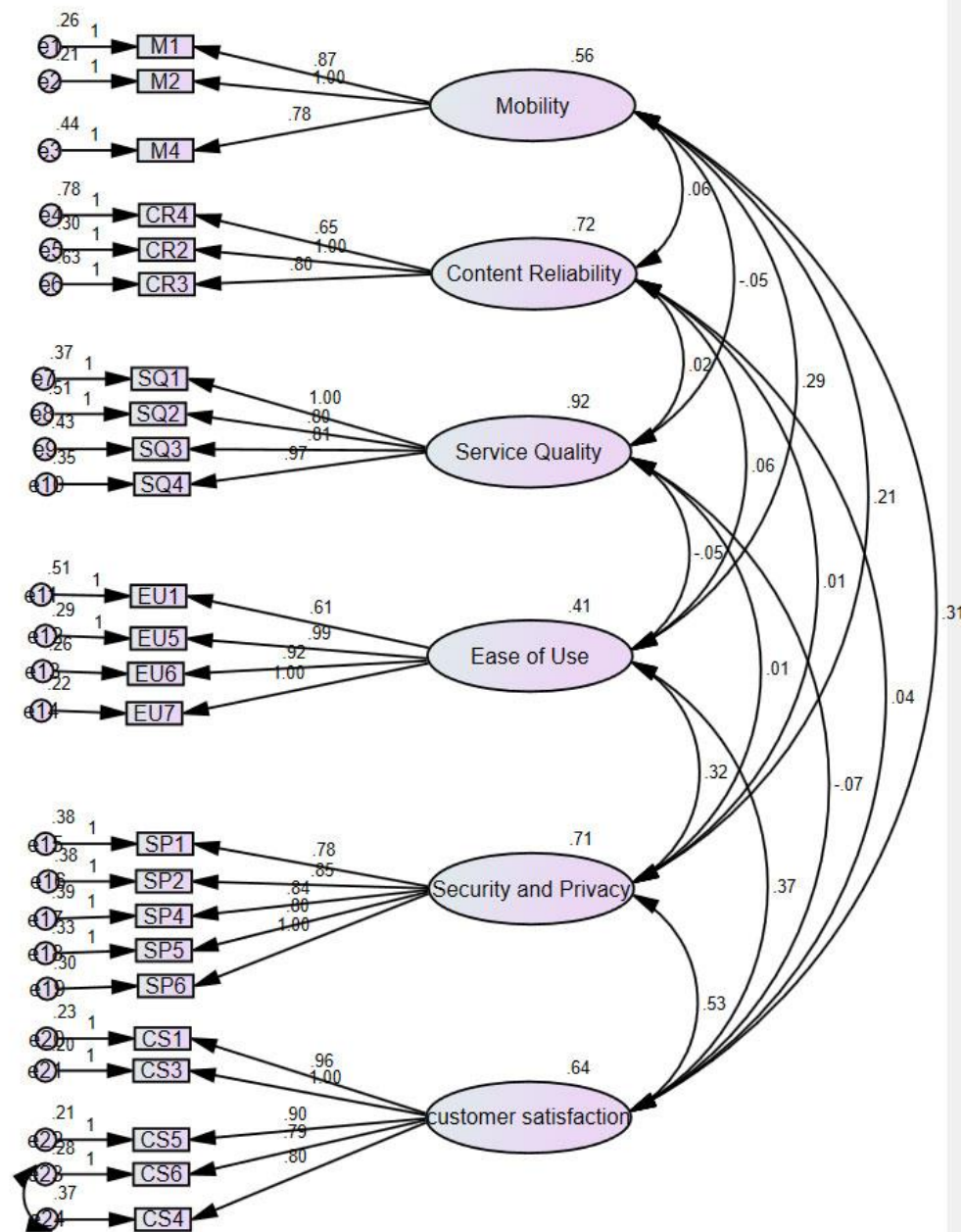


Figure B.1: CFA Model

Table B.1: Reliability and Validity Assessment

	CR	AVE	MSV	MaxR(H)	MM	CR	SQ	EU	SP	CS
MM	0.812	0.593	0.361	0.834	0.77					
CR	0.791	0.591	0.296	0.799	0.099	0.686				
SQ	0.875	0.637	0.008	0.883	-0.069	0.028	0.798			
EU	0.8	0.509	0.52	0.831	0.601***	0.109	-0.076	0.713		
SP	0.877	0.589	0.606	0.882	0.334***	0.018	0.012	0.601***	0.768	
CS	0.907	0.661	0.606	0.915	0.510***	0.064	-0.092	0.721***	0.779***	0.813

Not: Correlations of Significance: † p < 0.100, * p < 0.050, ** p < 0.010, *** p < 0.001

Table B.2: CFA - Unstandardized Regression Weights

Items	Variables	Estimate	S.E.	C.R.	P
M4	MM	.778	.085	9.151	***
M2	MM	1.000			
M1	MM	.870	.081	10.707	***
CR3	CR	.804	.141	5.714	***
CR2	CR	1.000			
CR4	CR	.646	.120	5.379	***
SQ2	SQ	.800	.071	11.316	***
SQ1	SQ	1.000			
EU1	EU	.605	.093	6.522	***
SP2	SP	.845	.071	11.981	***
SP1	SP	.782	.068	11.424	***
CS3	CS	1.000			
CS1	CS	.960	.061	15.739	***
EU5	EU	.986	.090	10.955	***
CS5	CS	.898	.057	15.649	***
CS6	CS	.786	.059	13.273	***
SP4	SP	.843	.071	11.898	***
SP5	SP	.799	.066	12.065	***
SQ3	SQ	.814	.068	11.958	***
SP6	SP	1.000			
EU6	EU	.916	.084	10.866	***
EU7	EU	1.000			
SQ4	SQ	.966	.072	13.427	***
CS4	CS	.797	.066	12.067	***

Standardized regression weights (coefficients) are given in Table 5.6. These coefficients are the estimate values of items and variables which were standardized before.

Table B.3: CFA - Squared Multiple Correlation

Items	Estimate	Items	Estimate
CS4	.522	CS3	.764
SQ4	.711	SP1	.532
EU7	.651	SP2	.571
EU6	.574	EU1	.228
SP6	.701	SQ1	.715
SQ3	.585	SQ2	.537
SP5	.577	CR4	.277
SP4	.565	CR2	.708
CS6	.589	CR3	.425
CS5	.714	M1	.622
EU5	.583	M2	.723
CS1	.718	M4	.434

Table B.4: Model of Fit Metrics for CFA Model

Measure	Estimate	Interpretation
CMIN/DF	1.299	Excellent
CFI	0.971	Excellent
SRMR	0.05	Excellent
RMSEA	0.039	Excellent
PClose	0.946	Excellent

* CFI>0.95, SRMR<0.08, RMSEA<0.06.

APPENDIX C: The Result of the SEM on Customer Satisfaction

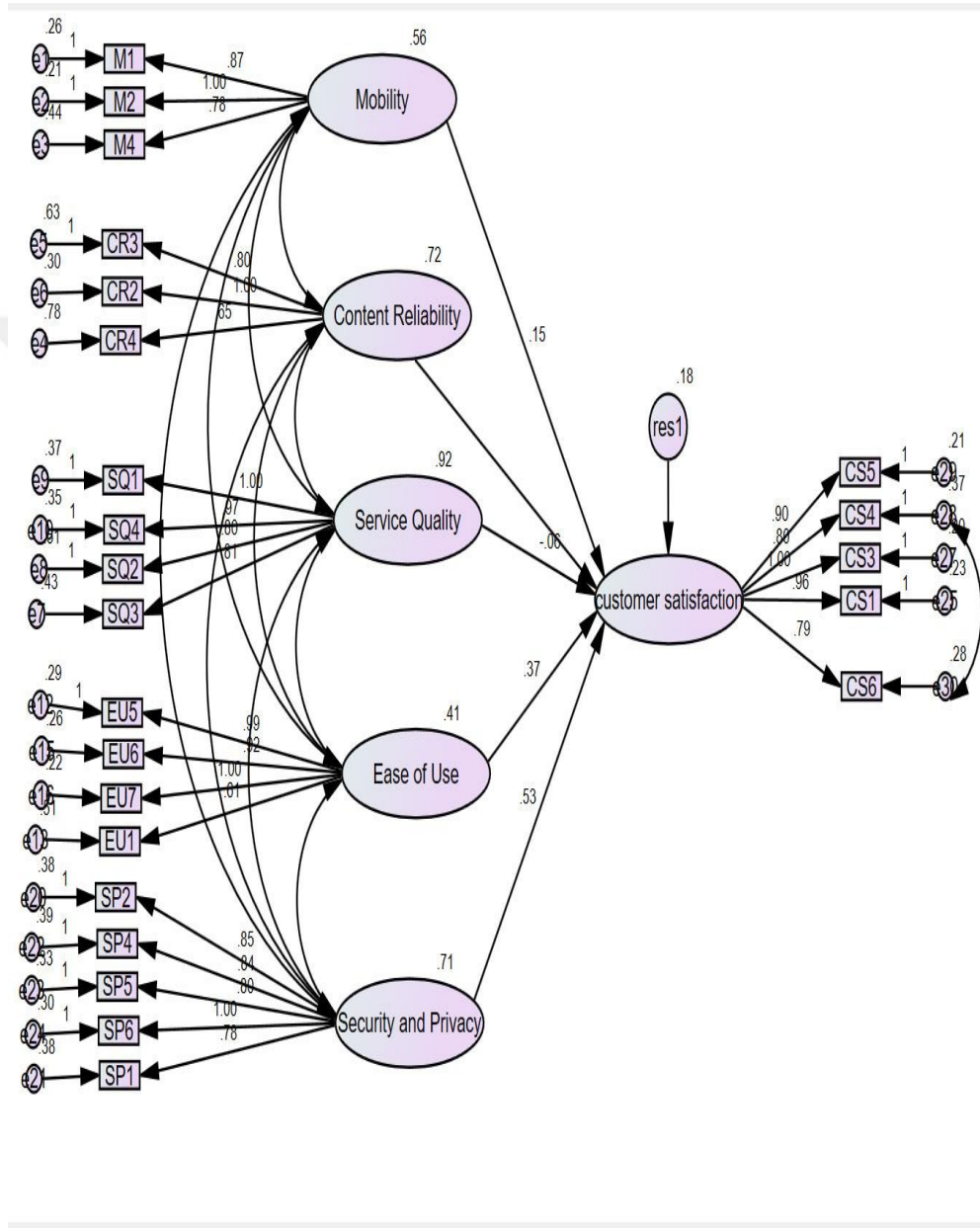


Figure C.1: Structural Model

Table C.1: Model of Fit Metrics for Structural Model

Measure	Estimate	Interpretation
CMIN/DF	1.299	Excellent
CFI	0.971	Excellent
SRMR	0.05	Excellent
RMSEA	0.039	Excellent
PClose	0.946	Excellent

Table C.2: Structural Model Regression Weights

Dependent Variable		Independent Variables	Estimate	S.E	C.R	P
CS	<---	MM	0.244	0.071	2.712	.005
CS	<---	CR	0.009	0.051	0.183	0.855
CS	<---	SQ	-0.055	0.042	-1.321	0.187
CS	<---	EU	0.373	0.113	3.298	***
CS	<---	SP	0.527	0.072	7.357	***
Note:	***	refers	to	P	<	0.001

RESUME

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Working on Istanbul Aydın University Projects and website (Feedback System with admin Panel , employee leave system, employee technical support project) with help of frontend and SharePoint REST API

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Web Developer & Designer, **FLEX BİLİSİM,**

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Software Developer and Instructor, **HIDAYA TRUST (HIST)**

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Skills:

Programming HTML5 , CSS, SASS, PHP , MySQL, JavaScript, jQuery, jQuery Mobile, React Native, AngularJS , JSON, PhoneGap , Bootstrap Framework , SharePoint, SharePoint Webpart, WordPress Theme Development, Code Igniter, Laravel5 Plugins , Widget, Facebook Api, Twitter Api, Github api

Multimedia Adobe Photoshop, Visual Studio Code,

DBMS Used MySQL , SQL

Languages:

-Sindh: Native Language

-Urdu: Advanced

-Turkish: Intermediate

-English: Advanced