

# **SYNOPSIS**

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**ON**

**“AN EXPLORATORY STUDY OF THE INFLUENCES OF MOBILE APPLICATIONS’ QUALITY AND SMARTPHONES’ ATTRIBUTES ON SELECTED MOBILE SHOPPERS’ BUYING BEHAVIOUR IN SELECTED CITIES OF GUJARAT”**

**SUBMITTED**

**IN**

**PARTIAL OR COMPLETE FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF**

**DOCTOR OF PHILOSOPHY**

**IN**

**COMMERCE AND BUSINESS MANAGEMENT**

**BY**

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**DECEMBER-2020**

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**SYNOPSIS**

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**AN EXPLORATORY STUDY OF THE INFLUENCES OF MOBILE  
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**AN ABSTRACT**

As a result of the improvements and innovations in information technologies, the Internet had become a vital tool in individuals' lives. It had changed the way people read books, listening to music, watching films, sending mails and shopping. This change had significant implications for both firms and shoppers. E-Commerce became yesteryear story with the arrival of smartphones. Website developers had changed the design of websites that could fit the screen size of smartphones. The developing technology had made the shoppers much more accessible to the Smartphone than to their personal computers.

**Under this research study, the term 'smartphone users' is used as interchangeable term with 'mobile shoppers' and 'buying behaviour' is used interchangeably with 'shopping behaviour'.**

The researcher had determined to restrict conceptual scope of this research study to examine influences of selected smartphone applications and the selected attributes of the Smartphones on selected mobile shoppers' use of smartphones for online shopping and therefore such mobile or smartphone users who used mobile or cell for availing either online services as well as for making shopping online herewith were referred in this research study as Mobile Shoppers. The term buying behaviour and shopping behaviour too are considered as synonymous. The research study had focused to gather responses only from those online shoppers being users of smart phones only.

The researcher had conducted the research study to learn, explore, and evaluate the influence of the attributes of Smartphones viz., instant connectivity and mobile features on the perception of perceived usefulness, perceived enjoyment, trust, convenience and price sensitivity in relation with the quality of mobile shopping applications viz., appearance, content quality, specific content, technical adequacy in selected mobile shoppers' buying behaviour. Mobile shoppers being residents of the selected four cities viz., Ahmedabad, Surat, Rajkot and Vadodara of the State of Gujarat.

The PhD thesis is organized into six chapters. The researcher has also provided List of tables, List of Figures/Graphs, List of Abbreviations with supported Annexure as the case may be.

The chapter number one entitled as 'An overall review and conceptual framework of m-commerce' has presented a brief review of the worldwide view of Internet users, the evolution of the digital market, growth of m-shoppers in India, digital marketing trends in 2020 and future trends of m-commerce. The chapter number two of the Ph.D. Thesis titled as 'Review of Literature' has endeavoured to offer a concise review of literature on the selected areas viz., mobile commerce, attributes of Smartphones, mobile shopping applications, m-shoppers' behaviour,

perceived usefulness, perceived enjoyment and trust. The chapter number three of this research has dealt with 'Research Methodology'. The chapter number four entitled as 'Data Analysis and Interpretation of the Research Study' has provided results of the research study whereas the chapter number five called as 'Findings and implications of the Research Study' has presented results of tests of significance (or) hypotheses with the help of the use of different statistical tools and techniques to bring out implications of this research study.

The chapter number six entitled as "Conclusions, Recommendations and Suggestions of the Research Study" offers an abridged form of the PhD Thesis. It also provides the recommendations, suggestions, limitations of the research study, and future directions of the research study. The secondary sources of information are enlisted in the section of the 'References' given at the end, and the 'Appendix' offers Annexure which offers detailed information on computations and clarifications on data analysis and interpretation and other information related to the research study.

The finding of the research study would be useful for smartphone manufacturers as it identifies the effect of attributes of Smartphones in terms of user-friendliness and instant connectivity to carry out mobile shopping. The research study would be helpful to the developers of mobile shopping applications viz., appearance, content quality, specific content and technical adequacy in connection with perceived usefulness, enjoyment and trust of m-shoppers. The researcher under this research study has strived to know the influence of Smartphones' attributes and the quality of mobile shopping applications on mobile shoppers' buying behaviour and future shopping intention through mobile applications. Thus, the research study was directed at enhancing user-friendly, convenient, and enjoyable shopping experience of the mobile shoppers that would, in turn, generate revenue to both the smartphone manufacturers and mobile shopping application developers.

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**1.0 : INTRODUCTION:**

Marketing started with understanding and getting to know the needs of the shoppers both stated and unstated, designing products or service to satisfy and meet those needs, intimating the targeted shoppers about the availability of the services or products, influencing, convincing, motivating, and encouraging the customer to buy a product and also making the product available at the place where the customer needs, at an appealing price (Prasad, 2005).

Chapter one analyses the evolution of marketing from the traditional to the digital era. It explains the importance of traditional marketers adapting to the digital marketing industry and the advantages of digital marketing such as reaching out to the targeted audience, quick results and feedback. This chapter had elaborated eleven key digital trends in 2020 i.e. artificial intelligence, programmatic advertising, chatbots, personalization, video marketing, influencer marketing, social messaging apps, visual Search, micro-moments, voice search & smart speakers and social media stories.

**1.1: MEANING OF MOBILE COMMERCE:**

**1.1.1: ETYMOLOGY:**

The term mobile commerce referred to "The business of buying and selling goods and services on the internet using a mobile phone. M-commerce is short for mobile commerce." (Cambridge Dictionary, 2020)

**1.1.2: CONCEPTUAL DEFINITIONS:**

The researcher strived to list out key definitions of m-commerce as follows.

- Mobile commerce refers to doing the business or availing service with the help of handheld devices like Smartphone or tablets. Moreover, there are three varying types of mobile commerce, including mobile banking, mobile shopping, and mobile payments. Each of the three characters of mobile commerce relies on mobile devices for handling financial transactions and purchasing products and services online (Business Jargons, 2020) .
- According to Rajabion (2015) m- commerce is a combination of mobile communications with existing e-commerce services (Rajabion, 2015).
- Kourouthanassis and Giaglis (2012) defined mobile commerce as the act of online customer purchasing using mobile devices (Kourouthanassis & Giaglis, 2012)
- As per Phillip E. Copeland (2016) Mobile commerce includes all activities containing a commercial transaction conducted through communication networks that interface with wireless devices.

Examples of mobile commerce include mobile banking, mobile ticketing, mobile coupons, and mobile purchase of goods and services (Copeland, 2016).

- According to Ngai and Gunasekaran (2007) m-commerce is similar to e-commerce except that the transactions were conducted in a mobile environment in their research paper titled “Analysis of the determinants of consumers’ m-commerce usage activities” (Gunasekaran & Ngai, 2007).
- Mr. Vivek B. Patil and Mr. Deepak G. Awate (2017) said "m-Commerce is a capability to follow commerce with the help of a handheld device like a Personal Digital Assistant (PDA,)mobile phone, a Smartphone, or any other upcoming mobile equipment such as dashtop mobile devices" (Patil & Awate, 2017) .
- As per Mohini S. Samudra and Miling Phadtare (2012) M-commerce includes mobile banking services, m-payments and mobile purchases (Samudra & Phadtare, 2012) .
- Dr. Priyanka Khurana (2016) described that m-commerce enables buying and selling of goods and services through wireless handheld devices and makes it convenient for speedy quality and quantity of transactions (Khurana, 2016).

## **1.2.: EVOLUTION OF MOBILE COMMERCE:**

Mobile commerce was the result of the development of the age-old concept of commerce, which went through enormous changes in business and technology revolution. Marketing had evolved significantly over time, as driven by technological advances. It had shifted from product-driven (1. 0) to customer-centric (2. 0) to human-centric marketing (3. 0) to digital marketing (4. 0). The latest approach digital marketing took into consideration of convergence of online world of businesses and shoppers for total customer experience while keeping brands' authentic characters of style and substance. Marketing had changed over time. It was converging online, business world and customer for a total experience. Marketing 4.0 leveraged machine-to-machine connectivity, artificial intelligence. Human-to-human connectivity and strengthening customer engagement (Kartajaya, Kotler, & Setiawan, 2017)

The word m-commerce or mobile commerce was initially coined in the year 1997 by Kevin Duffey to indicate that the delivery of electronic commerce capacities directly into the customer's hand, anywhere, via the technology of wireless. Mobile commerce refers to doing the business or availing service with the help of handheld devices like Smartphone or tablets.

M-Commerce was the abbreviation of the mobile commerce, through which, a person could buy or sell goods, avail services, transfer rights or ownership, to do cash transfer or other banking, solely with the help of mobile phone without any wired connection (Juha Korhonen, 2014).

Digital marketing had an edge over traditional marketing since it was able to give quick results, while the latter keeps waiting for long before showing any results. With digital marketing strategies, one could not only interact with targeted audience in the real time, but can make prompt and fruitful steps based on their quick feedbacks. Targeted audience could engage in chats and discussions for registering better brand presence and gain passive advice to improve product or service.

Digital marketing measuring efforts became very easy and quick. Online advertisement had the ability to approach a widespread population, even the whole of world (DMI, 2020)

### 1.3.: INTERNET USERS IN INDIA:

India as one of the powerful economies in the world along with enormous human resources, it had reached 1.06 Billion mobile connections by January 2020. The total number of mobile connections was equivalent to seventy-eight per cent of the total Indian population. India had a total population of 1.37 Billion out of which 1.06 Billion users had mobile connections. The total internet users were 687.6 Million in India (Kemp, Data Reportal, 2020).

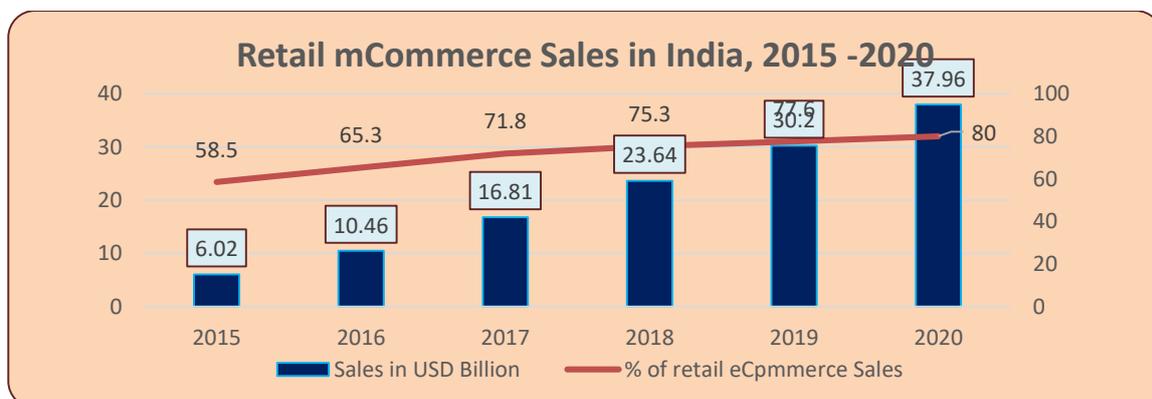
Ninety-one per cent of internet users in India own any type of mobile device, out of which 90 per cent was smartphone users. There was still 14 per cent of the mobile users used basic feature phone. Twenty-three per cent of internet users were tablet users. India had 629.2 Million mobile internet users in 2020. Ninety-two per cent of total internet users accessed the data on a mobile device, and 91 per cent of the internet were accessed on smartphones. Feature phone users shared 4.6 per cent of total internet usage. Mobile internet users spent an average of 3hrs. 23minutes of their time in using mobile data in a day (Kemp, Data Reportal, 2020)

Global mobile commerce sales would make up for 53.9 per cent of all e-commerce sales by 2021 (Statistics 99 Firms, 2019). Advertisers had spent more than \$240 Billion in mobile advertisements in 2020, that was 26percent higher than 26 per cent. Smartphones were a central part of increasing retail sales both for Brick-and-Mortar and online sales and building e-commerce brands. Nike's digital business grew by 43 per cent in Q3 2019 through the mobile application and digital marketing. (App Annie, 2020)

### 1.4.: GROWTH OF MOBILE COMMERCE IN INDIA:

Buying through mobile applications had surged in India (India Retailer, 2018). Since India posed a high number of active young age people and having the second-largest country with a greater number of smartphone users in the world (Internet World Stats, 2019) , it had tapped the new marketing evolution of M-Commerce. The huge number of Smartphone adoption, faster, secure internet and development of mobile quality applications had resulted in the growth of mobile commerce in India.

**FIGURE NUMBER:1.0.: RETAIL M-COMMERCE SALES IN INDIA, 2015-2020:**



The above chart shows the trend of increase in m-commerce in India from 2015 to 2020. It was projected that the m-commerce sales would reach 37.96 Billion in India by 2020 (Poddar, 2016).

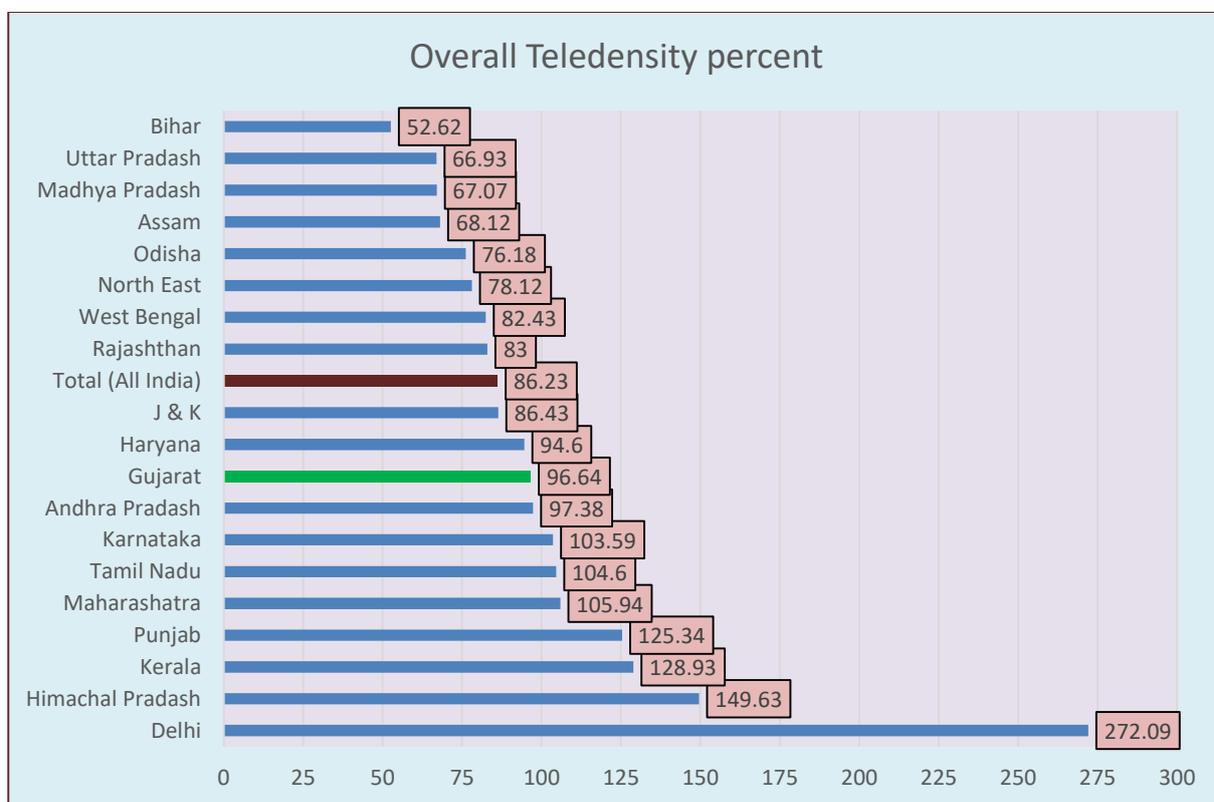
**1.5.: USAGE OF SMART PHONE IN INDIA:**

Since smartphones were interactive, brands started to engage shoppers with their products by mobile apps. It had been observed that nine out of ten shoppers do research before they buy the product. 80 per cent of the web traffic came from the mobile phone in India, which was the second largest in the world. Mobile had occupied 37 per cent more space than TV in Indian households. It was estimated that 781 Million smartphone users would be in India by 2021 among which 75 per cent of its users would be the young population of 35 years below. 88 per cent of mobile phone users had downloaded mobile apps. India accounts 12 per cent of mobile app downloads. Retail and travel apps were the most downloaded by Indians that was induced by in-app offers and discounts (Fortune India, 2019)

**1.6.: STATE WISE TELE DENSITY IN INDIA:**

The number of active wireless subscribers (on the date of peak VLR#) in Aug, 2020 was 14960.78 Million in India. VLR was acronym of Visitor Location Register. (courtesy: Press Release No.62/2020)

**FIGURE NUMBER:1.1.: OVERALL TELE-DENSITY (CIRCLE/STATE WISE)-AS ON 31<sup>ST</sup> AUGUST 2020:**



(Source: [https://www.trai.gov.in/sites/default/files/PR\\_No.62of2020\\_1.pdf](https://www.trai.gov.in/sites/default/files/PR_No.62of2020_1.pdf))

The above graphs show that Delhi (272.09percent) being the most densely telephone populated, whereas Bihar (52.62percent) was the least telephone populated state in India. Gujarat performed moderately with the per cent of 96.64 above the national average of 86.23 (TRAI, 2020). It clearly indicates that Gujarat is at good position and in a developed state in telephone density.

### **1.7.: INFLUENCE OF SMARTPHONE AMONG INDIAN SHOPPERS:**

India had seen the expanded number of people consuming their time on the mobile screen because of its universal connectivity, affordability and personalization such mobile devices had shifted much more than just entertainment handsets. Notably, e-commerce harnessed the power of wireless computing to develop mobile commerce that also accommodates commercial services just on the go. Mobile commerce was very much open to the customer input for the improvement of new services offered.

The mobile device created meaningful opportunities for e-commerce, information services, entertainment and payment services. Sellers and service providers needed to learn what influence the customer, which was very crucial with the speedy growth of mobile users. As customer opinion of services would affect the level of satisfaction, companies should pay attention to the attributes that were perceived as necessary by customer for making choices (Dr. Haque, 2004).

The development and use of mobile commerce as an emerging technology had the potential to change the way customer conduct transactions dramatically. This study also suggested several practical ideas. First, e-tailers should pay close consideration to both extrinsic and intrinsic factors – perceived mobile service quality and flow in mobile services – because both of them significantly affect customer' behavioural intention.

E-tailers should be aware of the critical role of evaluation of source because the present study found that evaluation of previous web service quality had a significant cross-environment influence on shoppers' evaluation of the extended mobile services. Then, they could leverage their existing web service quality to produce a similar favorable assessment of the extended mobile services.

### **1.8.: SMARTPHONE APPLICATIONS:**

As per Technopedia, “A mobile application is a type of application software designed to run on a mobile device, such as a smartphone or tablet computer” (Technopedia, 2020). Customer use mobile applications every day to connect with friends, order food, send money, and play games. Businesses needed to understand what shoppers do and do not prefer to create a successful application. Mobile applications were an essential channel to consider for companies to better communicate with shoppers (Rao, 2019).

### **1.9.: SMARTPHONE USERS IN GUJARAT:**

The estimated population of Gujarat was 6.68 Crores for the year 2018-2019. However, the state had 6.92 Crore cellular connections. Sixty-four per cent of Gujarat people are using the Internet. There was 42 per cent of people having an internet connection in September 2019, but it skyrocketed to 64 per cent in a month's time (Himanshu Kaushik, 2020). Gujarat was higher than the national average. Apart from Kerala and Gujarat, Punjab, Maharashtra, Delhi, Himachal Pradesh and Tamilnadu had smartphone penetration at over 50 percent (Taneja, 2018).

The study revealed that there was an increase in shopping using a smartphone from the customer of tier two and three cities in India (The New Indian Express, 2018).

Gujarat education department conducted a study among the students of 91.58 lakh. The study had revealed that more household held smartphone phones than a television set and only 4 per cent had unlimited internet access. Twenty-four per cent of them had a normal mobile phone and only 3 per cent household owned laptop or desktop (Ritu Sharma, 2020).

### **2.0.: REVIEW OF LITERATURE:**

The researcher had gone through the existing literatures based on the key terms that are used on the research areas of the study viz., attributes of smartphone, quality of mobile apps, perceived usefulness, perceived enjoyment, and trust. In addition to these researchers also gone through various research articles, published reports, research papers of the existing researchers and journals to understand the concept of the research terminologies, comprehensive ideas, and not to have any biased opinion about the research study. The researcher has referred writings of more than 414 authors to identify the existing research outcomes and to know the shoppers' behavior to the changing and the developing environment of the mobile technology of Smartphone applications, new upgraded characteristics of smartphones. The researcher had reviewed 414 research articles and research papers published in various peer-reviewed publication sources across the world, out of them 229 research papers were used to get critical insight in the research problem.

The researcher has summarized depiction of review of the literature to present the contribution of the various researchers in the selected area of smartphone attributes, mobile application quality and shoppers' behaviour. It has been presented in Annexure-IV.

### **3.0: RESEARCH METHODOLOGY:**

The researcher had ventured to discuss the various areas of the research methodology briefly followed by conducting a research study. The geographical locations of the research study were Ahmedabad, Vadodara, Surat and Rajkot in the Indian state of Gujarat. This chapter had included procedural steps and conceptual aspects concerning the research methodology viz., the key terms of the research study; the rationale of the research study; scope and coverage of the research study; research design of the

research study; objectives of the research study; hypotheses of the research study; the model used in the research study; sources of secondary data; sampling designs; data analysis and interpretation of the research study had been placed forward in concise form as follows.

### **3.1: BASIC TERMS OF RESEARCH STUDY:**

**The key terms of the research study had been explained in brief as follows.**

#### **3.1.1: MOBILE COMMERCE:**

The catchy word m-commerce or mobile commerce was initially coined in the year 1997 by Kevin Duffey at the inauguration of the Global Mobile Commerce Forum, to indicate that the delivery of electronic commerce capacities directly into the customer's hand, anywhere, via the technology of wireless. Several prefer to consider Mobile Commerce as meaning a retail outlet in the customer's pocket. "M-Commerce is the shopping and selling of goods and services through wireless handheld devices such as Cellular Telephone and Personal Digital Assistants (PDAs) which are known as Next-Generation e-Commerce, m-Commerce that enables its users to access the Internet without a need to find a place to plug in" (Global Mobile Commerce Forum, 1997) .

According to Benou Poulcheria, Vassilakis Costas (2012), "Mobile commerce or m-commerce was defined as any activity related to a commercial transaction (or a potential one)—a transaction that includes a monetary value—and was conducted via wireless and mobile communication networks and uses wireless and mobile devices as user interface" (Benou Poulcheria, Vassilakis Costas, 2012)

#### **3.1.2: PERCEIVED USEFULNESS:**

Perceived usefulness has been described as the extent to which a person believes that using a particular system which would improve his or her job performance. Davis (1989) had described "a system high in perceived usefulness as one for which a user understands in the existence of a positive user-performance relationship. The user perceives the system to be an effective way of performing the tasks" (Davis, 1989).

#### **3.1.3: PERCEIVED ENJOYMENT:**

Perceived enjoyment is the engagement of the customer into m-shopping with much interest, which is inspired by smartphone features and ease of use. Referred to the perception that using a website is interesting, pleasant, and enjoyable (IGI Global, 2020).

#### **3.1.4: TRUST:**

The more Mobile shoppers' trust the e-retailer, the more likelihood was that the Mobile shoppers would reveal privacy and personal data. Customer trust in e-Commerce businesses usually comes from their benevolence and credibility. "Credibility is defined as whether a person believes that the other party is honest, competent and reliable" (Han & Windsor, 2011).

### **3.2: RATIONALE OF THE RESEARCH STUDY:**

Online shopping through mobile apps was becoming very common and convenient for shoppers. Mobile shopping applications helped the shoppers to choose and buy the things on the go.

Considering the increase in the number of sales through smartphones, and the shopping done using mobile shopping applications, there was a need to analyse how the attribute of the Smartphone and quality of the mobile apps affect the shopping intention of the Shoppers. Through this research study, an attempt has been made by the researcher to study influences of smartphone applications and the attributes of the Smartphones on mobile shoppers' who use it for online shopping, herewith to be referred in this research study as Mobile Shoppers, to analyse how it is affecting perceived usefulness, perceived enjoyment, trust, convenience & Price sensitivity of m-shoppers' while shopping on the Smartphone using mobile applications. Thus, an attempt in this research study was made to examine the influence of mobile phone applications & its attributes on m-shoppers' shopping intention among selected cities in the state of Gujarat Viz., Ahmedabad, Vadodara, Surat and Rajkot.

### **3.3.: RESEARCH DESIGN OF THE RESEARCH STUDY:**

Research design of the research study considering its objectives, scope and coverage was exploratory and descriptive in nature.

### **3.4.: SCOPE AND COVERAGE OF THE RESEARCH STUDY:**

The researcher had determined to restrict conceptual scope of this research study to examine influences of selected smartphone applications and the selected attributes of the Smartphones on selected mobile shoppers' use of smartphones for online shopping and therefore such mobile or smartphone users who used mobile or cell for availing either online services as well as for making shopping online herewith were referred in this research study as Mobile Shoppers. The term buying behaviour and shopping behaviour too are considered as synonyms. The research study had focused to gather responses only from those online shoppers being users of smart phones only.

The scope of the study was restricted to examine the influence of selected smartphone applications & its selected attributes on m-shoppers' shopping intention. It was aimed at analyzing expectation and experience of Mobile shoppers with special reference to perceived usefulness, perceived enjoyment, trust, convenience & Price sensitivity of smartphone & its applications involved in m-shopping. Thus, an attempt in this research study was made to examine the influence of mobile phone applications & its attributes on m-shoppers' shopping intention among selected cities in the state of Gujarat Viz., Ahmedabad, Vadodara, Surat and Rajkot.

### **3.5.: A BRIEF ABOUT THE RESEARCH STUDY:**

Technology had evolved into several stages, and this is an era of information technology. With the help of the various sources of information, shoppers scrutinize multiple options in a product or services they had planned to avail. Smartphones are helping them to make the right decisions at the fingertip, and it was possible only through the magic of internet data enabled Smartphones. Shoppers had multiple options while choosing the right mobile shopping applications with numerous apps available in the market. Shoppers are spending their hard-earned money; they would like to use mobile shopping

applications that are trustworthy and reliable. Apart from the trust factor, the user-friendliness of the mobile shopping applications, the availability of the products, comparing facility, approachability of the sellers, and mobile applications layout all play an important role in shoppers' choice. The researcher had designed and conducted a research study to find out the relationship of the attributes of a Smartphone and the quality of mobile shopping applications in shoppers shopping behaviour, among the Mobile shoppers in the selected cities viz., Vadodara, Ahmedabad, Surat and Rajkot in the state of Gujarat. The findings of the research study would be useful for both Smartphone manufacturers and the developers of mobile shopping applications. Smartphone makers can produce the smartphone as per the input and feedback of Mobile shoppers. Mobile shopping applications developers can design the applications as per the expectations of the shoppers in relationship with its usefulness, enjoyment and trust. In this research study, the researcher had attempted to examine the expectations and experience of Mobile shoppers concerning Smartphone attributes and mobile shopping applications that had a crucial role in m-shopping intention and further recommending others to do m-shopping.

### **3.6.: OBJECTIVES OF THE RESEARCH STUDY:**

The key objective of the research study was to understand the influence of the attribute of Smartphones and the quality of mobile shopping applications in Mobile shoppers buying behaviour (or) shopping behaviour in order to analyze how it affects perceived usefulness, perceived enjoyment, trust, convenience & Price sensitivity of m-shoppers' while shopping on the Smartphone using mobile applications in the selected cities of Ahmedabad, Vadodara, Surat and Rajat in the Indian state of Gujarat.

#### **3.6.1: OTHER OBJECTIVES OF THE RESEARCH STUDY:**

The other objectives of the research study that were identified as follows.

- To assess the influence of perceived quality of Smartphone Applications, such as Appearance, content quality, technical adequacy, mediated by its perceived usefulness, perceived enjoyment, trust, convenience to use & price sensitivity, on m-Shoppers' Shopping intention;
- To assess the influence of perceived quality of Features of Smartphones, mediated by its perceived usefulness, perceived enjoyment, trust, convenience to use & price sensitivity, on m-Shoppers' Shopping intention ;

The research study was confined to selected Cities Viz., Ahmedabad, Vadodara, Surat and Rajkot of Gujarat State.

The additional objectives were as follows:

- To know the rank preference of selected m-shoppers of selected cities for selected features of smartphone,
- To know the rank preference of selected m-shoppers of selected cities for operating system of smartphone,

- To assess Perceived Usefulness; Perceived Enjoyment, Trust, Convenience & Price Sensitivity of Smartphone applications, as Expected and Experienced by m-Shoppers’;
- To assess Perceived Usefulness; Perceived Enjoyment, Trust, Convenience & Price Sensitivity of attribute of Smartphone, as Expected and Experienced by m-Shoppers’
- To evaluate selected m-shoppers’ Expectations and Experiences on Mobile Attributes & Smartphone Applications being offered by various e-tailors, and
- To study association between selected demographic background variables of selected m-Shoppers’ such as Age; Gender; Educational Qualifications; Income; Marital Status, and Occupation Vis-A-Vis Perceived Quality of Smartphone Applications & perceived quality of Mobile Attributes;

### **3.7: ILLUSTRATIVE HYPOTHESES OF THE RESEARCH STUDY:**

An attempt was made by the researcher to formulate and test various statistical hypotheses based on gaps derived based on an in-depth review of literature given as below as follows:

#### **3.7.1.: HYPOTHESIS-1**

The overall opinion of selected mobile shoppers on Perceived ease of Use, perceived Usefulness, Price & Trust of Smartphone attributes has no association with their selected demographic variables such as Age; Gender; Income; Educational Qualifications and Marital Status.

#### **3.7.2.: HYPOTHESIS-2**

The overall opinion of selected mobile shoppers on Perceived ease of Use, , perceived Usefulness, Price & Trust of Smartphone applications has no association with their selected demographic variables such as Age; Gender; Income; Educational Qualifications and Marital Status.

#### **3.7.3.: HYPOTHESIS-3**

The overall opinion of selected mobile shoppers on Quality of Smartphone Application & Smartphone Attribute by selected mobile shoppers has no association with their Recommendations to others.

#### **3.7.4.: HYPOTHESIS-4**

The overall opinion of selected mobile shoppers’ Quality of Smartphone Application & Smartphone Attribute by selected mobile shoppers has no association with their Continuance to buying

#### **3.7.5.: HYPOTHESIS-5**

There is no significant relationship between user-perceived mobile applications quality and the continuance intention of mobile shopping mediated by perceived usefulness.

#### **3.7.6.: HYPOTHESIS-6**

There is no significant relationship between user-perceived mobile applications quality and the continuance intention of mobile shopping mediated by perceived enjoyment.

#### **3.7.7.: HYPOTHESIS-7**

There is no significant relationship between user-perceived mobile applications quality and the continuance intention of mobile shopping mediated by trust.

### **3.7.8.: HYPOTHESIS-8**

There is no significant relationship between mobile attributes and the continuance intention of mobile shopping mediated by perceived usefulness.

### **3.7.9.: HYPOTHESIS-9**

There is no significant relationship between mobile attributes and the continuance intention of mobile shopping mediated by perceived enjoyment.

### **3.7.10: HYPOTHESIS-10**

There is no significant relationship between mobile attributes and the continuance intention of mobile shopping mediated by trust.

## **3.8: CONCEPTUAL MODEL DEVELOPED FOR THE RESEARCH STUDY:**

Smartphones have the benefit of their ease of use and portability as they can be taken anywhere and anytime without being disclosed to physical and geographical barriers (Wu and Wang, 2006).

M-shoppers' purpose of shopping on mobile, if accompanied by satisfaction, directed to repurchase. Shoppers' m-shopping shopping decision from a specific mobile application was seen as a competitive edge, which had a tremendously positive effect on profit (Tsai et al., 2007).

### **3.8.1.: INSTANT CONNECTIVITY:**

Instant Connectivity has been defined as "the level of convenience toward time, and places that one knows when they participate in m-shopping and approachability of conforming and searching for information at the moment" (Kim et al., 2007 and Ko et al., 2009).

### **3.8.2.: MOBILE FEATURES:**

Mobile devices have the characteristics such as, "large built-in display and zooming feature, size, weight, notification system and adjustable Brightness and Contrast" (Avvannavar et al., 2008; Banister, 2010; ORACLE, 2011; Rackspace, 2012; RNIB, 2012). Furthermore, those dimensions present the first factors that Mobile shoppers' notice or deal with at the primary phase of communicating with the mobile application, therefore, they had present exogenous factors that facilitate the forming of the first impression about the mobile application which in turn influences the other internal factors viz., perceived usefulness, perceived enjoyment; and trust respectively as these variables symbolize psychological factors.

*Taking all into consideration, the following research model can be reasoned, which contains of three principal variable categories that influence the mobile shopping success equation.*

### **3.8.3.: Independent Variables:**

[A] A Smart Phone User-Perceived Mobile Application's Quality and [B] Mobile Features

### **3.8.4.: Mediating Variables:**

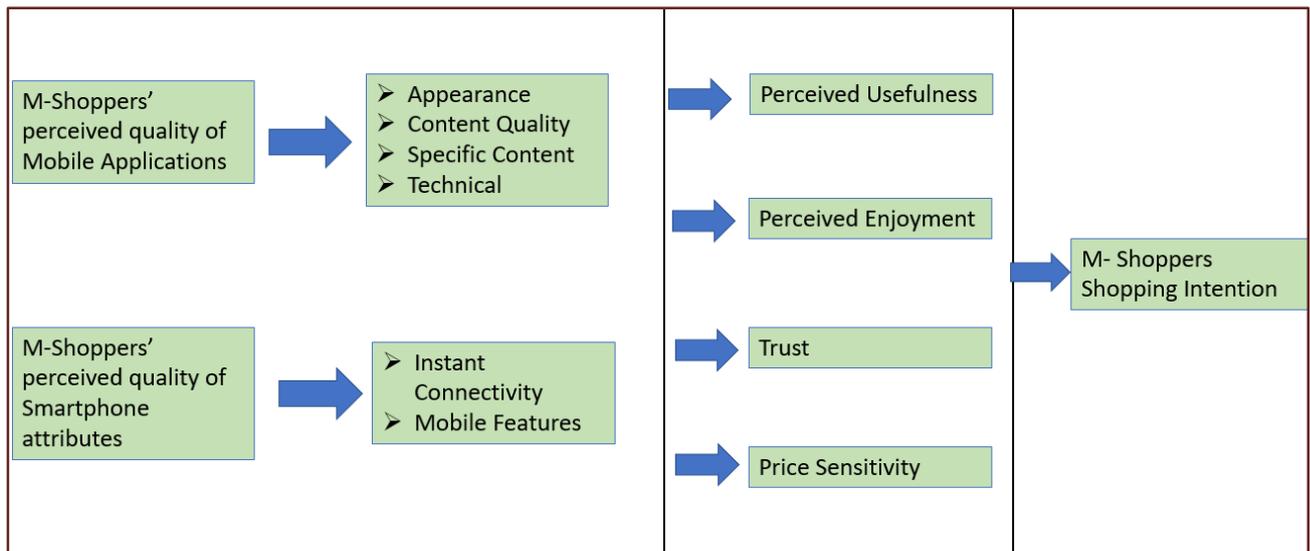
[A] A Smart Phone User-Perceived Usefulness [B] Perceived Enjoyment, and [C] Enhancing Trust.

### **3.8.5.: Dependent Variables:**

A Smart Phone User’s Intention of Mobile Shopping which ultimately lead to M-Shoppers’ Shopping or Shopping intention (Liao et al., 2006)

In order to attain the objectives of this research study, concise review of the available literature was undertaken by the researcher, and subsequently, a theoretical structural model was developed as shown in Figure Number 3.01.

**FIGURE NUMBER 3.01.:  
CONCEPTUAL MODEL DEVELOPED FOR THE RESEARCH STUDY**



**Source:** Hani Al Dmour, Muhammad Alshurideh, Farah Shishan; 2014

[Modified & Adapted by the Research Scholar]

### **3.9.: SOURCES OF INFORMATION:**

It mainly consisted of the following.

#### **3.9.1: Secondary Data:**

In order to undertake concise and critical review of literature of previously conducted research studies and published research papers, the researcher has made use of diverse sources of secondary data viz., Newspapers, Research Journals as well as unpublished Reports; Websites, and use of Search Engines were made in this research study.

#### **3.9.2: Primary Data:**

The required primary data were collected using structured non-disguised questionnaire in electronic and physical form from the selected mobile shoppers who were conveniently drawn from the four selected cities of the Gujarat State viz., Ahmedabad, Rajkot, Surat and Vadodara in this research study.

### **3.10: DESIGNING OF THE STRUCTURED NON-DISGUISED QUESTIONNAIRE:**

The Structured Non- Disguised Questionnaire was drafted in a direct and effective form to avoid ambiguity. The researcher has offered a brief description of the review of literature that was referred

while framing the structured non-disguised questionnaire, to ensure that all the aspects of the research study, in relation with mobile applications quality and attributes of smartphones in continuance intention of m-shopper's are being considered while drafting the structured questionnaire.

The structured questionnaire is divided into six parts. The first part of the questionnaire was designed to collect the demographic profile of the m-shoppers while the second part consisted of the questions related to the smartphones such as the name of the smartphone the user is using & used previously, amount spent on smartphone buying, the preferences of features in smartphone, and user friendliness of operating system. The third part of the questionnaire had the objective of collecting information of the Shoppers' shopping frequencies, preferred place of shopping, preferred time of shopping, shopping duration, sources of shopping information, reason for downloading mobile applications, number of shopping apps downloaded, preferred number of images of the product and shopping materials. The fourth part of the questionnaire focused on the difficulties while shopping in terms of internet connectivity, downloading images, and product delivery. The fifth part of the questionnaire was mainly aimed at collection data on Shoppers perceived enjoyment, perceived usefulness, trust, mobile applications quality, smartphones' attributes against the real-life experiences of the Mobile shoppers. The fifth part had the questions for the expectations and experiences of the Shoppers. A five-point Likert scale was applied defined as 1 = Strongly Disagree; 2=Disagree; 3=Can't say; 4=Agree, and 5 = Strongly Agree in the Question number 21. The 6<sup>th</sup> part of the questionnaire consisted of the overall experience of the Shoppers as mobile shopping regarding the payment, expectations of mobile shopping apps, expectation of smartphone attributes, and overall satisfaction.

**Table Number 3.01.**

**The Structured Questionnaire Consisted of Total Number Of 26 Questions Designed to Collect Information and Primary Data from M-Shoppers**

| <b>Table Number: 3.01</b>  |   |  |                                 |
|--|---|--|---------------------------------|
| <b>List of Selected References of Selected Criteria Used in Drafting of Structured Questionnaire</b>                                       |   |  |                                 |
| <b>Name of Author and Research Article</b>   | <b>Conduct of the Time Period of Research Study</b> | <b>Number of Criteria used in the Questionnaire.</b> | <b>Total Number of Criteria</b> |
|  |   |  | <b>Items</b>                    |
| <b>General information regarding age group, gender, marital status and type of family [Q-1 T0 Q-4]</b>                                     |   |  |                                 |
| <b>Criteria No. 12 to 13, 16, 17, 19 to 20, 28 to 34, 39, 42 to 48 Perceived Usefulness of Smartphone attribute and mobile application</b> |   |  |                                 |
| Lewis et al.,  | 2003  | 12,13,16,17,19,                                      | 5                               |
| Lu et al.,   | 2005  | 20,28,29,30,31,32                                    | 6                               |
| Taylor and Strutton,   | 2010  | 33,34,39,42  | 4                               |
| Liu and Forsythe,  | 2011  | 43,44,45   | 3                               |
| Sujeong Choi   | 2018  | 46,47,48   | 3                               |
| <b>Criteria No. 1 to 4 Demographic details of Mobile shoppers</b>  |   |  |                                 |
| Henry Assael   | 2005  | 1, 2, 3, 4   | 4                               |
| <b>Criteria No. 11,18,21-26,35,40,41. Perceived Enjoyment of Smartphone attribute and mobile application</b>                               |   |  |                                 |
| Pankaj Yadav   | 20015   | 11,18,21,22,23,24                                    | 6                               |
| Felix T.S. Chan and Alain Yee-Loong Chong  | 2013  | 25,26,35,40,41                                       | 5                               |
| <b>Criteria No. 36-38, 51, 55-60 Trust of Smartphone attribute and mobile application</b>  |   |  |                                 |
| Juxt Consult Online research & Advisory (2008)   | 2008  | 36,37,38,51,55,56,57,58,59,60                        | 10                              |
| <b>Criteria No. 2-9, 27 Mobile Attribute of Smartphone attribute and mobile application</b>  |   |  |                                 |
| Tao Zhang, Pei-Luen Patrick Rau, and Jia Zhou  | 2010  | 2,3,4,5,6,   | 5                               |
| Taylor, D.G. and Strutton, D. (2010)   | 2010  | 7,8,9,27   | 4                               |
| <b>Criteria No. 1, 14-15, 49-50, 52 Mobile Application quality of Smartphone attribute and mobile application</b>                          |   |  |                                 |
| Hawley, K. Try   | 2011  | 1,14,15  | 3                               |
| Hsiang-Ming Lee and Tsai Chen  | 2014  | 49,50,52   | 3                               |

(Source: Review of Literature)

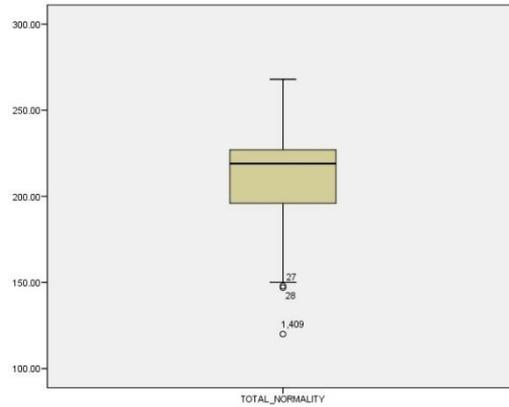
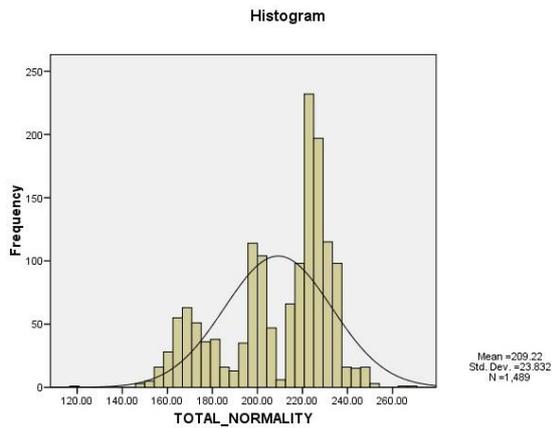
### **3.10.1: RELIABILITY AND VALIDITY OF THE STRUCTURED NON-DISGUISED QUESTIONNAIRE:**

#### **3.12: Test of Normality of the Distribution:**

The assumption of normality is a prerequisite for many inferential statistical techniques and the researcher had used histogram; box plot and value of skewness and kurtosis to determine the shape of the distribution given as follows.

**Figure Number 3.02: Histogram and Boxplot**

**Histogram** **Boxplot**



The analysis about the average opinion of selected buyers of Smartphones on selected dimensions showed a negative skew with the value of -0.715 and -0.534 of kurtosis , which indicates a flatter distribution. The normality is also supported by the shape of the curve of the histogram for the average opinion of selected buyers of Smartphones on selected dimensions as well as the median value positioned in the center of the box plot which indicated that distribution can be assumed to be normal with negative skewness of -0.715.

### **3.11: RELIABILITY OF RESEARCH INSTRUMENT USED FOR MEASUREMENT OF INFLUENCES OF MOBILE APPLICATIONS’ QUALITY AND SMARTPHONES’ ATTRIBUTES ON SELECTED MOBILE SHOPPERS’ SHOPPING INTENTION:**

Reliability refers to the extent to which a scale produces consistent results if repeated measurements were made on the characteristics. A popular approach of Coefficient Alpha or Cronbach’s Alpha is used, which was the average of all possible split – half coefficients resulting from different ways of splitting the scale items. This coefficient varies from 0 to 1, and average of 0.6 or less generally indicates unsatisfactory internal consistency reliability.

**Table Number 3.02: Table Showing Summary of Indicators and Reliability Alpha Score:**

| <b>Sr. No.</b> | <b>Grouped Indicator Items</b>   | <b>Cronbach Reliability Alpha Coefficient</b> |
|----------------|----------------------------------|---|
| <b>01</b>      | Mobile Application Quality (MAQ) | <b>0.925</b>                                  |
| <b>02</b>      | Mobile Attributes (MA)           | <b>0.843</b>                                  |
| <b>03</b>      | Perceived Usefulness (PU)        | <b>0.885</b>                                  |
| <b>04</b>      | Perceived Enjoyment (PE)         | <b>0.812</b>                                  |
| <b>05</b>      | Trust (TR)                       | <b>0.847</b>                                  |
| <b>06</b>      | Price (PR)                       | <b>0.656</b>                                  |
| <b>07</b>      | Overall                          | <b>0.943</b>                                  |

All dimensions of the questionnaire related with measuring influences of mobile applications’ quality and smartphones’ attributes on selected mobile shoppers’ shopping intention were tested and the Cronbach’s alpha ranged from 0.656 to 0.925 which really showed Internal reliability of the scale. The

reliability of a scale as measured by coefficient alpha reflects the degree of cohesiveness among the scale items (Naresh K. Malhotra, 2007; Jum C. Nunnally, 1981, and Puay Cheng Lim & Nelson K. H. Tang, 2000).

**3.11.1.: KMO AND BARTLETT’S TEST:**

To measure the suitability of the data for factor analysis the adequacy of the data is evaluated on the basis of the results of Kaiser – Meyaer – Oklin (KMO) measures of sampling adequacy and Bartlett’s test of sphericity (homogeneity of variance). This exercise was done for all the group of data in which factor analysis is applied.

**Table Number 3.03: Result of KMO & Bartlett Test**

|  |                           |                  |
|--|---------------------------|------------------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. |                           | <b>0.823</b>     |
| Bartlett's Test of Sphericity                    | <b>Approx. Chi-Square</b> | <b>15010.835</b> |
|  | <b>Df</b>                 | <b>276</b>       |
|  | <b>Sig.</b>               | <b>0.00</b>      |

In case of Mobile Application Quality (MAQ) and Perceived Usefulness (PU) the results showed that the KMO measure of sampling adequacy was 0.818, which indicated that the present data were suitable for Factor Analysis. Similarly, Bartlett’s Test of sphericity (0.00) was significant ( $p < .05$ ), indicating sufficient correlation exist between the criteria to proceed with the Factor Analysis

**3.12.: SAMPLING DECISIONS:**

The major sampling decisions applied in this research study have been described as follows.

**3.12.1.: A REPRESENTATIVE SAMPLE OF THE RESEARCH STUDY:**

The representative samples of this research study were mobile shoppers, who have been using Smart phone for mobile shopping applications to buy products and also to avail services online using smart mobile applications online.

**3.12.2.: SAMPLING DESIGN:**

The researcher had used non-probability sampling design for this research study. Convenient sampling method was followed to draw representative samples of this research study. Sampling method consisted of mobile shoppers, who are shopping using the mobile devices social network, and are being residents of the selected four cities of the Gujarat State viz., Vadodara, Ahmedabad, Surat and Rajkot respectively.

**3.12.3.: SAMPLING METHOD:**

The researcher used quota-cum-convenience methods of sampling.

**3.12.4.: SAMPLING FRAME:**

An attempt in this research made to get contact details about various Mobile shoppers belonging to heterogeneous socio-economic strata which prefer to use the mobile shopping applications offered by

selected e-tailors, from selected cities of the State of Gujarat. The researcher endeavored to keep the sampling fairly representative across the demographic variables by using convenience and quota sampling methods.

### **3.12.5.: SAMPLING MEDIA:**

The primary data was collected through personal interviews and/ or online from selected mobile shoppers from Selected Cities of the State of Gujarat.

### **3.12.6.: SAMPLE SIZE DETERMINATION:**

The population is unexplored since it is not easy to ascertain the exact number of individuals who use a mobile device for shopping. Nevertheless, the researcher has investigated several related studies to figure out the sample size. A sufficient number of representative shoppers were selected as samples from Selected Cities of the State of Gujarat. Refer Annexure II.

### **4.0.: DATA ANALYSIS AND INTERPRETATION OF THE RESEARCH STUDY:**

The researcher used various statistical tool to arrive inferences of this research study. The researcher had made use of viz., Frequency Analysis; Computation of Mean; application of Factor Analysis and Structural Equation Modelling. The Correlation Test, Chi-Square Test, KMO and Bartlett's test are also applied to test the significance of the formulated statistical hypotheses to offer findings and implications of this research study. Data analysis was used to offer the demographic profiles of the selected social network users in the selected four cities of the Gujarat State viz., Vadodara, Ahmedabad, Surat and Rajkot, respectively. The data analysis offers results on selected criteria viz., the ranking of operating systems, Smartphone features, frequency of shopping; awareness of mobile shopping applications, perception and experience of mobile shoppers' in mobile shopping, enjoyment, usefulness, recommending others to use mobile shopping and future continuous intention of shopping.

### **5.0.: FINDINGS AND IMPLICATIONS OF THE RESEARCH STUDY:**

The researcher offered findings of applications of various statistical tools and techniques that were put to use to infer findings and to bring out significant strategic business, economic and managerial applications of this research study.

The use and application of correlation have revealed the relationship between the experience and expectation of selected mobile shoppers regarding mobile shopping experiences, Smartphones attributes, and mobile applications quality. The relationships between perceived usefulness, perceived enjoyment, and trust of mobile shoppers were also examined through the correlation test. The researcher has also applied the Chi-Square Test to evaluate the association of the selected background variables of selected mobile shoppers and their the expectation versus experiences of perceived usefulness, perceived enjoyment and trust viz., the convenience of shopping in smartphones, stability, user-friendliness, instant connectivity, natural colour of the products displayed, mobile applications quality, recommending mobile shopping to others and continuous intention to shop.

The findings of the research study are also based on the Friedman Test to analyze the ranking of mobile shoppers' preferences as per city wise in the state of Gujarat.

The factor analysis was applied to perceived usefulness to reduce the dimension of the statements, and Structural Equation Model (SEM) using PLS-SEM was performed to predict the relationships among the variables. The researcher had also attempted to present overall implications based on the results and findings of this research study.

#### **6.0.: RECOMMENDATIONS AND SUGGESTIONS OF THE RESEARCH STUDY:**

The researcher has made efforts to offer an overview of the entire PhD thesis in this section. The researcher has provided the recommendations, suggestions, and limitations of the research study along with the directions for the future researches in near future. Based on the data analysis of the collected primary data, testing of hypotheses and by developing the Structural Equation Modelling (SEM), the researcher recommends that shopping application developers should personalize the functionalities in their technologies with the easy navigations as per mobile shoppers age, and gender. The researcher recommends smartphone manufacturers to create friendly menu options to understand the programmes in the smartphone. He further suggests that the Smartphone manufacturer should focus on solid built quality and resistant to water and hard surface and increased security facilities can be the winning points for smartphone manufacturers.

The researcher had suggested the smartphone manufacturers to maintain the integrity of their brand value by delivering the reliable products to the shoppers. It is suggested that the manufacturers with good brand value should focus on their research and development department and the quality check before the smartphones are dispatched to the market. The researcher had suggested the Smartphone manufacturers to improve look & feel of the Smartphones, functionalities, battery back-up and the screen quality of the Smartphones. To the mobile applications developers, the researcher had suggested to improve user friendliness, easy navigation, appearance, content quality and technical adequacy.

The research had found that most of the mobile shoppers were satisfied with their mobile shopping experience. Regarding continuous shopping on the Smartphone applications, 58.1 per cent mobile shoppers agreed to shop continually from the Smartphone shopping applications, 57.4 per cent agreed to recommend mobile shopping to others. Overall, the majority of mobile shoppers are satisfied and have the intention to shop continually and recommend other shoppers too.

## **7.0.: LIMITATIONS OF THE RESEARCH STUDY:**

- The research study has been done based on the empirical field survey conducted by way of informal discussion with the selected m-shoppers by filling up the structured-non-disguised questionnaire. The m-shoppers have to take some time away from their regular chores to fill up the questionnaire. Considering the ambiguity of the mobile shoppers to respond the questionnaire that might lead to hurried and incorrect answers, distorted analysis and findings of the research study, the researcher had made efforts to minimize the ambiguous responses by checking the filled questionnaire.
- The researcher has conducted an empirical study based on the primary data collected from the urban population of the Gujarat state so that it would be inappropriate to generalize it as representation and fit for the entire population of Gujarat.
- The research study had been carried out only in the four selected cities viz., Ahmedabad, Surat, Vadodara and Rajkot of the Gujarat State. This research work does focus on covering the whole representation of all urban shoppers.
- The findings of the research study are entitled to the limitations of restricted sampling size, sampling design as followed by the researcher in the research study.
- Errors due to misunderstanding or misinterpretation of the mobile shoppers' inattention might or might not have influenced and affected the results of this empirical research study systematically.
- The opinion of the m-shoppers may change as per their user experience as time goes by. The opinion of mobile shoppers tends to differ as per the rapid change in smartphone technology and software development in the creation of mobile shopping application than the time period of the research study conducted.

## **8.0.: DIRECTIONS FOR FUTURE RESEARCH STUDIES:**

- The research study has the implications on the mobile applications quality and the attribute of smartphones; they do not give any aspect of the quality of the shopping websites accessed on smartphones. A research study can be considered on mobile shoppers' experience with the quality of the shopping sites accessed on the mobile phone among mobile shoppers in the state of Gujarat.
- The research study had been conducted on four major cities of the Gujarat State. A similar study or comparative empirical research studies can be conducted in the other cities of Gujarat State.
- In the future, the same kind of research study can be conducted at the national level in the other States of India too. The future research study will help to understand the mobile shoppers' behaviour that is influenced by the diverse socio-culture in India.
- The researcher has conducted the study in the data collected from the end-user or mobile shoppers with the aspect of mobile commerce. On the other hand, there are countless players who do shopping on mobile for commercial purpose. They would order the products in bulk and sell to them to the individual retailers or the mobile shopper.

There is a significant cash transaction involved in online trading. A research can be conducted to understand the behaviour of the sellers and buyers in online trading carried out on smartphones.

- Mobile commerce involves a wide range of products. This study does not focus on any market for a particular product. A detailed study can be conducted in a product-based market. For example, cosmetic is a vast product dimension on mobile shopping. Similarly, there are various product segments such as electronics, household utensils, and groceries etc.

This study will help the sellers to understand the challenges experienced by the mobile shoppers, particularly with related to the products.

- The researcher has done a general study on mobile shopping application, and it does not analyses any influence of mobile shoppers' behaviour on any particular mobile shopping applications. In the future, a study can be conducted on the influence of the behaviour of mobile shoppers with related to any particular application; this will help the sellers to redesign their mobile shopping applications and enhance the mobile shoppers' experience with the mobile shopping applications.

## **9.0.: CHAPTERISATION SCHEME OF THE PHD THESIS:**

### **9.1.: Chapter Number One: An Overall Review and Conceptual Framework Of M-Commerce:**

The first chapter of the research study is titled "An overall review and conceptual framework of m-commerce". This chapter analyzed the evolution of m-commerce in different eras moving from the traditional market to the digital market. The author studied the worldwide usage of internet, smartphones and mobile data among the shoppers. The author further drilled down the information on mobile shoppers, mobile data, and mobile commerce in India.

The development of mobile applications, motivations to install mobile applications, and the future development of mobile applications are also analyzed in this chapter. Mobile shoppers in Gujarat, famous mobile shopping applications among the shoppers, and the government initiatives towards the development of the digital market also discussed in this chapter. In the first chapter, of an overall review of the conceptual framework of m-commerce was analyzed.

### **9.2.: Chapter Number Two: Review of Literature:**

In the chapter of review of literature, the author reviewed the various research papers published and the release of news articles on the adoption of mobile commerce, advantages of mobile commerce, and mobile applications in mobile commerce. The author has tried in going through the literature on attributes of smartphone, trust and security among the mobile shoppers. This chapter focused on smartphone attributes and the development of mobile commerce globally and in India. The chapter of review of the literature analyzed the mobile shoppers' behaviour concerning the preference in the attribute of smartphones, perceived usefulness and perceived enjoyment. This chapter gave an opportunity to find the literature available in the challenges in mobile commerce.

### **.3.: Chapter Number Three: Research Methodology:**

The chapter of research methodology analyzed the key terms of research study viz., mobile applications, mobile attributes, mobile commerce, perceived usefulness, perceived enjoyment, the convenience of use, trust and price sensitivity. This chapter covered the rationale of the research study, scope, research design and research methodology. The sampling of the research study has been analyzed in the chapter of research methodology, along with the drafting of the structured non-disguised questionnaire. The objective of the research study had been elaborated in this chapter. The model used in the research study, data analysis and interpretations of the proposed research study, limitations of the proposed research study, reliability of research instrument used for measurement, and factor analysis of mobile applications have been discussed in the chapter of research methodology.

### **9.4.: Chapter Number Four: Data Analysis & Interpretations of the Research Study:**

In the chapter of data analysis and interpretations, the researcher has organized and categorized the data the collected primary data, converted the data into a readable format, analyzed, interpreted and reported the results by using SPSS 15.0 for windows. The report has been presented in graphical and tabular form. This chapter represents the data analysis and interpretations of the research study. Factor analysis had been done on Mobile Application Quality (MAQ) And Perceived Ease of Use (PE), Mobile Application Quality (MAQ) And Trust (TR), Mobile Application Quality (MAQ) and Price (PR), Mobile Attributes (MA) and (PU, PE, TR, PR), Perceived Usefulness (PU) [MAQ and MA], Perceived Enjoyment (PE) [MAQ and MA], Trust (TR) [MAQ and MA], and Price (PR) [MAQ and MA].

### **9.5.: Chapter Number Five: Findings and Implications of the Research Study:**

The chapter of findings and implications of the research study discusses the factor Analysis to test various formulated hypotheses for this research study were also applied. To apply the chi-square test, the responses given by selected mobile shoppers related to the attributes of the smartphone and quality of the mobile application on five rating scales were combined into three groups unimportant- neutral - important with related to expectations, and experience were combined into three groups of good, fair and poor (Question no. 21) The overall satisfaction regarding the smartphone attributes, mobile application quality and recommendations to others had been grouped into four categories, i.e. disagree, no opinion, agree and strongly agree. Findings had been done on the experience and challenges faced by mobile shoppers in terms of shopping done by using mobile shopping applications.

### **9.6.: Chapter Number Six: Conclusions, Recommendations & Suggestions of the Research Study:**

The chapter of conclusions, recommendations and suggestions of the research study concluded the research study with the final notes on the influence of smartphones attributes and the quality of the mobile applications in mobile shoppers' shopping behaviour. This chapter had suggested the improvement on the attributes on the smartphone to the smartphone manufacturers and the quality improvement to the mobile shopping app developers.

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Appendix  
Annexure-1

**WELCOME TO QUESTIONNAIRE**

Sir/Madam,

I, Shri. Amirtharaj Paulraj, am a Research Scholar in the department of Commerce and Business Management, Faculty of Commerce, The M.S University of Baroda, pursuing my doctoral research study on the topic entitled “**AN EXPLORATORY STUDY OF THE INFLUENCES OF MOBILE APPLICATIONS’ QUALITY AND SMARTPHONES’ ATTRIBUTES ON SELECTED MOBILE SHOPPERS’ BUYING BEHAVIOUR IN SELECTED CITIES OF GUJARAT**”. As a part of this, I need to conduct a survey, so I request you to spare your valuable time and fill up this questionnaire. I assure you that it is purely an academic exercise and the information provided by you would be kept strictly confidential.

Thanking you, I remain.  
(**Shri Amirtharaj Paulraj**)

Please put a Tick Mark (✓) on the appropriate box as per your experience.

**(Q.1) Your Age-Group (In Years):** 16 to 40Years  40 to 59 Years  Above 60 Years

**(Q.2) Gender:** Male  Female

**(Q.3) Marital Status:** Unmarried  Married

**(Q.4) Type of Your Family:** Joint Nuclear

**(Q.5) Name of the Smartphone?**

| USING | USED |
|-------|------|
|       |      |

**(Q.6) To buy a Smartphone, I would like to spend (in Rs.)?**

4000-8000 8000-12000 12000-15000 15000 to 30,000 30,000and Above

**(Q.7) Rank the features of preference while selecting smartphone as 1[highly important]; 2[less important], and 3,4 so on...**

Brand Looks and Feel Functionality Security & Privacy

**(Q.8) Rank the user-friendliness’ of operating system of Smartphone as 1[highly important]; 2[less important], and 3,4 so on...**

Android iOS Windows  Others  not available in Chapter 4 Data analysis

**(Q.9) How frequently do you shop using your Smartphone?**

Uncertain Once in a Month Once in fortnight Once a week Many times a week

**(Q.10) Your preferred place of shopping using Smartphone?**

Work place  Home

**(Q.11) Your preferred time of shopping using Smartphone?**

Morning  Afternoon  Evening  Late evening

**(Q.12) Average Time That I Spend Each Time while searching &shopping :**

Less than 30 minutes  less than 60 minutes More than 60 minutes

**(Q.13) I get information for Shopping online from**

| Ad in Newspapers/TV | Hoardings | Family Members | Friends | Colleagues | E-mail | SMS |
|---------------------|-----------|----------------|---------|------------|--------|-----|
|                     |           |                |         |            |        |     |

**(Q.14) Reason for downloading a mobile shopping app?**

|                   |  |                         |  |             |  |               |  |
|-------------------|--|-------------------------|--|-------------|--|---------------|--|
| To avail discount |  | easy purchase& Tracking |  | Easy refund |  | user friendly |  |
|-------------------|--|-------------------------|--|-------------|--|---------------|--|

**(Q.15) Number of shopping apps have you downloaded in your mobile**

|        |  |        |  |                |  |
|--------|--|--------|--|----------------|--|
| 1 to 3 |  | 4 to 5 |  | Five and above |  |
|--------|--|--------|--|----------------|--|

**(Q.16) Minimum how many images of the product you prefer while selecting a product?**

|   |  |   |  |   |  |             |  |
|---|--|---|--|---|--|-------------|--|
| 2 |  | 4 |  | 6 |  | More than 6 |  |
|---|--|---|--|---|--|-------------|--|

**(Q.17) I use smartphone for shopping: [please tick as many as you online shop]**

|                          |                       |                         |                            |                            |                         |                             |                               |
|--------------------------|-----------------------|-------------------------|----------------------------|----------------------------|-------------------------|-----------------------------|-------------------------------|
| <b>Mobile, Computers</b> | <b>Cloths</b>         | <b>Footwear</b>         | <b>Fashion Accessories</b> | <b>Flowers &amp; Gifts</b> | <b>Home Appliances</b>  | <b>Furniture</b>            | <b>Electronic items</b>       |
| <b>Bags, luggage</b>     | <b>Travel Tickets</b> | <b>Movie Tickets</b>    | <b>Hotel booking</b>       | <b>Education</b>           | <b>Trading</b>          | <b>Fund Transfer</b>        | <b>Groceries</b>              |
| <b>Baby products</b>     | <b>Gas bill</b>       | <b>Electricity bill</b> | <b>Phone bill</b>          | <b>Books</b>               | <b>Industrial goods</b> | <b>Health &amp; Fitness</b> | <b>Games &amp; sports Pdt</b> |
|                          |                       |                         |                            |                            |                         |                             |                               |

**(Q.18) Following are the list of shopping apps. Please tick them as per your usage**

| App Name       | Aware | Downloaded | Used |                    | Aware | Downloaded | Used |
|----------------|-------|------------|------|--------------------|-------|------------|------|
| Amazon         |       |            |      | Dominos            |       |            |      |
| Flipkart       |       |            |      | Food panda         |       |            |      |
| Shop clues     |       |            |      | Zomato             |       |            |      |
| Paytm          |       |            |      | Delfoo             |       |            |      |
| Snapdeal       |       |            |      | Club Factory       |       |            |      |
| eBay           |       |            |      | Aliexpress         |       |            |      |
| Ajio           |       |            |      | Jabong             |       |            |      |
| HomeShop 18    |       |            |      | Voonik             |       |            |      |
| TaTaCLiq       |       |            |      | Lifestyle          |       |            |      |
| ShopMagic      |       |            |      | Ferns & Petals     |       |            |      |
| Getit          |       |            |      | Zivame             |       |            |      |
| Myntra         |       |            |      | Shopping Assistant |       |            |      |
| Yebhi          |       |            |      | Bookmyshow         |       |            |      |
| Jungle         |       |            |      | Makemytrip         |       |            |      |
| Grofers        |       |            |      | Trivago            |       |            |      |
| Big basket     |       |            |      | IRCTC              |       |            |      |
| Natures Basket |       |            |      | OYO                |       |            |      |

(Q.19) Your experience on problems being faced while shopping on Smartphone:

| Sr. No. | Problem  | Sometimes | Always | Never |
|---------|--|-----------|--------|-------|
| a.      | Problem of disconnection/slow connectivity     |           |        |       |
| b.      | Smartphone get hang up Frequently              |           |        |       |
| c.      | Problem of downloading images                  |           |        |       |
| d.      | Return of Products is not user friendly        |           |        |       |
| e.      | In place of Return only exchange is option     |           |        |       |
| f.      | Price changes as soon as order is placed       |           |        |       |
| g.      | Information on websites are not updated        |           |        |       |
| h.      | Problems faced due to advertisement in between |           |        |       |
| i.      | Delivery is not on time                        |           |        |       |
| j.      | Cash on Delivery is not available              |           |        |       |
| k.      | Tracking of consignment is not possible        |           |        |       |
| l.      | Order once placed is not easy to cancel        |           |        |       |

(Q.20) I always keep my shopping app logged in

|     |  |    |  |
|-----|--|----|--|
| Yes |  | No |  |
|-----|--|----|--|

(Q.21) Please put a Tick (√) on ANY ONE of the following scales for EXPECTATION defined as: 1= Least Important, 2= Unimportant, 3=No Opinion, 4=Less important and 5= Most Important and for EXPERIENCE defined as : 1=Highly dissatisfied, 2=Dissatisfied, 3=No opinion, 4=Satisfied, 5=Highly Satisfied.

| Sr. No. | Selected Items  | Expectation |   |   |   |   | Experience |   |   |   |   |
|---------|---|-------------|---|---|---|---|------------|---|---|---|---|
|         |   | 1           | 2 | 3 | 4 | 5 | 1          | 2 | 3 | 4 | 5 |
| 1.      | MAQ- Smartphone is useful for anytime shopping                            |             |   |   |   |   |            |   |   |   |   |
| 2.      | MA- Screen size of Smartphone affects online shopping                     |             |   |   |   |   |            |   |   |   |   |
| 3.      | MA- Zooming feature helps to know the product well                        |             |   |   |   |   |            |   |   |   |   |
| 4.      | MA- Smartphone displays natural colour of the product                     |             |   |   |   |   |            |   |   |   |   |
| 5.      | MA- Smartphone batteries give enough time to do online shopping           |             |   |   |   |   |            |   |   |   |   |
| 6.      | MA- Size of shopping apps consume lot of memory space in smartphone       |             |   |   |   |   |            |   |   |   |   |
| 7.      | MA- Smartphone has the safety facilities on it                            |             |   |   |   |   |            |   |   |   |   |
| 8.      | MA- Brightness of the smartphone affects the outdoor mobile shopping      |             |   |   |   |   |            |   |   |   |   |
| 9.      | MA- Smartphone reduces the physical search to collect product information |             |   |   |   |   |            |   |   |   |   |
| 10.     | PR- Price of the phone decides the Quality of the smartphone              |             |   |   |   |   |            |   |   |   |   |
| 11.     | PE- Downloading the app provides better shopping experience               |             |   |   |   |   |            |   |   |   |   |
| 12.     | PU- Payment option is easy in mobile apps                                 |             |   |   |   |   |            |   |   |   |   |
| 13.     | PU- Wish list helps to do the shopping later                              |             |   |   |   |   |            |   |   |   |   |
| 14.     | MAQ- Mobile apps have barrier to Indian languages                         |             |   |   |   |   |            |   |   |   |   |

| Sr. No. | Selected Items  | Expectation |   |   |   |   | Experience |   |   |   |   |
|---------|---|-------------|---|---|---|---|------------|---|---|---|---|
|         |   | 1           | 2 | 3 | 4 | 5 | 1          | 2 | 3 | 4 | 5 |
| 15.     | MAQ- Unclear image affects the shopping decision  |             |   |   |   |   |            |   |   |   |   |
| 16.     | PU- Playing video of the product available in the app is useful to know all features of product   |             |   |   |   |   |            |   |   |   |   |
| 17.     | PU- Paid apps are better than free apps   |             |   |   |   |   |            |   |   |   |   |
| 18.     | PE- I will wait for the special offers and special discounts to shop online   |             |   |   |   |   |            |   |   |   |   |
| 19.     | PU- Mobile app is useful in saving shopping time  |             |   |   |   |   |            |   |   |   |   |
| 20.     | PU- Product suggestion in mobile app is useful in selection of the products   |             |   |   |   |   |            |   |   |   |   |
| 21.     | PE- Shoppers feel proud in mobile shopping  |             |   |   |   |   |            |   |   |   |   |
| 22.     | PE- Shoppers enjoy shopping on the Smartphone   |             |   |   |   |   |            |   |   |   |   |
| 23.     | PE- Shoppers enjoy the convenience of shopping on mobile apps   |             |   |   |   |   |            |   |   |   |   |
| 24.     | PE- Shoppers enjoy the product description available in the App   |             |   |   |   |   |            |   |   |   |   |
| 25.     | PE- Shoppers enjoy comparing the products online  |             |   |   |   |   |            |   |   |   |   |
| 26.     | PE- Attractive appearance/layout of the mobile shopping app involves shoppers   |             |   |   |   |   |            |   |   |   |   |
| 27.     | MA- Mobile Applications are Compatible to the smart phone   |             |   |   |   |   |            |   |   |   |   |
| 28.     | PU- Sellers are approachable through application  |             |   |   |   |   |            |   |   |   |   |
| 29.     | PU-Similar products should be displayed on the mobile shopping app along with the main search   |             |   |   |   |   |            |   |   |   |   |
| 30.     | PU- Mobile shopping apps are easy in navigating from one search to another  |             |   |   |   |   |            |   |   |   |   |
| 31.     | PU- Tracking of delivery in shopping app gives accurate information   |             |   |   |   |   |            |   |   |   |   |
| 32.     | PU- Information on stock availability while looking for a product influence the shopping decision                                       |             |   |   |   |   |            |   |   |   |   |
| 33.     | PU- In case of non-availability of product ,option of sending information , as soon as it becomes available influence shopping decision |             |   |   |   |   |            |   |   |   |   |
| 34.     | PU- Shoppers become more inclined to do shopping when the shopping app is installed on the smartphone                                   |             |   |   |   |   |            |   |   |   |   |
| 35.     | PE- Try-it-On facility increases the chance to buy more from that app   |             |   |   |   |   |            |   |   |   |   |
| 36.     | TR- Mobile shopping apps are trustworthy  |             |   |   |   |   |            |   |   |   |   |
| 37.     | TR- Customer review in shopping app affects shopping decision   |             |   |   |   |   |            |   |   |   |   |

| Sr. No. | Selected Items   | Expectation |   |   |   |   | Experience |   |   |   |   |
|---------|--|-------------|---|---|---|---|------------|---|---|---|---|
|         |  | 1           | 2 | 3 | 4 | 5 | 1          | 2 | 3 | 4 | 5 |
| 38.     | TR- FAQs available on the shopping apps help in shopping   |             |   |   |   |   |            |   |   |   |   |
| 39.     | PU- Downloading mobile app gives first time benefits   |             |   |   |   |   |            |   |   |   |   |
| 40.     | PE- Shoppers prefer test product or free samples   |             |   |   |   |   |            |   |   |   |   |
| 41.     | PE- A shopper would like to connect with other shoppers through online chat forums                 |             |   |   |   |   |            |   |   |   |   |
| 42.     | PU- Quick response of m-tailors on FAQ affects affect shopping decision                            |             |   |   |   |   |            |   |   |   |   |
| 43.     | PU- Sellers accept exchanges products returned by shoppers   |             |   |   |   |   |            |   |   |   |   |
| 44.     | PU- Easy refund of Price encourages online shopping  |             |   |   |   |   |            |   |   |   |   |
| 45.     | PU- Online sellers refund price of products as soon as they receive product back                   |             |   |   |   |   |            |   |   |   |   |
| 46.     | PU- Availability of EMI options on shopping apps affect the shopping decision                      |             |   |   |   |   |            |   |   |   |   |
| 47.     | PU- Shoppers check the information about the sellers in application                                |             |   |   |   |   |            |   |   |   |   |
| 48.     | PU- Phone number of delivery agent provided in message helps a lot                                 |             |   |   |   |   |            |   |   |   |   |
| 49.     | MAQ- Product delivered differ as it appears online   |             |   |   |   |   |            |   |   |   |   |
| 50.     | MAQ- Delivery cost of a product will affect the shoppers shopping decision                         |             |   |   |   |   |            |   |   |   |   |
| 51.     | TR- Customer service of m-tailor will influence reshopping   |             |   |   |   |   |            |   |   |   |   |
| 52.     | MAQ- There is a possibility of wrong item getting dispatched& delivered                            |             |   |   |   |   |            |   |   |   |   |
| 53.     | PR- Online Products are slightly high priced   |             |   |   |   |   |            |   |   |   |   |
| 54.     | PR- Online Products have hidden cost   |             |   |   |   |   |            |   |   |   |   |
| 55.     | TR- Downloading a mobile shopping app can steal the personal information from phone                |             |   |   |   |   |            |   |   |   |   |
| 56.     | TR- Downloading mobile app can cause malicious virus installed on the mobile device                |             |   |   |   |   |            |   |   |   |   |
| 57.     | TR- Online retailers monitor the activities of the shoppers on the Smartphone                      |             |   |   |   |   |            |   |   |   |   |
| 58.     | TR- Frauds may take place in mobile shopping   |             |   |   |   |   |            |   |   |   |   |
| 59.     | TR- Shoppers prefer shopping products via shopping apps, that are reputed and well known           |             |   |   |   |   |            |   |   |   |   |
| 60.     | TR- It is necessary to use high security payment gateway like retina scanner, finger print, or OTP |             |   |   |   |   |            |   |   |   |   |

**(Q.22) I have used following mode of payment while shopping on applications:**

Cash  Credit Card  Debit Card  M-Wallets  Paytm  Rupay

Any Other (Please Specify) \_\_\_\_\_

**(Q.23)Your overall experience in meeting of expectations of Mobile Shopping Apps:**

Highly Dissatisfied  Dissatisfied  No Opinion  Satisfied  Highly Satisfied

**(Q.24) Your overall experience in meeting of expectations of Smartphone attribute:**

Highly Dissatisfied  Dissatisfied  No Opinion  Satisfied  Highly Satisfied

**(Q.25)Your overall satisfaction as a mobile shopper:**

Highly Dissatisfied  Dissatisfied  No Opinion  Satisfied  Highly Satisfied

**(Q.26)Please choose an appropriate option which reflects your Intentions for Shopping using mobile apps defined as: 1= Strongly Disagree, 2= Disagree, 3=No Opinion, 4=Agree and 5=Strongly Agree [Please put Tick Mark √]**

| Sr. No. | List of Selected Criteria                                    | Your Score |   |   |   |   |
|---------|--|------------|---|---|---|---|
|         |  | 1          | 2 | 3 | 4 | 5 |
| 1       | I would continue to shop more from the app                   | 1          | 2 | 3 | 4 | 5 |
| 2       | I would recommend shopping on mobile applications ,to others | 1          | 2 | 3 | 4 | 5 |
| 3       | I am satisfied with the shopping experience using Smartphone | 1          | 2 | 3 | 4 | 5 |

\*\*\*\*\*

## Annexure-II

### Sample Size Determination:

#### Sample Size Determination:

The ever-growing demand for research has generated a demand for an effective method of determining the sample size required to be representative of a given population. The formula for determining sample size is given below.

#### Formula for determining Sample Size:

$$n = \pi (1 - \pi) z^2 \div D^2$$

Where

$n$  = required sample size.

$\pi$  = the estimated population proportion based on the Marketing White Book of April 2018 internet penetration estimated at 60 (0.60) percent in India.

$z$  = suppose the level of confidence is 95 per cent than associated  $z$  value is 1.96

$D$  = the level of precision and desired precision is such that the allowable interval is set as  $D = p$  (sample proportion) –  $\pi$  (population proportion) = + or – 0.05.

This formula used form Malhotra, Naresh K. and Dash, Satyabhushan (2011).

#### 3.9.10: Calculation of Sample Size:

$$n = \frac{\pi (1 - \pi) z^2}{D^2}$$

$$n = \frac{0.60 (1 - 0.60) (1.96)^2}{(0.05)^2}$$

$$s = \frac{0.60 (0.40) (3.8416)}{0.0025}$$

$$s = \frac{0.921984}{0.0025} = 369 \text{ so sample size is rounded off to } \mathbf{370}$$

Based on total 370 sample size we can also determine the total sample size, considering four selected cities as four strata, by multiplying 370 with seven strata (i.e.  $370 \times 4 = 1480$ ) Total Sample size for four selected cities is given in the following table.

As the size of population is different in all selected four cities, the Stratified Random Sampling method (Proportional Allocation) is used and city wise allocation of sample is calculated as follows. Thus, the sample size was fixed as 1480 m-shoppers.

**Stratified Random Sampling** (Proportional Allocation):  $n_i = \frac{n N_i}{N}$

$$n_1 = \frac{n N_1}{N}, n_2 = \frac{n N_2}{N}, n_3 = \frac{n N_3}{N}, n_4 = \frac{n N_4}{N}, n_5 = \frac{n N_5}{N}, n_6 = \frac{n N_6}{N}, n_7 = \frac{n N_7}{N}$$

Where:

$n$  = Total sample size (1480).

$n_1, n_2, n_3$  and  $n_4$  = required total sample size for each group.

$N_1, N_2, N_3,$  and  $N_4$  = Size of population for each group (7,214,225, 6,081,322, 4,165,626, & 3,804,558).

$N$  = Sum total of population of all four group (**21265731**).

**By applying formula sample size is calculated as follows:** (Figures Rounded Off)

$$n_1 \text{ (Ahmedabad)} = \frac{1480 \times 7214225}{21265731} \text{ so } n_1 \text{ is } \mathbf{502} \text{ Sample size for Ahmedabad. (500)}$$

$$n_2 \text{ (Surat)} = \frac{1480 \times 6081322}{21265731} \text{ so } n_2 \text{ is } \mathbf{423} \text{ Sample size for Surat. (425)}$$

$$n_3 \text{ (Vadodara)} = \frac{1480 \times 4165626}{21265731} \text{ so } n_3 \text{ is } \mathbf{289} \text{ Sample size for Vadodara. (290)}$$

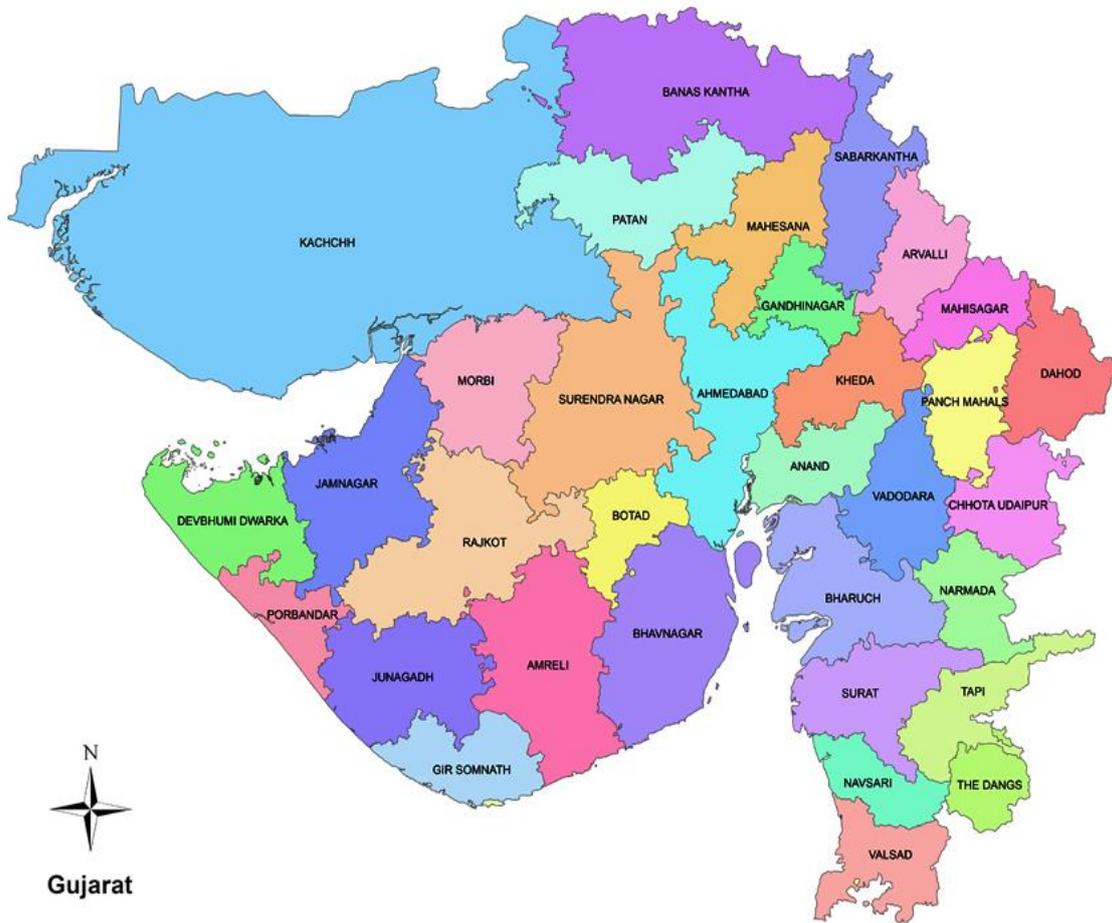
$$n_4 \text{ (Rajkot)} = \frac{1480 \times 3804558}{21265731} \text{ so } n_4 \text{ is } \mathbf{264} \text{ Sample size for Rajkot. (265)}$$

**Table No. 1: Taluka Wise Distribution of Sample Size for calculating total sample size of the research study**

| Sr. No. | Name of Taluka |  | * Total Population as per Census of India, 2011 | ** According to the Marketing White Book of April 2018 internet penetration estimated at 60 (0.60) percent in India.** | Calculated Sample Size (Figures Rounded Off) |
|---------|----------------|--|---|--|--|
|         |                |  |   |  |  |
| 1       | Ahmedabad      |  | 72,14,225                                       | 4328535  | <b>500</b>                                   |
| 2       | Surat          |  | 60,81,322                                       | 3648793  | <b>425</b>                                   |
| 3       | Vadodara       |  | 41,65,626                                       | 2499375  | <b>290</b>                                   |
| 4       | Rajkot         |  | 3,804,558                                       | 2282735  | <b>265</b>                                   |
| Total:- |                |  | 21265731  | 12759438   | <b>1480</b>                                  |

\* <https://www.census2011.co.in/census/state/districtlist/gujarat.html>, Retrieved on 05/09/2018.

**Annexure-III**  
**Map of Gujarat State**



## ANNEXURE-IV

### Tables of Review of Literature

#### SUMMARY OF REVIEW OF LITERATURE ON MOBILE COMMERCE – ADOPTION OF MOBILE COMMERCE

| Sl. No. | Author(s), (Year)                                | Title   | Key Findings  |
|---------|--|---|---|
| 1       | Rajabion, Lila (2015)                            | Critical factors for adoption of mobile commerce services   | Lila Rajabion (2015) say that entertainment, marketing, banking, ticketing, and retail are most driving factors among consumers adopting mobile commerce services.  |
| 2       | John J. Morga (2016)                             | A mobile commerce adoption in older adults: A quantitative study  | Mobile commerce is considered online purchasing that leverages the ubiquitous existence of mobile computing devices. Future success in mobile commerce adoption would be further enhanced by understanding the factors that are of primary concern to older adults. One particular area of growing concern among older adults involves consumer trust of online retailers, cybersecurity, and the protection of personal information. |
| 3       | Vandana Ahuja, Deepak Khazanchi, (2016)          | Creation of conceptual model for adoption of mobile apps for shopping from e-commerce sites - An Indian context | Using mobile apps gives consumers the feeling of adventure, new experience, and satisfaction in curiosity. It also opens the door to explore the new world. It creates pleasure or fun derived out of using new technology. Since the mobile phone is a handheld device, a consumer starts to navigate the app and goes with the flow which in turn leads into enjoyment.   |
| 4       | Phillip E. Copeland (2016)                       | An investigation about the small business adoption of mobile commerce   | Author analyzes M-commerce and mobile commercial apps usage   |
| 5       | Swati Jain, (2015)                               | A Review of SWOT Analysis of M-Commerce in India  | This study is intended to bring out the realities about the feasibility of m-commerce, its growth & the strength and opportunities, the weaknesses at present and threats prevailing ahead.   |
| 6       | Felix T.S. Chan and Alain Yee-Loong Chong (2013) | Analysis of the determinants of consumers' m-commerce usage activities  | The author has researched on security perceptions, motivation and different demographic variables have different relationships with the types of m-commerce usage activities.   |

|    |  |  |   |
|----|--|--|---|
| 7  | Dr. Jay P. Trivedi and Dr. Sunil Kumar (2014)                              | Determinants of Mobile Commerce Acceptance amongst Gen Y                               | Authors stated that "perceived trust and self-efficacy have a direct influence on behavioural intention to adopt m-commerce"  |
| 8  | Zoran Kalinic and Veljko Marinkovic (2016)                                 | Determinants of users' intention to adopt m-commerce: an empirical analysis            | The research had been done on the factors of individual mobility, customization, personal innovativeness, and social influence. Their empirical outcomes showed that customization and social influence significantly affect perceived usefulness; mobility, customization, and personal innovativeness significantly affect perceived ease of use; and perceived usefulness have a direct positive effect on behavioural intention |
| 9  | Gupta, Sachin Vyas, Anand (2014)   | International Journal of Advanced Research in Computer and Communication Engineering   | India has a lot of challenges in the adoption of mobile commerce like low internet speed and consumers' lack of fluency in English in which most mobile commerce apps are available.  |
| 10 | Sonia San Martín, Lopez-Catalan and Maria A. Ramon-Jeronimo (2012)         | Factors determining firms' perceived performance of mobile commerce                    | Findings show that the study of performance by firms involving in m-commerce depends on the extent to which firms' activity fits the mobile business, technological support and customer value for the firm.  |
| 11 | Mohini S. Samudra and Miling Phadtare,(2012)                               | Factors influencing the adoption of mobile banking with special reference to Pune city | M-commerce is characterized by its novel features like localization, personalization, convenience, ubiquity, and accessibility. It has some added benefits than the conventional forms of commercial transactions, including e-commerce.  |
| 12 | Sonia San Martín, Blanca López-Catalán, and María A. Ramón-Jerónimo (2012) | Factors determining firms' perceived performance of mobile commerce                    | The researcher had pointed out three factors that affect the successful introduction of mobile commerce in firms. Businesses that consider engaging in mobile commerce might find therein reasons to favour the incorporation of the client to the new channel of m-commerce.   |
| 13 | Dr. Priyanka Khurana (2016)  | M-Commerce: A Necessity for Future India   | Author says Indians will do online banking, online shopping, online payments, and e-ticketing using the mobile internet   |

|    |   |   |   |
|----|---|---|---|
| 14 | K. A. Shreenivasan and P. Vaijayanthi (2016)              | M-Tailing – The New Buzz Word in Retailing            | The paper reasons with what the expected model should be and how retailers should outline and develop their contribution to the future in the retailing business.   |
| 15 | Tarandeep Kaur (2015)                                     | Transformation from e-commerce to m-commerce in India | The researcher claims innovative and customized services, proper regulation and right methods would drive the future E-commerce and M-commerce. M-commerce would occupy a large segment in the Indian market.   |
| 16 | Mr. Vivek B. Patil and Mr. Deepak G. Awate (2017)         | Protocols in Mobile Electronic Commerce               | Discuss the basic attributes and characteristics of e-commerce and m-commerce and protocols used at various stages in e-commerce. Along with the aforesaid discussion, this paper also studies fair exchange, secure payment, and automatic dispute resolving.  |
| 17 | John Matthew, Suprateek Sarker, and Upkar Varshney (2018) | M-Commerce Services: Promises and Challenges          | M-commerce attempts to give a new level of service availability by removing almost all place-related limitations associated with conducting commerce. With notable improvements in wireless/mobile technologies that sustain a wide variety of emerging services, and with the recognition that mobile technology is more becoming embedded into the way people lead their lives, applications with context-sensitive capabilities must be developed. |
| 18 | Anubhuti Sharma (2016)                                    | M-Commerce: A Revolution in India                     | Security, language barrier, lack of awareness, data transmission rate, lack of network coverage, and low graphical resolution are the limitations in m-commerce.  |
| 19 | Prof. Amarjyoti (2017)                                    | M-Commerce and Its Importance                         | The author describes the advantages of m-commerce such as fast processing, reduced business cost, convenience, flexible accessibilities, easy connectivity, personalization, time-efficient and little need for maintenance.  |
| 20 | P.P. Parameswari (2015)                                   | M-Commerce in Apps and its security issues            | The author suggests that M-Commerce needs some development in secured transactions and better shopping experiences.   |
| 21 | Archana M. Naware (2016)                                  | M-Commerce in India                                   | Features of flexibility, mobility, ubiquity, and reachability in M-Commerce had raised mobile users and mobile internet subscribers in India. The author says despite having a lot of advantages, mobile commerce has some limitations such as a tiny screen of the device, poor resolutions, poor data entry, weak processors, limited memory, lack of WAP-enabled devices, expensive data speed, and a deficiency of bandwidth.                     |
| 22 | Sandeep Gupta (2016)                                      | M-Commerce: Challenges                                | Security concern is the biggest issue in m-commerce.  |

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| 23 | Mark N. Frolick and Lei-da Chen (2004)                                | Assessing M-Commerce Opportunities  | The objective of this article is to encourage organizations to obtain insight into whether or not mobile commerce is a business resolution worth exploring.   |
| 24 | Anurag Mishra, Sanjay Medhavi, Khan Shah Mohd, and P.C. Mishra (2016) | Scope and Adoption of M-Commerce in India   | They recommend mobile Commerce service providers should develop their devices and services compatibility with multiple user requirements, lifestyle, experience, and belief in order to be regular with user expectation as in the findings compatibility are found as the decisive determinant of using mobile commerce. |
| 25 | Priyanka Soni (2016)  | Role of M-Commerce in present era   | By utilizing M-commerce, consumers can reach advanced mobile applications and high-speed services anywhere at any time. M-commerce should not be considered as e-commerce with constraints. However, it should be identified as a form of e-commerce with its unique services.  |
| 26 | Akanksha Srivastav and Ajeet Bhartee (2016)                           | M-Commerce: risks, security, and Mobile Banking Payment Methods Akanksha  | M-commerce is having proactive functionality, instant connectivity, ubiquity, immediacy, and localization. M-banking is significant mobile commerce application.  |
| 27 | Chai - lee (2016)   | Special Issue: E-commerce trends and future of E-commerce M-Commerce: Perception of Consumers in Malaysia   | The author highlights that one of the significant factors which would influence the user's intention to use M-Commerce is motivation.   |
| 28 | HabibullahKhan, FaisalTalib, Mohd.NishatFaisal (2015)                 | An analysis of the barriers to the proliferation of M-commerce in Qatar   | The research shows that existing group of barriers having high influencing power and weak dependence needing maximum attention and of strategic significance. In contrast, another group consists of those variables that have high dependence and are resultant actions.   |
| 29 | A. Ant Ozok·June Wei (2010)   | An empirical comparison of consumer usability preferences in online shopping using stationary and mobile devices: results from a college student population | The study has been conducted on comparison among factors such as human and service with the aspects related to interface features and product.  |
| 30 | Y.V. Sunil Subramanyam, Y.S. Srivatsav (2015)                         | A review on growing m-commerce in India   | Authors say lack of internet connectivity and awareness will be big challenge for mobile commerce in India  |

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| 31 | Gupta, Sachin Vyas, Anand (2014)  | Benefits and Drawbacks of M-Commerce in India: A Review                     | Slow internet connectivity and lack of English play a significant role in the advancement of mobile commerce.   |
| 32 | Vivek Rajbahadur Singh (2014)   | An overview of mobile commerce in India                                     | Author has given definition of M-commerce and the revolution of mobile commerce in India.   |
| 33 | Upkar Varshney (2005)   | Vehicular mobile commerce: Applications, challenges, and research problems. | With a growing number of vehicles with powerful computing and communication, many applications such as entertainment content's broadcast, highway management, vehicular internet hot-spots, digital, intelligent transportation, and systems applications will become possible. |
| 34 | Shengnan Han, Ville Harkke, Par Landor, and Ruggero Rossi de Mio (2002) | A foresight framework for understanding the future of mobile commerce       | To survive in the mobile commerce identity, marketers should adopt the foresight-based approach   |
| 35 | Tao Zhou (2014)   | Understanding the determinants of mobile payment continuance usage          | Service providers needed to give a positive utility and compelling exposure to users in order to promote their continuation in usage.   |
| 36 | Dr. S. Shrilatha and Ms. M.D. Lalith Priya (2017)                       | Ubiquitous Commerce: An Upgradation Technology of E-Commerce and M-Commerce | Authors have analyzed the aspects of ubiquity, uniqueness, universalities, and unison.  |
| 37 | Holtjona Galanxhi-Janaqi and Fiona Fui-Hoon Nah Article (2004)          | U-commerce: Emerging trends and research issues                             | U-commerce created an economy that is more fluid, flexible, interconnected, resilient and efficient.  |
| 38 | David Martin-Consuegra, Mar Gomez and Arturo Molina (2015)              | Consumer sensitivity analysis in mobile commerce advertising                | Consumers renounce m-commerce in order to guard their privacy when agreeing to m-commerce advertising.  |

## ANNEXURE - V

### SUMMARY OF REVIEW OF LITERATURE ON MOBILE COMMERCE – ADVANTAGES OF MOBILE COMMERCE

| Sl. No. | Author(s), (Year)  | Title   | Findings  |
|---------|--|---|---|
| 1       | Suleyman Barutcu (2007)  | Attitudes towards mobile marketing tools: A study of Turkish consumers  | Consumers have positive attitudes towards mobile marketing tools such as mobile banking, mobile internet, location-based mobile services, mobile entertainment, mobile advertising, and mobile discount coupons.  |
| 2       | Constantinos Koursaris and Khaled Hassanein (2002)                         | Understanding M-Commerce Customer Centric model   | Both e-commerce and m-commerce have many similarities in terms of communication protocol, communication mode, development languages and internet access devices.  |
| 3       | Felix T.S. Chan and Alain Yee-Loong Chong                                  | Analysis of the determinants of consumers' m-commerce usage activities  | The author has researched on different security perceptions variables, motivation and demographic had different relationships with the types of m-commerce usage activities.  |
| 4       | Xuefeng Zhao, Qing Tang, Shan Liu, & Fen Liu , (2016)                      | Social capital, motivations, and mobile coupon sharing  | Perceived similarities, trust, and social ties are positively linked to m-coupon sharing intention and socializing, assuredly affect the sense of self-worth which had significant positive effects on m-coupon sharing intention and mediate the relationships between sharing intention and social capital factors. |
| 5       | Antonio Ghezzi, Filippo Renga, Raffaello Balocco and Paolo Pescetto (2010) | Mobile payment applications: offer state of the art in the Italian market                                     | Shoppers are not willing to put efforts into a service they might use only once. Vital inhibitory factors and adoption barriers are still restraining user adoption, notwithstanding the many advantages related to these services.   |
| 6       | Cristian Toma (2012)   | M - payment issues and concepts   | The author suggests m-payment should be of simplicity & usability, universality, interoperability, Security, Privacy & Trust, cost-effective, speed, and cross border payments.   |
| 7       | Mutaz M. Al-Debei, Mamoun N. Akroush, and Mohamed Ibrahiem Ashouri (2015)  | Consumer attitudes towards online shopping perceived web quality  | The empirical outcomes of the study indicated that perceived benefits and trust determine customer attitudes toward online shopping.  |
| 8       | Myung Ja Kim, Namho Chung, Choong Ki Lee and Michael W. Preis (2006)       | Motivations and Use Context in Mobile Tourism Shopping: Applying Contingency and Task-Technology Fit Theories | The result showed that value and enjoyment had essential effects on satisfaction.   |

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| 9  | Hsiang-Ming Lee and Tsai Chen (2014)   | Perceived quality as a key antecedent in continuance intention on mobile | Authors proposed a four-dimensional mobile service quality specification consisting of context quality, interaction, connection, and content.  |
| 10 | Abdul R. Ashraf, Narongsak (Tek) Thongapani, Bulent Menguc and Gavin Northey, (2017) | The role of m-commerce readiness in emerging and developed markets       | The proliferation of mobile devices has created an opportunity for e-commerce to become m-commerce. Researchers had distinguished four dimensions that would drive the m-commerce to expansion, i.e. personalization, localization, ubiquity, and convenience. |
| 11 | S.Muthukumar and Dr.N.Muthu (2015)   | The Indian kaleidoscope: emerging trends in M-Commerce                   | Authors say the Indian e-commerce market is distinct that it has a largely illiterate population, risk-averse consumer behavior and difficulty in tracing postal addresses that hurdle delivery system, especially in rural areas and semi-urban               |

## ANNEXURE - VI

### SUMMARY OF REVIEW OF LITERATURE ON MOBILE COMMERCE – MOBILE SHOPPING APPLICATIONS

| Sl. No. | Author(s), (Year)   | Title   | Findings  |
|---------|---|---|---|
| 1       | Thamaraiselvan Natarajan, Senthil Arasu Balasubramanian, Dharun Lingam Kasilingam, (2017) | Understanding the intention to use mobile shopping applications and its influence on price sensitivity                  | Overall, downloading mobile shopping apps gives shoppers a personalized experience than shopping on mobile phones through browsers. Mobile shopping application users are likely to return to purchase the product twice within 30 days compared to the normal shoppers on browsing   |
| 2       | Ting-Peng Liang and Chih-Ping Wei (2018)  | Introduction to the Special Issue: Mobile Commerce Applications   | M-commerce field needed strong theoretical Background to develop.   |
| 3       | CHARLES ZHECHAO LIU, YORIS A. AU, AND HOON SEOK CHOI (2014)                               | Effects of Freemium Strategy in the Mobile App Market: An Empirical Study of Google                                     | Quality of free apps will affect the consumers buying decision  |
| 4       | Hammad Khalid (2014)  | On the Link Between Mobile App Quality and User Reviews   | Reviews strongly impact organizations and individual developers and since low-ratings negatively reflect on the quality of their apps, and thus affect the app's popularity and eventually their revenues.  |
| 5       | Anshul Malika, S.Suresha, Swati Sharmab, (2017)   | Factors influencing consumer's attitude towards adoption and continuous use of mobile applications: a conceptual model. | Any promotional offers, discount coupons or any benefit in financial terms can be considered as incentives. Indians being price sensitive, any incentive can boost up the app adoption. It is noticed that most mobile apps are being downloaded considering the discounts or offer given for downloading the mobile shopping apps. Due to ubiquitous nature of the smartphone, it has made life easy for the consumers by reaching out to the information at any time, search for a product, book a ticket or make a |

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|    |  |  | purchase anytime provided that they have a good mobile device with internet access.  |
| 6  | Kun Xu, Weidong Zhang, Zheng Yan, April (2018) | A privacy-preserving mobile application recommender system based on trust evaluation       | Study evaluates the quality of the mobile app and recommending an application is based on the trust and functional behavior of the application   |
| 7  | Ion Ivam and Ivan Zamfiroiu (2011)             | Quality Analysis of Mobile Applications  | According to their studies reliability, accuracy, friendly interface of the application, continuity, portability, and security play an important role in the quality of mobile applications.   |
| 8  | Chen et al. (2012)                             | Understanding information systems continuance for information-oriented mobile applications | Chen et al. (2012) stated that information quality significantly influences perceived usefulness (related to performance anticipation) of mobile applications.   |
| 9  | Condos et al. (2002)                           | Ten Usability Principles for the Development of Effective WAP and Mcommerce Services       | Condos et al. (2002) illustrated that M-commerce connects the benefits of mobile communication with existing Electronic Commerce applications to allow consumers to shop for goods and services practically from anywhere. The mobile environment still could empower people, providing them with real-time wireless applications that would make their lives more comfortable and business more productive and efficient. |
| 10 | Priyanka Soni (2016)                           | Role of M-Commerce in present era  | As per Priyanka Soni (2016) by using M-commerce, consumers can access advanced mobile applications and high-speed services, and they can utilize these devices anywhere at any time. New agreements being passed between vendors, operators and application developers to develop better content for the consumers.  |

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| 11 | Khalifa, M., Cheng, S. K. N., & Shen, K. N. (2012)               | Adoption of mobile commerce: A confidence model                  | Khalifa et al. (2012) also pointed out the direct correlation between mobile commerce growth and the growing popularity of consumers with smart mobile devices such as tablets and smartphones. The intensity of competition among retailers has also increased as retailer mobile applications, and online services continue to add more functionality and convenience in the retail mobile channel. |
| 12 | Gunwoong Lee and T.S. Raghu (2014)                               | Determinants of Mobile Apps                                      | The authors had found giving free apps, higher initial reputation, investment in less-popular categories, constant updates on app characteristics and price, and higher user feedback on apps are positively linked with sales performance.   |
| 13 | Mayanka Singh Chhonker, Deepak verma, and Arpan Kumar Kar (2017) | Review of Technology Adoption frameworks in Mobile Commerce      | Authors have discussed the definition of mobile commerce and the growth of it   |
| 14 | Benou, Poulcheria Vassilakis, Costas (2010)                      | The conceptual model of context for mobile commerce applications | Developing m-commerce mobile application is more complicated than the other apps.   |

#### ANNEXURE - VII

#### SUMMARY OF REVIEW OF LITERATURE ON MOBILE COMMERCE – SMART PHONE ATTRIBUTES

| Sl. No. | Author(s), (Year)                                 | Title  | Findings  |
|---------|---|--|---|
| 1       | Parisa aliniaye lakanie and Nahid Mojarrad (2015) | The antecedents and consequence of brand prestige in smartphone industry in Iran | Brand name will have strong impact when it comes to selecting a smartphone. |

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| 2 | S Lakshmi and V Kavida (2018)                      | Factors Contributing to Brand Positioning of Smartphones Among College Students in Chennai: A Study            | As per their study, factors that affect the consumers buying decisions are mobile storage facility, more applications, and faster processing  |
| 3 | Brian I. Spaid and Daniel J. Flint, (2014)         | The Meaning of Shopping experiences augmented by mobile internet devices                                       | Authors discussed the experiences of shoppers who combine mobile internet devices into shopping activities. Shoppers were found to use (mobile internet device) MIDs as tools to support with shopping and social management behaviour, which consolidated to provide hedonic shopping experiences with emotional advantage to the shopper. |
| 4 | Zhang, Tao<br>Rau, Pei-Luen<br>Zhou, Jia (2010)    | Consumer Perception of Mobile Phone Attributes   | Essential factors, such as standard functions and appearance, are recognized in this study. Since people use mobile phones for day to day communications, they emphasize the importance of phonebook and SMS functions. Ease of use of input methods also affects their perception of standard functions.                                   |
| 5 | Dong-Hee Shin (2015)                               | Quality of experience: Beyond the user experience of smart services  | The author said the quality factors of smartphones could be described in system quality, content quality, and service quality.  |
| 6 | Orose Leelakulthanit and Boonchai Hongcharu (2016) | Factors Influencing Smartphone Repurchase  | The research study concluded in economic value or fair price, the beauty of the design, aesthetic value and brand reputation are positively associated with the repurchase of smartphones, whereas getting to know about new technologies such as smartphones is negatively connected with the repurchasing intention of smartphones.       |
| 7 | Ki Joon Kim and S. Shyam Sundar (2014)             | Does Screen Size Matter for Smartphones? Utilitarian and Hedonic Effects of Screen Size on Smartphone Adoption | The study resulted that the big screen had a higher smartphone adoption and improving both the hedonic qualities and utilitarian value of smartphones.  |

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| 8  | Gianluca Lax and Giuseppe M.L. Sarné (2008)                   | Cell Trust: a reputation model for C2C commerce   | The author identified that users could not rely on unstable connections; it assumes a great relevance on how to trust the counterpart in a transaction and how to evade disconnection.   |
| 9  | Yoonsun Oh and Jungsuk Oh (2016)                              | A critical incident approach to consumer response in the smartphone market: product, service and contents | Consumers are more likely to be captured by positive aspects of the product compared to the negative characteristics.  |
| 10 | Gotz, Friedrich M. Stieger, Stefan Reips, Ulf Dietrich (2017) | Users of the main smartphone operating systems (iOS, Android) differ only little in personality           | Authors said Android and iOS users were different systematically regarding fundamental psychological aspects.  |
| 11 | Vaidya, Dr. Alpana Pathak, Vinayak Vaidya, Ajay (2016)        | Mobile Phone Usage among Youth  | Based on obtained results, it can be said that the majority of college students are using smartphones, and there is not gender-wise distribution in the use of the mobile phone. Also, students prefer prepaid card over the postpaid card. Regarding the gender differences on the use of the mobile phone for internet use, for internet surfing, making a call, and SMS and all these three, gender differences were not found. Above all, it was found that desire to get connected is a significant significant factor in mobile phone usage, which was reflected in a preference for social networking sights. Also, the use of mobile is more at night as compared to the beginning of the day. It was also identified that students prefer 3G phones. Gender differences were not observed in the time of usage of mobile phone and data usage. The android operating system is common among college students. Regarding the brand, Samsung is the most popular brand among college youth. |

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| 12 | Cliquet, Gérard<br>Picot-Coupey, Karine<br>Huré, Elodie<br>Gahinet, Marie-<br>Christine (2014) | Shopping with a<br>Smartphone: A French-<br>Japanese Perspective  | Smartphone helps consumers to<br>integrate the shopping activities in all<br>the stages of pre and post shopping.  |
| 13 | Iosif Androulidakis,<br>Vitaly Levashenko and<br>Elena Zaitseva (2015)                         | An empirical study on<br>green practices of mobile<br>phone users   | The authors consider battery life of a<br>smartphone is significantly weak and<br>argue consumers buy new<br>smartphones primarily for enjoying<br>new features added up to the new<br>mobile devices.   |
| 14 | Merennie Tan Yee<br>Thour, Barathy<br>Doraisamy and Santhi<br>Appanan (2014)                   | An Investigation of the<br>Factors Affecting<br>Consumer Decision<br>Making of Smartphone in<br>Kedah, Malaysia                                 | According to the authors colour<br>display, screen resolution, weights,<br>resolution of a digital camera, standby<br>time, types of messaging, MP3, talk<br>time, Java applications, available<br>memory, WAP, Read-Only Memory<br>(ROM), availability of expansion slot,<br>Infrared, Bluetooth, WIFI, and GPRS,<br>are the main features of the<br>smartphones. Throughout the analysis,<br>the study reveals factor that price is the<br>main factor that influences decision<br>making and follows by quality,<br>application, feature and brand. |
| 15 | Ki Joon Kim, Dong-<br>Hee Shin and Eunil<br>Park (2015)  | Can Coolness Predict<br>Technology Adoption?<br>Effects of Perceived<br>Coolness on User<br>Acceptance of<br>Smartphones with Curved<br>Screens | Attractiveness, originality, and<br>subcultural appeal are found to have<br>positive effects on user attitude,<br>ultimately leading to greater<br>acceptance of the smartphones   |

#### ANNEXURE - VIII

#### SUMMARY OF REVIEW OF LITERATURE ON MOBILE COMMERCE – SECURITY AND TRUST

| Sl. No. | Author(s), (Year)                                      | Title   | Findings   |
|---------|--|---|--|
| 1       | Maurizio Cavallari and<br>Francesco Tornieri<br>(2017) | Vulnerabilities of<br>Smartphones Payment<br>Apps: The Relevance in<br>Developing Countries | Payment clearing companies<br>are incompetent of protecting<br>endpoints, their advancement<br>and implementation of payment<br>solutions based on (Host Card<br>Emulation) HCE architectures<br>will improve the risk of illegal<br>transactions. |

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| 2 | Ali Mirarab and AbdolReza Rasouli kenari (2014)     | Study of secure m-commerce, challenges and solutions              | M-commerce security can be improved by using external security key and specified policies, including user data integrity, confidentiality, and mutual authentication.   |
| 3 | Ion Ivan, Daniel Milodin, and Alin Zamfiroiu (2013) | Security of M-Commerce transactions                               | mobile services to ensure access to the e-commerce options must take into consideration the security of these services, so the transfer of data with personal character and especially of bank accounts accessing data on is to be achieved only by people legal owner  |
| 4 | Krishna Prakash and Balachandra (2015)              | Security issues and challenges in mobile computing and m-commerce | Authors recommend online transactions using mobile devices must assure high security for user credentials, and there should not be any chance for misuse.   |
| 5 | Amit Das and Habib Ullah Khan (2016)                | Security behaviors of smartphone users                            | The overall level of security behaviour is low. Regression coefficients show that the ability of security measures and the cost of choosing them are the main factors affecting smartphone security behaviours. Currently, smartphone users are more concerned about malware and data leakage than targeted data theft. |
| 6 | Fang –Yie Leu, Yi Li Huang, Sheng Mao Wang (2015)   | A secure m-commerce system based on credit card transaction       | Secure M Commerce system (SMCS) for safe credit card transaction by coordinating among sellers, bank and consumers  |
| 7 | Serena Hillman and Carman Neustaedter (2017)        | Trust and mobile commerce in North America                        | Participants felt that m-commerce poses little risk. However, they had more trust in the apps that were endorsed by larger companies.   |

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| 8  | Yung Shao Yeh and Yung-Ming Li (2009)   | Building trust in m-commerce: contributions from quality and satisfaction                      | The results depicted that despite customization, brand image and satisfaction were all directly affecting customer trust towards the vendor in m-commerce, customization and brand image equally had a more substantial direct effect on trust formation. Besides, interactivity and responsiveness had no direct impact but had an indirect impact via satisfaction on trust towards the vendor |
| 9  | Anthony vance, Christophe elie-dit-cosaque, and detmar W. straubwas (2008)                        | Examining Trust in Information Technology Artifacts: The Effects of System Quality and Culture | The researcher explained that trust issues are on the top when users embrace new technologies or participate in new methods of commerce, such as e-commerce. These features are equally valid of m-commerce portals, Web- or client-server-based storefronts sketched to make e-commerce services accessible for mobile devices.   |
| 10 | Martín-Consuegra, David Gómez, Mar Molina, Arturo (2015)  | Consumer Sensitivity Analysis in Mobile Commerce Advertising                                   | Mobile advertisers should thoughtfully choose information requests to ensure ethical behaviour concerning shoppers and to preserve the effectiveness of mobile publicity. The authors argue that consumers are concerned about the illegal use of their personal data.   |
| 11 | Toh Tsu Wei, Govindan Marthandan, Alain Yee-Loong Chong, Keng-Boon Ooi, Seetharam Arumugam (2009) | What drives Malaysian m-commerce adoption? An empirical analysis Toh                           | The findings showed that Perceived Usefulness, trust, SI, and perceived financial cost are positively associated with consumer IU m-commerce in Malaysia. Besides, trust and PEOU were found to have an insignificant impact on consumer IU m-commerce in Malaysia.  |
| 12 | Muhammad Suhail Sharif, Bingjia Shao, Feng Xiao & Muhammad Kashif Saif (2014)                     | The Impact of Psychological Factors on Consumers Trust in Adoption of M-Commerce               | The authors concluded that internal perception-based determinants are the leading cause of consumers' trust in the adoption of m-commerce. Perceived ease of use (PEOU) and Perceived usefulness (PU) are used as perception-based factors. They explained   |

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|    |  |  | external perception-based factors such as social influence, perceived cost and perceived risk did not prove any impact on consumer trust in the adoption of m-commerce.   |
| 13 | KhurramNaim Shamsi and Dr.Mohammad Mazhar Afzal (2017) | Security Threats to M-Commerce: Indian Perspective KhurramNaim | The authors considered the cost of wireless connection, frequent disconnects and slow transmission speed, unaffordable rate of mobile data, and lack of penetration of advanced mobile device are the major threats of m-commerce development in India. |
| 14 | Brian P. Cozzarin and Stanko Dimitrov (2016)           | Mobile commerce and device specific perceived risk             | The authors are stating that perceived risk influences purchase decisions for mobile users more than PC users. The consumers with risk tolerance likely to conduct more transactions, and the m-tailers should focus.                                   |

**ANNEXURE - IX**  
**SUMMARY OF REVIEW OF LITERATURE ON MOBILE COMMERCE – MOBILE SHOPPERS' BEHAVIOUR**

| <b>Sl. No.</b> | <b>Author(s), (Year)</b>   | <b>Title</b>  | <b>Findings</b>  |
|----------------|--|---|--|
| 1              | Lucy Gitau and Dr. David Nzuki (2014)                                  | Analysis of Determinants of M-Commerce Adoption by Online Consumers | The study provided the theoretical underpinning for various interventions to increase M-Commerce adoption that would guide businesses that offer MCommerce related products in the selection of digital products and pursuance of future commercial possibilities. The finding of this study suggests that the government should set up legislation that would guarantee customer security in order to improve the trust that will lead to the adoption of M-Commerce. |
| 2              | Mokhalles Mohammad Mehdi (2015)  | Buying behavioural Pattern regarding smarthones users               | Smartphone vendors should focus on buying criteria of youth groups because two-third of the users of smartphone belongs to user groups of 15 – 25 years, Smartphone vendors should incorporate the social networking features in their all devices due to consumer buying criteria, and Smartphone vendors have to give importance to all income groups of consumers. Key rationality behind that is income and smartphone ownership do not have any relationship,     |
| 3              | Woo Jin Choi (2012)  | Essays on consumers' goal orientation and price sensitivity         | The consumers who are promotion oriented would be more likely to choose the costlier smartphone than would those who are prevention-oriented.  |
| 4              | Asim Iqbal, Imran Qadir, and Yaser Zaman (2016)                        | Determinants of Customer Loyalty for Smartphone Brands in Pakistan  | According to the authors, five preceding factors influence shoppers' loyalty in term of non-monetary cost, monetary cost, functional benefit, hedonic benefit, and alternative attractiveness.   |
| 5              | Chao-Min Chiu and Chen-Chi Chang, Hsiang-Lan Cheng, Yu-Hui Fang (2009) | Determinants of customer repurchase intention in online shopping    | The study showed that enjoyment, trust, perceived usefulness and perceived ease of use are important positive predictors of repurchase intentions of consumers.  |
| 6              | Hsi-Peng Lu and Philip Yu-Jen Su (2009)                                | Factors affecting purchase intention on mobile shopping web sites   | Consumer's self-perception of mobile skillfulness significantly influences usefulness, anxiety and enjoyment. Moreover, compatibility, enjoyment, and usefulness influence a customer's behavioural intentions.  |

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| 7  | Hsin-Hui Lin (2012)   | The effect of multi-channel service quality on mobile customer loyalty in an online-and-mobile retail context | Empathy, reliability, tangibility, assurance, and responsiveness in the e-service channel undeniably affect their associated m-service counterparts. It means that within an online-and-mobile retail context, shoppers who perceive a service quality dimension from a retailer's e-service portal as high are more likely to accept that the retailer's m-service channel can also contribute high service quality for that dimension than those who perceive the same stimulus as low. |
| 8  | June Lu (2014)  | Are personal innovativeness and social influence critical to continue with mobile commerce?                   | The author had suggested M-commerce providers should give sufficient attention to personal innovativeness since it influences mobile user willingness and capability to welcome and accommodate to new features and services.   |
| 9  | Sari, Arif Bayram, Pelin (2015)   | Challenges of Internal and External Variables of Consumer Behaviour towards Mobile Commerce                   | The authors have findings to say that consumers perceptions differ and behaviour may vary depending on the place, time, and corresponding actions.  |
| 10 | Saleh, Zakaria I. And Mashhour, Ahmad (2014)  | Consumer Attitude towards M-Commerce: The Perceived Level of Security and the Role of Trust                   | Previous internet shopping experience linked with frequency and extent of mobile users have a significant impact on trusting M-commerce and the desire to use it.   |
| 11 | Tsang, Melody M Ho, Shu-chun Liang, Ting-peng International, Source Commerce, Electronic Commerce, Mobile Spring, Applications (2015) | Consumer Attitudes toward Mobile Advertising : An Empirical Study   | According to the authors said that consumers have a negative feeling and opinion about mobile advertising.  |
| 12 | Khansa, Lara Zobel, Christopher W. Goicochea, Guillermo (2012)  | Creating a Taxonomy for Mobile Commerce Innovations Using Social Network and Cluster Analyses                 | In this research study, the authors have stated that consumers' empowerment and co-creation are critical elements in m-commerce innovations.  |

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| 13 | Pankaj Yadav (2015)  | Adoption of Mobile Commerce in Himachal Pradesh  | The author had stated that trust, convenience and personal innovations are the major factors compared to the other factors influencing consumers buying behaviour in m-commerce  |
| 14 | Siau, Keng Shen, Zixing (2003)                             | Building customer trust in mobile commerce   | In this research study, the authors had found that m-tailors should increase the trust among the consumers to continue to enjoy the patronage of the consumers   |
| 15 | Tao Zhou (2011)  | Examining the critical success factors of mobile website adoption  | The study resulted in the indication of the system quality is the main factor affecting the perceived ease of use. On the other hand, information quality is the main factor affecting perceived usefulness. Service quality had a significant effect on perceived ease of use and trust. Trust, perceived usefulness, perceived ease of use determines the satisfaction of users.   |
| 16 | Chen-Ying Lee, Chih-Hsuan Tsao, and Wan-Chuan Chang (2015) | The relationship between attitude toward using and customer satisfaction with mobile application services: An empirical study from the life insurance industry | As per the study, indicators of all variables significantly and positively influenced usage attitude. Amongst them, compatibility had the most notable influence. Besides, consumers' perceived ease of use and perceived usefulness positively influenced customer satisfaction. Furthermore, the analysis result demonstrated that usage attitude is the most important factor for consumer satisfaction, and the second-most important factor is the cognition of compatibility's indirect influence on usage attitude. |
| 17 | Yi-Shun Wang, Hsin-Hui Lin & Pin Luarn (2006)              | Predicting consumer intention to use mobile service  | Authors state that the consumers' main reasons for choosing m-services stay unclear. However, a buyer intends to use m-service might increase by adding self-efficacy and perceived credibility.   |
| 18 | Ulas Akkucuk and Javad Esmaeili (2016)                     | The impact on brands on buying behaviour: An empirical study on smartphone buyers  | Findings of the study showed that a majority of the smartphone buyers' decisions are largely influenced by brand awareness and brand loyalty.  |
| 19 | Eunju Ko, Eun Young Kim, Eun Kyung Lee (2009)              | Modeling Consumer Adoption of Mobile Shopping for Fashion Products in Korea  | Researchers said usefulness has powerful effects on purchaser perceived value and the intention to adopt.  |

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| 20 | Min Li and Z.Y. Dong, Xi Chen (2011)                                  | Factors influencing consumption experience of mobile commerce<br>A study from experiential view | The outcome of this research indicated that emotion played an important role in the experience of mobile consumption; hedonic determinants had a positive impact on the consumption experience, on the utilitarian factors had a negative influence on the consumption experience of buyers. The empirical findings also showed that media richness was as crucial as subjective norms and more critical than other factors.  |
| 21 | Felix T.S. Chan and Alain Yee-Loong Chong                             | Analysis of the determinants of consumers' m-commerce usage activities                          | The authors had researched on motivation, different demographic, and security perceptions variables had a different relationship with the types of m-commerce usage activities.   |
| 22 | Francisco Liebana Cabanillas, Veljko Marinkovic, Zoran Kalinic (2017) | A SEM neural network approach for predicting antecedents of m-commerce acceptance               | As per the study, determining key determinants that would influence the consumer's choice to adopt mobile commerce. Customization and customer involvement are essential factors in the adoption of m-commerce.   |
| 23 | Daskshata Argade and Hariram Chavan, (2015)                           | Improve accuracy of prediction of User's Future M-Commerce Behaviour                            | As per the authors both the GPS and transaction tracking system can help in prediction of consumers' future purchase intention.   |
| 24 | Aldás-Manzano, Joaquín Ruiz-Mafé, Carla Sanz-Blas, Silvia (2009)      | Exploring individual personality factors as drivers of M-shopping acceptance                    | In this paper, researchers had tried to assess the relative importance of critical individual personality variables that had explicitly been removed in integrative TAMs such as UTAUT. Personality variables (affinity to innovativeness, mobile telephones, and compatibilities) had a positive and direct influence on the desire to engage in M-shopping.   |
| 25 | June Lu (2014)  | Are personal innovativeness and social influence critical to continue with mobile commerce?     | The study resulted that among well-educated m-commerce users, user personal innovativeness as measured by (personal innovativeness in information technology) PIIT and perceived usefulness, the determinants of initial adoption, stay as vital factors of user continuance intention. PIIT also continues as the forerunner of perceived ease of use. The social influence had changed the pattern of impact on continuance intention. M-commerce providers should give adequate attention to personal innovativeness since it influences mobile users' capability and willingness and capability to embrace and accommodate to new services and features. They should regularly utilize social channels to collect feedback, to distribute new changes or features, and to have a positive impact. |

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