The Influence of Shopping Applications on consumer buying behaviors in selected cities of Gujarat (Ahmedabad, Surat, Vadodara and Rajkot)

Valery Nsabimana[1] & Dr. Bijal Zaveri[2]

[1]Valery Nsabimana, PhD scholar at Parul Institute of Management & Research, Parul University, Limda, Waghodia, Vadodara, Gujarat, India Email- Valnsabimana@gmail.com,
[2]Dr Bijal Zaveri, Dean & Director of Parul Institute of Management &Research, Parul University, Limda, Waghodia, Vadodara, Gujarat, India

Abstract

E-commerce is a topic that has received so much attention in the recent digital era as a new concept that was introduced to the general consumers. Due to tremendous benefits associated with E-commerce, consumers adopted it and use it in parallel with other forms of shopping.

The focus of this article is on shopping applications since they are becoming essential tools for online shopping which is part of E-commerce and presumably have an influence on consumer buying behaviours. On the other hand, Consumer behavior focuses on what consumer buy, where, how, when, and why they buy certain products and services, but consumer buying behavior focuses on the process that the consumers go through while making their purchasing decisions.

There are many assumptions that indicate that shopping applications might have an influence on consumer buying behavior, and the tests conducted under this article shall confirm or disapprove this statement, based on collected data in Ahmedabad, Surat, Vadodara and Rajkot.

Keywords*: The key words include but not limited to: Shopping applications, consumer buying behaviors, E-commerce, Technology Acceptance Model, selected cities of Gujarat.*

I.   INTRODUCTION

Consumer buying behavior is influenced by different factors since there are many motives behind what the consumers buy, and the process they go through while acquiring, using and disposing different products of their choices meant to satisfy their needs and wants.

It is assumed that shopping applications might be one of the key factors that are influencing consumer buying behavior since all the steps of consumer buying process might be influenced by the efficient and effective use of shopping applications.

This article is meant to briefly explore the possibility of influence that might exist between the use of shopping applications and consumer buying process in selected cities of Gujarat.

II.   BRIEF LITERATURE REVIEW

2.1   Consumer buying behaviors

There are so many models and theories of consumer behaviour, but the focus is on the standard model of consumer buying behaviour. According to Phillip Kotler and Gary Armstrong (2012), in their book "*Principles of Marketing 15ᵗʰ edition*", a buyer goes through the following 5 stages while buying products. Those stages are need recognition, information search, evaluation of alternatives, purchasing decision and post purchasing behaviour.

Consumer Behaviour as a topic is meant to provide answers to the questions that many people ask themselves: why, How, when and where consumers make purchases of different products and services, and

which key factors influences them to make their respective buying choices. In this modern era, it has become a necessity for companies and marketers to understand the details of their Customers Buying Behaviour, since it allows them to get insights on the underlying reasons behind their purchasing decisions. By doing so, it allows them to make important changes and design better marketing strategies so that they can satisfy their customer's needs and wants in the future.

According to Henry Assael (1994), he defines consumer behaviour based on different components associated with the consumer purchasing activities. He argues that the needs of the consumers, brand characteristics, awareness and evaluation of alternatives play a key role in shaping the buying choices of the consumers. Not forgetting different extra factors such as consumer lifestyles, customer purchasing power, culture, social class, family and reference groups etc. Simply defined, consumer behaviour is all about the process of recognising the needs, awareness and information about products and substitutes that can satisfy the needs of the consumers, and the involved factors that lead to purchasing decisions, and post purchasing experiences. (Assael H, 1994).

The following is a simple definition of consumer behaviour: According to Kotler & Keller (2011), Consumer behaviour is defined as a process by which individuals make decisions of using their monetary resources, time and energy to purchase a given product or service, and also the reason behind what they buy, why they buy it, when and how they buy it etc. Consumer buying behaviour is defined as the steps of the process by which individuals use to select, acquire, use and dispose products and services that are expected to satisfy their needs, wants and desires. (Kotler & keller, 2009)

According to Blackwell et al (2006), consumer buying behaviour is defined as the process that consumers go through when obtaining, consuming and disposing products and services. (Blackwell et al, 2006). Salomon et al (2010) detail this definition to the study of the processes involved when individuals or groups select, purchase, use or dispose products, services, ideas or experiences to satisfy needs, wants and desires.

Loudon and Della Vita (1993) add another element, and define consumer behaviour as "The decision process consumers engage themselves in while evaluating, acquiring, using, or disposing of goods and services."

According to Glenn Walters (1974), consumer buying behaviour is defined as the behaviours displayed by consumers when planning, searching, purchasing, using, evaluating and disposing different products and services, initially believed to satisfy the consumer's needs and wants.(Walters G, 1974).

According to (Vani et al, 2010), consumer behaviour takes into consideration how the consumer think, feel, react, select, use and dispose different products of their choices over different alternatives. Influenced by different factors such as social factors, cultural, personal and psychological factors, consumers are influenced and make their decisions accordingly.

From the work of Leon G Schiffman & Leslie L Kanuk (2004), it is concluded that consumer behaviour is all about the process by which customers acquire, use and dispose different products and services to satisfy their respective needs and wants. To understand the consumer buying behaviour, we need to understand the following important questions: What they buy, why, how, when and where customers make purchases to satisfy their needs and wants.

2.2 Adoption of Mobile shopping applications

Mobile commerce is gaining popularity in the recent digital era, due to many benefits that it brings to both consumers and traders. According to Prasanta Kr. Chopdar et al (2018), Mobile commerce as part of

Electronic commerce is an emerging new way of trading and shopping, whereby business activities are conducted using digital mobile devices.

Mobile commerce is playing a big role in electronic business and according to E-marketer (2016), it accounts for 1/3 of global electronic transactions. This show how important mobile commerce is, and it expected to dominate other forms of electronic commerce in the near future. With the web versions of different retailers websites judged to be less convenient, slow to load, hard to use and so many other negative factors, Experts have turned their attention to shopping applications. According to Zhou (2013), Mobile shopping applications are adapted to fit within mobile devices platforms, which allow a smooth and exceptional user's experiences.

Venkatesh et al (2012) argue that mobile shopping adoption is based on the following criteria: Performance expectancy, Effort expectancy, Social Influence, Facilitative conditions, Hedonic motivation, price value and habit which shapes behavioral intentions and usage behavior of concerned shopping application.

Based on UTAUT model, Venkatesh et al (2003) have developed different factors that shape the mobile shopping usage and adoption. Those factors are as follow:

- ➢ **Performance expectancy (PE**): the users of shopping applications are convinced that a given application is useful and beneficial, and expected to help them in successfully accomplishing their shopping activities.
- ➢ **Effort Expectancy (EE):** it indicates the degree of ease of a given shopping application. If an application is expected to be easy to use, this shapes the behavioral intentions of using it, and accelerates its adoption.
- ➢ **Social influence (SI):** there is a constant pressure exercised by the media, whereby they advertise certain shopping applications, to attract users and increase awareness based on different products they are offering, promotions, discounts etc. there is also a social influence exercised by individuals to other members of the same community, groups, families etc. All of this has an influence on behavioral intention of adoption and usage of shopping applications.
- ➢ **facilitative conditions (FC):** facilitative conditions of using shopping applications refer to the resources necessary for any individual to be able to use shopping applications, such as, availability of smartphones or tablets, access to internet connection, monetary resources to pay for the bought products etc
- ➢ **Perceived Enjoyment (PE**): it is the type of motivation that someone gets based on how he enjoys himself while using shopping applications. As long as someone enjoys himself while using shopping applications, this will shape his behavioral intentions of using them in the future.
- ➢ **Price value (PV**): it represents the monetary costs associated with using a given application. Most of the shopping applications are free, but the users have to pay for the internet. As long as the cost of using an application is inferior to the expected benefits, this will have an influence on the adoption and the behavioral intentions of using a given shopping application.
- ➢ **Consumer Habits(CH):** by using shopping applications frequently, and if the previous experiences are favorable, this will create consumer habits that will have a positive influence on the behavioral intentions of keeping using shopping applications in the future.
- ➢ **Behavioral intentions (BI):** as the main determinant of the adoption of shopping applications, it represents the individual convictions and willingness of using shopping applications. Influenced by the factors stated above, behavioral intentions indicate the degree by which a user is intending to keep using shopping applications.
- ➢ **Perceived Risks (PR**): technology adoption and usage comes with risks and disadvantages, but once the risks can be controlled or minimized, it doesn't negatively influence the behavioral intentions. If

the users are convinced about their behavioral intentions, the risks   are monitored but do not have an impact on the use and adoption of shopping applications.

The factors above are meant to stimulate the adoption of shopping applications based on the UTAUT model.

2.3 Mobile Shopping through shopping applications

According to Mingyung Kim et al (2017) Different online shopping platforms started by using websites that people could access on desktops and laptops so that they can buy different products of their choices. It was a revolutionary break through since consumers started buying different products without visiting physical retail shops. As time went on it was observed that people are using their smartphones more than ever before, and they have them all the times. Marketers saw this as an opportunity of directly marketing different products and services to consumers, but also a more convenient way of shopping. Laptops and desktops required to do the shopping at specific times, when it was possible to do so. On the other hand, smartphones are always opened, convenient and connected to the internet which enable the consumers to shop whenever, and wherever they are at, anytime of the day.

On the other hand Mobile shopping is defined as carrying out the shopping activities through a mobile phone. It is not any type of phone but instead a smartphone with features that allows this process to be as efficient and effective as it can possibly be such as mobile applications, Wireless and internet connectivity.

According to Rupinder Kaur and Sophia Singh (2016), the use of mobile phone for shopping purposes defines what we know as Mobile commerce (M-Commerce). It is all about using the hand held devices that can have access to the internet, and allow the user to surf thought different shopping applications, or even shopping websites in order for him to find, evaluate, buy, use and dispose different products of his choices.

For marketers, the use of mobile applications is incredibly a very efficient tool meant to attract, keep and grow the number of their customers. According to (Priyanka et al, 2017), they argue that marketers are using mobile applications to enhance their customer reach which is about reaching as many potential customers as possible in the market, but also to position their brands, to stimulate impulsive buying, to increase visual appeal; to stimulate customer engagement, to initiate customer participation, to enhance interactive communication and many more benefits.

Among the tools of Mobile commerce, the focus is on shopping applications, which are part of mobile shopping. According to (Ko et al, 2009), Shopping applications are defined as the use of mobile applications on devices that use wireless internet for shopping activities. Since most of people are now using internet enabled digital devices, they have easy and fast access to information, products searching, alternative evaluation, purchasing process etc. There is no doubt that the use of mobile shopping affects consumer buying behaviours in many ways in the recent digital Era.

2.4 Mobile Shopping Adoption and types of Risks

Even though shopping applications are popularly used nowadays, there are many risks involved requiring constant measures to minimize, and eradicate them when it is possible. Consumers are aware of most of the risks they face, from shopping applications adoption to the frequent usage. According to Urvashi Tandon et al (2016), the risks involved in using shopping applications include but not limited to the following:

➢ **Product performance risks**: in some cases, the products fail to deliver the expected benefits or fail to match with how it was portrayed through shopping applications.

- ➢ **Financial risks and price manipulation:** with the uncertainty regarding the quality of the bought products, there is always fear associated with the loss that might come with delivered products. Some products are of low quality, others need fixing and maintenance, while others are damaged etc. on the other hand, some sellers have mastered the art of manipulating prices by giving out misleading discounts, and sales percentages. Since the consumers do not necessarily know the true prices of different products, they are induced to believe that the final product prices include discounts but in reality, it was a fictional overstated price. The consumers end up paying more than the real prices, which results in monetary loss due to overpriced products and fraudulent practices.
- ➢ **Time consuming and addictive**: it is noticed that shopping applications are somehow addictive to the frequent users, for whom even if they do not have specific products they want to buy, they take time, look up different random products, current discounts and promotions, offers and sales etc.
- ➢ **Social risks**: shopping applications concern more than individuals. It involves different group members, families, and friends, colleagues who share and recommend to each other different products offered by different shopping applications. Those who are left behind, and do not use shopping applications feel marginalised, but those who use shopping applications are easily influenced by the opinions of others. The decisions of buying given products should be made rationally not based on emotions and perceptions of others.
- ➢ **Security risks**: back in the days, the cybercrimes did not leave behind the users of shopping applications. They were so many reported cases of identity theft, unlawful sharing of personal information, frauds, taxes evasion etc.

2.5 Technology Acceptance Model
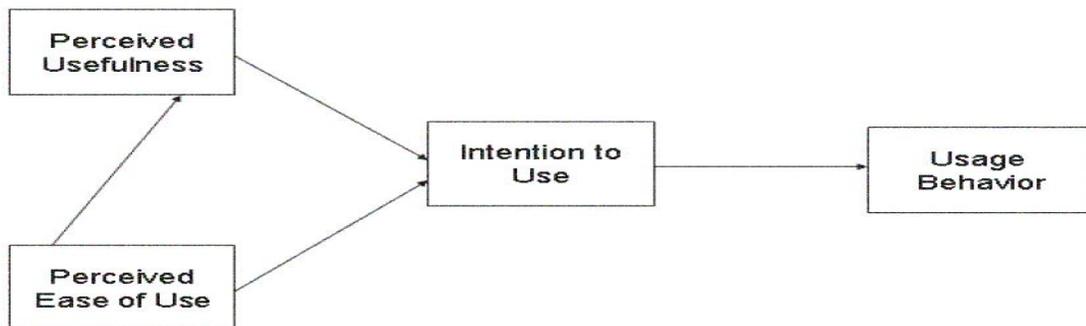
Source: Technology Acceptance Model by (David F.D et al, 1989)

According to (David F et al, 1989) and (Sanjeev P et al, 2018) two important factors are involved for any individual to be interested and switch his attention to new technology. In the context of shopping applications, the right combination of Perceived Usefulness (PU) and Perceived Ease of Use (PEU) creates an intention to use the application, which leads to the Usage Behaviour (UB) after acceptance.

According to (Ajzen, 1991), and (Featherman & Pavlou, 2003) There are many theories predicting the adoption and usage of new technology such as the theory of planned behaviour (TPB), the Theory of Perceived Risks (TPR), the Theory of Reasoned Action (TRA), Unified theory of Acceptance and Use of Technology (UTAUT) and many more, but the focus will only be on Technology Acceptance Model (TAM).

For this research, the variables will not be limited to the TAM elements, but instead, few more will be added to reflect as many factors as needed for a comprehensive study.

2.6 Functionalities offered by shopping Applications

According to Priyanka C, et al (2017), the functionalities of shopping applications includes but not limited to:

- **Smooth navigation**: shopping applications make the shopping experience very easy and smooth since it is easy to navigate through different product categories, get the products details, go to checkout cart etc.
- **Easy product search**: shopping applications provide options of directly searching for desired products or search through various products categories. The consumer has a choice in most of the cases about the quality, brand, colours sizes, etc
- **Information filtering**: depending on consumers requirements, it is easier to filter the results based on the specific requirements
- **Product view**: products pictures are of good quality and clearly visible which allow to zoom in for more precision and viewing different specifications as needed.
- **Ratings, Reviews and share**: shopping applications allow the previous buyers to leave comments, rate the bought products, etc but also to share their experiences with relatives, friends, and family members or even on social medias.
- **Various payment options**: Shopping applications provide so many payment options such as debit and credit cards, net banking, various payment apps, but also cash on delivery on eligible products.
- **Regular updates**: subscribed consumers are constantly informed whenever there is a new product, sales, discounts, promotions, recommendations etc that might interest them
- **Security updates**: shopping applications are constantly updated for more security features
- **Personalization**: consumers are allowed to create and use their own log in accounts, which keeps their payment and personal information for future usage. This accounts are also used for products suggestions and discounts based on previous purchases etc.

3. OBJECTIVES OF THE STUDY

The objectives of this article are:

1. To briefly talk about consumer buying behaviour and shopping applications
2. To collect primarily data from different shopping application users in selected cities of Gujarat
3. To analyse the collected data from different shopping apps users in selected cities of Gujarat, and test the hypothesis based on the following variables:
   1. Perceived Usefulness (PU) of shipping Applications and its influence on the consumer buying behaviours
   2. Perceived Ease of Use (PEU) of shopping Applications and its influence on consumer buying behaviours
   3. Perceived enjoyment (PE) of shopping Applications users and its influence on consumer buying behaviours
   4. Personal Innovativeness(PI) of shopping Applications users and its influence on consumer buying behaviours
   5. Customer satisfaction (CS) of shopping Applications users and its influence on consumer buying behaviours

6. Social Influence (SI) of shopping Applications and its influence on consumer buying behaviours
7. Facilitating Conditions (FC) of shopping Applications users and its influence on the consumer buying behaviours
8. Consumer's habits (CH) of shopping Applications users and its influence on consumer buying behaviours
9. Behavioural Intentions (BI) of shopping Applications users and its influence on consumer buying behaviours.
10. Perceived Risks(PR) regarding the use of shopping Applications and its influence on consumer buying behaviours

4. HYPOTHESIS TO BE TESTED

According to Nsabimana (2019), primarily researches regarding the influence of shopping applications on consumer buying behaviours in selected cities of Gujarat were conducted based on the hypothesis summarized in the following table:

Table 4.1 (List of Hypothesis)

N^0	HYPOTHEIS	REFERENCE SOURCE
1	H_0: Perceived Usefulness (PU) of shopping Applications has no influence on consumer buying behaviours in selected cities of Gujarat H_1: Perceived Usefulness (PU) of Shopping Applications has an influence on consumer buying behaviours in selected cities of Gujarat.	**Natarajan, T et al (2018) page 88.** **Hannah RM (2016). Page 575** **Blazenka, K et al, (2015), Page 197.** **Priyanka, C (2017), page 49**
2	H_0: Perceived Ease of Use (PEU) of shopping Applications has no Influence on consumer buying behaviours in selected cities of Gujarat. H_1: It is hypothesised that the perceived Ease of Use (PEU) of Shopping Applications has an influence on consumers buying behaviours in selected cities of Gujarat.	
3	H_0: Perceived Enjoyment (PE) of shopping Applications users has no influence on the Consumer buying behaviours in selected cities of Gujarat. H_1: Perceived Enjoyment (PE) of shopping Applications users has an influence on the Consumer buying behaviours in selected cities of Gujarat.	
4	H_0: Personal Innovativeness (PI) of shopping Applications users has no influence on consumer buying behaviours in selected cities of Gujarat. H_1: Personal Innovativeness (PI) of shopping Applications users has an influence on consumer buying behaviours in selected cities of Gujarat.	
5	H_0: Consumer satisfaction (CS) of Shopping Applications users does not influence consumer buying behaviours in selected cities of Gujarat. H_1: consumer satisfaction (CS) of Shopping Applications users influences consumer buying behaviours in selected cities of Gujarat.	
6	H_0: Social influence (SI) of shopping Applications has no influence on consumer buying behaviours in selected cities of Gujarat. H_1: Social influence (SI) of shopping Applications has an influence on consumer buying behaviours in selected cities of Gujarat.	
7	H_0: Facilitating Conditions (FC) of shopping Applications users has no influence on the consumer buying behaviours in selected cities of Gujarat.	

	H_1: Facilitating Conditions (FC) of shopping Applications users has an influence on the consumer buying behaviours in selected cities of Gujarat.	**Chopdar PK et al, (2018). Page 117.**
8	H_0: Consumer Habits (CH) of shopping applications users has no influence on consumer buying behaviours in selected cities of Gujarat. H_1: Consumer Habits (CH) of shopping applications users has an influence on consumer buying behaviours in selected cities of Gujarat.	**Yoojung L & Kim HY (2018). page 5**
9	H_0: Behavioural Intentions (BI) of shopping Applications users has no influence on consumer buying behaviours in selected cities of Gujarat. H_1: Behavioural Intentions (BI) of shopping Applications users has an influence on consumer buying behaviours in selected cities of Gujarat.	**Bilge T et al (2019) Page 110**
10	H_0: Perceived Risks (PR) of Shopping Applications have an influence on the consumer buying behaviours in selected cities of Gujarat. H_1: Perceived Risks (PR) of Shopping Applications have no influence on the consumer buying behaviours in selected cities of Gujarat.	**Hubert M (2017), Page 185.**

Note. Table of hypothesis summary adapted from "The influence of Shopping Applications on Consumer Buying Behaviors in selected cities of Gujarat (Ahmedabad, Surat, Vadodara and Rajkot)" by Nsabimana,V (2019), unpublished work from Author's PhD Primarily data collection, Parul University.

5. RESEARCH METHODOLOGY
5.1 Sample Size

Table 5.1 (sample size proportions)

CITY	Population	percentage	Corresponding sample
Ahmedabad	7,214,225	33.9241%	327
Surat	6,081,322	28.5968%	275
Vadodara	4,165,626	19.5884%	189
Rajkot	3,804,558	17,8905%	173
Total	21,265, 731	100%(Approximately)	964

Note. Table of Population proportions of the four big cities of Gujarat adapted from Census India (2011) by Valery Nsabimana(2019), *(Censusindia.gov.in, http://censusindia.gov.in/2011census/dchb/Gujarat.html),* Copyright 2011 by the office of the registrar General & Census commissioner, India.

According to the office of the Registrar General & Census Commissioner, India, (Censusindia, 2011), the top four cities of Gujarat with higher populations are Ahmedabad (7,214,225), Surat (6,081,322), Vadodara (4,165,626), and Rajkot (3,804,558), with a total of 21,265,731. In the total of 964 respondents, 327 (33.9241%) are from Ahmedabad, 275(28.5968%) are from Surat, 189(19.5884%) are from Vadodara, while 173(17.8905%) are from Rajkot.

The questionnaires are distributed randomly to different respondents with a prerequisite of being a frequent user of shopping applications.

5.2 Research instrument Reliability Tests

According to Nsabimana (2019), the reliability tests of research instrument used for primarily researches regarding the influence of shopping applications on consumer buying behaviours conducted in selected cities of Gujarat is summarized in the following table:

Table 5.2 (Reliability Tests)

ITEM	VARIABLES	CRONBACH'S ALPHA
1	Consumer Buying Process (CBP)	0.739
2	Perceived Usefulness (PU)	0.702
3	Perceived Ease of Use (PEU)	0.821
4	Perceived Enjoyment (PE)	0.864
5	Personal Innovativeness (PI)	0.903
6	Customer Satisfaction (CS)	0.705
7	Behavioural Intentions (BI)	0.734
8	Social Influence (SI)	0.833
9	Facilitative Conditions (FC)	0.699
10	Consumer Habits (CH)	0.720
11	Perceived Risks (PR)	0.704
	OVERAL CRONBACH'S ALPHA	0.782

Note. Table of reliability tests adapted from "The influence of Shopping Applications on   Consumer Buying Behaviors in selected cities of Gujarat (Ahmedabad, Surat, Vadodara and Rajkot)" by Nsabimana,V (2019), unpublished work from Author's PhD Primarily data collection, Parul University.

Overal Cronbach's Alpha is $(0.782){\geq}0.700$. Generally, 0.700 Cronbach's Alpha is the standard acceptable Alpha value for the research instrument to be reliable. Therefore the questionnaire used in this research is reliable based on the above test.

5.3 Kaiser Meyer Olkin (KMO) and Bartlett's Tests

KMO test is meant to indicate whether the sample is adequate or not. Data adequacy simply means that the collected data is accurate, suitable and sufficient for analysis while Bartlett's test is meant to indicate how strong the relationship among variables is.

According to Nsabimana (2019), the KMO and Bartlett's tests of the research instrument used for primarily researches regarding the influence of shopping applications on consumer buying behaviours in selected cities of Gujarat can be summarized in the following table:

Table 5.3 (KMO and Bartlett's Tests)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,719
Bartlett's Test of Sphericity	Approx. Chi-Square	3,648E4
	df	165
	Sig.	,000

Note. Table of KMO and Bartlett's Tests adapted from "The influence of Shopping Applications on Consumer Buying Behaviors in selected cities of Gujarat (Ahmedabad, Surat, Vadodara and Rajkot)" by Nsabimana,V (2019), unpublished work from Author's PhD Primarily data collection, Parul University.

The least acceptable KMO must not be less than 0.5, but in this case, it is 0.719 which is considered to be acceptable, and therefore confirms the Adequacy of the sample size, and the data collected from the participant's responses.

On the other hand, the Bartlett's tests of Sphericity have a significance value (P-value) ≤0.001. This test is meant to test whether we have an Identity correlation Matrix or not, which is a matrix by which we have values of 1 on the diagonal, while the remaining correlation values are considerably close to 0. In this case the p-value is ≤ 0.001, and it is ≤0.05, which means that the significance level is very small (close to 0) which leads to reject the possibility of the correlation matrix being an identity matrix.

6. BRIEF FINDINGS:

1. **Gender of respondents:** 608(63.1%) of the respondents are Males, while 356(36.9%) are females.
2. **Respondents age brackets:** 342(35.5%) respondents were below 25 years of age, 402(41.7%) were between 26-30 years of age, (177)18.4% were between 31-35 years of age, while 43 (4.5%) were between 36-40 years of age.
3. **Respondent's city:** 327(33.9%) of respondents are from Ahmedabad, 257 (28.5%) are from Surat, 189 (19.6%) are from Vadodara, while 173 (17.9%) are from Rajkot
4. **Level of Studies:** 9(0.9%) of respondents have very low primarily level education, 17 (1.8%) have the equivalent of high school level education, 458(47.5%) have undergraduate level education, 309(32.1%), have graduate level education, and 153(15.9%) have postgraduate level education, while 18(1.9%) have professional level education.
5. **Respondent's Occupation:** 544 (56.4%) of respondents were students, 185(19.2%) were employed, 102(10.6%) had professional jobs, 90(9.3%) were self-employed, while 43(4.5%) were unemployed.
6. **Respondent's Annual Family Income:** 198(20.5%) of respondents indicated that their family income is 1,50,000 Indian Rupees and below,216(22.4%) indicated between 1,50,001to 2,50,000; 191(19.8%) indicated it to be between 2,50,001 to 3,50,00, 161(16.7%) indicated it to be between 3,50,001 to 4,50,000, 77(8%) indicated between 4,50,001 to 5,50,000 while 121(12.6%) indicated their family income to be more than 5,50,001 India Rupees.
7. **Respondent's Total mobile apps:** 79(8.2%) of respondents had between 1 to10 mobile apps on their smart device, 468(48.5%) had between 11 to 20 mobile apps, 276(28.6%) had between 21 to30 apps, while 141(14.6%) had more than 31 mobile apps.
8. **Respondent's Shopping Apps:** 43(4.5%) of the respondents indicated that they had just 1 shopping App, 363(37.7%) indicated that they had 2 shopping Apps, 356(36.9%) had 3 shopping apps,172(17.8%) had 4 shopping apps, 12(1.2%) had 5 shopping apps, while 18(1.9%) had 6 shopping apps and plus.
9. **Respondent's time spent on shopping apps:** 473(49.31%) of respondents spent less that 1 hour each week on shopping applications, 404(41.9 %) spent between 1 to 3 hour every week,78(8.1%) spend 4 to 6 hours while 9(0.9 %) spent more than 6 hours on shopping apps each week.
10. **Shopping Apps Usage:** 75(7.8%) of respondents have been using shopping apps for the last 6 months, 339(35.2%) for between 6 months to 1 year, 309(32.1%) for between 1 to 2 years,

161(16.7%) for 2 to 3 years, while 80(8.3%) indicated that they have been using shopping apps for more than 3 years.

11. **Shopping apps preferences:** According to Nsabimana (2019), primarily researches regarding the influence of shopping applications on consumer buying behaviours conducted in selected cities of Gujarat indicated that the Respondent's shopping application preferences can be summarized as follow:

Table 6.1 (Respondent's Shopping Apps preferences)

App	Never used	Sometimes	Regularly	Comments
Amazon	130(13.5%)	583(60.5%)	251(26%)	**86.5% used Amazon either sometimes or regularly.**
Flipkart	293(30.4%)	578(60%)	93 (9.6%)	**69.6% used FlipKart sometimes or regularly**
Ebay	866(89.8%)	98(10.2%)	0	**10.2% used e-bay sometimes or regularly**
Myntra	614(63.7%)	299(31%)	51(5.3%)	**36.3% used Myntra sometimes or regularly**
Paytm Mall	826(85.7%)	122(12.7)	16(1.7%)	**14.3% used Paytm Mall sometimes or regularly**
Snapdeal	796(82.6)	127(13.2%)	41 (4.3%)	**17.4% used Snapdeal sometimes or regularly**
Shopclues	763(79.14%)	152(15.76%)	49(5.08%)	**20.86% used Shopclues sometimes or regularly**
OLX	859(89.1%)	89(9.2%)	16(1.7%)	**10.9% used Olx sometimes or regularly**
BigBasket	778(80.6%)	128(13.3%)	59(6.1)	**19.4% used Bigbasket sometimes or regularly**
Indiamart	914(94.8%)	34(3.5%)	16(1.7)	**5.2% only used Indiamart sometimes or regularly**

Note. Table of Respondents Shopping Apps preferences adapted from "The influence of Shopping Applications on Consumer Buying Behaviors in selected cities of Gujarat (Ahmedabad, Surat, Vadodara and Rajkot)" by Nsabimana,V (2019), unpublished work from Author's PhD Primarily data collection, Parul University.

12. Products preferences:

According to Nsabimana (2019), primarily researches regarding the influence of shopping applications on consumer buying behaviours conducted in selected cities of Gujarat indicated that the respondent's products preferences through shopping applications can be summarized as follow:

Table 6.2 (Respondent's products Preferences through Shopping Apps)

Products	Never	once	Twice	Many times

Consumer Electronics purchases	177(18.4%)	205(21.3%)	231(24%)	351(36.4)
Men Fashion	316(32.8%)	101(10.5%)	128(13.3%)	419(43.5%)
Women Fashion	536(55.6%)	36(3.7%)	33(3.4%)	359(37.2%)
Beauty & Health Products	674(69.9%)	53(5.5%)	87(9%)	150(15.6)
Food & Beverages	740(76.8%)	45(4.7%)	9(0.9%)	170(17.6%)
Books & Movies	702(72.8%)	84(8.7%)	62(6.4%)	116(12%)
Linens, Home & Kitchen	833(86.4%)	86(8.9%)	18(1.9%)	27(2.8%)
Sports & Fitness equipment	**604(62.7%)**	**239(24.8%)**	**103(10.7%)**	**18(1.9%)**

Note. Table of the Respondent's Products preferences through Shopping Apps adapted from "The influence of Shopping Applications on Consumer Buying Behaviors in selected cities of Gujarat (Ahmedabad, Surat, Vadodara and Rajkot)" by Nsabimana,V (2019), unpublished work from Author's PhD Primarily data collection, Parul University.

13. Consumer Buying Process and Shopping Applications:

According to Nsabimana (2019), primarily researches regarding the influence of shopping applications on consumer buying behaviours conducted in selected cities of Gujarat indicated that the consumer buying process through shopping applications can be summarised as follow:

Table 6.3 (Consumer Buying Process through shopping Apps)

Step of CBP	Never	Sometimes	Quite often	Regularly
Product Search	17(1.8%)	245(25.4%)	435(45.1%)	**267(27.7%)**
Product Information Search		281(29.1%)	434(45.0%)	**249(25.8%)**
Alternative Evaluation	27(2.8%)	154(16.0%)	558(57.9%)	**225(23.3%)**
Products purchasing	0	61(6.3%)	736(76.3%)	**167(17.3%)**
After purchase follow up	34(3.5%)	604(62.7%)	251(26.0%)	**75(7.8%)**
Post Purchase Experience	**559(58%)**	**388(40.2%)**	**8(0.8%)**	**9(0.9%)**

Note. Table of the Consumer Buying Process Through Shopping Apps adapted from "The influence of Shopping Applications on Consumer Buying Behaviors in selected cities of Gujarat (Ahmedabad, Surat, Vadodara and Rajkot)" by Nsabimana,V (2019), unpublished work from Author's PhD Primarily data collection, Parul University.

7. HYPOTHESIS TESTING BASED ON CHI-SQUARE

This part focuses on the testing of hypothesis by using SPSS to conduct Chi-square tests (X^2), at 95% confidence lever, and 0.05 margin of error.

According to Nsabimana (2019), primarily researches regarding the influence of shopping applications on consumer buying behaviours conducted in selected cities of Gujarat summarised the hypothesis testing in the following table:

Table 7.4 (Summary of Hypothesis Testing Results)

N^0	HYPOTHESIS	Pearson Chi-square	Asymp. Sig.(2-sided)	Conclusion
1	H_0: Perceived Usefulness (PU) of shopping Applications has no influence on consumer buying behaviour in selected cities of Gujarat H_1: Perceived Usefulness (PU) of Shopping Applications has an influence on consumer buying behaviour in selected cities of Gujarat.	2,803E3	$p \leq 0.001$	The Asymp. Sig (2-sided) $p \leq 0.001$, which is ≤ 0.05, ($p \leq 0.05$). Conclude to reject H_0 (Null hypothesis) and accept H_1 (Alternative Hypothesis). Therefore the conducted tests indicate that at 95% confidence level, the Perceived usefulness (PU) of shopping Applications has an influence on Consumer buying behaviours in selected cities of Gujarat.
2	H_0: Perceived Ease of Use (PEU) of shopping Applications has no Influence on consumer buying behaviour in selected cities of Gujarat. H_1: Perceived Ease of Use (PEU) of Shopping Applications has an influence on consumer buying behaviour in selected cities of Gujarat.	2,412E	$p \leq 0.001$	The Asymp. Sig (2-sided) $p \leq 0.001$, which is ≤ 0.05, ($p \leq 0.05$). Conclude to reject H_0 (Null hypothesis) and accept H_1 (Alternative Hypothesis).Therefore, the conducted tests indicate that at 95% confidence level, the Perceived Ease of Use (PEU) of Shopping Applications has an influence on Consumer buying behaviours in selected cities of Gujarat.
3	H_0: Perceived Enjoyment (PE) of shopping Applications users has no influence on the Consumer buying behaviour in selected cities of Gujarat. H_1: Perceived Enjoyment (PE) of shopping Applications users has an influence on the Consumer buying behaviour in selected cities of Gujarat.	2,067E3	$p \leq 0.001$	The Asymp. Sig (2-sided) $p \leq 0.001$, which is ≤ 0.05, ($p \leq 0.05$). Conclude to reject H_0 (Null hypothesis) and accept H_1 (Alternative Hypothesis).Therefore, The conducted tests indicates that at 95% confidence level, the perceived Enjoyment(PE) of Shopping Applications users has an influence on Consumer buying process inn selected cities of Gujarat.
4	H_0: Personal Innovativeness (PI) of shopping Applications users have no influence on consumer buying behaviour in selected cities of Gujarat. H_1: Personal Innovativeness (PI) of shopping Applications users have an influence on consumer buying behaviour in selected cities of Gujarat.	2,654E3	$p \leq 0.001$	The Asymp. Sig (2-sided) $p \leq 0.001$, which is ≤ 0.05, ($p \leq 0.05$). Conclude to reject H_0 (Null hypothesis) and accept H_1 (Alternative Hypothesis).Therefore, the conducted tests indicates that at 95% confidence level, the Personal Innovativeness (PI) of Shopping Applications users have an influence on consumer buying behaviour in selected cities of Gujarat.
5	H_0: Consumer satisfaction (CS) of Shopping Applications users does not influence consumer buying behaviour in selected cities of Gujarat. H_1: consumer satisfaction (CS) of Shopping Applications users influences consumer buying behaviour in selected cities of Gujarat.	2,058E3	$p \leq 0.001$	The Asymp. Sig (2-sided) $p \leq 0.001$, which is ≤ 0.05, ($p \leq 0.05$). Conclude to reject H_0 (Null hypothesis) and accept H_1 (Alternative Hypothesis). Therefore, the conducted tests indicate that at 95% confidence level, the Customer satisfaction (CS) of shopping Application users has an influence on the

				consumer buying behaviour in selected cities of Gujarat.
6	H_0: Social influence (SI) of shopping Applications has no influence on consumer buying behaviour in selected cities of Gujarat. H_1: Social influence (SI) of shopping Applications has an influence on consumer buying behaviour in selected cities of Gujarat.	1,975E3	p≤0.001	The Asymp. Sig (2-sided) p≤0.001, which is ≤0.05, (p≤0.05). Conclude to reject H_0 (Null hypothesis) and accept H_1 (Alternative Hypothesis). Therefore, the conducted tests indicate that at 95% confidence level, the social influence (SI) of Shopping Applications has an influence on Consumer buying Behaviour in Selected cities of Gujarat.
7	H0: Facilitating Conditions (FC) of shopping Applications users has no influence on the consumer buying behaviour in selected cities of Gujarat. H1: Facilitating Conditions (FC) of shopping Applications users has an influence on the consumer buying behaviour in selected cities of Gujarat.	1,857E3	p≤0.001	The Asymp. Sig (2-sided) p≤0.001, which is ≤0.05, (p≤0.05). Conclude to reject H_0 (Null hypothesis) and accept H_1 (Alternative Hypothesis). Therefore, the conducted tests indicate that at 95% confidence Level that the Facilitative Conditions (FC) of shopping applications users have an influence on consumer buying behaviour in selected cities of Gujarat.
8	H0: Consumer Habits (CH) of shopping applications users have no influence on consumer buying behaviour in selected cities of Gujarat. H1: Consumer Habits (CH) of shopping applications users have an influence on consumer buying behaviour in selected cities of Gujarat.	1,975E3	p≤0.001	The Asymp. Sig (2-sided), p≤0.001, which is ≤0.05, (p≤0.05). Conclude to reject H_0 (Null hypothesis) and accept H_1 (Alternative Hypothesis). Therefore, the conducted test indicate that at 95% confidence Level, the consumer Habits of shopping applications users have an influence on Consumer buying Behaviour in Selected cities of Gujarat.
9	H_0: Behavioural Intentions (BI) of shopping Applications users have no influence on consumer buying behaviour in selected cities of Gujarat. H_1: Behavioural Intentions (BI) of shopping Applications users have an influence on consumer buying behaviour in selected cities of Gujarat.	2,264E3	p≤0.001	The Asymp. Sig (2-sided) p≤0.001, which is ≤0.05, (p≤0.05). Conclude to reject H_0 (Null hypothesis) and accept H_1 (Alternative Hypothesis). Therefore, the conducted tests indicate that at 95% confidence Level, the behavioural Intentions (BI) of Shopping Applications users have an influence on consumer buying process in selected cities of Gujarat.
10	H_0: Perceived Risks (PR) of Shopping Applications have an influence on the consumer buying behaviour in selected cities of Gujarat. H_1: Perceived Risks (PR) of Shopping Applications have no influence on the consumer buying behaviour in selected cities of Gujarat.	2,402E3	p≤0.001	The Asymp. Sig (2-sided), p≤0.001, which is ≤0.05, (p≤0.05). Conclude to reject H_0 (Null hypothesis) and accept H_1 (Alternative Hypothesis). Therefore, the conducted tests indicate that at 95% confidence Level, perceived risks (PR) of shopping Applications have no influence on the consumer buying process in the selected cities of Gujarat.

Note. Table of hypothesis Testing summary adapted from "The influence of Shopping Applications on Consumer Buying Behaviors in selected cities of Gujarat (Ahmedabad, Surat, Vadodara and Rajkot)" by Nsabimana,V (2019), unpublished work from Author's PhD Primarily data collection, Parul University.

8. SUGGESTIONS & RECOMMENDATIONS

➢ The findings indicated that the respondents from selected cities of Gujarat think that shopping applications are useful and easy to use. Even though the perceptions about shopping applications are this favourable, an emphasis should be on making sure that shopping applications keep being credible in the eyes of the consumers. Strategies should be developed, and efforts should be deployed accordingly to keep ensuring that shopping applications are useful and easy to use by meeting the consumer's expectations.

➢ The findings also indicated that consumers buying process is highly influenced by Perceived enjoyment of using shopping applications. Marketers should know that consumers should find enough reasons to enjoy themselves while using shopping applications, and many incentives, strategies, and programs should be in place to keep ensuring that consumers enjoy shopping though shopping applications now and in the future.

➢ The findings indicated that the customer satisfaction have a high influence on consumer buying process in selected cities of Gujarat. Marketers should be advised that there is nothing greater than a satisfied customer, and they must ensure that the consumers are satisfied by ensuring greater customer relations, excellent services, high quality products, reasonable prices, different incentives, etc. by doing so, it is a way of ensuring that the users of shopping applications are satisfied at any cost, so that they can keep using them for as long as they can.

➢ The findings also indicated that the social influence of shopping applications has a big impact on consumer buying process. In fact, it is in human nature to be influenced by the recommendations and the perceptions of others in the same family, group or community. Marketers should be advised that keeping a good reputation of shopping application is one of many ways of attracting and ensuring positive new customers reactions. A positive reputation and different marketing strategies are necessary in attracting and keeping new consumers and users of shopping applications.

➢ The findings also indicated that the consumer habits have a big influence on consumer buying behaviour of respondents in selected cities of Gujarat. In fat, marketers should be advised that they must ensure the satisfaction of consumers and that their purchases through shopping applications meet their expectations. Strategies must be developed to ensure that the habits of consumers who use shopping applications are favourable which will guarantee customer satisfaction and enjoyment in the future.

➢ The findings also indicated that the behavioural intentions of consumers have a big influence on consumer buying process of respondents in selected cities of Gujarat. Marketers should be advised that the past experiences shapes the present decisions and helps in directing the future decisions. By making sure that the consumers are satisfied, this can influence their future intentions regarding their purchases through shopping applications. Therefore strategies must be in place to ensure that consumers are getting what they need to be present and future users of shopping applications.

➢ The findings also indicated that the perceived risks of shopping applications have no influence on consumer buying process of respondents from selected cities of Gujarat. This does not remove the fact that the risks are there and must be constantly controlled and stopped. Strategies must be in place to ensure the consumers safety while using shopping applications to minimize the risks that some of them faced in the past.

➢ Even though many consumers use shopping applications for their shopping activities, they are still worried and cautious due to security issues. Therefore marketers should be advised that they must keep securing their platforms so that they can better protect their customers against different security threats.

➢ To stay committed and focused, consumers must feel that they are given value, and that they are not only there to purchase. Communication tools shall be in place, and working efficiently. In some cases, consumers wait longer while their calls are on hold at the call centre, which is a bit annoying and frustrating for someone who has a query or an issue that should be quickly addressed. Marketers can increase call centre agents in busy hours, have an active instant messaging platforms, emails, whatsap etc.

➢ Marketers should do their best in increasing consumers trust by having an interactive and constant communication with their customers. This can be done by creating fully active social media pages, what sap groups, marketing events, content creation, giving back to the community, seminars and events etc

➢ Nowadays, there is a common issue of misrepresenting the products, and manipulating the prices. Marketers should be advised that credibility of their shopping platform is so important in securing present and future consumers. Therefore, they should focus on doing business in full transparency; provide all possible information to the consumers, but most importantly being as honest as they can possibly be.

➢ In most of the cases, consumers always complain about returned products, since it takes a lot of time to get refunds, which goes along with the disappointment of receiving misrepresented or damaged products. Marketers should ensure the accuracy of their product representation, and safety of shipped products. In case of returned products, refunds should be processed as fast as possible for better customer satisfaction.

➢ One of the key challenges faced by shopping application users is the inability to actually see, touch, feel, or even try the products they are about to buy. Marketers should be advised that a more detailed product description might be useful, including unboxing videos, usage videos, customers reviews, previous users testimonials, trials etc. even though this cannot replace the physical contact with the products, at least, the consumers can be confident about the products before they purchase them.

➢ Many consumers need guidance in their respective decisions, since they need an expert advice to make a purchasing decision. Marketers should be advised that they should incorporate efficient live chats on their respective shopping applications, so that once customer want guidance, clarifications or advice can get it immediately before making his purchasing decision rather than waiting for sending queries through email or talking to the call centre agents.

Above are just some of many recommendations to marketers regarding consumer use of shopping applications based on the findings from respondents in selected cities of Gujarat.

9. CONCLUSION

The hypothesis testing has indicated that in fact, shopping applications have tremendous influence on consumer buying process of the respondents in selected cities of Gujarat. Based on the Technological Acceptance Model (TAM), all variables have an influence on the consumer buying process which had to be proven, except the perceived risks that are proven to have no influence on the consumer buying behaviours.

The research objectives are reached since, a deep understanding of the key literature was attained; primarily data was asserted and analysed from selected cities of Gujarat.

10. FUTURE RESEARCH IMPLICATIONS

This research was conducted based on responses collected in selected cities of Gujarat (Ahmedabad, Surat, Vadodara and Rajkot). Further researches might be conducted on a larger scale in other cities of Gujarat, in other states of India or even in other countries.

Marketers shall also take into considerations the suggestions provided based on the findings, and further studies can be done to explore the feasibility and the mechanisms of implementation.

An evaluation could also be made to see how the suggested changes are having an impact on the users of shopping applications in selected cities of Gujarat, or even elsewhere in India.

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