

# An analysis the Customer Perspectives on the effects of M-Commerce Adoption

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**Abstract** - The term "mobile commerce" was first used in 1997 by Kevin Duffey to announce the Global Mobile Commerce Forum. In India, more consumers are switching to mobile commerce to achieve better and faster transactions thanks to the applications' impressive growth. The mobile telecom market has experienced significant growth & quick changes in recent years both internationally and in India. Chennai city was chosen as the subject of the descriptive research. A research was carried out among respondents from three different regions of Chennai, spanning a range of ages & professions, in order to validate the questionnaire. The necessary data is gathered using the purposive sampling method. The random sample approach is then used to collect various demographic & occupational data after these first two steps. A thorough questionnaire with 702 variables was used to gather the data. The study used the t-test. The respondents believe that using mobile commerce applications requires quickness.

**Keywords** - Mobile Commerce, Perception, t-test, Level of Awareness, Demographic Variables

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## INTRODUCTION

The significant rise in mobile usage in India is attributable to the falling price of mobile devices & rise in the number of APPs, or apps for mobile platforms, which are supported by free internet deals. Users are moving from desktop to mobile devices in greater numbers in order to complete more desirable transactions in online markets. With more than half a billion mobile subscribers, growing competition, & creative ways to draw customers, mobile has fundamentally altered how businesses operate today. The use of smartphones has increased dramatically in recent years. There has been a significant impact on India's adoption of mobile commerce over the past two years.

Mobile Commerce, or M-Commerce, is a new research & application area that has emerged as a result of the proliferation of wireless & mobile networks. Because of this, the scope of M-Commerce is much broader than a single business transaction. A variety of applications of M-Commerce can be found in the text messaging, mobile payment, financial & banking services, logistics, buy/sell of goods & services, and information services sectors & Wireless client relationship management so on.

## OBJECTIVES

1. To study the socio-economic and demographic variables among mobile commerce service users in Chennai.

2. To identify the level of awareness of mobile commerce service users.
3. To examine the use of mobile commerce services.

## HYPOTHESIS

1. There is no association between income of the respondents and the type of connection.
2. There is no association between income of the respondents and the money spent on mobile usage.
3. There is no association between network provider and the reliability of network

## METHODOLOGY

The study of methodology, or the ways in which research is conducted, is known as "methodology." It is the systematic examination of the accumulated rules & practises unique to a specific field of study. It typically includes things like the paradigm, the theoretical model, and the phases. Research refers to the process of investigating a topic in order to learn as much as possible about it. Simply put, research is the practise of systematically examining a topic. Someone once said that need was the mother of all inventions, which would make the individual doing this study a researcher. In this context, the term "research" should be understood to

refer to an academic endeavour. Research methodology adopted for this study is explained in terms of Research Design, Sources of Data, Sampling Design, Selection of Sampling Area, Sampling Technique and Sample size calculation as given below.

### Research Design

This research is descriptive study in nature. A descriptive research is concerned with conditions, practices, structures, differences or relationships that exists, opinion held, process that are going on or trends that are evident. The overall plan for the conduct of this research to find out the answers to the research questions and the hypotheses formulated, during the initial stages is explained in Research Design. It also includes the sampling technique to be adopted, the collection of data through various instruments, Statistical tools deployed for data analysis and interpretation.

### Sources of Data

The survey method is used in this Research study to derive gainful insights and knowledge of the various factors influencing the Customer Perception on Impact of Mobile Commerce residing in Chennai. The primary data is collected through a well-structured questionnaire to address the research questions and the relevant hypothesis. The relevant secondary data was collected from journals, magazines, newspapers, published information and details on websites for the study.

### Sampling Design

Data are collected by theoretical basis and the practical means such that the characteristics of a population can be inferred with known estimates of error. The succeeding paragraphs highlight about the sampling design adopted by this research.

### Selection of Sampling Area

In India, Chennai is the fourth largest metropolitan city. The rate of adoption and use of Mobile Commerce at Chennai is second to none and is evidenced through the establishment of warehousing and delivery facilities being setup continuously. This research is carried out in Chennai as it is a city with different profiles of people and thus can be used to arrive at a meaningful conclusion regarding the customer perception on Impact of Mobile Commerce.

### Sampling Technique

The Purposive Sampling method is applied to collect the primary data of the Universal sampling method justifying the entire Chennai population dividing in to three geographical regions namely North, South and Central Chennai. Within these three regions of Chennai, sampling is preceded by those who have already adopted mobile commerce. After these two

stages, the random sampling method is applied to obtain the responses from the respondents belongs to various Demographic.

### Sample Size

A sample size of 720 respondents was selected on purposive sampling method. Out of 810 respondents interviewed for the study, 720 of them were found usable. The samples of this study encompass different types of Chennai customers and it works out to 720.

### Statistical Tools used

Pearson's Chi-squared test ( $\chi^2$ ) is a statistical test applied to sets of categorical data to evaluate how likely it is that any observed difference between the sets arose by chance.

### DATA ANALYSIS AND INTERPRETATION

The well framed questionnaire is used to elicit the required data regarding customer perception on the impact of mobile commerce. The collected data were analyzed and interpreted for understanding the impact of mobile commerce. The analysis is carried by using descriptive statistics and inferential statistics.

a) Descriptive statistics are concise descriptive coefficients that summarise a data set, which may be a representation of the complete population. There are measurements of central tendency & measures of variability or dispersion that make up descriptive statistics. The purpose of this research is to determine if there is consensus among the criteria taken into account while analysing the spread of mobile commerce. Information about the respondents' demographics, education level, and familiarity with and use of mobile commerce services are included.

b) Inferential analysis makes inferences about the population based on a sample of data. It helps to identify the impact of independent variables on the dependent variables.

### Descriptive Analysis

In this study the descriptive analysis is used in exploring the following domains: Demographic profile of the respondents; Level of awareness of mobile commerce

**Table 1: Demographic Profile of the Respondents**

Demographic variables		Frequency	Percentage
Gender	Male	614	85.30
	Female	106	14.70
Age	Less than 20 years	306	42.50
	21-30 years	218	30.30
	31-40 years	73	10.10
	41-50 years	96	13.30
	Above 50 years	27	3.80
Educational Qualification	School Level	69	9.60
	Diploma	178	24.70
	Graduate	370	51.40
	Postgraduate	98	13.60
Marital Status	Others	5	0.70
	Married	248	34.40
Occupation	Unmarried	472	65.60
	Student	246	34.10
Monthly Income	Housewife	28	3.90
	Self employed	210	29.20
	Employed	232	32.20
	Retired	4	0.60
	Less than Rs.15000	309	42.90
Family Size	15001-30000	158	21.90
	30001-40000	103	14.40
	Above 40000	150	20.80
	2-4 members	543	75.40
Family Type	5-6 members	143	19.90
	More than 6 members	34	4.70
Location	Joint Family	328	45.60
	Nuclear Family	392	54.40
Location	North	251	34.90
	South	289	40.10
	Central	180	25.00

Source: Primary data

**Interpretation**

According to the results shown in Table No. 1, the following characteristics of the respondents have been determined: i. 85.30 percent of the respondents are male & 14.7 percent are female. Nearly half (42.50%) of those who responded were younger than 20. Thirty-0.30% of the sample is comprised of people aged 21-30. Thirteen percent of responders are in the 41-50 age range, while ten percent are in the 31-40 age range. Only 3.80% of responders are considered to be 50 and older. The youth of today clearly favour mobile purchases. More than half (51.40%) of respondents hold college degrees or above. Almost 25% of those who answered the survey have at least a bachelor's degree. Of those, 13.60% hold advanced degrees, while 9.60% have just completed elementary school. Others was selected by 0.70 percent of respondents, indicating that some users have skills beyond those specified but are nonetheless able to use mobile commerce. The majority of respondents (65.6%) are single, while 34.80% are married. 34.10% of the sample is comprised of enrolled students. Almost 32.20% of the respondents work for an organisation, while 29.20% are sole proprietors. There are 3.90% who are stay-at-home parents, and 0.60% who are retired. Almost 42.90 percentage of respondents have monthly incomes of less than 15000 Indian Rupees. Twenty-one point nine percent make between Rs.1,5001 and Rs.30,000, and twenty point eight percent make over Rs.40,000. 14.41% have a salary between Rs. 3001 and Rs. 74 percent of respondents said they have two to four family members, 19.90%

said they have five to six, and 4.70 percent said they have more than six. considering that 54.40 percent come from nuclear families and 45.60 percent from traditional families. 289 respondents (40.10 %) are from South Chennai, 251 respondents (34.90 %) are from North Chennai, and 180 respondents (25.00 %) are from a Central area of Chennai. Analyses of level of awareness of mobile commerce namely types of Smartphone, type of connection, the network provided, grocery store, dealer, in respect of the frequency and percentage is given in Table No. 2 below:

**Table 2: Level of Awareness of Mobile Commerce**

Particulars		Frequency	Percentage
Type of your Smartphone	Android	407	56.50
	Windows	214	29.70
	Apple	80	11.20
	Others	19	2.60
Type of connection	Post paid	335	46.50
	Prepaid	385	53.50
Network provider	Airtel	371	51.50
	BSNL	164	22.80
	Idea	41	5.70
	Reliance	13	1.80
	Tata	29	4.00
	Vodafone	75	10.40
Grocery Store	Others	27	3.80
	Yes	434	60.30
Dealer	No	286	39.70
	Yes	460	63.90
Internet	No	260	36.10
	Yes	477	66.20
Others	No	243	33.80
	Yes	295	41.00
Mobile Usage Per Month (Rs.)	No	425	59.00
	Less than 300	310	43.10
	301 – 500	248	34.40
	501 – 700	71	9.90
	701 – 1000	47	6.40
	More than 1000	44	6.20
Distance	Less than 2 kms	245	34.00
	2.1 – 4 km	167	23.20
	4.1 – 6 km	116	16.10
	6.1 – 8 km	79	11.00
	More than 8 km	113	15.70

Source: Primary data

**Interpretation**

More over half of respondents (56.50%) use some kind of the Android operating system on their smart phones; 29.70% use Windows; 11.20 percent use Apple mobile phones; and 2.60 percent use some other operating system. Among those who responded, 53.50 percent are using a pre-paid connection and 46.50 percent are using a post-paid one. Half of the respondents use Airtel as their network provider (iii), while another 22.8 percent use BSNL, 10.4 percent use Vodafone, 5.7 percent use the Idea network, 4.0 percent use the Tata network, 1.8 percent use the Reliance network, and 3.8 percent have selected "others" as their network provider. Only 3.80% of people said they use either MTS or Aircel for their mobile network. Over 60% of people polled have topped up or recharged at a grocery store, a dealer, or online. Almost half of all respondents (43.10 percent) spend less than Rs.300 on their mobile bills per month. They spend between 300 and 500 rupees per month (or 34.40%). In the range of Rs.500-Rs.700, 9.90% of respondents fall. Only 6.2% of respondents spend more than Rs.1000 per month on their mobile usage, while 6.4% spend between Rs.700 and Rs.1000. Thirty-four percent (34.00%) of those polled live no more than two km from the Bank. Twenty-three percent of respondents live within two to four km of a bank. For 16.10% of people, the distance between their home and the

nearest bank is between 4 and 6 kilometres. More than 15.7 percent of respondents live more than 8 km from a financial institution. One in ten responders must travel six to eight kilometres (km) from their home to the nearest bank. This indicates that people are using a mobile commerce app even when the bank is in close proximity to their home.

**Inferential Analysis**

It is based on the independent variable and the dependent variables. This analysis helps to identify the various degree of relationships among the variables in the study. The outcome of the inferential analysis can be generalized to the whole population to test the hypothesis. The following tools are used Chi-square analysis

**Hypothesis 1:** Type of connection depends on the income of the respondents

Null Hypothesis (H0): There is no significant association between income of the respondents & type of connection

**Alternate Hypothesis (H1):** There is significant association between income of the respondents & type of connection.

**Table 3: Cross-Tabulation for type of Connection & Income of the Respondents**

		Type of connection		Total
		Post paid	Prepaid	
Monthly Income	Less than Rs.15000	113 36.6% 33.7%	196 63.4% 50.9%	309 100% 42.9%
	Rs.15001 – 30000	58 36.7% 17.3%	100 63.3% 26%	158 100% 21.9%
	Rs.30001 – 40000	51 49.5% 15.2%	52 50.5% 13.5%	103 100% 14.3%
	Above Rs.40000	113 75.3% 33.7%	37 24.7% 9.6%	150 100% 20.8%
Total		335 46.5% 100%	385 53.5% 100%	720 100% 100%

Table No. 4 applies Chi-square test to find out whether there is a significant association between the income of the respondents and type of connection.

**Table 4: Chi-square for Type of Connection and Income of the Respondents**

	Value	df	P-value
Pearson Chi-Square	68.835	3	0.000**

Source: Primary data      \*\* denotes 1% level of significance

**Interpretation**

Chi-square test helps to understand the association between two variables. It also shows how association change from one variable to another.

Chi-square analysis is used to determine if there is a statistically significant correlation between respondents' income and their chosen connection type. The alternative hypothesis is accepted since the P value is less than 0.01 (which is significant at the 1% level). As a result, the respondents' income has a considerable impact on the relationship type. It can be deduced that respondents picked their partner according to financial considerations. People with higher incomes are more likely to opt for a post-paid plan. It may be deduced from the data that the respondents with pre-paid connections have a lower income than those with post-paid connections. All of this was done to see if the hypothesis "There is no association between income of respondents & type of connection" holds true. Rejecting the null hypothesis reveals a statistically significant correlation between respondents' reported income and their reported relationship type.

**Hypothesis 2:** Income of the respondents has a bearing on the money spent on mobile usage

Null Hypothesis (H0): There is no association between income of the respondents and the money spent on mobile usage

**Alternate Hypothesis (H1):** There is association between income of the respondents and the money spent on mobile usage

**Table 5: Cross-Tabulation for Income and Money Spent on Mobile Usage**

		Money spent on mobile usage					Total
		Less than 300	301 – 500	501 – 700	701 – 1000	Above 1000	
Monthly Income	Less than 15000	173 56% 55.8%	94 30.4% 37.9%	19 6.1% 26.8%	13 4.2% 27.7%	10 3.2% 22.7%	309 100% 42.9%
	15001 – 30000	56 35.4% 18.1%	66 41.8% 26.6%	16 10.1% 22.5%	10 6.3% 21.3%	10 6.3% 22.7%	158 100% 21.9%
	30001 – 40000	25 24.3% 8.1%	49 47.6% 19.8%	12 11.7% 16.9%	11 10.7% 23.4%	6 5.8% 13.6%	103 100% 14.3%
	Above 40000	56 37.3% 18.1%	39 26% 15.7%	24 16% 33.8%	13 8.7% 27.7%	18 12% 40.9%	150 100% 20.8%
Total		310 43.1% 100%	248 34.4% 100%	71 9.9% 100%	47 6.5% 100%	44 6.1% 100%	720 100% 100%

**Table 6 Chi-square for Income and Money Spent on Mobile Usage**

	Value	df	P-Value
Pearson Chi-Square	65.328	12	0.000**

Source: Primary data      \*\* denotes 1% level of significance



**Interpretation**

- i. Association between the income of the respondents and the money spent on mobile usage is tested using Chi-square analysis. The result shows that p-value < 0.01, which means the money spent on mobile usage, is significantly associated with the income of the respondents. Hence, the alternate hypothesis (H1) that there is association between income of the respondents and the money spent on mobile usage is accepted
- ii. Almost half of the respondents (56%) spent less on mobile usage since their income is low.

**Hypothesis 3:** Reliability of network is associated with the network provider

**Null Hypothesis (H0):** There is no significant association between network provider and the reliability of network

**Alternate Hypothesis (H1):** There is significant association between network provider and the reliability of network

**Table 7 Cross-Tabulation for Network Provider and Reliability of Network**

		Reliability of Network					Total
		Never	Rarely	Sometimes	Often	Always	
Network Provider	Airtel	51	53	64	95	108	371
		13.7	14.3%	17.3%	25.6%	29.1%	100%
	BSNL	36	29	31	32	36	164
		22%	17.7%	18.9%	19.5%	22%	100%
	Idea	1	6	16	12	6	41
		2.4%	14.6%	39%	29.3%	14.6%	100%
	Reliance	0	2	1	8	2	13
		0%	15.4%	7.7%	61.5%	15.4%	100%
	Tata	2	5	8	7	7	29
	6.9%	17.2%	27.6%	24.1%	24.1%	100%	
Vodafone	4	15	13	27	16	75	
	5.3%	20%	17.3%	36%	21.3%	100%	
Others	0	2	6	9	10	27	
	0%	7.4%	22.2%	33.3%	37%	100%	
Total	94	112	139	190	185	720	
	13.1	15.6%	19.3%	26.4%	25.7%	100%	

**Table 8: Chi-Square for Network Provider and Reliability of Network**

	Value	df	P-value
Pearson Chi-Square	56.858	24	0.000**

Source: Primary data \*\* denotes 1% level of significance

**Interpretation**

- i. Using Chi-square analysis, it is tested whether the network provider is associated with the

reliability of the network. The null hypothesis was rejected since p-value is less than 0.01. Therefore, there is an association between the network provider and reliability of the network.

- ii. From the above cross tabulation, it can be inferred that the majority of the respondents use Airtel.

Hence, the alternate hypothesis (H1) that there is a significant association between the network provider and the reliability of the network is accepted.

**Hypothesis 4:** Educational qualification of the respondents influences the access to internet using mobile.

**Null Hypothesis (H0):** There is no association between educational qualification of the respondents and the access to internet using mobile.

**Alternate Hypothesis (H1):** There is an association between educational qualification of the respondents and the access to the internet using mobile.

**Table 9: Cross-Tabulation for Educational Qualification and Access to Mobile Internet**

		Educational Qualification					Total
		School	Diploma	Graduate	Post graduate	Others	
Access to Internet Using Mobile	Never	11 14.1% 15.9%	18 23.1% 10.1%	40 51.3% 10.8%	7 9% 7.1%	2 2.6% 40%	78 100% 10.8%
	Rarely	17 19.3% 24.6%	23 26.1% 12.9%	37 42% 10%	11 12.5% 11.2%	0 0% 0%	88 100% 12.2%
	Sometimes	11 9.7% 15.9%	31 27.4% 17.4%	53 46.9% 14.3%	17 15% 17.3%	1 0.9% 20%	113 100% 15.7%
	Often	12 7.3% 17.4%	39 23.8% 21.9%	85 51.8% 23%	26 15.9% 26.5%	2 1.2% 40%	164 100% 22.8%
	Always	18 6.5% 26.1%	67 24.2% 37.6%	155 56% 41.9%	37 13.4% 37.8%	0 0% 0%	277 100% 38.5%
	Total	69 9.6% 100%	178 24.7% 100%	370 51.4% 100%	98 13.6% 100%	5 0.7% 100%	720 100% 100%

**Table 10: Chi-Square for Educational Qualification and Access to Mobile Internet**

	Value	df	p-Value
Pearson Chi-Square	26.922	16	0.042*

Source: Primary data

\* denotes 5% level of significance

**Interpretation**

- i. It is tested whether educational qualification of the respondents influences the access to the internet using mobile. It was found that p-value is less than 0.05, so the alternate hypothesis is accepted that is there is a significant association between educational qualification of the

respondents and their access to the internet using mobile.

- ii. It is found that graduate respondents majorly do access the internet using mobile always (56%). Only 6.5% of the respondents who qualified with school education use the internet using mobile. This shows that those who have higher educational qualification are comfortably using mobile for the internet.

Hence, the alternate hypothesis (H1) that there is a significant association between educational qualification of the respondents and their access to the internet using mobile is accepted.

## CONCLUSION

Mobile commerce is the future trend as technology continues to progress and new systems are being created, mobile commerce is on a rapid rise. There are more individuals than ever before who are always on the move, therefore it seems sense that there would be a greater need for mobile commerce. It seems that everyone who has used a mobile commerce app is satisfied with the experience. This trend also suggests that respondents are getting more at ease with using mobile commerce apps. The popularity of both mobile applications and mobile commerce keeps growing. The vast majority of users in Chennai use pre-paid connections & Android smartphones. Any business wishing to maximise the speed and effectiveness of its marketing should focus on reaching prepaid clients on the Android platform.

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