

An Empirical Research on Factors Affecting Mobile User's Attitude towards Mobile Marketing in India

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Abstract India is having a high growth rate of Mobile subscribers which has opened up a new marketing channel of communication with customers. There is a need to study the factors affecting Mobile user's attitude towards Mobile marketing and the relationship between these factors. To study the mobile users attitude towards mobile marketing 489 mobile users opinion is taken on 12 statements for a period of 5 months. Using factor analysis method these 12 statements are grouped into 5 groups they are Mobile advertisement, Mobile Usability, Mobile Promotions, Mobiles shopping and Mobile Marketing. Confirmatory Factor Analysis (CFA) was performed to confirm the findings. SPSS Statistics 17.0 is used to conduct factor analysis and the validity of the model. Once the model was validated, SPSS Amos 18.0 was used to fit a model based on Structure Equation Model to analyze the factors affecting Mobile user's attitude and the relationship between these factors. The present study revealed that Mobile Advertisement and Mobile Sales Promotion are having positive effect on Mobile Marketing where as Mobile Shopping and Mobile Phone Usability is having negative effect on Mobile Marketing. The impact of indicators like Mobile Phone user's permission and personalization of Mobile Phone communication on Mobile Marketing are also discussed in this article.

Keywords Mobile Marketing • Mobile Advertisement • Mobile Sales Promotion • Mobile Shopping • Mobile Phone Usability • Structure Equation Model (SEM)

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Introduction

Mobile Marketing, as defined by The Mobile Marketing Association (MMA) is "The use of wireless media as an integrated content delivery and direct response vehicle within a cross-media marketing communications program."

In India, as on July 2010 there are over 652.42 million Mobile subscribers and the numbers of subscribers are growing every day. Due to large number of subscriber's Mobile Phone media has attracted many companies in banking, FMCG (Fast Moving Consumer Goods) and other sectors to extend their promotions into this platform.

The major advantage of Mobile marketing compared to other types of marketing is that mobile marketing is cost effective and advertisers can be sure about their ad has been seen by the Mobile users, which is not possible in other Medias of advertisement. The disadvantage of mobile marketing is that National Do Not Disturb (NDND) registry contain database of telephone numbers of subscribes who do not want to receive Unsolicited Commercial Communication (UCC) so marketers cannot send them any marketing information and when a marketing message need to be send for this subscriber, mobile user is asked to explicitly opt-in to any service of the company and then the company can send them marketing messages. Mobile users can also opt-out of this service.

Mobile advertising will increase in India with the introduction of Mobile Virtual Network Operator (MVNO) and 3G technologies. Recently, the Indian government has permitted MVNOs which will help to grow the Mobile marketing scenario. MVNOs will provide Mobile Phone services by buying airtime from existing telecom operator, and then they market it by leveraging their brand and distribution network. 3G will open up new opportunities for advertisers, such as rich media content and video over the Mobile Phone. Advertisers may be able to subsidize the

cost of downloading rich media content by subscribers.

In India, over a hundred Mobile Value-Added Services (VAS) and various mobile technology companies like Affle India, Webaroo Technology India, Flytxt, Netcore solutions and Vakow Technologies are working to bring innovative solutions on the Mobile and keep advertisers updated with new technologies so as to provide platforms to advertisers who want to reach the growing Mobile users.

Conceptual Framework

Li and Stoller (2007) emphasize that Mobile marketing is getting increasingly popular because Mobile Phone is a personal device used in marketing. Schreiber et al. (2005) define Mobile marketing as using a wireless medium to provide Mobile users with time and location sensitive personalized information that promotes products, service and ideas thereby benefiting all the stakeholders. 12 statements are framed using the above research and they are grouped into 5 groups.

Components Of Mobile Marketing

Mobile marketing consists of four basic components - Mobile Advertisement, Mobile Sales Promotion, Mobile Phone Usability and Mobile Shopping which is influencing Mobile Marketing's functionality.

1. Mobile Advertising is a key component of Mobile marketing. SMS and voice Mobile Phone call are two main Mobile advertising communication systems which are more frequently used in India. Mobile advertising can be conducted in two methods like push advertising and pull advertising. In push advertising, after obtaining Mobile user's permission advertisers sends relevant text or voice messages to the Mobile users. In pull advertising Mobile users voluntarily request for required information and advertiser sends them to Mobile users.
2. Mobile Sales Promotion: Discounts, rebates, coupons, free samples, gifts and incentives are given to Mobile users as part of sales promotion to encourage Mobile users to purchase products. Mobile sales promotion is using Mobile coupons which are more effective than paper-based coupons. According to Schreiber et al. (2005) Mobile coupons have three advantages like targeting based on Mobile Phone numbers, time sensitivity and efficiently handling by scanning the coupon's bar code at the point of sales.
3. Mobile Phone Usability: Mobile Phone has become an important gadget in Mobile users daily life, the

Mobile Phone is used for many purposes apart from communication. Lot of entertainment is enjoyed by user through listening music, playing games, capturing photos and videos in Mobile Phones. Technology has increased from Second Generation (2G) to Third Generation (3G) and high end products are in reach of Mobile users so marketers want to take the advantage of this entertainment device by incorporated these features of audio and video into their advertisements.

4. Shopping through Mobile Phone is called Mobile Shopping. Earlier Mobile Phone is seen as a scary place to shop but with the introduction of Mobile banking many Mobile users are using Mobile Phone for shopping on-line. With the advent of internet on Mobile Phone Mobile users may do more on-line purchases without leaving their houses and offices.

Mobile Users Attitude

Attitude is basically our predisposition towards things. According to Mehta and Purvis (1995) attitude is an enduring system of positive or negative evaluation, emotional feelings and pro or con action tendencies with respect to social object. Attitude has three main components affective, cognitive and behavioural. Affective component include our liking or feeling about an object. The cognitive component refers to belief about an object and the behavioural component refers to the action we take regarding that object. Mobile user's attitude towards mobile marketing studies is based on the models of Mobile user's attitude towards online advertising studies and the construct of those models. The Diffusion of Innovation Theory, Technology Acceptance Model (TAM) and Theory of Reasoned Action (TRA) have been used to explain Mobile user's attitude towards Mobile marketing. These theories can explain and develop models for both intention and behaviour towards accepting marketing concepts.

Attitude towards Mobile Marketing is studied from the prospects of Attitude towards Mobile Advertising, Attitude towards Mobile sales promotion, Attitude towards Mobile Phone Usability and Attitude towards Mobile Shopping.

Objectives

The main objective of this research is to understand the factors that affect Mobile Users attitude towards Mobile marketing in India. In contrast to the available studies on Mobile marketing acceptance models, this study examines only attitude structure rather than intention and behavioural structure of the other models. The main researches ques-

tions which are studied in this research are

1. What are the main factors that are affecting Mobile user's attitude towards Mobile Marketing?
2. The correlation between these factors

Research Methodology

Structural Equation Modeling (SEM) was used as the main statistical technique and data was collected through questionnaire survey. The questions in the survey are developed from the studies of Carol et al. (2007); Ducofee (1996); Okozaki, Katsura and Nishiyama (2007); Suher, Ispir and Ozturk (2008) and Tsang, Ho and Liang (2004) and few questions are self created. 5 point likert scale was used (1 strongly disagree, 2 disagree, 3 nether agree or disagree, 4 agree and 5 strongly agree) to measure affects of Mobile users attitude towards Mobile marketing from Mobile advertisement, Mobile sales promotion, Mobile Phone Usability and Mobile Shopping factors. The research ques-

tions consisted of 16 questions. The first 4 questions are related to demographic variables like age, gender, family income and education. The remaining 12 questions are related to investigate Mobile user's attitude towards Mobile advertisement, Mobile sales promotions, Mobile Phone Usability and Mobile Shopping. The questionnaire was pre-tested on 50 respondents to test its consistence and reliability of questions to its research objective.

Sampling

A total of 500 questionnaire forms were distributed to different respondents who are Mobile Phone users for at least one year. Respondents are clearly explained about the objective and purpose of the research article before distribution of the article. The research was conducted for a period of 5 months from February 2011 to June 2011 in Hyderabad. A total of 489 respondents questionnaires were analyzed for the research as remaining 11 respondents questionnaires were incomplete.

Table 1 Respondents' profile

Variable	Frequency	%	Variable	Frequency	%		
Gender	Male	314	64.2	Age	≤ 20 years	112	23
	Female	175	35.8		20 – 40 years	239	48.8
Education	Uneducated	19	3.9		≥ 40 years	138	28.2
	High School	58	11.9	Family Income per month	≤ ₹10000	110	22.5
	Intermediate	82	16.8		10001-25000	191	39
	Under Graduate	121	24.7		25001-50000	164	33.6
	Post Graduate	209	42.7		≥ ₹50001	24	4.9

Majority respondents are males (64.2%), Post Graduates (42.7%), age between 20 and 40 years (48.8%) with family income between 10,001 and 25,000 (39%) per month.

Data Analysis

The data analysis was conducted in a three-stage process. First, reliability tests were performed. Upon satisfactory results, next the factor analysis of the collected data was conducted followed by Confirmatory Factor Analysis (CFA) was performed to confirm the findings. SPSS Statistics 17.0 software is used to analysis the Content validity, Construct validity and Convergent validity of the model. Once the model was validated, SPSS Amos 18.0 software is used to test the overall fitness of the Structural Equation Model (SEM) and to estimate the relationships between the variables.

Reliability Tests

The reliability of 12 items in the questionnaire is tested with Cronbachs' alpha (Cronbach 1951). Cronbach alpha reliability coefficient is 0.721 which is exceeding the suggested level of 0.70 (Nunnally 1978). It suggests that the questionnaire is having reliability and can be used for further analysis.

Exploratory Factor Analysis

The Kaiser-Meyer-Oklin (KMO) and Bartlett's Test is used to test suitability of data for factor analysis. KMO value is 0.731 exceeding the recommended value of 0.60 which can be considered as adequate (Kaiser and Rice 1974) while Bartlett's Test of sphericity reached statistical significance (Approx. chi-square 248.264, df 66 and Sig 0.00) which signifies the data is good for conducting factor analysis.

The 12 items were subjected to Principal Component Analysis (PCA) with varimax rotation to test the suitability of data for factor analysis. The items having factor loading

less than 0.50 should be eliminated (Hair et al. 1996) but all factor loading each items are above 0.50 suggesting that the data set is appropriate (Stewart 1981). So, all 20 items are accepted and PCA revealed that these 20 items are grouped into 5 components with Eigen values exceeding 1, explaining 2.947, 1.346, 1.123, 1.062 and 1.022 respectively. The total percentage of variance is 70.509. The results of the Principal Component Analysis can be viewed in Table 2.

Confirmatory Factor Analysis

SPSS Amos 18 is used to conduct Confirmatory Factor Analysis (CFA). According to Ahire, Golhar and Waller (1996) Confirmatory Factor Analysis provides enhanced control for assessing unidimensionality. Unidimensionality measure the extent to which the all items in a scale measure the same construct. CFA was conducted for each of the five constructs to determine whether the 12 variables measured the construct they were assigned to adequately. Some of the important validity tests generally considered includes construct validity and Convergent validity.

Construct Validity

In the present study, in order to check for unidimensionality, a measurement model was specified for each construct and CFA was run for the entire construct. If a Comparative Fit Index (CFI) is 0.90 or above for the model implies that there is a strong evidence of unidimensionality - Byrne (1994). CFI values for this construct are specified in Table3. This indicates a strong evidence of unidimensionality for the scale.

Convergent Validity

It is the degree to which multiple methods of measuring a variable provides the same results O’Leary-Kelly and Vokurka (1998). Convergent validity can be established using a coefficient called Bentler-Bonett coefficient. The Bentler-Bonett Normed Fit Index (NFI) is 0.924 in this research which is obtained from CFA can be used to assess convergent validity.

Table 2 Factors Extraction and Descriptive statistics of the Items in Questionnaire

Item	Component	Factor Loads	Mean	S.D	Eigen Value	% variance
Mobile Advertisement						
MA1	I will accept advertisement messages into my Mobile Phone	0.550	3.80	0.958		
MA2	Mobile advertisements provide required and useful information	0.610	3.81	1.926	2.947	26.559
MA3	Ads must be delivered only in specific time to my mobile phone	0.542	4.02	0.866		
Mobile Phone Usability						
MU1	I like to have Geographic positioning system(GPS) in my mobile	0.562	3.78	0.876		
MU2	It is easy to use sales promotion offers through Mobile Phone	0.585	3.62	1.069	1.346	13.220
MU3	Mobile Phone is a very useful device in daily life.	0.659	4.09	0.932		
Mobile SalePromotions						
MP1	I have latest technology available in my Mobile Phone to use sale promotions	0.626	4.14	0.835		
MP2	I get lot of entertainment from SMS and MMS sales promotions given to my mobile phone	0.615	3.96	0.929	1.123	11.357
Mobile Shopping						
MS1	I am really not sure that I can do payments safely through my Mobile Phone for the product that I want to purchase	0.561	3.77	1.068	1.062	10.852
MS2	Companies need to prove their credibility to MobileusersforMobileShopping	0.519	3.89	1.050		
Mobile Marketing						
MM1	Since Mobile Phone is personal, every Marketing information to Mobile Phone must be personalized according to my needs.	0.711	4.07	1.407		
MM2	Companies must take my permission for any Mobilecommunicationstomymobilephone	0.587	4.09	1.926	1.022	8.519
Total percentage of variance						70.509

The following value are found in our study for each parameter to test model fit.

Table 3 Parameter value for model fit measures with SPSS Amos

Name of the Parameter	Value
Goodness of Fit Index (GFI)	0.953
Adjusted Goodness of Fit Index (AGFI)	0.916
Normed Fit Index (NFI)	0.914
Comparative Fit Index (CFI)	0.924
Tucker-Lewis Index(TLI)	0.991
Incremental Fit Index(IFI)	0.995
Relative Fit Index(RFI)	0.901
Root Mean Square Error of Approximation (RMSEA)	0.013

Based on various studies conducted by Bentler and Bonett (1980), Jöreskog, and Sörbom (1974), Bollen’s (1989) and Bentler (1980) it was suggested that if the Index value is greater than 0.9 and if RMSEA values is less than 0.05 it indicates model is fit and accepted.

Structure Equation Model

SPSS Amos 18 software is used to perform confirmatory factor analysis using Structural Equation Model (SEM). Total number of variables in the model is 30, number of observed variables 12, number of unobserved variables 18. The data has no missing values. The model is over-identified, a preferable situation for SEM. According to the univariate and multivariate normality tests the data is not normally distributed. After the data was normalized, the Maximum likelihood (ML) estimation method is used. ML attempts to maximize the likelihood that obtained values of the criterion variable will be correctly predicted.

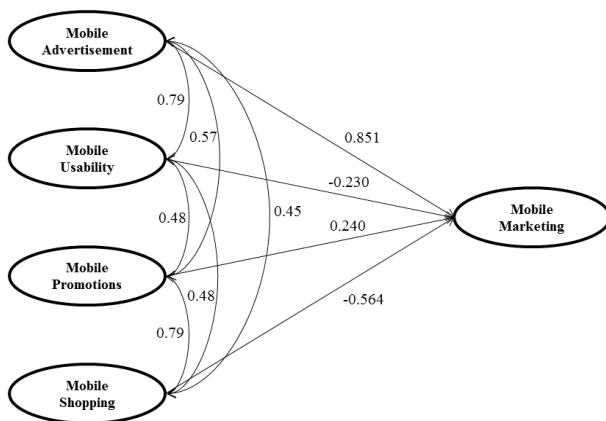


Fig. 1 Structure Equation Model - The path diagram with standardized parameters estimate

Model Fit

Based on Structure Equation Model using SPSS Amos 18 it is found that Chi-square(CMIN) = 45.158, Degree of freedom(DF) = 44 and probability level is about 0.423 which is evidence against the null hypothesis is not significant at the 0.05 level. CMIN/DF is called as the minimum discrepancy which is 1.026 Wheaton et al (1977) suggested that if the minimum discrepancy is less than 5 the model is reasonable fit.

Findings

SPSS Amos Graphics has specified path-diagram in figure1 specifies the relationship between the observed variables and unobserved variable. The portion of the model that specifies how the unobserved variables are related to each other is called structural model. In this present structural model Mobile Marketing is the dependent variable and the four variables Mobile Advertisement, Mobile Sales Promotions, Mobile phone Usability and Mobile Shopping are independent variable. The Regression weights estimates provides the relative importance. The estimates with the largest value represent the most important dimension in terms of its influence on Mobile Marketing. The findings of the regression weights estimates are summarized in table4. The research has revealed that Mobile Users attitude towards Mobile Marketing is more influenced by Mobile Advertisement (0.851) and Mobile sales promotions (0.235) where as Mobile Shopping (-0.558) and Mobile Phone Usability (-0.230) has a negative impact on Mobile Users attitude towards Mobile Marketing.

Table 4 Regression weights between factors

Factors	←	Factors	Estimate
Mobile_Marketing	←	Mobile_Phone_Usability	-0.230
Mobile_Marketing	←	Mobile_Shopping	-0.558
Mobile_Marketing	←	Mobile_sales_Promotions	0.235
Mobile_Marketing	←	Mobile_Advertisement	0.851

The correlations between the factors are specified in Table5. There is high correlation between Mobile sales promotions and Mobile Shopping (0.79). Mobile Phone Usability and Mobile Advertisement (0.79) and less correlation between Mobile advertisements and Mobile sale promotions (0.45).

Table 5 Correlation between factors

Factors	↔	Factors	Estimate
Mobile Advertisement	↔	Mobile Phone Usability	0.79
Mobile Advertisement	↔	Mobile sales Promotions	0.57
Mobile Phone Usability	↔	Mobile Shopping	0.48
Mobile Advertisement	↔	Mobile Shopping	0.45
Mobile Phone Usability	↔	Mobile Sales Promotions	0.48
Mobile Sales Promotions	↔	Mobile Shopping	0.79

Discussion

The study investigates factors that affect Mobile user's attitude towards Mobile Marketing in India and also the correlation between factors. The empirical data is analysed into four factors impacting Mobile marketing in India: Mobile Advertisement, Mobile Sales Promotion, Mobile Shopping and Mobile Phone Usability. Confirmatory second-order factor analysis supports the conceptualized model and reveals that Mobile Marketing as a second order factors, relates to Mobile Advertisement, Mobile Sale Promotions, Mobile Shopping and Mobile Phone Usability.

From the analysis it can be concluded Mobile Users attitude towards Mobile Marketing in India is more influenced by Mobile Advertisement (0.851). Mobile Advertisement is a key element in Mobile Marketing tools. The Advertisement companies need to take care of its advertisement delivery time, user acceptance of the format in which the advertisement need to be send and only relevant information must be sent to the user which is useful for him. Advertisement companies need to take proper permission from the customer before the ads are delivered to them. Companies need to personalize the ads according to the need and requirement of Mobile users before they are delivered to Mobile users.

Mobile Shopping (-0.558) is having negative impact on Mobile users attitude towards Mobile Marketing because in India Mobile Shopping is having less credibility and Security of shopping. Companies need to take required measurement to develop its credibility to shop through Mobile Phone and security to pay online through Mobile Phone.

Mobile Phone Usability (-0.230) has a weak negative impact on Mobile users attitude towards Mobile Marketing because majority Mobile users in India believe they don't have required technology to receive adequate Mobile marketing communication. Majority of Mobile marketing com-

munication is through text messages only (SMS) instead of audio or video based communication. Mobile Phone is more personal today having high usage for personal communication and entertainment. Mobile users do not want to use it for Mobile marketing which they are considering as disturbance to Mobile Phone Usability.

Mobile Sales Promotions (0.235) have very less impact on Indian Mobile user's attitude towards Mobile Marketing because of less location based promotions and Usability of Mobile Sale Promotions need to be increased by the marketing companies.

There is high correlations between Mobile Advertisement to Mobile phone usability and Mobile Sales Promotion to Mobile Shopping. As Mobile Advertisement can be increased Mobile phone Usability can also be increased and As Mobile Sales Promotions is increase Mobile Shopping can also be increase. Companies should concentrate on improving Mobile Advertisement and Mobile Sales Promotions in order to make Mobile Marketing success in India.

Conclusion

This study used the Structured Equation model to understand the impacts of various factors affecting mobile user's attitude towards mobile marketing in India. At present there is a very little research available to investigate the factors influencing Mobile Marketing in India. The result of this research predicts that Mobile Users attitude towards Mobile Marketing is more influenced by Mobile Advertisement and Mobile sales promotions where as Mobile Shopping and Mobile Phone Usability has a negative impact on Mobile Users attitude towards Mobile Marketing. The findings of this study contribute to a better understanding of the correlation between Mobile Advertisement, Mobile Sales Promotions, Mobile Shopping and Mobile Phone Usability. In particular, the finding in this research can help practitioners and academicians' to understand the level of impact that these factors has on Mobile Users attitude towards Mobile Marketing in India and the correlation between these factors.

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