Miscellaneous

Can 'Mobile Platform' and 'Permission Marketing' dance a Tango to the Consumers' Tune? Modeling Adoption of 'SMS based Permission Advertising'

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Abstract: Many a times situation of advertising clutter is further aggrieved by the markers' intrusive practices i.e. not asking for consumer's explicit permission. It results in consumers' alienation and reduced advertising effectiveness. Solution could be integration of Permission Marketing with an innovative advertising platform like Mobile. This study aimed to develop and validate a comprehensive model for understanding consumers' adoption behavior towards SMS Based Permission Advertising (SBPA). For this, data was collected using systematic random sampling from 524 respondents and was analyzed using Structural Equation Modeling. Study revealed some critical variables along with complex relationships among such variables, in form of an empirically validated model. At last, study made some important implications for practitioners and researchers.

Keywords: SMS advertising; permission marketing; model replication

1. Introduction

Everyday consumers are confronted with too many advertisements; as a result consumers filter out excess advertising stimuli (Anderson & Palma, 2012). In marketing, this state is referred as advertising clutter which ultimately results in reduced advertising effectiveness (Ispir & Suher, 2008). Further to aggrieve the situation, most of the time consumers are not asked for their permission before delivering an advertisement particularly in case of using personal mediums such as e-mail, mobile phone. Here, permission could be seen as explicit specification of interest in particular ad by consumers -before receiving ad (Bamba & Barnes, 2006) and giving them opportunity to stop receiving them at any time i.e. permission advertising (Tezinde et al., 2002). This permission advertising concept is particularly relevant to internet and mobile marketing. Reason is the low marginal cost of messages which creates a potential volume problem or spamming for consumers.

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Past researches clearly indicate the consumers' negative attitude towards advertising if permission is not sought (Tsang et al., 2004; Barnes and Scornavacca, 2004; Dickinger et al., 2005). Integration of permission marketing with new media communication (email, mobile) can address this issue.

With growing focus on permission advertising and increasing penetration of mobile phone, interest of marketers in the use of mobile phones in general and Short Message Service (SMS) in particular as an advertising medium has increased significantly (Bauer et al. 2005). Mobile phone as a medium for advertising seems to have advantage as its penetration has reached 91% worldwide and 72% in India (SourceDigit, 2012). Mobile advertising is a much broader concept from Multi Media Messaging to QR codes. Among these, distinct advantage of SMS mode could easily be understood by SinglePoint Report's (2010) key statement i.e. "recipients eventually read more than 99 percent of SMSes". Another fact supporting SMS mode is the penetration level of basic mobile phones, especially in India. Thus SMS is expected to remain most used vehicle for mobile advertising (Portio Research, 2010).

2. Scope of the Study

This study is focused on 'SMS-based mobile advertising or simply 'SMS advertising' in the context of 'permission advertising' and is referred in this study as SMS Based Permission Advertising (SBPA). It aimed to examine various factors which affect the mobile users' adoption behavior of SBPA (in the study denoted simply as behavior). Previous studies on mobile advertising studied either influential factors alone or studied relationships among them. There were also many studies on general permission advertising. However, little research is attempted to establish comprehensive theoretical framework for understanding adoption behavior towards SBPA and theorizing structural relationship among variables affecting that behavior. So, this study aimed to develop and validate a comprehensive model for understanding adoption behavior towards SBPA. Thus this study responds to Mobile Marketing Association's call for gap identification in the field of mobile advertising to support effective use of marketing resources (MMA, 2009).

3. Literature Review

3.1. Specificity

According to Martine et al. (2008) content and context of message in any marketing promotion are the key element in forming perception towards that message to be relevant, so advertising message should be very specific. In context of mobile advertising, many authors have studied role of specificity of message in effective communication (Kavassalis et al., 2003; Heinonen & Strandvik, 2003; Bauer et al., 2005; Tsang et al., 2004; Barnes, 2003; Sultan & Rohm, 2005; Bauer et al., 2005; Andersson & Nilsson 2000; Gopal et al., 2006; Krishnamurthy, 2001; Drossos et al., 2007; Waldt et al., 2009; Merisavo, 2007). Further, Sultan and Rohm (2005), and Mirbagheri (2010) suggested that by adapting permission based service that takes into consideration the position/ location of the consumers**,** more meaningful and specific advertisements can be sent to the potential consumers. To add further, Bikramjit (2008) and Krishnamurthy (2001) reported that for acceptance of SMS advertising among consumers, specificity of communication is a very important factor as it directly affects perceived utility of SMS ads and helps in obtaining permission of target customers.

3.2. Personalization

Balasubramanian et al. (2002) and Scharl et al. (2005) suggested that for a mobile marketing program to be effective it should be made permission based. They recommended that to gain consumers' explicit permission, content of an ad must be made personally relevant to individual consumer. In the same line, Schultz et al. (2004), Drossos & Giaglis (2005), Bauer et al. (2005), Xu (2006), Ho and Kwok (2003), Yaniv (2008), Waldt (2009) and Robins (2003) also reported that personalization of message in mobile advertising is critical.

3.3. Incentives

Research ABI (2008), Telsyte (2009), Varshney (2003), Yaniv (2008), Demarneffe (2008), Craig et al. (2005), Drossos et al. (2007), Tsang et al. (2004), Harris Interactive (2008), Karjaluoto (2008) studied contribution of incentives offered towards acceptance of SMS advertising and concluded a positive relationship. According to Milne and Gordon (1993), Li et al. (2002) consumers are interested in deriving some monetary benefit from direct marketing programs. Further they speculated that intrusiveness may be related to the utility and incentives may mitigate intrusiveness as it would enhance the perceived financial utility.

3.4. Control Available

Control available to consumer means that the individual can set frequency and time of receiving SMS ads (Karjaluoto, 2008; Luxton & Ferraro, 2009), can set maximum number SMS ads to be sent (Carroll et al., 2005) and further have the right to withdraw any time with ease (Carroll et al., 2005). Phelps et al. (2004), Karjaluoto (2008), Luxton & Ferraro (2009), Caroll et al. (2007), Waldt (2009), Barnes and Scornavacca (2003), Dickinger et al. (2005) suggested that control available to consumers is a very important influential factor in acceptance of SMS advertising. Bamba & Barnes (2006) in particular, found that the highest willingness to give permission to receive SMS advertising occurs when consumers have a high control over opt-in conditions.

3.5. Privacy

Sugai (2005) reported that if the consumer is interrupted during his daily activities it may lead to SMS marketing in negative perception zone as that of the emails-spams. He found that although consumers perceive SMS based advertising intrusive and irritating, but the creativity and assurance for privacy can attract the consumers' attention. Further, Scharl et al. (2005), Dickinger et al. (2005), Haghirian and Maria (2005), Sugai (2005), Barnes and Scornavacca (2003), Whitaker (2001), Suher and Ispir (2009), Tezinde et al. (2002), Karjaluoto (2008), Godin (1999), Krishnamurthy (2001) also stated a positive relationship between consumers' privacy concerns and acceptance of SMS advertising. Tezinde et al. (2002) and Karjaluoto (2008) suggested that problem of privacy can be mitigated using permission based advertising thus enhancing their comfort level.

3.6. Perceived Utility

Karjaluoto (2008) found that perceived usefulness (or perceived utility) determines attitude towards acceptance of technology based products/services. In his framework of SMS advertising he suggested that perceived usefulness is very important factor in the success of permission based mobile marketing. Similarly, Kavassalis et al. (2003), Bauer et al. (2005), Tsang et al. (2004), Blanco et al. (2010), Jun and Lee (2007), Barakat and Sheikh (2010), Ratihayn et al. (2008), Chun and Wan (2009), Al-alak and Alnawar (2010) and Jayasingh and Eza (2009) stated that the consumers' perceive utility has a strong positive influence on attitude thus on acceptance of SMS advertising by them.

3.7. Perceived Ease of Use

According to Karjaluoto (2008), perceived ease of use or familiarity is an important factor which may affect consumers' attitudes towards SMS advertising. In their study on Finnish consumers for exploring intention to receive SMS advertising they stated that perceived ease of use is a critical indicator of whether a person is willing to adopt such SMS advertising programs or not. Carroll et al. (2007), Ratihayn et al. (2008), Jayasingh and Eza (2009), Barakat and Sheikh (2010) also reported in their respective studies that attitude towards SMS advertising is influenced significantly by consumers' perceived ease of use.

3.8. Perceive Trust

Findings of Lafferty et al. (2002), Bauer et al. (2005), Rettie et al. (2004), Tsang et al. (2004), Ratihayn et al. (2008), Chun and Wan (2009), Al-alak and Alnawar (2010), Jayasingh and Eza (2009) supported the positive relationship between perceived trust and attitude towards SMS advertising. Particularly, Tsang et al. (2004) reported that majority of respondents finds it unacceptable to receive SMS ads from unknown marketers. They empirically analyzed this impact of perceived credibility on attitude towards SMS based advertising in both permission based model and non-permission based model. They found that perceived credibility significantly affect consumer attitudes regarding SMS based advertisements for permission-based model as well in the case of unauthorized advertising.

3.8. Attitude towards Advertising

Mehta (2000) stated that a consumers' predisposition toward advertising influences how they will react and respond to any given advertisement. In the study author found that people with more positive attitudes towards advertising recalled a higher a number of advertisements and had more strong intention to buy the products being advertised. Further, Bauer et al. (2005), Blanco et al, (2010), Friman (2010) and Radder et al. (2010) suggested that consumers' attitude towards advertising affects ultimately their attitude towards SMS advertising. To add further, Muk (2007), Ratihayn et al. (2008) and Jayasingh and Eza (2009) studied the consumers' attitude towards SMS advertising using TAM and reported that perceived utility, perceived ease of use and perceived trust significantly influences consumers' attitude towards advertising.

3.9. Attitude towards SMS Advertising

Muk (2007) used Technology Acceptance Model (TAM) as research framework to study the attitude towards SMS advertising. They reported that perceived utility, perceived ease of use and perceived trust significantly influences consumers' attitude towards advertising. Further, attitude influence consumers' acceptance of SMS advertising. Ratihayu et al. (2008), Al-alak and Alnawar (2010) and Jayasingh and Eza (2009) also supported above findings on the basis of their empirical studies.

3.10. Peer Influence

Bamoriya and Singh (2011) found in an empirical study that majority of the mobile users who subscribed for the SMS advertising were influenced by their peers directly. They further found that peer influence was affected by demographic variables as in the study peer influence was found to be dominant among the male mobile users and among the age group of 20-25 years. They further stated that this peer influence significantly affected attitude towards SMS advertising. Similarly, Bauer et al. (2005) suggested that the attitude towards SMS advertising is strongly influenced by social norms. Social norms only have a slight direct influence on behavioral intention, but are a strong indirect determinant via personal attitude towards the SMS advertising. In the same line, Henkel and Block (2008), Mazman et al. (2009), Kelman (1958), Luxton and Ferraro (2009), Karjaluoto (2008), Karjaluoto and Alatalo (2007), Radder et al. (2010) and Shin (2003) suggested that peer influence positively affects the intention to engage in mobile marketing.

3.11. Behavioral Intention & Behavior

Many studies on SMS advertising focused on behavioral intention to adopt and receive SMS advertisement as proxy for actual behavior and concluded a positive relationship between attitude towards SMS advertising and behavioral intention to receive SMS ads (Bauer et al. 2005; Rohm and Sultan 2006; Hanley et al. 2006; Radder et al. 2010; Al-alak and Alnawar 2010). Further, Bauer et al. (2005), Rohm and Sultan (2006), Hanley et al. (2006), Jun and Lee (2007), Radder et al. (2010), Al-alak and Alnawar (2010) suggested influence of attitude towards SMS advertising on behavioral intention and influence of behavioral intention on the actual behavior.

Extensive literature review helped in identifying some major research gaps, based on which a model was proposed to explore the direct and indirect relationships

among select constructs explaining behavior towards SMS based permission advertising (SBPA) (Figure 1).

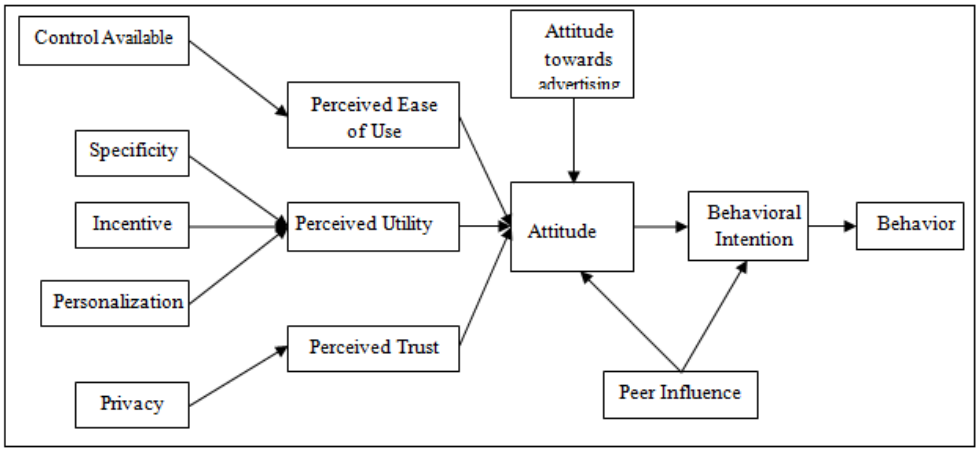

Figure 1. Research Framework

4. Research Methodology

4.1. Model Specification & Identifiability

For Structural Equation Modeling (SEM) analysis, research framework (see Figure 1) was first transformed to the proposed model using AMOS-18. This involved specification of direct effects among the constructs/ latent variables (represented by ellipses), and among each construct and its indicators/observed variables (represented by rectangles) followed by incorporation of associated error terms for the endogenous variables (Figure 2).

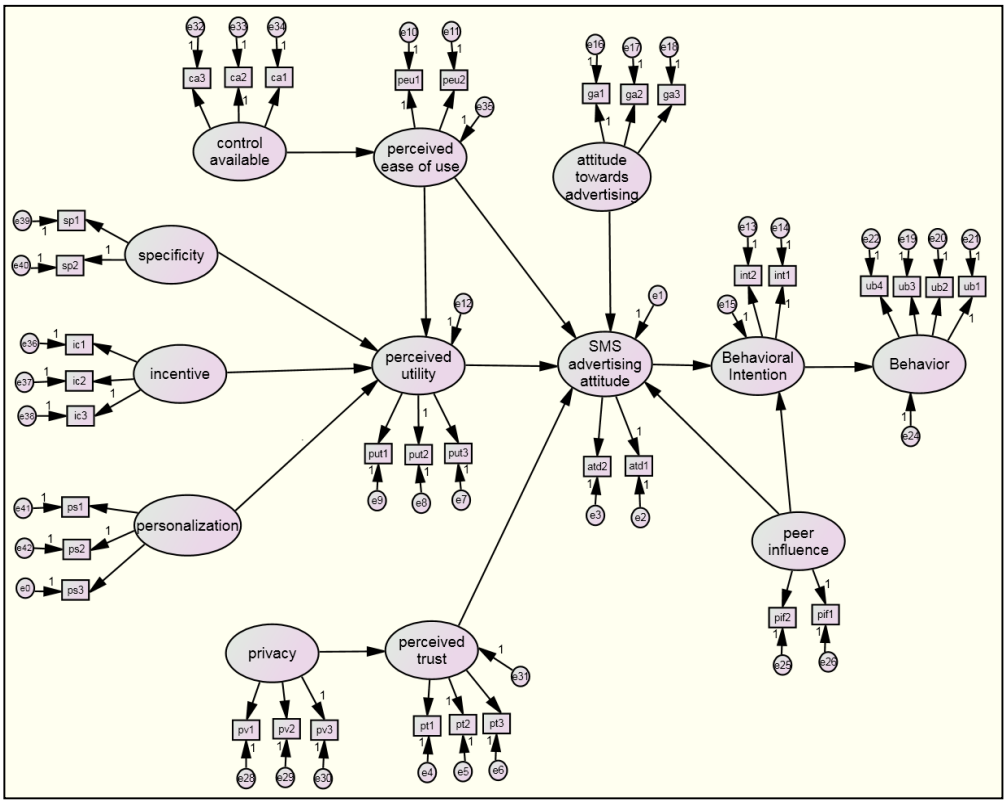

Figure 2. Proposed Model

This specified proposed model was evaluated for the model Identifiability i.e. whether a unique value could be estimated for each free parameter from the observed data (Kline 2005). Proposed model had 35 observed variables thus 630 distinct sample moments. Further total 83 free parameters were to be estimated. As number of distinct sample moments was greater than number of free parameters so proposed model was an over-identified model (Appendix A).

4.2. Measure Selection

Instrument Design

To measure constructs/latent variables in the proposed model, revalidated measures were adopted from the previous studies (Appendix B). In measurement design minimum 2 observed variables for each latent variable were ensured for modeling, as recommended by Joreskog (1993). In addition, to ensure that respondents paid proper attention to the questions some items were reverse scored (DeCoster 2004).

Face Validity

Although Face validity is classed as weak evidence supporting construct validity, yet it is suggested to conduct face validity as it helps in finding potential flaws before data collection (Shuttleworth 2009). So the preliminary questionnaire was subject to face validity, after which six statements were rephrased.

Pilot Study

Using the revised questionnaire, a pilot study on 70 respondents using convenience sampling was conducted to ensure reliability and construct validity. Cronbach's α of each subscale was above .7 suggesting internal consistency/ reliability (Appendix C). Scanning of product moment correlation matrix of items suggested convergent validity, as moderate to strong correlation was present between observed variables measuring same construct (highest correlation .781, lowest .552 at .05 level). Further no strong correlation was found between items measuring different constructs which suggested discriminant validity. As scale reliability and validity were confirmed, the questionnaire was used for final study.

Sampling

For the study purpose, sampling frame comprised of Airtel mobile users (largest mobile service provider in India as well as in Indore) in Indore who were receiving SMS ads on their mobile phones. Systematic random sampling was adopted for this study where every fifth mobile user in Airtel database was chosen for the data collection. SEM is a large sample size technique and a ratio of 15 to 20 cases per observed variable is desirable with minimum ratio being 10 (Kline, 2005). There were 35 observed variables in study so the data collection process continued until effective sample size reached to 525 usable cases (cases to observed variable ration of 15). During the process cases were simultaneously analyzed for the missing value and if any case with missing value(s) to be found, was subject to deletion case wise. Data collection was done with the help of 10 members of Yi- CII, Indore Chapter. A total of 5191 calls were successfully connected i.e. respondents agreed to proceed with the data collection process. On the basis of screening question 3512 (67.7%) respondents were found eligible as they were receiving some SMS ads. Out of these 798 (22.7%) respondent agreed for the telephonic interview, but 503 (63.0%) respondent refused to continue the telephonic interview halfway. Thus telephonic interviews generated 295 usable cases (obviously no missing values found), a response rate of 36.9%. Of these total eligible respondents, 2714 (77.3%) shown interest in filling questionnaire through e-mail. A Google doc version of

questionnaire was sent to e-mail ids of such respondents, which resulted in total 234 (8.6%) responses, out of which 5 cases were deleted due to presence of missing values. Thus total 524 usable cases were obtained from both modes.

Data Cleaning

Data cleaning involved initial check for missing values and outliers. As data was simultaneously checked for missing values at data collection stage, so here only outliers were detected. For outliers Mahalanobis d-squared in AMOS-18 was estimated, where p values of all observations were found to be greater than .05. This suggested absence of outliers.

Checking Statistical Assumptions

For the dataset, estimated skewness indices ranged from -1.85 to 1.39 (< |3| acceptable; Kline, 2005) and kurtosis indices ranged from -1.87 to 4.58 (< |10| acceptable; Kline, 2005). Thus the data was regarded as univariate normal. For multivariate normality Mardia coefficient (6.457) was estimated using AMOS-18 and its critical ratio was found to be 1.83 (C.R. < 1.96 acceptable; Gao et al. 2007), which suggested the multivariate normality of the data. At last, product moment correlation matrix of observed variables was scanned for any correlation coefficient .9 or greater. No such values were found which suggested absence of multi-collinearity.

5. Analysis

5.1. Proposed Model Estimation: Measurement Model Testing

For this Maximum Likelihood (ML) estimation method was used to test whether proposed model fits the observed data significantly. AMOS-18 took twenty nine iterations to achieve minimization and to produce initial results (Table 1). Chi squared fit test's p value was estimated to be .002 which means Chi squared value 1942.39; df= 547 is significant at .05. This implies that proposed model (an overidentified model) was significantly different from the justidentified model and it needed re-specification to fit the observed data. The need of re-specification was supported by other fit indices shown in Table 1.

Table 1. Proposed Model's Measurement Model Testing Indices

Index	Estimated value	Recommended value	Remark
Chi squared x^2	1942.39		Significant at .05
Degree of freedom df	547		
Probability P	.002	> or = .05 (Kline, 2005)	
Normed Chi squared (x^2/df)	3.551	< or = 3 (Kline, 2005)	Poor fit
Goodness of Fit Index(GFI)	.494	> or = .9 (McDonald et al., 2002)	Poor fit
Adjusted Goodness of Fit Index (AGFI)	.446	> or = .9 (McDonald et al., 2002)	Poor fit
Root Mean Square Error of Approximation (RMSEA)	.134	0 < RMSEA < .08	Poor fit
P	.000	> or = .05 (Arbuckle et al., 1999)	
Incremental Fit Index (IFI)	.398	> or = .9 (McDonald et al., 2002)	N/S *
Tucker-Lewis Index (TLI)	.353	> or = .9 (McDonald et al., 2002)	N/S *
Comparative Fit Index (CFI)	.392	> or = .9 (McDonald et al., 2002)	N/S *

* No significant improvement over null model

5.2. Model Respecification

For model respecification combination of theory driven approach and statistical approach was adopted as recommended by Arbuckle et al. (1999). Statistical approach included use of modification index (MI), Akaike Information Criteria (AIC) and residual covariance matrix. Along with above tools endogenous variables' unstandardized regression weights were also used for model trimming by dropping insignificant direct effects in the proposed model.

The only modification index (MI) which was large enough and at a same time consistent with the theory (Watjatrakul 2011, Newell and Meier 2007, Nataraajan et al. 1998, Hill et al. 1996); belonged to the direct effect from control available to

perceive utility (MI, 478.61) (Appendix D). So adding a direct effect from control available to perceived utility could significantly improve the proposed model fit.

Further, among unstandardized regression weights of the constructs direct effect from incentive to perceived utility (.018) and peer influence to SMS advertising attitude (.003) were insignificant. Deletion of these two effects was supported by past studies (Chun and Wan 2009, Bamoriya and Singh 2011, Abideen et al. 2011) which could significantly improve the proposed model's fit.

These respecifications in the proposed model i.e. one addition and two deletions were carried out stepwise and at each step Akaike Information Criteria (AIC) was estimated (Appendix E, F). AIC value of model (496.468) after three respecifications was found to be lower than AIC value of proposed model (1156.42), hence particular modifications were accepted.

Table 2. AIC Values for Model Respecification

Respecification Step	Path Added or Deleted	AIC	Remark on modification
Initially Proposed Model	-	1156.423	-
1st Addition: Model Building	Perceived Utility <---Control Available	705.417	Accepted
1st Deletion: Model Trimming	SMS Advertising Attitude <--Peer Influence	558.226	Accepted
2nd Deletion: Model Trimming	Perceived Utility <---Incentive	496.468	Accepted

Further after the last respecification, residual covariance matrix of the revised model was analyzed. This revised model was accepted over proposed model as all values in its residual covariance matrix were less than 2.58, suggesting no need of further respecification.

5.3. Revised Model Estimation

Measurement Model Testing

Revised model was subject to measurement model testing again using Maximum Likelihood method where AMOS-18 took seventeen iterations to produce initial results (Table 3). Here, Chi squared value 991.84 (p= .091, df= 451) was not significant. It implied that revised model (an overidentified model) conveys just as much information as the justidentified model and fits the observed data well. Revised

model's fit was further supported by normed chi square, Goodness of Fit Index (GFI), Root Mean Square Error of Approximation (RMSEA), incremental fit index (IFI) and Tucker-Lewis index (TLI).

Table 3. Revised Model's Measurement Model Testing Indices

Index	Estimated value	Recommended value	Remark
Chi squared x^2	991.84		
Degree of freedom df	451	> or = .05 (Kline, 2005)	Not Significant
Probability p	.091		
Normed Chi squared (x^2/df)	2.199	< or = 3 (Kline, 2005)	Model fit
Goodness of Fit Index(GFI)	.931	> or = .9 (McDonald et al., 2002)	Model fit
Adjusted Goodness of Fit Index (AGFI)	.902	> or = .9 (McDonald et al., 2002)	Model fit
Root Mean Square Error of Approximation (RMSEA)	.038	0 < RMSEA < .08	Model fit
P	.600	> or = .05(Arbuckle et al., 1999)	
Incremental Fit Index (IFI)	.902	> or = .9 (McDonald et al., 2002)	Sig *
Tucker-Lewis Index (TLI)	.922	> or = .9 (McDonald et al., 2002)	Sig *
Comparative Fit Index (CFI)	.862	> or = .9 (McDonald et al., 2002)	Sig *

* Significant improvement over null model

Further Power analysis was done (Software R-2.1.0; Online script server http://timo.gnambs.at/en/scripts/powerforsem) for the revised model using MacCallum-Browne-Sugawara's approach. Estimated power 0.97 (Appendix G) suggested that SEM test has an excellent 97% probability to reject the revised model if this revised model would have been wrong. Thus decision i.e. failure to reject the revised model was well supported by power analysis and the revised model was subject to structural model testing, the next substep in model estimation.

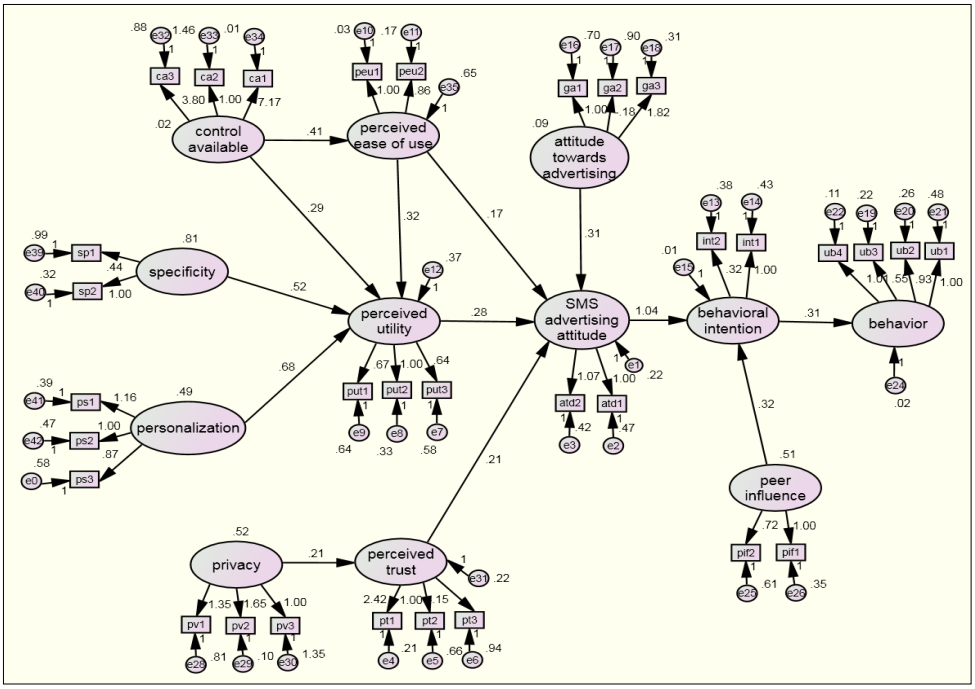

Figure 3. Revised Model (Good Fit)

Structural Model Testing

In structural model testing unstandardized and standardized estimates parameters of direct effects were used (Table 4). Unstandardized estimates of all thirteen direct effects in the revised model were found to be significant at 0.05 so all direct effects postulated in the revised model were accepted. Further using Kline's effect size criteria for the standardized estimates all thirteen direct effects in proposed model were found to be either large (estimate > = .5) or moderate (.1 < estimate < .5). Thus analysis of both unstandardized and standardized estimates of the revised model supported the direct effects postulated among the constructs and suggested that the revised model (Figure 3) cleared the structural model test.

Table 4. Revised Model's Unstandardized & Standardized Estimates

Direct Effect		Unstandardize		Standardized	
		Estim	P	Estimat	Effect
Perceived_ease of	<- Control_available	.409	.000#	.627	Large
Perceived_trust	<- Privacy	.213	033*	.425	Moderate
Perceived_utility	<- Perceived_ease of use	.315	.000#	.298	Moderate
Perceived_utility	<- Specificity	.521	.000#	.469	Moderate
Perceived_utility	<- Personalization	.682	.000#	.504	Large
Perceived_utility	<- Control_available	.294	.000#	.397	Moderate
SMS_advertising_	<- Perceived_utility	.281	002*	.428	Moderate
SMS_advertising_	<- Attitude_towards_adv	.313	.000#	.359	Moderate
SMS_advertising_	<- Perceived_trust	.214	022*	.387	Moderate
SMS_advertising_	<- Perceived_ease of use	.175	043*	.333	Moderate
Behavioral_Intenti	<- SMS_advertising_attit	1.040	.000#	.927	Large
Behavioral_Intenti	<- Peer_influence	.322	.000#	.344	Moderate
Behavior	<- Behavioral_Intention	.313	.000#	.855	Large

* Significant at .05, # Significant at .001

Relative Effect Analysis

Standardized estimates suggested that among the predictors of perceived utility; personalization (.504) was 1.69 times better predictor than perceived ease of use (.298) and 1.07 times better predictor than specificity (.469). Further personalization (.504) was 1.26 times better predictor than control available (.397) in terms of direct effect, but taking in account total effect i.e. sum of direct effect and indirect effects control available (.627*.298+.397= .583) was found to be 1.15 times better predictor of perceived utility than personalization. Among the predictors of SMS advertising attitude; perceived utility (.428) was 1.29 times better than perceived ease of use (.333), 1.19 times better predictor than attitude towards advertising (.359) and 1.11 times better predictor than perceived trust (.387). In case of behavioral intention; SMS advertising attitude (.927) was 2.69 times better predictor than peer influence (.344).

Integrated Effect Analysis

The squared multiple correlation R^2 were estimated for integrated effect analysis where only perceived trust was having integrated effect size medium, rest all were having large effect size as per the Kline's (2005) size criteria (Table 5). Further behavior construct had R^2 value of .731. It implied that revised model was able to explain 73.1% of variance in behavior thus leaving only 26.9% variance unexplained. According to Kline, any model explaining 50% or more variance of a construct is to be considered robust in social science, so a value of 73.1% suggested robustness of the revised model (Figure 3) in explaining behavior i.e. adoption behavior of consumers towards SMS Based Permission Advertising (SBPA).

Table 5. Revised Model's Squared Multiple Correlations

Construct	R^2	Variance Explained	Integrated Effect
Behavior	.731	73.1%	Large
Behavioral_intention	.976	97.6%	Large
SMS_advertising_attitude	.572	57.2 %	Large
Perceived_utility	.721	72.1%	Large
Perceived_ease of use	.394	39.4%	Large
Perceived_trust	.182	18.2%	Medium

5.4. Model Replication

Expected Cross Validation Index (ECVI) approach was used to check model's replicability. ECVI is a mean to assess cross validity of the model in single sample, where lower EVCI value of a default model is preferred in comparison to ECVI value of saturated and null models (MacCallum 1994). Here, ECVI of the revised model (1.113) was lower than ECVI of saturated model (1.885), ECVI of initial proposed model (13.704) and ECVI of null model (16.597) (Table 6).

Table 6. ECVI for Model Replication

Model	ECVI	LO 90	HI 90
Revised model	1.136	.768	1.511
Saturated model	1.259	1.259	1.259
Independence model	16.597	16.143	17.058
Proposed model	13.704	13.295	14.121

It suggested that the revised model had greatest potential for replication/ cross validation and represented reasonable approximation to the population. Thus revised model could be accepted as valid model (Figure 4) for explaining the behavior i.e. adoption behavior towards SMS based permission advertising (SBPA).

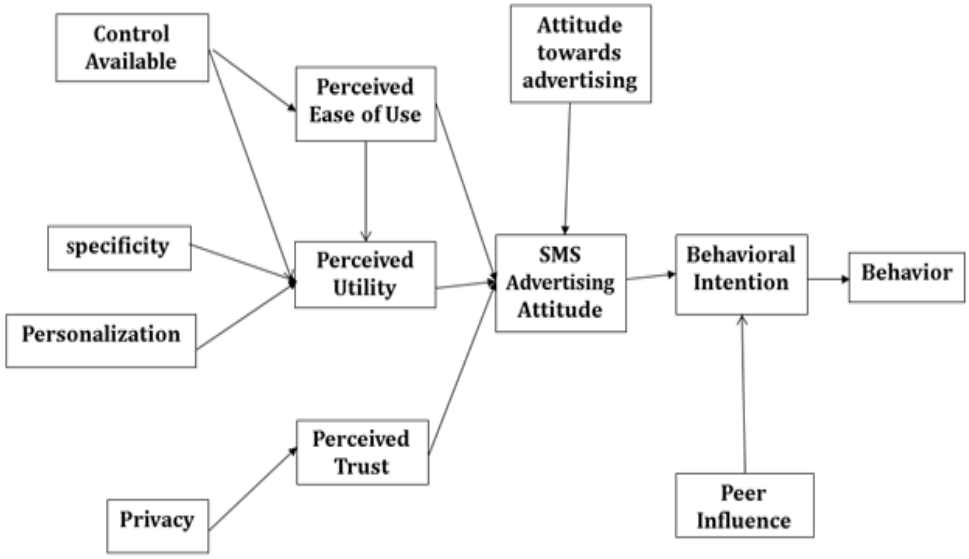

Figure 4. Valid Model (finally accepted)

6. Discussion

Specificity of message, personalization of message, perceived ease of use and control available were found to have a significant positive influence on perceived utility of SBPA. This finding was consistent with the previous studies. But incentive offered in advertising program was not found to have any significant effect on perceive utility. Here some insight can be obtained from studies of Chun and Wan (2009) and Bamoriya and Singh (2011), according to them incentives may help marketers in receiving initial favorable response in terms of permission grant but incentives generally do not help in enhancing perceived utility of SMS advertising program. Further in the study control available was found to be better predictor of perceived utility of SMS Based Permission Advertising (SBPA) followed by personalization of message, specificity of message and perceived ease of use of SBPA. This implies that control available to consumers i.e. choice of specifying when and how many SMS ads to be received is more critical. And, if such choice is provided to consumers they may perceive SBPA to be more useful and may grant permission easily. This finding is consistent with the findings of Phelps et al. (2000) in the context of general advertising, which states that individuals like to control how personal information about them is used by marketers.

Privacy was found to be significantly influencing the perceived trust in SBPA. But it explained only 18.2% variances in perceived trust and left 81.8% variances unexplained. It implies that though privacy is a significant factor but there were other significant factors affecting perceived trust. One such factor could be brand familiarity as before granting permission consumers consciously consider the level of familiarity and trust with the brand and the marketer who is sending them SMS ads (Bamba and Barnes 2006).

This study found that control available to consumers in SBPA positively influences their perceived ease of use and it alone was able to explain substantial 39.4% of variance in the perceived ease of use of SBPA. This finding was consistent with past findings of (Bamba and Barnes 2006; Carroll et al. 2005 and Dickinger et al. 2005).

All four postulated direct effects from Perceived Utility; Perceived Ease of use; Perceived Trust and Attitude towards Advertising to SMS Advertising Attitude were found to be significant. And, as per the Kline's criteria all direct effects were collectively explaining a healthy 57.2% variance in SMS advertising attitude in SBPA. Further perceived utility of SBPA was found to be strongest predictors of SMS advertising attitude where as perceived ease of use, the weakest predictor. This

finding is consistent with the findings of Taylor (1995), Davis (1989) in context of general advertising. They stated that as users become more experienced and familiar with the technology, perceived utility become a better predictor of attitude than perceived ease of use. In India, mobile phones are with common men more than a decade so familiar with SMSes and SMS ads is expected to be reasonable. So it could be implied that mobile users in India do not perceived issues pertaining to handling of opt-in/ opt-out, interacting with SMS ads, specifying time slots for receiving SMS ads etc. very difficult. This ultimately results in perceived ease of use a weaker predictor of SMS advertising attitude.

Both SMS advertising attitude and peer influence were significantly affecting behavioral intention towards SBPA and they were collectively explaining 97.6% of variances in behavioral intention. Such high explanation of variances in behavioral intention was mainly because of influence of SMS advertising attitude which alone contributing 85.9% explanation of total variance. This finding is consistent with the theories (viz. TAM, TRA) which state attitude as strong predictor of behavioral intention.

At last, direct effect from behavioral intention towards SBPA to behavior towards SBPA (precisely adoption and permission granting for SMS ads) was significant. Behavioral intention was explaining substantial 73.1% of variance (large effect) in the behavior towards SBPA. Here, study highlighted the loss of some degree of explanation power in case of 'behavioral intention to behavior' effect, as model was able to explain 97.6% of variance in behavioral intention towards SBPA where as explaining a relatively lower 73.1% of variance in behavior towards SBPA. This finding seems to support Furneaux's (2005) logic that when an individual forms an intention to behave, still he/she may not be free to behave accordingly as there will be other mediating factors affecting behavior such as limited ability, time, environmental constraints, unconscious habits etc.

7. Recommendations Based on Findings

Specificity of message and personalization of message were significantly affecting perceived utility of SBPA. Marketers should understand that any advertising including SMS advertising is going to be perceived useful by consumers and consumers would ultimately grant permission for receiving SMS ads, only if marketers deliver specific communication to consumers in terms of time and location. Location specificity could be easily incorporated using Global Positioning

System (GPS) or Cell Of Origin (COO) by locating potential customers (Tsang et al. 2004; Barnes 2003). Further, Personalization of message could be done in two ways by the marketers. Marketers could collect personal information from targeted consumers at the time of opt-in. Secondly marketers could do stream analysis of consumers' habits and purchase behavior, and personalize SMS ads according to their taste and preferences (Xu, 2006).

Control available to consumers was found to affect both perceived utility and perceived ease of use in SBPA. So marketers should ensure that they are offering sufficient control to consumers in SMS advertising. Control available becomes very critical in SMS advertising as mobile phone is very personal in nature and generally consumers irritate because of unanticipated SMS ads.

Whenever nature of SMS ad program permits, marketers should offer customers a control over time slot for sending SMS ads. This concept is very critical so as to reduce perceived intrusiveness of SMS advertising.

Most importantly marketers should provide clear opt-out information and must give customer explicit control over stop receiving SMS ad any time. Such behavior would result in higher probability of customer granting permission.

Incentives had no significant influence on perceived utility of SBPA. Hence, marketers should not rely much on offering incentives to consumers to have their permission as it only acts as in initial attraction and generally does not contribute in perceived utility of SMS ads received.

Marketers should understand that consumers' fear of personal data misuse and distrust on advertisers is a serious impediment in permission granting. As consumers' perceived trust in SBPA was found to be significantly affected by the privacy ensured to the consumers, so marketers should ensure at time of requesting consumers for permission grant that privacy policy is conveyed to consumers clearly.

SMS advertising attitude was found to be affected by perceived utility of SBPA, perceived ease of use of SBPA, perceived trust in SBPA and attitude towards advertising. Consumers' attitude towards advertising is much difficult to change as advertising is all pervasive from a very long period of time (Tsang et al. 2004). So marketers should focus on enhancing consumers' perceived utility, perceived ease of use and perceived trust in SMS advertising so as to have favorable SMS advertising attitude.

Further marketers should specially focus on enhancing perceived utility by delivering specific and personalized SMS ads and providing proper control options to consumers. Reason being perceived utility of SBPA is better predictor of SMS advertising attitude than perceived ease of use and perceived trust.

Peer influence was found to be significantly affecting behavioral intentions towards SBPA i.e. consumers' intention to grant permission and receive SMS advertising is influenced by their peers. So marketers should focus on creating positive word of mouth using this peer influence. It would accomplish two tasks. Firstly, more consumers would be attracted towards SMS advertising due to peer influence. Secondly, more perceived trust in SMS ads as communication received from known noncommercial sources (in this case peers forwarding SMS ads) are perceived to be more trustworthy than from any commercial source.

8. Limitations of the Study

1st limitation lies in Structural Equation Modeling (SEM) approach. SEM does not establish any cause & effect directional relationships. So in this study as a practice, these directions were specified on the basis of theory and past research, which may not be free of individual biases.

2nd limitation is concerned with the use of two versions of questionnaire (Hindi & English). Despite best efforts, these different versions may have introduced some distortions in terms of semantic and linguistic biases.

3rd limitation is concerned with the use of self-reports to collect data which may lead to the common method variance, a situation where true associations between variables are inflated specially in case of behavior.

9. Scope for Future Research

In this study mobile adverting was conceptualized as SMS advertising. However, within the realm of mobile advertising there are varieties of mobile advertising tools ranging from Mobile video ads to QR Codes. Although these tools are in infant stage in India, yet future research could focus on specific examination of such tools.

As a methodology alternate, future studies could focus on experimental design. When applying such design focus should be more on behavior construct i.e. adoption behavior towards mobile ad, rather than simply on behavioral intention.

Future studies could incorporate 'brand familiarity' construct in the model and study its interactions with other constructs in particular with perceived trust in SMS advertising (Bauer et al. 2005). Further, influence of 'product fit' in mobile adverting on perceived usefulness of SMS ads could also be studied (Scharl et al. 2004).

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Appendices

Appendix A: Model identification précis

In the proposed model… **n**= 35 *(observed variables)*
n*(n+1)/2= 630 *(distinct sample moments)*
p= 83 *(free parameters)*
Here, **n*(n+1)/2 > p** *, hence an* ***Overidentified model***

Appendix B: Table 1. List of Constructs and their Items

Construct	Items	Adopted from
Personalization	ps1, ps2, ps3	Ho and Kwok (2003)
Control Available	ca1, ca2, ca3	Bamba and Barnes (2006)
Incentive	ic1, ic2, ic3	Rettie et al. (2004)
Specificity	sp1, sp2	Merisavo et al. (2007)
Privacy	pv1, pv2, pv3	Suher and Ispir (2009)
Perceived Utility	put1, put2, put3	Bauer et al. (2005)
Perceived Trust	pt1, pt2, pt3	Tsang et al. (2004)
Perceived Ease of Use	peu1, peu2	Tanakinjal et al. (2010)
Attitude towards Advertising	ga1, ga2, ga3	Pollay and Mittal (1993)
Peer influence	pif1, pif2	Shimp and Kavar (1984)
SMS advertising Attitude	atd1, atd2	Tsang et al. (2004)

Behavioral Intention	int1, int2	Shimp and Kavar (1984)
Behavior	ub1, ub2, ub3, ub4	Suher and Ispir (2009)

Appendix C: Reliability Analysis

Construct	Cronbach's α	Construct	Cronbach's α
Control Available	.821	Perceived utility	.806
Specificity of message	.742	Attitude towards	.769
Personalization	.810	Peer Influence	.711
Incentive	.798	SMS advertising attitude	.850
Privacy	.892	Behavioral intention	.809
Perceived ease of use	.734	Behavior	.882
Perceived trust	.787		

Appendix D: Modification Index (only those consistent with theory)

Path			M.I.
Perceived_utility	<---	Control_available	478.613

Appendix E: AIC Proposed Model

Model	AIC	CAIC
Default model	1156.473	1193.877
Saturated model	126.000	487.043
Independence model	1601.780	1621.449

Appendix F: AIC Revised Model

Model	AIC	CAIC
Default model	496.468	886.847
Saturated model	702.000	1840.383
Independence model	571.315	747.297

Appendix G: Power Analysis Outcome