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Adoption of Mobile Marketing Through Smart Phones Apps

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Abstract
Today, the mobile phone has become one of a handful of consumer products to have gained global acceptance within a relatively short period of time. While consumers adopt mobile phones to enhance their private and social lives, marketers see mobile phones as a marketing channel. The aim of this paper is to deepen our understanding of the factors that motivate consumers to adopt and engage in usage of mobile marketing through smart phones. A conceptual framework is presented that can be applied to produce numerous variables that seem to influence mobile marketing acceptance and leads to development of various hypothesis. The suggested methodology enables to understand the intention of the consumer to participate in mobile marketing using smart phone. We discuss the factors responsible for intention to participate in mobile marketing using smart phone through regression and factor analysis.

Keywords: mobile marketing, social media, smart phones, consumer, factor analysis

INTRODUCTION

The mobile phone is out of many consumer products to have gained global acceptance within a relatively short period of time (Barnes and Scornavacca,2004). Today, the mobile phone is central to the lives of most consumers, including the lives of young teens. It is a device many consumers cannot seem to do without; they always have it on and check it almost everywhere they go. For these consumers, the mobile phone is not only a personal device used to stay connected with friends and family, but also an extension of their personality and individuality (Grant and O'Donohoe, 2007; Sultan and Rohm, 2005). For marketers, the widespread adoption of mobile phones represents a huge marketing opportunity to reach and serve consumers anytime, anywhere (Grant and O'Donohoe, 2007; Roach, 2009).
While consumers adopt mobile phones to enhance their private and social lives, marketers see mobile phones as a marketing channel. These two very different perspectives imply that marketers must ensure that their mobile phone marketing strategies are not intrusive. Simply because mobile marketing is a relatively easy and inexpensive way to reach consumers does not mean that consumers want to receive marketing messages and offers on their phones. Therefore, a thorough understanding of why and how consumers may want to participate in mobile marketing could help in developing successful mobile marketing strategies. The aim of this paper is to deepen our understanding of the factors that motivate consumers to adopt and engage in innovative mobile marketing via their smart phones.

Although early academic research on the entertainment industry focused on the TV and movie industries, recent work has expanded to consider such fields as home video, games, music, performing and visual arts, sports events, books, and apps. In this study we take a broad approach to the entertainment industry, which is characterized by three elements: it is creativity-driven, its products are experiential in nature, and marketing has played an increasingly important, but sometimes controversial, role in research and practice in users responsiveness to mobile and other media (Heinonen and Strandvik, 2007) perceptions of mobile phone marketing (Roach, 2009). Consumer acceptance of mobile marketing(Bauer et al.,2005;Karjaluoto et al., 2008;Sultan et al., 2009;Gao et al., 2010) and development of mobile marketing strategies (Banerjee and Dholakia, 2008) are some of the studies which have been all around the world. There is a sharp increase of interests in the entertainment industry as the industry has high economic importance in the global economy, with global entertainment industry revenues exceeding US$ 1.7 trillion in 2012. The technical innovations have changed the dynamics of traditional industries and led to the development of new ones, making entertainment a hotbed of innovation in both content creation and distribution. Technology has also dramatically changed the market scope and competitive structure from largely being locally based to now often being globally oriented, and presenting new challenges such as piracy. Third, digitization of the media has also influenced the way people consume entertainment; the industry has to adapt to consumers becoming increasingly active and networked. For example, many consumers now multi-task, use multiple platforms, and use multiple media formats (e.g., movies, games, and

social media) interdependently. Fourth, the entertainment industry has high social and cultural significance. The tension between "mass culture" and "high culture," and between global markets and local tastes, and claims such as the "internet is free" are only some of the sources of controversy and research attention.

The objectives of writing this research paper are based on empirically analysing the intention of the consumer to adopt smart phone for various services including entertainment making use of the apps. The research further explores whether benefits of application, comfort of using mobiles, trust, age and prior information about apps is directly related to intention to participate in mobile marketing.

The structure of this research paper is divided into mobile apps trend in the UAE, brief review of the literature on mobile marketing, followed by a discussion of our conceptual framework, factor analysis, ANOVA, regression and hypotheses. We then describe the research method, present the results, and discuss the implications of our findings for managerial practice along with future scope of this study and finally conclude by highlighting the limitations of our study.

LITERATURE REVIEW

Mobile marketing is still in its early stages, and mobile marketing practices are likely go through fundamental changes as the technology continues to evolve (Karjaluoto et al., 2008). Mobile shopping motivations were studied by Kiseol Yang, Hye-Young Kim, 2012). A study was done to understand the value derived by use of mobile phone by(Bart Larivie`re, Herm Joosten,etal, 2013.) Content of mobile apps study was done to understand what consumers want (Victoria Magrath and Helen McCormick, 2013).Earlier there has been various research carried out focusing on media and the entertainment industry. The future of media and industry (Parker,2004;Berman,2004), various business models for emerging media and the entertainment industry (Berman, Battino and Feldman,2011), practices of various companies (Dosher and Kleiner,1997), perceptions of mobile phone content and information services (Doherty, Rao and Mackay, 2007), SPAs (smart phone applications) – a new form of assistive technology (Doughty, 2011), consumer marketing, innovative mobile marketing via smart phones (Persaud and Azhar,2012) have been studied by different researchers. Mobile phones as innovative tools for Hotels was studied by Kuan-Yu Chen; Yu-Lun Hsu; Chia-Chun Wu., 2012). Consumer decision making in mobile marketing campaigns, (Pescher, Christian; Reich hart, Philipp; Spann, Martin, 2014) suggested important insights in the marketing literature. Consumers' willingness to pay through mobile phones (Duane, Aidan; O'Reilly, Philip; Andreev, Pavel, 2014) revealed interesting outcomes. Research says as smart phones increasingly entrench themselves as the ultimate personal device, it is no surprise that loyalty marketers are keenly interested in the evolving role technologies will play in increasing customer loyalty overall, as well as in boosting reward programs(Goldman,2010). After all, these pocket-sized portable wonders offer promising ways to strengthen the two-way relationship between companies and their customers, the very sort of relationships enjoyed by loyalty programs and their members.

The findings in the various researches however vary widely. Heinonen and Strandvik (2007), found that the gender differences did not influence the consumers' experience with mobile media vs. other types of media. However age was found to be a key differentiator in that young consumers are more responsive to digital media.
In terms of behavioural variables, Grant and O'Donohue (2007) found that five factors motivate young consumers to use mobile phones and these are convenient entertainment, social stimulation, escapism, experiential learning, purchase information and advice.

Mobile Apps Trend in the UAE

Mobile is one of the most efficient media in the market today. Mobile users are escalating the considerable speed and inevitably they are comfortable with mobile applications. Most of the leading mobile application development companies are focused to make mobile users feel connected with the millions of smart phone users who are downloading mobile applications at the same time. Mobile devices are becoming richer as a suitable medium for multimedia applications accepted. Software organizations have started promoting programming platforms and tools to be adapted to the needs of mobile device users, developers and scarce resources.

If we look at the general mobile application development, it is quite healthy as compared to previous year. Now almost everybody possess a smart phone, most of the mobile phones development companies are offering mobile phones with high tech features, like they have advanced mobile apps features installed it. World leading brand Apple has earned millions of dollars. Samsung has introduced high-tech based smart phones having distribution all over the world. Like all over the world, Dubai as a world major economic city has fallen in to new trend, Recently COO of a company called Twofour54, announced the business arm of the media area supported by state of Abu Dhabi (June 19,

2013), introducing a seed fund that would drive the development of mobile applications in Arabic. The fund, called "Apps Arabia in Arab businessmen, developers and local companies offer apps for devices like the iPhone and iPad to create capital and Blackberry, Nokia and Android phones."There is a huge opportunity for applications Arabs, not only for use in the region, but throughout the Arab world," said Wayne Borg, COO of twofour54. "About 60% of the population in the region is under the age of 25. That's 160 million people, all major users of smart technology.
A new 'SeedApp' fund has been launched for the development costs of any app that supports the recent initiative by the government. The new SeedApp fund was announced by Abdul Baset Al Janahi, CEO of Dubai SME - the agency mandated to develop the small and medium enterprise (SME) sector. "Through the SeedApp fund we are inviting all nationals to join the nation's complete evolution into a knowledge-driven and internationally best service environment," he explained.

The UAE controls 60 per cent of mobile phone applications development in the Middle East, according to research conducted by Flagship Projects, a local applications developer.

"The penetration of these kinds of mobile applications is tremendous in the UAE. The UAE has become a global player, thanks to its openness to the world economically and technologically and its world class infrastructure," said Shadi Hasan, managing director of Flagship Projects.

"The UAE's role as a commercial centre in the region where many telecom companies have their headquarters here means it is in a position to attract mobile app development. The most widely used apps in the Arab world are related to entertainment, such as music and social news and religion such as the Quran and Islamic lectures, prayer times and Hajri timings. An estimated 40 per cent of smartphone user's use between six and ten applications daily.

The increased use of phone apps has grown in line with the popularity of smartphones in the region, The majority of interest for apps in the local market is for BlackBerry and Apple's devices, said Mohammad Husani, marketing director of Haiku, a French applications developer in a previous interview.

Because of this growing trend, mobile applications are becoming an essential requirement for companies to service their businesses and customers. While it is still at a very nascent stage, an increasing number of companies are using phone apps to service their business and customers.

CONCEPTUAL FRAMEWORK

The following approach was used to develop the conceptual framework of this study. First, the researchers conducted a review of the existing literature on mobile marketing to identify the theoretical models used in other studies and the factors found to be strong indicators of mobile marketing acceptance. The wide variety of theoretical frameworks used in prior research have produced numerous variables that seem to influence mobile marketing acceptance. Rather than testing all the variables or choosing a particular theoretical framework, the researchers adapted the approach used by Baumgartner and Steenkamp (1996). They developed a list of the significant variables emerging from the literature and then conducted a focus group with a sample of smartphone users to obtain their opinion as to which variables they felt were important in the acceptance of mobile marketing. The goal was to reduce the large number of variables to a select list of factors. The resulting list of factors was subsequently given to three active e-business researchers who were asked to provide feedback on its completeness new variables such as type of apps, accessibility, time saving, customized content, portability. Other statements pertaining to intention to accept mobile marketing and mobile phone usage patterns with regards to payment for buying apps, the purpose and usage of mobile apps were also added. Inweb-based commerce, consumers can easily compare products and prices online by using a variety of search engines or shopping tools.

Essentially, in a mobile marketing context, if consumers perceive that the value they are getting from participating in mobile marketing is high, they will be more inclined to engage in it. Thus the following hypothesis are proposed:

H 1: Perceived benefits of application and comfort of using mobiles is directly related to the intention to participate in mobile marketing.
Previous research suggests a strong and consitent relationship between the perceived benefits of applications and the intention to participate in mobile marketing through the mobile applications. Essentially, in mobile marketing context, if consumers perceive that the benefits of application through participtaing in mobile marketing are very high, they will be more engaged towards the mobile marketing. Conversely if they believe that the benefits are low then they will avoid the mobile marketing and may conclude that it is waste of effort and time.

Morgan and Hunt (1994) see trust as the confidence one party (the consumer) has in the exchange partner's (the marketer's) reliability and integrity. In a similar fashion, Mayer et al. (1995) conceptualize trust as the willingness of a party to be vulnerable to the actions of another party (trustee) based on the expectation that the trustee will perform a particular action important to the party. In mobile marketing, consumers are the party and marketers are the trustees. Vulnerability is magnified in mobile marketing because the mobile phone is a personal device that is always on and thus marketers have the capability to track consumers' every movement, thereby increasing the level of intrusion and invasion of privacy. Consumers are vulnerable to receiving marketing messages that they may not want in certain situations and may lack the control to decide when, where, and from whom to receive the marketing messages and offers. In addition, consumers who may not be aware of a brand or a marketer may have little trust in its reliability and integrity. Not surprisingly, e-commerce researchers post that trust forms the foundation of online buyer-seller relationships (Hoffman et al., 1999) and that trust is substantially more challenging to develop online than offline (Kollock, 1999). This may also be true for mobile marketing.

H 2: Consumers are more likely to participate in mobile marketing if they are aware about application and its virality.

The marketing literature provides ample theoretical arguments that if consumers are aware about the applications and its virality in the mobile marketing then they are likely to participate in the mobile marketing through the use of application. This hypothesis could be backed out by finding out in various research papers that purchase intention declines when consumers shop in uncomfortable situations or without knowing about the brand. Similarly it could be said that for the mobile marketing consumers are more willing to participate in mobile marketing through applications if they are more aware about the application, its features, and general trends and about its virality.

The literature shows that younger and more educated are the most internet-savvy: they have a high usage rate and a tendency to try new technology products and services (Grant and O'Donohoe, 2007; Barutc¸ U, 2007; Heinonen and Strandvik, 2007).

H 3: Younger consumers are more likely to participate in mobile marketing.

Generally, from the past research papers it was found that younger generation tend to be more active in downloading mobile applications and hence participate more in mobile marketing.

H 4: Trust is positively related to intention to participate.

From the literature survey it could be concluded that trust is an intrinsic part for consumers to participate in the mobile marketing. Various research papers have found that purchase intentions declines when consumers shop in uncomfortable situations or when they are not clear about the intentions of the brand. It could be said that consumers should be willing to trust the parent organization before participating in the mobile marketing.

E-commerce researchers post that trust forms the foundation of online buyer-seller relationships (Hoffman et al., 1999) and that trust is substantially more challenging to develop online than offline (Kollock, 1999). This may also be true for mobile marketing. In the context of mobile marketing, consumers who are suspicious of or uncertain about marketers' motivations for engaging them may try to avoid their offers, while those who are more trusting are more likely to accept their offers. Generally, consumers' mobile marketing behavior is a reflection of their overall assessments of the marketers' reliability and integrity and of consumers' willingness to trust marketers (Tan and Sutherland, 2004).

These four hypotheses were also tested with respect to consumers' intentions to accept location-based mobile marketing via Bluetooth and other innovative technologies.

RESEARCH METHOD

The data were collected by a self-administered web-based survey in October 2013. Potential respondents were contacted by e-mail to participate in the study. Participants were recruited using a snowball sampling procedure as follows. First, a sample frame comprising 332 individuals was developed using the contact information of participants from a previous study and the researchers' personal and professional networks. These potential participants were invited to complete the survey and were then asked to forward the invitation e-mail to their contacts residing in Dubai inviting them to participate in the study. The survey was active for only ten days, and no reminders were sent in order to keep the data consistent at a certain time. This procedure yielded a total of 241 completed questionnaires. All the participants resided in Dubai. The survey focused on consumers' intentions to accept innovative mobile marketing services. The questionnaire sought information about respondents' mobile phone usage behavior, mobile applications, perceived benefits, awareness of applications factors for

use of the application, trust and frequency of use and their intention to participate in mobile marketing. Most of the questions were Likert scale questions that asked respondents to indicate their level of agreement or disagreement with a series of statements on a scale of 1 to 5. Demographic information pertaining to age, occupation, and gender were also collected. The survey instrument was developed based on a review of the literature and in consultation with potential respondents and experienced researchers in the field of e-business. The survey instrument was then pre-tested on a small sample of 25 smartphone users, who were asked to complete the questionnaire and then evaluate it and suggest improvements. This procedure generated minor editorial improvements, which were used to fine-tune the survey instrument.

Reliability and Validity

The validity of the research instrument was checked through content validity analysis which was found from rigorous literature review analysis. It was an integrated evaluative judgment of the degree to which empirical evidence and theoretical rationale support the adequacy and appropriateness of inferences and actions based on test results and other modes of assessment. Content validity is defined as the extent to which an instrument adequately samples the research domain of interest when attempting to measure phenomena (Carmines & Zeller, 1979; Waltz,).Content validity requires the use of recognized subject matter experts to evaluate whether test items assess defined content which we have verified in the paper through literature review.

Several measures of reliability can be evaluated in order to establish the reliability of a measuring instrument. Reliability is operationalized as internal consistency, which is degree of inter correlations among the items that constitute the scale (Nunnally, 1978). Internal consistency is estimated using a reliability coefficient called Cronbach's alpha (Cronbach, 1951). In order to assess reliability, the Cronbach alpha was determined for each construct (factor) identified through factor analysis. If the Cronbach alpha is greater than 0.7, the construct is deemed to be reliable. (Teo et al.,1999). All constructs met reliability criteria, as alpha was .893. All the values well exceed the obligatory requirement, thereby testifying that all the sixteen scales are internally consistent and have accepted reliability values in their original form.

RESULTS

Descriptive Analysis

The data was analyzed using the following approach. First, a descriptive analysis was conducted to determine if there were differences among respondents on key demographic and behavioral variables. Following this analysis, factor analysis and regression analysis were conducted to examine the relationship between mobile marketing and key predictor variables. The results of these various analyses are presented in this section.

Table 1 Percentage of Number of Respondents

Type of consumer	Response Percent
Male	67.8%
Female	32.2%

In Table 2, in terms of age, 87 percent of respondents are between the ages 21-29 years, 12 percent are between 30-39 years and a very small portion of the respondents 1.1 percent are above 40 years.

Table 2 Age of the Respondent

Age	Response Percent
17 or younger	0.0%
18-20	0.0%
21-29	87.0%
30-39	12.0%
above 40	1.1%

In Table 3, 74.7 percent of the respondents are students, 22 percent are employed and only 3.3 percent are self-employed. Thus, we can say that our sample is biased towards the student population to some extent.

Table 3 Occupation of the Respondent

Which of the following best describes your current occupation?	
Occupation	**Response Percent**
Student	74.7%
Employed	22.0%
Unemployed	0.0%
Self employed	3.3%

According to Table 4, 92.3 percent of respondents use a smartphone and only 7.7 percent use a classic phone. Thus our respondents are majority who own smartphones.

Table 4 Type of phone

Type of Phone	Response Percent
Classic	7.7%
Smartphone	92.3%

Table 5 Change of phone

Change of phone	Response Percent
0-1 year	40.2%
1-2 years	43.5%
2-5 years	12.0%
5 years and above	4.3%

Table 6 suggests that 25.3 percent of the respondents often download mobile apps, 46.2 percent of them agree that they frequently download mobile apps, while 16.5 percent respondents are neutral to mobile apps, 3.3 percent disagree that they often download mobile apps and 8.8 percent strongly disagree to the above mentioned statement.

Table 6 Level of Response

I often download mobile applications	**Response Percent**
Strongly agree	25.3%
Agree	46.2%
Neutral	16.5%
Disagree	3.3%
Strongly disagree	8.8%

Table 7 suggests more people use the mobile for communication which includes WhatsApp, Facebook, Twitter, Linked in and Viber etc. This is also a mode of entertainment for the consumer, besides this many use the smart phone for playing games, reading news etc. and least use it for paying bills.

Table 7: Purpose of use of Mobile Phone

I generally use mobile apps of the genre (1 being the genre most used and 4 being the least)				
Answer Options	**1**	**2**	**3**	**4**
Entertainment (Games, News & Magazines, Media)	19	39	13	7
Business	5	13	43	17
Communication(WhatsApp, Viber, Facebook, Twitter, LinkedIn)	52	22	12	1
Utilities(Bill payments, software's)	8	7	13	54

Table 8 Money Spent on Usage of Mobile Phone

Answer Options	**Response Percent**
Strictly free usage	78.9%
1-5 Dirhams	14.4%
5-10 Dirhams	3.3%
More than 10 Dirhams	3.3%

Additionally, the mean value of the items measuring intention to participate in mobile marketing is moderate for the overall sample; however, among those with smartphones, this value is about 2.5 on a five-point Likert scale, where 1 equals strongly agree and 5 equals strongly disagree. Further, consumers appear more willing to participate in mobile marketing if they have some control over the interaction (2.43 /5) and if they know the marketer (2.56 /5). Thus, it seems that brand trust and consumer control via permission are necessary conditions for the acceptance of mobile marketing. Collectively, these results indicate that the respondents are young, consumers who are heavy users of texting, mobile browsing, and other features such as Bluetooth and location-based marketing.

ANOVA AND CORRELATION ANALYSIS

Since this is a causal research the hypothesis was created based upon the literature survey and upon the findings of the various research paper on the similar trends. The marketing research papers have found a strong and consitent relationship between the perceived benefits of applications and the intention to participate in mobile marketing through the mobile applications. Essentially, in mobile marketing context, if consumers perceive that the benefits of application through participtaing in mobile marketing are very high, they will be more engaged towards the mobile marketing. Conversely if they believe that the benefits are low then they will avoid the mobile marketing and may conclude that it is waste of effort and time.

In the Anova analysis through the SPSS we came to the conculsion that the customers do not perceive the benefits of application and comfort while intending to participate in the mobile marketing. An Anova analysis of the same was carried out in SPSS by keeping the dependent variable as "I often download mobile applications" and the independent variables like timesaving, portability and applications description based downloads with the significant level coming to be below 0.05. Since our confidence interval was of 95% we rejected the null hypothsis and came to the conclsuion that perceived benefits of applications are not directly related to the intention to participate in mobile marketing.

H 1: Perceived benefits of application & comfort of using mobiles is directly related to intention to participate in mobile marketing.

Table 9 Regression Analysis ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig
Regression	1326.211	1	1326.211	18.160	.000
Residual	8106.355	240	73.030		
Total	9432.566	241			
Regression	2076.645	2	1038.322	15.527	.000
Residual	7355.922	239	66.872		
Total	9432.566	241			

H 2: Consumers are more likely to participate in mobile marketing if they are aware about application and its virality.

The marketing literature provides ample theoretical arguments that if consumers are aware about the applications and its virality in the mobile marketing then they are likely to participate in the mobile marketing through the use of application. This hypothesis could be backed out by finding out in various research papers that purchase intention declines when consumers shop in uncomfortable situations or without knowing about the brand. Similarly it could be said that for the mobile marketing consumers are more willing to participate in mobile marketing through applications if they are more aware about the application, its features, and general trends and about its virility.

An Anova analysis was carried out in SPSS by keeping "I often download mobile applications" as the dependent variable and the independent variable as accessibility, review based downloads, word of mouth based downloads and advertisement based downloads. The significant values came to be greater than 0.05 i.e. 0.997 and hence we could say that the null hypothesis was accepted. Thus we could safely say that consumers are more likely to participate in mobile marketing if they are aware about the application and its virality.

Table 10 Regression Analysis ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig
Regression	14.638	4	3.659	.042	.997
Residual	9417.929	237	87.203		
Total	9432.566	241			

H 3: Younger consumers are more likely to participate in mobile marketing.

A correlation analysis was conducted to find out the relation between the age and the intention to participate in mobile marketing. Generally, from the past research papers it was found that younger generation tend to be more active in downloading mobile applications and hence participates more in mobile marketing.

The correlation coefficient between age and the dependent variable" I often download mobile applications" is negative and comes out to be -0.061. This proves our null hypothesis to be void and we could say that age does not have any effect on the intention to participate in the mobile marketing.

Table 11: Correlation Analysis

		Which category below includes your age	I often download mobile applications
Which category below Includes your age?	Pearson Correlation	1	-.061
	Sig. (2-tailed)		.519
	N	241	241
I often download mobile Applications	Pearson Correlation	-.061	1
	Sig. (2- tailed)	.519	
	N	241	241

H 4: Trust is positively related to intention to participate.

From the literature survey it could be concluded that trust is an intrinsic part for consumers to participate in the mobile marketing. Various research papers have found that purchase intentions declines when consumers shop in uncomfortable situations or when they are not clear about the intentions of the brand. It could be said that consumers should be willing to trust the parent organization before participating in the mobile marketing.

An Anova analysis was carried out to check this hypothesis. The dependent variable was" I often download mobile applications." and the independent variables are I can trust cash transactions through mobile and I think cash transactions through mobile applications are safe. We got the significant value of 0.780 which is greater than 0.05 and hence, we could safely say that we accept our null hypothesis i.e. trust is positively related to intention to participate in mobile marketing.

Table 12 Regression Analysis

Model	Sum of Squares	df	Mean Square	F	Sig
Regression	44.438	2	22.219	.249	.780
Residual	9382.109	239	89.353		
Total	9426.546	241			

H 5: Gender will have effect on usage of mobile apps.

Through the correlation analysis we find that gender does not have any impact on the consumer's intention to participate in the mobile marketing. The correlation coefficient is -0.011 which is negative and hence it proves that gender does not have impact on the intention to participate in mobile marketing.

It could be said that males are more interested in downloading applications like gaming, entertainment, news etc. while females are more interested in buying applications like that of social networking or gather information to buy their products.

Table 13 Correlation Analysis

		I often download Mobile Applications	Gender
Pearson Correlation	I often download mobile Applications	1.000	-.011
	Gender	-.011	1000
Sig. (1- tailed)	I often download mobile applications		.455
	Gender	.455	
N	I often download mobile applications	241	241
	Gender	241	241

FACTOR ANALYSIS

Factor analysis with Varimax rotation was conducted using the Likert scale variables. The rotated component matrix can be seen in Table 16, the factor analysis produced a four-factor model that explains 70 percent of the variation. The eigenvalues for the four factors are greater than 1, the commonly used threshold to include factors in a model (Kim and Mueller, 1978). The items that constitute each factor are shown under the respective columns in table 15.

KMO and Bartlett's Test was done to test the sample adequacy for factor analysis, since KMO is higher than 0.60 it was .765 which proved that the data was right for factor analysis. This can be seen in table 14.
The correlation between the variables constituting same factors is high, as described in table-17.

Table 14 KMO and Barlett's Test

KMO Measure of sample adequacy		**0.765**
Barlett's Test of Sphericity	**Approx. Chi-Square**	**1190.612**
	df	**105**
	Sig.	**.000**

Table 15: Factor Analysis

Factors **Variables**	**F1: Perceived benefits of applications**	**F2: Application awareness and virality**	**F3: Application dependency**	**F4: Comfort Level of consumer**
I prefer mobile phone applications because of accessibility		0.733		
I prefer mobile phone because of applications portability	0.725			
I prefer mobile phone applications because of time-saving	0.924			
I prefer mobile phone applications because of Customized content			0.602	
I prefer mobile phone applications because of Customized content			0.602	
I generally use entertainment applications	0.716			
I generally use business applications			0.503	
I generally use communication applications			0.869	
I generally use utility applications			0.578	
I generally download mobile applications on basis of reviews		0.876		
I generally download mobile applications on basis of ratings		0.528		
I generally download mobile applications on basis of App Description	0.647			
I generally download mobile applications on basis of word of mouth		0.605		
I generally download mobile applications on basis of Advertisements		0.572		
I trust transactions via mobile				0.588
I frequently use mobile applications throughout the day				0.844

Table 16 Correlation Among Factor Analysis Variables

Factors	F21	F11	F12	F31	F14	F32	F33	F34	F22	F23	F15	F24	F25	F41	F42
F21	1.00														
F11	.478	1.00													
F12	.150	.523	1.00												
F31	.278	.401	.286	1.00											
F14	.453	.620	.629	.388	1.00										
F32	.453	.365	.385	.511	.593	1.00									
F33	.056	.319	-.061	.340	.310	.313	1.00								
F34	.276	.466	.482	.477	.542	.731	.379	1.00							
F22	.473	.127	.096	.261	.341	.462	.124	.308	1.00						
F23	.441	.635	.587	.453	.697	.602	.226	.640	.526	1.00					
F15	.321	.594	.554	.425	.569	.476	.337	.592	.498	.760	1.00				
F24	.439	.444	.444	.579	.508	.687	.214	.630	.524	.795	.653	1.00			
F25	.450	.623	.504	.384	.591	.586	.305	.539	.562	.871	.740	.778	1.00		
F41	.103	.167	.198	.198	.235	.301	.096	.215	.124	.191	.163	.141	.202	1.00	
F42	.078	.073	-.105	.036	.038	-.104	.104	-.021	-.044	-.008	-.081	-.048	-.105	.199	1.00

Note: F1, F2, F3 and F4 represent factor 1, factor 2, factor 3 and factor 4 and the smaller scripts by their side represent the items that constitute the respective factors.

Table 17 Factor Analysis (Rotate Component Matrix

	Initial Eigen Values			**Extraction sums of squared loadings**		
Component	**Total**	**% of Variance**	**Cumulative Percentage**	**Total**	**% of variance**	**Cumulative Percentage**
1	6.886	45.910	45.910	6.886	45.910	45.910
2	1.318	8.784	54.694	1.318	8.784	54.694
3	1.228	8.185	62.878	1.228	8.185	62.878
4	1.095	7.301	70.179	1.095	7.301	70.179

Note: Extraction method principle component analysis

The four factors in our model that have been constituted are as follows:

Perceived Benefits of Application

The variables constituting this factor are:

- Mobile application usage increases portability
- Mobile application usage saves time
- Mobile application majorly contributes in Entertainment
- Application description matters before downloading apps.

Application awareness and virality

The variables in this factor are:

- Downloading mobile applications on basis of advertisements
- Downloading mobile applications on basis of word of mouth
- Downloading mobile applications on basis of ratings.
- Downloading mobile applications on basis of reviews
- Mobile application helps increasing accessibility

Mobile Application dependency of users in daily life

The variables for this factor are

- Mobile applications aiding in business are frequently used
- Mobile applications are frequently used because of their customized content
- Mobile applications are used to connect to people example Facebook and Twitter application.
- Mobile Application are used for utilities like paying bills, using software etc.

Comfort level of consumer in using mobile applications.

- The variables for this factor are:
- The trust factor people have while doing cash transaction with the mobile
- Frequency of usage of mobile applications on a daily basis.

Regression Analysis

The next step in the analysis involves accessing the factors that came from the factor analysis of the variables in the questionnaire through the regression analysis. Our dependent variable is how often you download mobile applications through the applications store. Our independent variables are the different variables that were clubbed together through the factor analysis. For this analysis a model was evaluated with six factors.

The six independent variables consist of the four variables derived from the preceding factor analysis, namely perceived benefits of application, application awareness and virality, application dependency and comfort level of consumers. The other dependent variables included gender and age. The dependent variable i.e. intention to participate in mobile marketing is based upon the response of following question:

1) How often do you download mobile applications?
2) I frequently use mobile applications throughout the day.

The general linear regression model used is of the following form:

Y=

$$y_i = \beta_0 + \beta_1 x_i + \varepsilon_i, \quad i = 1, \ldots, n.$$

Where Y is the dependent variable, the β's are the parameter estimates, the x are the independent variables, and the ε is the residual term. As, already stated above, the Y-variable is the independent variable i.e. intention to participate in mobile marketing. The independent variables are as stated above in the factor analysis.

The results of the model are stated above in the table18. The variables such as perceived benefits of applications, application awareness and dependency, comfort level of consumers, age and gender are all statically significant predictors. R^2 is 0.416 which explains approximately 41 percent of the variance in the consumer's intention to participate in the mobile marketing. Analysis of the β coefficients suggest that application dependency is the most influential variable at 3.19, followed by the application awareness and perceived benefits of application.

The negative sign with comfort level of consumers suggest that not many consumers are still comfortable using mobile to pay for their products or purchases. They still hesitate in payment from their mobile phones. Thus, identifying such set of customers and targeting them with efficient mobile applications like PayPal, Easy payetc. could be beneficial for these companies and could also make way for the mobile marketing companies.

The variable "gender" is not statistically significant. The finding with regard to gender is consistent with several recent studies on internet use, namely, that gender differences have virtually disappeared (Statistics Canada, 2011; Phillip and Suri, 2004). Although both males and females have shown similar intentions to accept mobile marketing, their patterns of consumption are different (ComScore, 2009). Men use their smartphones for gaming, entertainment, and shopping, especially when incentives are offered. Women use them more for social networking and research, especially on health, beauty, and fashion. This finding is consistent with Rodgers and Harris (2003) in the context of e-commerce. The negative sign for age is consistent with several prior studies that show that younger consumers are more willing to accept mobile marketing. Mobile marketing via smartphones is in its infancy, which may explain the finding that younger consumers are more likely to embrace it earlier than older consumers. However, recent statistics on usage patterns of mobile marketing released by ComScore (2011) already point to a narrowing gap: more consumers from all age groups are embracing mobile marketing as smartphone penetration increases.

Table 18 Regression Analysis

Independent variables	**beta**	SE(B)	t-value	Sig. t	R2	Model f-value	Sig. F
Constant	**2.317**	0.845	2.742	0.007	0.416	5.426	0.000
Perceived benefits of application	**1.816**	0.855	2.12	0.001			
Application awareness and virality	**3.18**	0.991	3.2	0.02			
Application dependency	**3.19**	0.987	3.23	0.002			
Comfort level of consumer	**-1.655**	3.131	-.529	0.528			
Gender	**-0.011**	0.067	-.114	0.001			
Age	**-0.872**	1.34	-.647	0.519			

Dependent variable: Intention to participate in mobile marketing.

CONCLUSION, RECOMMENDATIONS AND MANAGERIAL IMPLICATIONS

From this research we came to the conclusion that segmentation solely on the basis of demographics is not enough. Customers must also be segmented and accordingly targeted by the behavioural variables that came out in the factor analysis like application virality, perceived value, comfort level of customer etc. It is also seen through the ANOVA analysis that customers across different education level and age groups have similar attitude towards the marketing benefits through mobile applications.

The various managerial implications that could be found out from the research are that consumers do directly link with perceived benefits of mobile applications for marketing. Along with the mobile marketing, firms should incorporate the traditional marketing as well as internet marketing in order to build the brand loyalty and relationship.

Consumers participate in mobile marketing if they are aware of the application and its virality. If the mobile applications tend to catch on the trend with sufficient word of mouth marketing and advertisement consumers are more likely to participate in mobile marketing via that application. Managers must put in sufficient effort to make the application viral in order to reap the maximum benefits from it.

Managers must target all the age groups according to their interest and awareness. Custom made applications could be provided for the same so that the consumer could connect with the application and provide with the best and authentic feedback. Trust is an important factor for consumers to participate in mobile marketing. Consumers must be comfortable enough to transfer money via the application. Also, consumers are concerned about their privacy, time and when and where to participate in mobile marketing.

Brands must be able to build this trust in order to reach out to the maximum number of customers. Consumers are not able to differentiate between the firm's effort in mobile marketing and traditional marketing. Organizations should make substantial effort in order to integrate the mobile marketing with the internet as well as traditional marketing to gain maximum benefits.

Our analysis suggests that gender does not have any impact upon the usage of applications for marketing. Organizations could use this data in designing of the application as no separate designing would be required for targeting the males or females. Taking cue from the trend in the mobile marketing, marketers can also launch similar marketing offers through the SMS marketing, Bluetooth, shopping applications etc.Mobile marketing must be effective enough to provide some tangible benefits in the form of expediency, flexibility, efficiency etc.

Although this study has reported interesting results and contributes to our understanding of consumers' intentions to accept innovative mobile marketing via their smartphones, caution must be exercised since the sample size was relatively small. Replicating this study in other contexts could validate the findings reported in this paper.

This study has various managerial and research implications that could be derived from the final results of the hypothesis. From the managerial perspective understanding how mobile marketing would influence the decision making process for customers is very important. Managers could exploit the full potential of mobile marketing if they understand the consumer and mobile marketing ecosystem. The trend of smart phones has really started on and consumers now use their phones for social networking, entertainment as well as business. Marketers could easily tap into this trend and could use the emotional and the motivational relations to make consumers aware of the brands or increase their loyalty towards the brand. This could highly influence the customer's decision making process.

FUTURE SCOPE

With the passage of time and evolution at the considerable speed in the arena of mobile technology, mobiles have overcome the conception of just acting as a device to make voice calls. It has now embedded in itself number of other features which have brought a huge revolution in the mobile application development process. Mobile application development technology is enormously increasing and promoting the number of various applications developed for supporting mobile devices. Each and every application, whether it is simple or complex, is contributing in some or the other way to the end user. As mobile phone has become the necessity for everyone, the demand for the same has rapidly grown which we have noticed from the study of our responses. The market is now-a-days exploding with variety of smart phone devices having the latest developed applications.

The future scope of the study could include a further in-depth study of the behaviours exhibited by the sample population, with future development in this industry and also analyse the behaviour for a group of a wider range of age groups as our study mostly concentrated on the range of 21-29 years (87% responses).

Also there is scope for divergence of usage in various other industries other than banking, ecommerce, games, business etc. With the increasing competition and the demand in mobile app development field, companies are rushing forward to offer complete end to end solutions and our study reveals how UAE is reacting to the newly emerging markets of mobile apps. We can research into the parameters that affect the level of trust of the people in cash transactions via mobile apps.

Further study of user behaviour can be done to figure out other parameters that could enhance and improve the user experience of using a mobile app. Mostly this study reveals people are going for apps that have free usage but a niche segment is ready to pay for apps too. Future studies can be done to understand what kind of apps this segment will pay for and till what extent. The most effective form of marketing in mobile app industry (word of mouth/ app description/ reviews/ ratings/ advertisements etc.) is another genre that has a huge scope to be explored.

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