Consumer Perceptions of Marketing and Non-marketing Communications received via Mobile Technology

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ABSTRACT

This study examines the acceptance of mobile applications, marketing and non-marketing, among men and women of various age groups, mobile phone usage rates and cell phone attachment groupings. The study found that younger cell phone users were more likely to accept mobile applications. Differences in acceptance by men and women were found in only three of the eight applications tested. Mobile phone users with high usage rates and those with high cell phone attachment scores were also more willing to accept mobile applications.

Keywords: *Consumer, Communication, Technology, Perception*

INTRODUCTION

It comes as no surprise – the use of mobile technology by consumers is increasing rapidly. The figures hold true for the United States, as well as countries in Asia, Europe, and all other parts of the globe (e.g. Campbell 2007; Librero, Ramos, Ranga, Trinona, & Lambert 2007; Okazaki 2005; Tripathi & Nair 2006). A large part of this rapid increase can be attributed to the technology's adoption by teens and young adults (e.g. Docksai 2009; Fletcher 2008; Tucker 2009; Terry, Stephen, & Downs 2007).

The movement to capture potential consumers, of all ages, with promotional material through cell phones was an obvious extension of communications materials for many outlets. "Mobile media engage people in interactive dialogue, which is building value for a brand," says Jack Philbin, president of Vibes Media. "No other media can engage people one-on-one at an event." (Cuneo 2005, p. S7). Professional sports teams and media/entertainment corporations have successfully put this into practice for several years.

Just a few years ago the adoption of mobile advertising by companies was reported to be in its infancy. For example, Okazaki (2005) recommended that mobile advertising become part of a multinational corporation's integrated marketing communications in order to reduce consumer resistance and increase synergic effects. The study predicted that use of mobile technology would most likely grow considerably as firms realized its positive impact on branding and technological advances improved facilitation and reduced costs. It appears that numerous companies have followed this advice with mobile advertising for special promotions, coupons, and location-based services (Becker 2009).

A location-based mobile application would allow a company to utilize the proximity of a customer to an outlet in order to provide the individual with added value. However the application of such services does not come without perceptual barriers in the form of privacy concerns. In a laboratory study of location-based services (LBS), Junglas and Watson (2008) found that participants viewed LBS as beneficial. Participants were positive toward and intrigued by location-tracking (e.g. finding a person) and location-aware services (e.g. finding an office). The authors did note, however, that participants expressed privacy concerns. Given this finding and preliminary findings of a second study, the authors conclude that privacy considerations are likely to be a major determinant in the success of LBS. To that end, companies using location-aware services such as promotional offers will need to make sure the consumer perceives the value of the service to be high and the privacy risk to be low .

As companies are using mobile technology to connect with consumers, Rogers' (1962) theory concerning innovation attributes with the speed of adoption and perceived risk as well as Davis' technology acceptance model may explain why consumers may not quickly accept the mobile marketing efforts of organizations.

According to Rogers, and innovation is more quickly adopted if it possesses the following attributes: relative advantage, compatibility, trialability, observability, and (low) complexity. Relative advantage provides the consumer with a better method to achieve their goals. It could be argued that mobile marketing activities provide a relative advantage to consumers. For example, consumers can receive coupons via their cell phone and redeem them with the cell phone without having to clip and carry the paper coupons with them. Economic advantages may also be realized as consumers are able to take advantage of special offers they may otherwise be unaware of and, in the case of receiving notifications of due dates, low balances, etc, consumers could realize economic advantages in reducing late fees and overdraft charges. Consumers are also able to receive automated messages concerning account activity or special events with little or no effort, providing a temporal advantage over other communication methods.

As many consumers already possess cell phones, it would seem that the use of mobile marketing is compatible with consumers' lifestyles. However, restrictions in compatibility may occur due to the capabilities of the cell phone itself and cell phone plans. Not all consumers possess plans that allow SMS or MMS messaging both of which are utilized by mobile marketers. Low-end phones may also have technological restrictions to the use of some mobile marketing applications, like location-based services. These restrictions would also limit the consumers' ability to trial the mobile marketing activities.

Although many people use their cell phones in public, receiving messages, whether personal or marketing messages, is more or less a private activity, limiting the observability attribute of mobile marketing. Consumers may be able to observe the redemption of mobile coupons, but many of the other mobile marketing activities consist of SMS or MMS messages which could not be easily observed by other consumers. Due to the inability to observe mobile marketing transactions, consumers may also not be aware of the level of complexity involved, possibly perceiving the activities to be too complex to engage in.

Perceived risk becomes another factor of importance when discussing adoption of an innovation. In the case of mobile marketing, consumers may perceive a risk to their privacy when engaging in mobile marketing activities, especially those activities which involve financial information and location-based services, limiting the adoption. In a qualitative study examining the adoption of internet financial services, Black, Lockett, Winklhofer and Ennew (2001) examined adoption using the perceived innovation attributes. Using focus group methods, the researchers found that relative advantage, compatibility, trialability and perceived risk were all factors to be considered in the adoption of Internet banking. Further research using Rogers' attributes would be useful in determining the adoption of mobile marketing activities by consumers.

Additionally, Davis' technology acceptance model (Davis,

Bagozzi and Warshaw, 1989) could prove to be useful in determining factors related to consumer adoption of mobile marketing activities. Davis's model posits that perceived usefulness and perceived ease of use are critical to the intention to use technology. When applied to technology acceptance in the workplace, perceived usefulness is defined as the probability that use of the technology will increase performance and perceived ease of use indicates the use of the technology will be free from effort on the part of the user.

Both perceived ease of use and perceived usefulness could be useful in explain the adoption of mobile marketing by consumers. In Davis' model, perceived usefulness and ease of use lead to a positive attitude toward using the technology, which in turn leads to an intention to use, and finally use of the technology.

HYPOTHESES

As the mobile phone (and other devices) industry continues to expand, reaching more customers with more applications and better service, the question remains: How much and what types of mobile applications in marketing will be embraced by customers. This is an effective method for an organization to stay in touch with its customers, but will customers see any value?

Specific hypotheses being tested are related to the rating of various types of marketing and non-marketing mobile applications and their ratings among various consumer groups, including gender groups, age groups, phone usage, and groups based on cell phone attachment. Ratings for overall mobile applications, as well as individual types of mobile applications will be tested.

Cell phone attachment measures the bond individuals have with their mobile phones. Presumably, individuals exhibiting a stronger bond with their cell phones will be more accepting of the various mobile applications available and will use their phones in ways more than just to make telephone communications. These individuals are more likely to engage in additional types of connections through the use of their cell phone.

H1: High cell phone attachment (CPA) will be related to a higher level of acceptance for mobile applications in general, as well as the specific applications.

Similarly, those individuals reporting a higher usage rate are likely to value other mobile applications more than those with lower cell phone usage rates. More usage equates to more experience with the value provided from various cell phone applications.

H2: Higher phone usage will be related to higher acceptance of mobile applications in general, as well as specific mobile applications.

Younger consumers have a higher level of ownership and usage regarding cell phones. Younger individuals score higher on the CPA scale in general and are heavier users of technology. It stands to reason that younger consumers will be more likely to value mobile applications more than older consumers due to their increased experience and acceptance.

H3: Lower age groups will have greater acceptance of mobile applications in general, as well as specific mobile applications.

It is hypothesized that females will have a greater acceptance of the more social mobile applications than males. Females use technology to communicate socially and share information, rather than perform specific tasks. The mobile applications that allow for easier social interaction would be more valuable to the female population.

H4 Females will have a higher acceptance of the social mobile applications of friend location and restaurant location. Females will also have higher acceptance of mobile application used to advertise sales.

It is also hypothesized that the type of mobile application will impact acceptance ratings. Mobile applications that are perceived as a marketing application will be less accepted than an application that is less marketing and more functional to the phone owner. Consumers are hesitant to participate in what they perceive to be a solely marketing activity. Anecdotal self-report by consumers reveals that consumers don't want to lose control of their phone to a marketing endeavor.

H5: Marketing applications will be less accepted than non-marketing applications.

RESEARCH METHODOLOGY

A survey was developed to assess mobile phone usage, cell phone attachment, demographics, and opinions of various uses of mobile texting. The cell phone usage measures included a self-assessment of usage from very low to very high, monthly minutes used, number of calls received and made, plus features used most often. The cell phone attachment scale included 16 items using a 5-pt Likert scale identified by researchers and members of a student research team, reflecting cell phone users' experiences. The items adddress specific behavior and attitude examples with regard to cell phones. A previous application of the scale demonstrated reliabilty at .85. (Alexander, Ward, Braun 2007). Individuals were classified as high or low cell phone attached based on the mean and median figures. Individuals with a CPA of 2.65 or less were classified of having high cellphone attachment, whereas, individuals with a CPA rank of 2.66 or above are classified as having low cell phone attachment.

Various mobile applications, gathered from popular press, news reports, etc. were evaluated on a 5-pt scale (I would like this very much). Table 1 provides a list of the applications rated. The completed survey was administered electronically to members, students and otherwise, of the campus community who were invited to participate with a campus wide email.

Table 1: High versus Low CPA Attachment and Mobile Application Acceptance

Mobile Application	High CPA	Low CPA	Sig.
Notification of bill due dates	2.53	3.17	.00
Notification of bill payment received	2.56	3.17	.00
Announcements for electricity, water, or other utility outages	2.31	2.76	.00
Advertisement for special sales	3.85	4.40	.00
Receiving texts of workplace or class announcements	2.01	2.71	.00
Receiving automatic texting of locations of favorite restaurants, etc. when in a new city by GPS location	3.37	3.92	.00
Notice that a friend is nearby by GPS location	3.23	3.95	.00
Receiving class assignments from an instructor	2.39	3.29	.00

ESULTS

A sample of 511 usable cases was used in the data analysis. Sample characteristics reveal a majority of students participated in the research. Over 50% (56.9%) of the sample fell into the age group of 18 – 22. Other age groups were also represented at 28% for 23- 34, 8% for 35- 44 and 7% for over 44. Females participated more readily than males, with just over 26% of the sample being male. All student class ranks were represented and 88% of the respondents were students.

When analyzing the relationship between cell phone attachment (CPA) and opinions of various mobile text applications, in all cases individuals with a high CPA rated the mobile applications more favorable than those with lower CPA. All tests are significant at the p= .000 level. See Table 1 for item means. Hypothesis 1 is supported.

Similar results were found when analyzing phone usage and opinions regarding mobile applications. Individuals were classified as high or low users based on their self-reported usage rate. For all mobile applications, the high user group rated the application more favorable than the low user group. These differences were all significant at p-values between .000 and .005. See Table 2 for means. Hypothesis 2 is supported.

Mobile Application	High Usage	Low Usage	Sig.
Notification of bill due dates	2.55	3.13	.00
Notification of bill payment received	2.60	3.10	
Announcements for electricity, water, or other utility outages	2.34	2.73	.005
Advertisement for special sales	3.89	4.34	.00
Receiving texts of workplace or class announcements	2.02	2.68	.00
Receiving automatic texting of locations of favorite restaurants, etc. when in a new city by GPS location	3.36	3.91	.00
Notice that a friend is nearby by GPS location	3.27	3.88	.00
Receiving class assignments from an instructor	2.51	3.16	.00

Table 2: High versus Low Phone Usage and Mobile Application Usage

Younger cell phone users are more favorable to mobile applications in general than older cell phone users. Favorability decreased as age increased. Specifically, the 18 – 22 year olds mean for all applications was 2.94 which differed significantly from the means for the age group of over 44 with a mean of 3.74. The 23-34 age group also differed significantly from the over 44 age group with means of 3.18 and 3.74, respectively.

Detailed analysis revealed that younger cell phone users are more favorable towards specific mobile applications than older cell phone users. As the age increases, the favorability of mobile applications decreases. The exceptions were notification of bill due dates and notification of bill payment received which were rated more favorably by the 23 -34 age group, but not significantly so. Significant differences did occur between the 18-22 age group and the over 44 age group for advertisement for special sales, workplace/class announcements and receiving class assignments. See Table 3 for means and additional significant differences in age group ratings of mobile applications. Hypothesis 3 is supported.

Table 3: Age Group and Mobile Application Acceptance

Mobile Application	18-22	23-34	35-44	Over 44	Sig.
Notificatoin of bill due dates	2.79*	2.67*	2.94	3.85*	.001
Notification of bill Payment Reeived	2.81	2.73	3.00	3.48	N.S.
Announcements for Electricity, water, or other utility outages	2.47	2.49	2.74	3.00	N.S.
Advertisement for Special sales	3.96*	4.30	4.03	4.76*	.000
Receiving Texts of Workplace or class announcements	2.15*	2.52	2.53	3.18	.000
Receiving Automatic Texting of location of Favorite restaurants, Etc. When in a new City by GPS location	3.43*	3.87*	3.88	4.09	.003
Notice that a friend Is nearby by GPS Location	3.39	3.78	3.79	4.12	.008
Receiving class Assignments from An instructor Assignments from An instructor	2.55*	3.13*	3.38*	3.45*	.000

Note : Not significance = N.S.

Significant differences occurred between the genders in three of the mobile applications: advertisement for special sales, texting restaurant locations, and texting friend location. Women were more favorable to receiving texts for special sales with a mean of 4.06 compared to 4.31 for men. It should be noted that, although significant, the means are toward the unfavorable end of the scale. When rating text restaurant locations and friend locations, men rated these applications more favorable with means of 3.37 and 3.30, respectively. These were significantly different from the women's means (3.73 and 3.68) for the same applications. Hypotheses 4 is partially supported.

When analyzing the cell phone attachment means with self-reported phone usage measures, significant differences were found for all usage measures. As the minutes used per month increased, the cell phone attachment mean decreased, indicating a higher degree of attachment as more minutes were used. The same relationships were found with the number of calls made and received. In all cases the means were significantly different between usage groups at p=.000. See Tables 4, 5, and 6 for means.

Table 4: Cell Phone Attachment and Calls Received

Calls Received Per Day	Cell Phone Attachment Mean
0	4.34
1 to 5	2.88
6 to 10	2.35
11 to 20	2.13
Over 20	2.16

Table 5: Cell Phone Attachment and Calls Made

Calls Made Per Day	Cell Phone Attachment Mean
0	4.40
1 to 5	2.91
6 to 10	2.46
11 to 20	2.11
Over 20	1.92

Table 6: Cell Phone Attachment and Monthly Usage

Phone Use	Cell Phone Attachment Mean
Very Low	4.24
Low	3.33
Average	2.92
High	2.37
Very High	2.16

To analyze the difference in application acceptance, the applications were grouped into non-marketing type and marketing type applications (Table 7). The mean for applications considered marketing was 3.36, while the non-marketing applications mean was 2.83, indicating more acceptance of the non-marketing applications. This was a significant difference at p= .000 and Hypothesis 5 is supported.

Table 7: Mobile Application Items/Groups and Measurement Scale

What is your opinion of the following uses of text or media messaging ? 1=I would like this very much and 5=I would not like this at all.	
Notification of bill due dates Notification of bill payment received Advertisement for special sales Receiving automatic texting of locations of favorite restaurants, etc. When in new city by GPS location	Marketing
Announcements for electricity, water, or other utility outages. Receiving texts of work place or class Announcements notice that a friend Is nearby by GPS location Receiving class assignments from an Instructor.	Non-Marketing

INDINGS AND MANAGERIAL IMPLICATIONS

The results indicate that the current study's sample characteristics are consistent with those of other studies with like samples. The current sample demonstrates that younger cell phone users are more comfortable with various mobile applications, including those applications used for marketing purposes. Furthermore, regardless of age, those with a higher cell phone attachment are also heavy users of their mobile device and are more accepting of the mobile applications.

Mobile technology provides nearly endless opportunities for managers to connect with their prospects and customers. Messaging, GPS, and Internet capabilities, among other applications, enable organizations to customize and place information in the receiver's hand, literally, anywhere and at any time. As proposed previously (Okazaki 2005), it is important for companies to include mobile marketing in IMC (integrated marketing communications) and adapt to rapidly changing technologies to benefit the consumer and reduce cost. Companies with a focus on the consumer (ex. Starbucks, McDonald's, Coldstone Creamery) have demonstrated to consumers the value of mobile campaigns with successful recent applications resulting in increased sales and coupon redemptions (Becker 2009). Taking it one, or more, steps further, augmented reality or AR (the science of enhancing a live experience with virtual components and information) is being used successfully with mobile technology by companies around the world (King 2009; Schiller 2009). The use of AR with mobile technology in the U.S. has been slower to develop than in either Asia or Europe primarily due to the slower adoption rate of smart phones by Americans (King 2009). However, the use of AR by companies marketing in the U.S. will increase, logically, as the adoption of smart phones increases.

It is worth noting that the use of mobile technology is not limited to the profit sector. Government offices and non-profit health care organizations and services can make use of the technology, as well. Since young adults are heavy users of mobile technology and are more inclined to accept the marketing applications of it, government funded and privately funded Institutions of higher education, in particular, will find their target market not only welcomes but desires information provided via a mobile format. In addition, government funded and privately funded offices of tourism will do well to utilize mobile technology.

Although the present study indicates mobile technology is accepted by all age groups, marketers need to carefully target audiences for mobile marketing or commerce campaigns to avoid alienating consumers. It will be critical for marketers to use the technology wisely and to demonstrate the value of mobile marketing communications to their prospects and customers if mobile marketing communications are to succeed. Consumers' negative views and blockages of landline telemarketing should encourage managers using mobile marketing to proceed cautiously. Assurances of communication value and privacy protection will counteract consumers' apprehensions, thereby allowing both parties to benefit.

The present study, though expanding the knowledge on this important and timely topic, is not without limitations. The largely student sample is appropriate due to the higher use of mobile technology by teenagers and young adults reported anecdotally via self-report and media. In addition, the sample has a slightly higher average age than traditional student populations and more than 80% are employed making the findings more generalizable. However, future research should make a concerted effort to expand the sample to more closely examine the middle- and upper-age categories. Additionally, while the present study examined age and gender, other demographic characteristics (e.g. education, income, marital status, number of children in the household) and psychographic characteristics (e.g. occupation, shopping behaviors, attitudes toward advertising, attitudes toward privacy) should be included in future research in order to provide managers more precise information for targeting purposes.

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