

# International Journal of Mobile Marketing

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## EDITOR'S LETTER

Michael Hanley, Associate Professor, Ball State University

### In This Issue

The rapid adoption of mobile technology in Southeast Asia has provided local and international brands with new opportunities to interact with consumers. To better understand how brands in Thailand, Vietnam, Malaysia and Singapore can better engage with consumers via mobile, **Kae Ahanonu, Patrick Biggerstaff, Aleks Flacuks, Marc Hatfield, Matt Nahman, Kala Seal, Terry Tram, Kris Woods, and Daniel Yerelian** look at recent mobile trends in each region, the strategies brands are using in mobile, the approach brands take toward measuring their mobile footprint and the future of mobile brand engagement across Southeast Asia.

Do shoppers who use QR codes differ from non-users? **Jay Sang Ryu** compares shopping-related personal characteristics and behaviors of QR code users with those of non-users on eight criteria: consumer innovativeness, market mavenism, achievement-seeking shopping behavior, efficiency-seeking shopping behavior, adventure-seeking shopping behavior, idea-seeking shopping behavior, value-seeking shopping behavior, and extent of prior mobile shopping experience.

**Paolo Di Betta** and **Francesco Lucera** focus on the QR code in a different way. Their article presents an assessment of a cross-media campaign in which a QR code that links to an apartment brand's website has a central role in the narrative of print media advertisements. Evidence shows that the QR code has great potential as a communication agent to increase the notoriety of high-involvement durables.

Using visitor psycho-cognitive and psycho-emotive response times from various personal communication platforms matched to self-described behavior during site visits/use of branded apps, online behaviors, and in-person observations, **Eois McRae, Joseph Carrabis, Susan Carrabis, and Stephane Hamel** demonstrate that consumers have stronger emotional responses to their site visits or branded app use when the visit is conducted on a mobile platform than other platforms.

The global growth of smartphones has led to an associated increase in mobile game usage. **Hyung-Min Kim** explores which mobile technologies have been used in mobile games, and their relation to contemporary mobile gamers' download choices. The results show that popular mobile games maximize players' touch-based enjoyment and popular mobile games have at least two of these three features: simple rules, social interactions, and the removal of enemies and missions that do not require defeating an enemy to complete.

Like many new media channels, mobile usage patterns are impacted by user demographics, lifestyle and culture. **Mary Beth McCabe** explores Hispanic mobile adoption and behavior patterns and analyzes what marketers are doing to adapt their communications to reach Hispanics effectively. This case study reviews smartphones usage for U.S. Hispanics, why they are bypassing the desktop and laptop for phones and tablets, and mobile shopping behavior.

Finally, **Seyed Alireza Mosavi** and **Maryam Kenarehfar** explore, using Samsung Galaxy users in Iran, whether value creation practices (social networking, community engagement, impression management, and brand use) have positive effects on brand trust and, ultimately, brand loyalty. The results show that only community engagement contributes to brand trust.

**Editor's Note:** *In spring 2006, in collaboration with the Mobile Marketing Association, the International Journal of Mobile Marketing was created and launched by Michael Becker. Michael and I served as co-editors of the IJMM from 2006 until 2010, when he became the MMA's Managing Director, North America. Last summer Michael left the MMA to return to his entrepreneurial roots and formed a mobile marketing consultancy. Without his knowledge of mobile marketing and tireless efforts to help educate academics and business professionals about the fledgling mobile marketing industry, the IJMM would never have succeeded. I am forever grateful for his guidance.*

#### ABOUT THE MOBILE MARKETING ASSOCIATION (MMA)

The Mobile Marketing Association (MMA) is the premier global non-profit trade association representing all players in the mobile marketing value chain. With more than 700 member companies, the MMA is an action-oriented organization with global focus, regional actions and local relevance. The MMA's primary focus is to establish mobile as an indispensable part of the marketing mix. The MMA works to promote, educate, measure, guide and protect the mobile marketing industry worldwide. The MMA's global headquarters are located in the United States and it has regional chapters including North America (NA), Europe, Middle East and Africa (EMEA), Latin America (LATAM), and Asia Pacific (APAC) branches. For more information, please visit [www.mmaglobal.com](http://www.mmaglobal.com).

MMA members include agencies, advertisers, hand held device manufacturers, carriers and operators, retailers, software providers and service providers, as well as any company focused on the potential of marketing via mobile devices.

#### ABOUT THE MMA ACADEMIC OUTREACH COMMITTEE

The MMA Academic Outreach Committee (AOC) is chartered with establishing a bridge between the mobile industry and academia. Scholars investigating mobile phenomena provide industry participants with meaningful insights based on theory and research, while industry participants provide scholars with real-world experience and data. The committee encourages an environment within the industry for the sharing of meaningful theory, methods and data between scholars and practitioners alike in order to increase the available body of knowledge on the topic of mobile marketing and to encourage industry growth.

#### ABOUT THE INTERNATIONAL JOURNAL OF MOBILE MARKETING

The MMA International Journal of Mobile Marketing (MMA-IJMM) is regularly published twice per year (Summer and Winter) by the Mobile Marketing Association. Special issues are also published. The IJMM includes articles from academics, students, as well as mobile industry experts and thought leaders.

#### ARTICLE SUBMISSION GUIDELINES

Individuals interested in submitting articles (4,000 – 6,000 words) should submit their draft or prospectus to the MMA. Submissions should be emailed in MS Word format. For more information, please contact [mmajournal@mmaglobal.com](mailto:mmajournal@mmaglobal.com) or visit:

<http://www.mmaglobal.com/node/1863>

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#### Mission of the International Journal of Mobile Marketing

The MMA-IJMM is dedicated to helping the industry understand the emergence of the mobile channel and its use for marketing. Contributions to the journal come from academics, industry experts and thought leaders. Contributing articles are conceptual, qualitative, and quantitative in nature and add to the growing body of knowledge within the field of mobile marketing.

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# MOBILE BRAND INTERACTION IN SOUTHEAST ASIA: A COMPARATIVE STUDY

Kae Ahanonu, Patrick Biggerstaff, Aleks Flacuks, Marc Hatfield,  
Matt Nahman, Kala Seal, Terry Tram, Kris Woods, Daniel Yerelian

## **Abstract:**

*The rapid adoption of mobile technology in Southeast Asia has provided local and international brands with new opportunities to interact with consumers. Embracing the unique aspects of mobile has enabled a region that was once lacking in consumer understanding of technology to rapidly approach parity with consumers in more developed countries. Like the United States, Southeast Asians are now constantly connected through their mobile phones and are Internet savvy. In 2012, 29 million smartphones were purchased across the region, up 78% from 2011 (FierceMobileIT, 2013). Meanwhile, an advertising industry that has been stagnant for decades with few unique media options suddenly has new technology that is being rapidly adopted and utilized by the majority of consumers. This opens up a new channel for engagement. Brands are now being challenged to better understand mobile technology and how it impacts their marketing strategy, as consumers in the region have shown that they are open to interacting with brands via mobile in the right context, with the right message and at the right time. The focus of this study is to better understand how brands in Thailand, Vietnam, Malaysia and Singapore can go beyond traditional advertising and deeply engage with consumers via mobile to generate brand loyalty among them. The study looks at recent mobile trends in each region, the strategies brands are using in mobile, the approach brands take toward measuring their mobile footprint and the future of mobile brand engagement across Southeast Asia.*

**Keywords:** *mobile, smartphone, branding, customer interaction, Southeast Asia, Singapore, Malaysia, Thailand, Vietnam, marketing, brand engagement*

## **INTRODUCTION**

Given that most mobile phone consumers view their phone as an essential device for communication, organization, navigation and entertainment, the opportunities for brands to interact with these consumers on the mobile channel has grown significantly over the last few years. The mobile platform allows an always-on connectivity with consumers and can be highly localized and personalized, quickly making this one of the most effective channels that businesses can use to achieve brand engagement. Simply defined, brand engagement is the method by which brands connect and interact with their intended consumers with the purpose of creating and sustaining awareness of their brand. While consumers have made the transition to embracing mobile, the potential for mobile has not

been realized by many brands in the United States and the majority of brands in Southeast Asia.

This study looks at how brands in Thailand, Vietnam, Malaysia and Singapore can go beyond traditional advertising and engage with consumers via mobile, and reviews recent mobile trends in each country and the strategies brands are using to harness these trends. We comparatively look at the United States and further describe the issues faced by the Southeast Asian brands in using mobile for brand interactions, especially in creating metrics for measuring their mobile footprint. Our research shows that Thailand, Vietnam, Malaysia and Singapore have unique opportunities for mobile brand interactions that are specific to each country's users and molded by various macroeconomic and business factors.

## LITERATURE REVIEW

There have been numerous journals and articles related to the development of mobile platforms during the smartphone and tablet revolution of the last decade. Some of the current literature looks at mobile as part of a larger advertising and marketing study while other research touches on mobile-specific elements such as apps and the “third screen” as an alternative to TV and the Web. These studies have focused on specific regions, including Europe and Asia. Bellman, Potter, Treleaven-Hassard, Robinson, and Varan (2011) research the ways branded apps impact consumers’ perception of the brand and the steps brands can take to improve this perception. In their paper “Success Factors With Apps,” Chiem, Arriola, Browers, Gross, Linmman, Nguyen, Sembodo, Song, and Seal (2010) note the ways brands in Europe can refine their app strategy within mobile. Tanakinjal (2010) focuses on consumers’ preference toward various types of mobile marketing messages. Tan, Kwek, and Li (2011) highlight the benefits of advertising within the social sphere with a focus on interactive ads, moving beyond traditional banner advertising. In “The Future of Advertising,” Gupta (2013) focuses on the power of apps within the mobile space and how these apps can be customized to maximize performance.

While these studies have focused on elements of mobile in various regions, there has not been an all-encompassing analysis of mobile brand interaction in Southeast Asia that touches on all of the mobile elements that brands can utilize to interact with customers. With mobile technology rapidly changing and Southeast Asia ripe for growth, there is value in a comparative analysis on mobile brand interaction covering Thailand, Vietnam, Malaysia, and Singapore. This study can be used as a guide for brands looking to expand their footprint in the region to better understand the opportunities for mobile brand interaction.

## RESEARCH SCOPE AND METHODOLOGY

This paper focuses on four key components that paint an overall picture of the mobile environment in Thailand, Vietnam, Malaysia, and Singapore: the mobile landscape in each country, company strategies, measurements and future trends. The objective of this paper is to explore the different factors contributing to mobile interaction and to uncover opportunities and strategies for implementing successful mobile campaigns using the United States as a key guide for best practices.

A case-based research method was used as described in Applications of Case Study Research (Yin, 2003) where primary data was collected from interview-based input provided by 27 key players across the mobile value chain. Interviews were 60-90 minutes long and digitally recorded with the interviewees’ permission. Interviews included structured and open-ended questions intended to focus on the factors identified above. Following each interview the authors used notes, digital recordings and a pre-defined debriefing template to collectively review and triangulate responses and compare them with data from other interviews. Through this iterative process additional insights and questions were discovered and integrated into subsequent interviews for further examination.

Although case-based research does not provide the same level of detail when compared to quantitative research based on statistical analysis, it still produces informative, qualitative insights with regards to the research question and subject matter of this paper.

Interview participants were selected from across the mobile value chain. Table 1 displays the list of interviews conducted across each of the countries studied, along with their position in the mobile value chain.

**Table 1: Interviews conducted in Thailand, Malaysia, Vietnam, Singapore and the United States**

Country	Total Interviews	Brands	Telecommunication Companies	Marketing Firms	Other
Unites States	11	Merkle, Johnny Rockets, NBC Universal		Mobile Marketing Association, PlacelQ, Arnold Worldwide, Giant Media, Mobile Fusion, TBWA	DataXu, Ball State University
Thailand	5			Saatchi & Saatchi, Publicis, MEC	Ghislaine Bovy, ThumbsUp
Vietnam	4	MegaStar Media Company		Lowe, Ogilvy	TechInAsia
Malaysia	2	Google	Maxis		
Singapore	5	Google, Viki		TBWA, Dentsu Mobius	inMobi

**Country Landscape**

With a growing population of more than 600 million, the Southeast Asian region reflects a diverse mix of economies and cultures with varying mobile technology uses. The countries studied encompass 195 million people, or about 33% of the Southeast Asian population (The World Bank, 2013).

Mobile penetration is gauged by the number of subscriptions that are active with a carrier. Southeast Asian countries already have a large percentage of active subscriptions per capita, as seen in Table 2. On average, these countries have a mobile penetration rate of 146% as compared to the 104% of the United States (NBTC, 2013; Magdirila, 2013; Forest-Interactive, n.d.).

In recent years there has been a shift in mobile device ownership from the prevalent feature phone to the more media friendly smartphone. Advances in technology have begun to drive prices down and smartphone ownership has begun to rise. Some of the large manufacturers in Southeast Asia have been able to target lower income consumers by using basic smartphone technologies instead of cutting-edge ones. Costs are significantly cheaper than that of top models and the devices still offer Internet access, Web browsing, text messaging and other basic smartphone features (M. Borelli, personal communications, May 28, 2013).



**Table 2: Mobile penetration rates in Thailand, Malaysia, Vietnam, Singapore and the United States**

Country	Population	# of Mobile Subscribers /Subscriptions	Mobile Penetration	Smartphone Users (as % of all mobile phone users)
Thailand	67 million	85 million	127%	61%
Malaysia	30 million	42 million	140%	27%
Vietnam	92 million	147 million	160%	35%
Singapore	5.5 million	7.2 million	131%	57%
United States	317 million	330 million	104%	61%

In Thailand, smartphone mobile subscriptions are currently growing 30% annually (Del Rey, 2013). Vietnam has seen its smartphone penetration rate double from 2011 to 16% (Thanh Nien News, 2012). Smartphone sales across the region were up 78% in 2012, with an average of 44% of consumers looking to buy a new smartphone in the next 12 months (FierceMobileIT, 2013).

Mobile access is also made easier by the prevalence of pre-paid SIM cards. Decentralized networks of resellers are able to distribute SIM cards with pre-paid data and minutes. Through these resellers, various providers offer discounts for the purchase of prepaid minutes or data plans. This model of decentralized distribution is cause for concern to telecommunication companies as it interferes with the direct relationship they have with their consumers, but at the same time it provides a large distributor network which helps the mobile providers gain more users (A.M. Do, personal communications, May 27, 2013).

**Infrastructure, Service Providers and Government**

Mobile infrastructure in Southeast Asia has been expanding to support the ever increasing smartphone data usage and help companies stay competitive. 3G network technologies have been implemented in all four countries, with Malaysia and Singapore having already completed implementation of the 4G network and Thailand officially launching its soon

(WorldTimeZone, 2013). This additional bandwidth and service coverage has allowed for the streaming of TV shows, music, games and other apps.

The governments in Southeast Asia often play an active role in policies and promotion of mobile device use. For example, in Vietnam the Ministry of Telecom and the Ministry of Defense actually compete to provide mobile services to Vietnamese consumers, enabling local business mobile providers to keep spending lean and their costs to consumers low (A.M. Do, personal communications, May 27, 2013).

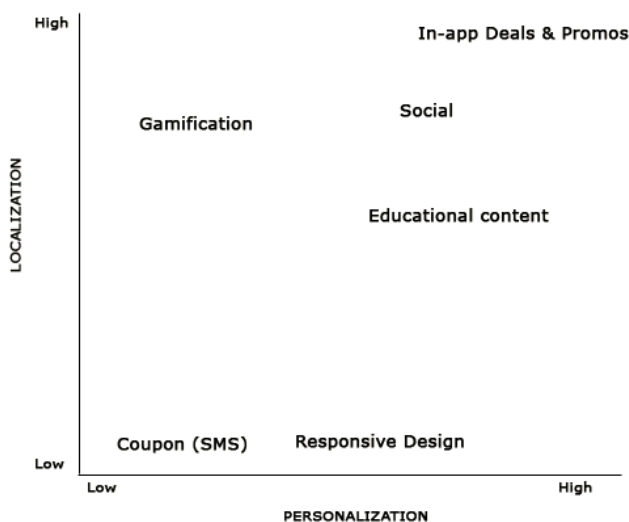
In Malaysia, the government has set a goal to reach 50% penetration of Internet services in 2013 and push toward 75% penetration by 2015. A program was launched in 2013 allowing consumers within a certain age group to receive a subsidy toward the purchase of an entry-level smartphone (N. Roy, personal communications, May 30, 2013). Income-based smartphone subsidies also exist for Malaysians that earn less than RM 3,000 per month (approximately U.S. \$934) (S. Danapalan, personal communications, May 31, 2013).

**COMPANY STRATEGIES & EXAMPLES**

Mobile is an interactive medium that is always connected to consumers and offers high levels of personalization and localization. Understanding and utilizing these three points is critical to success in mobile. Figure 1 illustrates how some of the tactics

discussed can be classified in terms of personalization and localization use. Companies must also grasp a key concept that mobile is an extension of existing campaigns and strategies rather than a separate entity (A. Leitao, personal communications, May 28, 2013). A unified approach will allow brands to keep their messages consistent regardless of where or how it is consumed by users. As mobile growth has steadily increased it has become more and more important for businesses to find ways to operate successfully within the space as they progress through different levels of understanding of mobile presence and strategy implementation.

**Figure 1: Personalization and localization features of various engagement tactics**



**Social Strategy**

One of the primary purposes of mobile devices has been to facilitate seamless communication between friends and colleagues. In today's environment mobile has become inherently social with consumers spending hours at a time on social sites such as Facebook, Twitter and Instagram. These platforms provide a simple and effective means by which brands can interact with their users in a personalized and localized fashion. Along with simplicity comes the added advantage that their

customers are already active on these systems, and perhaps more importantly, there is virtually no cost to develop a campaign and engage with consumers.

In Vietnam, MegaStar leverages Facebook to better listen to and respond to their consumers that have questions or concerns. This direct, personalized connection and consistent interaction creates an even stronger bond between those users and the brand. Furthermore, the company provides utility and entertainment to its users by publishing show times within their Facebook page and including live feeds of special events using photos and other cinema-related content, all within the social sphere. The use of Facebook by the brands for brand communication enables users to have a consistent experience from mobile to desktop, thereby helping the brands to keep campaign elements aligned.

There are cases where social is the only approach being used by Southeast Asian brands. Some companies do not have a website, but instead manage all their external communication directly through Facebook. By building their site on Facebook, companies are able to gain access to a large group of consumers quickly and cost-effectively. Additionally, businesses are beginning to use the concept of branded hashtags on Twitter to encourage users to discuss brand-related content.

Singapore is indeed a leader in embracing mobile for creating integrated media campaigns. Its newspapers, TV channels and the Singapore Metro Rapid Transit have created many successful campaigns using QR codes, augmented reality and social media (Rao, 2012). In Singapore, there is an opportunity for brands to embrace rich media channels such as YouTube and engage with consumers looking to view mobile video. Shifting a traditional media campaign to a mobile campaign is generally a straightforward process using this platform. Meanwhile, in Vietnam, there are growing social chat applications like Line and Zalo that provide users with a fun way to engage in an

ordinarily mundane daily task through the use of stickers. These stickers then give brands the ability to send direct messages to users about their products for a specified duration.

### ***Other Elements of Mobile Strategy***

Some other key components of company strategies that either exist or are being considered in the region include responsive design, gaming/gamification, educational content generation and couponing.

Responsive design is about adjusting website elements based on the detected mobile device screen size. Such designs are prevalent in Singapore; however, it can be difficult for large corporations to implement due to their expansive websites. It affects the total cost and overall complexity, as well as increases localization challenges. Regardless, it is still a relatively inexpensive way to cover multiple platforms when compared with the development of native applications for each and functionalities within responsive designs are growing rapidly. Ad agency TBWA, for example, likes to understand the most likely user intent on specific devices to add or remove features or functionalities to improve the user experience on that specific device.

Games are hugely popular among the mobile users in Southeast Asia, particularly after the entry of smartphones into the market. With the increasing power in mobile devices, game studios have been able to create entertaining and engaging games for users. Brands looking to take small, low-cost steps into mobile can take advantage of the popularity of games by collaborating with the studios that produce them. These partnerships allow the companies to interject their brand and potentially gain consumer traction. Some companies can take a different approach and create their own game, all with the same objective of increasing consumer interaction and customer loyalty. An example of effective gamification is the iButterfly app created by Dentsu Mobius. This app was built for

a local mall in Singapore to entice customers to shop in their stores. It implements augmented reality to create digital butterflies that users can catch on their mobile device. Each butterfly contains a coupon or some other incentive to visit a store in the mall (M. Briant, personal communications, June 3, 2013).

Educational content on mobile is big across the region for both consumers and brands. Content that provides utility is used as a tactic to drive interaction by providing useful information for a certain demographic. An example is Nestlé's energy calculator app in Vietnam. The app is centered on educating moms about balancing their kids' energy needs with their nutritional needs. Using content that is based on dietary requirements for kids throughout the country, they show how consumption of a particular food equates to how much energy children should expend (A. Leita, personal communications, May 28, 2013). This utility provides access to a customer when they are in need of service or information, positioning the brand as a solution to their problem when they become in-market for goods or services.

Coupons and deal-based campaigns are also used heavily in Singapore. These can continue to be an attractive option for brands moving forward as Singaporeans tend to respond well to this and have a high propensity for shopping. Typically, these campaigns tend to be via SMS, which is not personalized and not localized. With the expansion of smartphone geo-fencing and the ability to track user behavior within an app, deals and promotions via push notifications are able to grow. Standard coupons can be part of these deals and promotions, but in this case the couponing strategy becomes a highly targeted and highly localized proposition.

In Southeast Asia, consumers are open to advertising on mobile specifically. While the acceptance rate of opt-in messages in the United States is low, Malaysians in train stations accept 30% of ad messages and nearly 60% in shopping malls

(S. Danapalan, personal communications, May 31, 2013). If consumers trust the brand, find the message contextual and are given the option to opt-in as opposed to being forced to opt-out, they are often open to messaging. However, the majority of mobile marketing is in the form of mass SMS messaging and those messages are typically viewed as spam by consumers. Brands often buy bulk message inventory from mobile carriers and provide the carrier with a message to send to consumers, which is then disseminated in bulk. There is no demographic targeting outside of the general demographics of the mobile carrier. Carriers also do little monitoring about the relevancy or content of the message. With no built-in opt-out functionality and the annoying nature of such communication, there is little favorable brand impact which can be achieved through SMS.

#### ***Educating Brands on the Power of Mobile***

Before asking what unique campaigns brands have developed on mobile devices, we must first ask, "Are brands even considering mobile?" Many are not. On average only 5% of media spend is allocated for online, with mobile being a fraction of the online spend. Consider that the largest newspaper in Malaysia has one million readers (the majority are older than 45), and there are five million Malaysians online everyday (55% are between 20-29 years of age, 75% of which are located in urban areas) (S. Danapalan, personal communications, May 31, 2013). Despite this, traditional media such as TV and newspaper are continuing to sell out ad inventory and companies are still not embracing online as a principal channel. Maxis, the largest mobile carrier in Malaysia, who positions its company as a premium mobile service, launched a mobile-optimized website only in 2012. Malaysians, and specifically Gen Y Malaysians, have shifted to online, but brands have yet to catch up.

One of the reasons brands across the region have been slow to shift toward online and mobile is that

marketing teams at large organizations are too dependent on their ad agencies for decision-making, and these marketing departments have been convinced by the agencies that traditional media is a viable way to reach consumers. A traditional approach is beneficial for agencies as the brand's media spend remains high and the well-established performance formulas stay intact (spending \$X on TV ads generates \$Y increase in sales). Given the perceived discounts on large advertisement spending that agencies secure for their clients and the familiarity and comfort these clients have with traditional media campaigns, there is little reason for agencies to recommend a shift toward online and mobile. Furthermore, many agencies avoid advising clients on where consumers are actually spending their time, as it would quickly reveal the limited reach of traditional media and the ever increasing wider reach of online and mobile. Consumers spend four times more time online than with TV and 10 times more time online than with print media. In addition, one-third of all search queries are made on mobile, but many Southeast Asian brands are unaware of these current trends (S. Danapalan, personal communications, May 31, 2013).

In Singapore, digital gets 15%-19% of total marketing spend while mobile only gets 1%-4% (M. Briant, personal communications, June 3, 2013). Similarly, Malaysia is one of the leaders in smartphone penetration across Southeast Asia, yet brands have lagged behind in developing a strong presence on mobile devices. In Vietnam, some brands believe that a mobile app or social presence can replace traditional media. Mobile remains a new platform for most companies throughout Southeast Asia, but it is clear that mobile will continue to grow and the business case for mobile campaigns will become more convincing. Most brands the authors met with across the region see the value in mobile but are not shifting budgets to mobile fast enough. It is critical for agencies to continue educating brands on mobile's

value and how to better leverage mobile to create beneficial campaigns. Agencies like Lowe and Ogilvy are helping to re-educate brands on the right mix between traditional and mobile and how to truly take advantage of the mobile channel to interact with their customers.

In Thailand, companies have begun to pay attention to the number of users who are coming to their websites via smartphones and tablets. According to companies like Thumbs Up, this is the initial measurement on which brands are basing mobile spend (O. Lerdsuwankij, personal communication, May 22, 2013). Brands are finding that traffic generated from mobile devices is rising. In most cases, traffic levels of 30% or more emanating from this platform will trigger projects within the company, such as the mobile optimization of their site and/or the creation of an app. However, there is a great deal of education required for those looking to successfully promote a brand on mobile and the marketers who still rely on traditional media. These companies still do not fully understand or see the value that digital and mobile bring to a marketing campaign.

Besides understanding value, another hurdle to brands' success in mobile is the divide between their information technology (IT) and marketing departments. IT drives platform choices and marketing typically drives user experience. Mobile encompasses both areas and thus coordination is needed between these departments to generate a positive brand experience.

The perception of what digital and mobile can achieve has been skewed. Many brands look at digital and mobile as a forum for conversation and engagement with their customers to understand their brand perception. This approach generates useful insight. The benefit of wide reach across digital and mobile for brand awareness campaigns using a large budget is often not considered, despite mobile being the media where consumers are spending the majority

of their time. Additionally, while several travel companies have increased spend to focus on online and mobile transactions, the majority of brand websites are not optimized for end-to-end transactions and thus transaction-focused campaigns on these platforms are also rare.

## **MEASUREMENT**

The complexity of measuring the value of a mobile brand presence has been one of the key roadblocks in the switch over of brands' marketing focus from traditional media to mobile, both in Southeast Asia and the United States. It is clear that consumer usage and interaction focus has shifted to mobile and that the rate of mobile adoption continues to grow exponentially. In the United States, users are spending 23% of their time on mobile compared to other forms of media. However, total mobile ad spending has significantly lagged behind consumers' shift to mobile; one of the main reasons is an inability to measure the success of brands' presence on this platform (Walsh, 2012).

The general consensus from agencies and brand teams is that without a clear method of deciphering the success of mobile campaigns the risk is simply not worth the reward. It is clear that many of the companies that authors met with were anxious for the development of an industry standard, straightforward approach to mobile measurement. Perhaps recent measurement initiatives from U.S. companies such as Adobe will make their way to Southeast Asia and provide comfort for marketing teams (Hernandez, 2013).

### ***Types of Campaigns: Brand Awareness versus Conversion***

Measuring a brand's presence on mobile differs greatly based on the goal of the campaign. Many of the risk-averse brands interviewed are stuck in a Web model where they are simply shifting measurement tools used for Web campaigns to mobile. Reports for

banner-focused campaigns often include standard metrics such as click-thru rate (CTR) and impressions, though it is clear that many brands in Thailand and Vietnam are not even using these basic CTR analytics. It is data the brands have little experience with and few benchmarks for future decision-making. There is little emphasis placed on analyzing this data, partially due to the fact that the budget for brand awareness campaigns on mobile is so small.

While mobile is often a perfect platform for conversion campaigns, many brand sites in Thailand, Vietnam, Malaysia and Singapore do not have functionality in place to enable consumer transactions on their site, thus it is not possible to close the loop on the cycle. Conversions or interactions that are initiated on the mobile platform then are completed on a different platform are often analyzed by U.S. companies to ensure mobile branding is not undervalued due to incorrect measurement. As a first step, it is important for brands that have a purchase option on mobile to ensure the purchase process is as easy as possible for their users. Reducing the number of steps to purchase is a good starting point. 1-800-FLOWERS in the United States determined their shopping cart was a feature customers utilized, but order tracking was less necessary and too cumbersome, thus they removed it from their mobile store (Spero, 2012). Improving the mobile purchase process makes the value of mobile branding easier to quantify because it directly links to a sale, and as Southeast Asian brands begin enabling purchase functionality on their sites, this is an important tactic for them to remember.

### ***The Cookies Challenge***

One of the key measurement challenges that face brands is a lack of cookies on most mobile platforms. iOS does not share cookie data with third parties, and while Android is slightly more open to data-sharing, accessible data differs by app and browser across mobile (M. Hanley, personal communications, April 19,

2013). Given the inconsistencies, it is almost impossible for brands to develop a targeting and retargeting strategy for a campaign that can be adequately measured. This lack of cookies forces brands to develop new strategies for targeting and determine which measurement metrics are truly applicable for their strategy.

The cookie-less mobile environment makes it challenging to identify which specific users made a purchase due to a brand message or advertisement, and thus a direct correlation between advertising spend and revenue increase cannot be ascertained. For many brands, measuring the value of any campaign ultimately comes down to a question of “does this make us money?” (J. Morrow, personal communications, April 25, 2013). With companies needing a return on their marketing investment, closing the loop is key. Direct response ads that drive traffic directly to transactional mobile apps are more straightforward with one-to-one correlation of click activity to purchase. More difficult, however, is measuring the impact of branding campaigns that are not necessarily meant to drive an immediate conversion. Without cookies to keep track of the user, and also the possibility that the user may switch devices to complete the transaction, tracking of closing-the-loop becomes a very daunting task. Many agencies expressed that significant opportunities exist for companies that can address this problem.

### ***Interaction***

Southeast Asian brand representatives seem to agree that the unique value of a mobile brand presence is generated outside of mobile ads and is centered on consumer interaction. Following the U.S.’s lead in a forward-thinking shift beyond CTR and impressions, some Singaporean brands are measuring interaction rate, average interaction and the cost-per-interaction. They have built mixed-model reports similar to Arnold Worldwide in the United States that aims to quantify the value of consumers spending time

with an ad or app and measuring their interaction with it, including how deep into the app they travel and how often they swipe the screen. Click-thru rates can be expanded to measure how long a user stays on a site after clicking an ad or what actions they take while on the site. Such interaction can be measured using pixels from third-party data verifiers that track all user activity and in some cases actual transactions, indicating the level of engagement with an ad, site or product specifically (M. Ali, personal communications, April 17, 2013).

Measurement of content consumption such as video is also important, and Ogilvy in Vietnam tracks this closely. Many brands consider the best engagements to be “high value tasks” which are defined as an action by a user that requires effort and shows interest in a brand (M. Doherty, personal communications, April 6, 2013). Creating a Facebook post or downloading a coupon are good examples of high value tasks. The goal of brand engagement analysis is to tie engagements back to sales. Generally, Southeast Asia lags behind the United States in this analysis, although most brands interviewed agreed that interaction is the key part of the mobile strategy.

Assigning value to interaction helps brands measure the value of their advertising efforts. Using historical website data and user trends, brands can diligently research the cause and effect of any specific action taken on the site and determine approximately what value such interaction could lead to. Typical interactions that can be assigned value include loyalty membership registrations, newsletter sign-ups and white paper downloads. These are all items that create a connection between the brand and a user. Using proper website analytics to attribute these actions to responses from mobile campaigns will allow brands to assign value and ROI to mobile advertising campaigns.

### ***Additional Metrics***

Surveys can be used to measure brand sentiment and brand favorability; however, one problem with surveys in a cookie-less environment is an inability to properly assess a control sample and an exposed sample. Essentially, all the surveys need to be completed immediately after exposure, which leads to unrealistically positive feedback as there is no lag between exposure and questioning recall (M. Doherty, personal communications, April 6, 2013). This is beneficial for agencies as the results of their efforts typically come back as positive, but the value to brands is low. We learned from U.S. companies that if a brand is hoping to measure brand sentiment, brand trust surveys are typically the most common way to ask the user qualitative questions about the brand. However, most of the brands that we spoke with admitted that data from these surveys is often skewed or inaccurate. Securing a participant in a survey is an interruption, and any user that chooses to participate likely has a strong feeling about the brand, either positive or negative. There is also a likelihood that consumers will overcompensate if they have little awareness of the brand, wanting to feel like they are up-to-date, resulting in an overstatement of their opinions of the brand and the sentiment they feel toward it.

Social measurement is another vital tool for Southeast Asian brands, as social campaigns are becoming an integral part of company strategy. Social media is easier for brands to measure, according to Thai brands that we interviewed. They measure likes, comments and re-tweets to identify the level of engagement with a brand. Megastar and Publicis in Vietnam are also very focused on social listening and tracking the level of engagement on their social sites, including photos uploaded. Mobile can uniquely provide brands with instantaneous feedback from customers through social media sites such as Facebook and Twitter. Whether positive or negative,

quick and direct feedback is incredibly valuable to companies as it helps gauge the success of their strategy.

Many of the interviewees in Southeast Asia said that apps were important, but it was never really clear why. This is particularly true in Vietnam where many users do not download new apps and instead use only the apps which are pre-loaded on their phones when they make their initial purchase. U.S. data notes that most users only view five to seven apps, which means the majority of apps do not provide a benefit to consumers (Walker, 2012). Several Vietnamese brands simply measure the number of app downloads or the number of transactions that were generated from the app, if purchasing is enabled. To boost the value of measuring apps, brands should look beyond cost-per-install metrics and also focus on usage rate after installation. Ongoing engagement with apps can show the true value of an established relationship with a user.

#### ***Key Performance Indicators (KPIs)***

Setting key performance indicators (KPIs) is important to track specific goals and areas of development for mobile campaigns and to set targets for the measurement tools. TBWA in Singapore builds campaigns to solve the specific needs of its clients and then develops specific KPIs around the campaign goals to measure the effectiveness of the campaign. According to a spokesperson from U.S. agency Merkle, KPIs need to be actionable and brands must be able to make decisions from the KPIs they are tracking to improve the campaign (B. Hershey, personal communications, April 25, 2013). KPIs also need to be re-evaluated every 90 days, otherwise brands are being slow to market and not staying ahead of the customer. Lack of re-evaluation typically happens because the brand often does not have a budget and thus can not review KPIs on a regular basis.

## **SUMMARY AND FUTURE TRENDS**

In this paper we have explored a number of points relevant to Southeast Asia in regards to the mobile landscape, company strategies and measurement techniques. Table 3 is a brief summary of our findings.

The future of mobile in Southeast Asia is promising as it is at the dawn of a new digital age in which mobile is poised to be the main platform for data consumption. When comparing the future of mobile in the United States to countries in Southeast Asia, most countries are trailing the United States by several years due to economies of scale, with Singapore being the one exception. The United States is slowly reaching a plateau in terms of smartphone adoption, while there still exists massive growth opportunity for smartphones in Southeast Asia. As leaders in app and mobile development, U.S. companies are focused on the next phase of mobile engagement. The areas of interest are mobile payments, wearable devices such as smart watches and smart glasses, and lifestyle technology. Southeast Asia is at a pivotal point of smartphone growth, mirroring the documented growth and development that was experienced in the United States for the past several years. In the near future, most Southeast Asian countries will be focused primarily on delivering a more reliable mobile network infrastructure, reaching critical mass, educating consumers on mobile functionality and features, and developing mobile apps and customized mobile sites to engage users. While the mobile future of each country is unique based on the macro environment, brands in each country have one common goal: to utilize mobile to create brand interaction and effectively engage users with their brand.

A few areas in mobile technology that are gaining traction in Southeast Asia include utilization of location data, mobile rich media, community-driven platforms, and mobile payment. Across all of these various approaches by the brands to utilize mobile to



engage consumers in Southeast Asia, there is one constant: social. As the quickest and most cost-effective route into the channel, it is no wonder that brands are using social as a test ground. Facebook provides brands with a massive platform to begin engaging consumers via mobile and increase their brand awareness. Yet with the rise of social chat

platforms like Line and Zalo, and their ability to provide built-in news feeds and Internet browsers, coupled with a new generation of mobile users, Facebook will begin to see competition.

The engagement level of rich media ads is higher than standard ads due to the element of emotional interaction through various campaign forms such as

**Table 3: Summary of key elements**

	<b>Landscape</b>	<b>Company Strategies</b>	<b>Measurement</b>	<b>Challenges and Future Opportunities</b>
All countries	<ul style="list-style-type: none"> <li>• Technology bringing down prices of smartphones</li> <li>• High-paced growth in smartphone demand</li> <li>• Pre-paid SIM cards</li> <li>• 3G everywhere with 4G there or coming soon</li> </ul>	<ul style="list-style-type: none"> <li>• Social/Social track</li> <li>• Mobile rich media</li> <li>• Responsive Design</li> <li>• Games</li> <li>• Educational content</li> <li>• Coupons</li> <li>• Celebrity endorsement</li> </ul>	<ul style="list-style-type: none"> <li>• Click-through rate (CTR)</li> <li>• Impressions</li> <li>• Cookies</li> <li>• Interaction</li> <li>• Information</li> <li>• High-value tasks</li> <li>• ROI</li> <li>• Surveys</li> <li>• Social listening</li> <li>• KPIs</li> </ul>	<ul style="list-style-type: none"> <li>• Development of mobile payment to close the loop</li> <li>• Integration of analytics with mobile engagement strategies</li> <li>• Attribution of completed transactions to the correct channel</li> <li>• Rich media engagement and community driven platforms</li> </ul>
Country-specific observations	<ul style="list-style-type: none"> <li>• Income-based subsidies for smartphones in Malaysia</li> <li>• 4G already deployed and high smartphone penetration in Singapore and Malaysia</li> </ul>	<ul style="list-style-type: none"> <li>• Thailand is the leading market for game-based engagement</li> <li>• Pre-loaded apps and e-sticker through social chat in Vietnam</li> <li>• Most integrated media campaigns and rich media engagement in Singapore</li> </ul>	<ul style="list-style-type: none"> <li>• No basis CTR analytics in Thailand and Vietnam</li> <li>• Singapore is going beyond the simple CTR and using interaction rate to measure engagement</li> </ul>	<ul style="list-style-type: none"> <li>• Vietnam operators want to dominate the market. More competition should be encouraged</li> <li>• Singapore is a small market but a great place to launch efforts for other Southeast Asian markets</li> </ul>

videos, games, apps or information. The interactivity and ability to deliver relevant ads to consumers will help rich media ads to become much more prevalent in Southeast Asia in the next five years.

For community-driven platforms we believe the total number of branded apps in Southeast Asia will decrease in the upcoming years, leaving only high quality ones that provide real value. Such purposeful apps may be educational or knowledge-based, platforms supported by communities, or apps extending from product/brand to a meaningful service or extension of a product. Developing mobile strategies with a purpose will provide content that is engaging to consumers. Enabling platforms to be crowd-sourced empowers individuals to not only contribute and feel valuable but also connect with others in the community. Similar to the United States, Southeast Asians enjoy entertainment and are more likely to purchase a product if a celebrity has endorsed it. This community is an important platform as it is a highly effective way for agencies and brands to market to consumers.

While brands aim to promote a product to engage users into a purchase or measurable interaction, there is not an effective way to tie a mobile ad to a transactional purchase. In Singapore, much of the digital discussion is around mobile transactions. Singaporeans are accustomed to purchasing goods by a simple wave of their credit card. With the telecommunication and banking industries working together to bring mobile payments to the masses, near-field communication (NFC) transactions are likely to increase. Apple, with an end-to-end approach of design, hardware and software, will perhaps be a leader in NFC. This will help close the loop that exists when tracking mobile transactions, as brands will now be able to tie a mobile ad campaign to a physical in-store purchase. By obtaining these metrics, companies may be inclined to increase their mobile marketing

budget, as this is a less expensive and more effective strategy to engage with consumers.

#### **LIMITATIONS AND FUTURE RESEARCH**

One of the biggest limitations of this research is the selection of the countries. During the discussions with the persons interviewed, the authors found that countries like Indonesia and China are playing a much larger role in influencing the trends of mobile technology and customer behavior in Southeast Asia. Including these countries in our study would have made for a more complete narrative, but was not possible in the constraints of the research methodology.

We also felt there were other areas that could have been explored in more detail. A quantitative research study on consumer attitudes in the region could provide good insights to the region. Also, with high levels of government involvement in many of these countries, a future study of the region could include more interviews with government entities. Lastly, the speed at which the mobile channel is growing in this region will likely change the landscape and company strategies rather quickly, therefore making it necessary for more studies to be conducted in the near future.

#### **CONCLUSION**

As mobile continues to become a sense of identity for consumers, brands will be well served to create a unique experience that their users can relate to and share with friends and family. Ultimately, mobile must be looked at as a long-term investment and not just a one-off option for any particular campaign. Companies looking to compete within the mobile space in Southeast Asia should develop a mobile-first approach and look to provide users with an engaging experience that provides them a utility and/or entertainment to enjoy at home or while traveling to and from work. Before that investment pays off in the form of

increased interaction and revenue, brands must be better educated as to the real value of mobile and where the opportunities lie. Brands should also take note of the social nature of the users and find a way to inject their brand into that space. At the same time they should be mindful of one of the biggest hurdles in determining successful mobile strategies and campaigns: measurement.

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# MOBILE MARKETING COMMUNICATIONS IN THE RETAIL ENVIRONMENT: A COMPARISON OF QR CODE USERS AND NON-USERS

Jay Sang Ryu

**Abstract:**

*In response to the trend toward ubiquitous mobile communications, this study compares shopping-related personal characteristics and behaviors of QR code users with those of non-users. Data was collected from 258 university students in the United States. The respondents were evaluated on eight criteria: consumer innovativeness, market mavenism, achievement-seeking shopping behavior, efficiency-seeking shopping behavior, adventure-seeking shopping behavior, idea-seeking shopping behavior, value-seeking shopping behavior, and extent of prior mobile shopping experience. Following data analysis, it was confirmed that QR code users exhibited higher levels of consumer innovativeness and market mavenism and sought greater shopping achievement, adventure, ideas, and value (discounts) than non-users. In addition, QR code users reported more prior mobile shopping experience than non-users; however, no significant difference was found in efficiency-seeking behavior between the two groups. The study concludes with a section that discusses the implications for retailers to develop more effective mobile marketing communications using QR codes and suggested directions for future research.*

**Keywords:** QR code, mobile marketing communications, retailing, shopping behavior

## INTRODUCTION

Since the introduction of wireless Internet and mobile technology, the retail environment has changed significantly. With an increasing number of mobile phone users and consumers embracing a mobile lifestyle, retailers should adopt a mobile marketing mindset in order to build sustainable and profitable relationships with mobile-savvy consumers.

It is documented that about 82% of U.S. mobile phone users search for shopping information or make purchases via their mobile phones (Goldberg, 2010). This new shopping behavior provides compelling reasons for why U.S. retailers should engage in mobile marketing to remain relevant to today's consumers. Mobile marketing is defined as an interactive communication between a company and consumers via a mobile medium, device, or technology (Shankar & Balasubramanian, 2008). Many consumers prefer mobile marketing to conventional or PC-centered marketing because they can access marketing

messages anytime and anywhere (Cunha, Peres, Morais, Bessa, & Reis, 2010).

The Quick Response (QR) code, a mobile-based communication technology developed by the Japanese firm Denso Wave in 1994 (Shiang-Yen, Foo, & Idrus, 2011), is considered by many to be the future of mobile marketing in the retail industry (Batista, 2011). The QR code, a two-dimensional matrix barcode, can be translated into a marketing message by scanning it with a smartphone or mobile phone with a built-in camera using free downloadable QR code reader software (Cunha et al., 2010). While QR code marketing is relatively widespread in Asia and Europe, U.S. retailers have only recently adopted this mobile communication technology for marketing purposes (Batista, 2011). The number of U.S. advertisements featuring QR codes soared more than 600% in 2011 compared to the year before, and was expected to grow at an even faster rate in 2012 (Tode, 2012). Retailers use QR codes to facilitate consumer

interaction with brands by linking the code to brand websites, promotions, product information, or any other mobile-enabled content (Batista, 2011; Goldberg, 2010; Zmuda, 2011). Retailers also engage in QR code marketing because it requires little or no cost to modify the messaging embedded in the code as needed (Batista, 2011; Goldberg, 2010). However, one consumer report indicated that only about 65% of survey participants were aware of the QR code, and only half of those who were aware of the QR code were willing to scan it (MGH, 2011). Therefore, in order to implement successful mobile marketing using the QR code, it is critical to identify who QR code users are and understand how they differ from non-users. Since no research has yet attempted to compare QR code users and non-users in the retail environment, the purpose of this study is to compare consumers of these two groups in terms of shopping-related personal characteristics and behaviors. Furthermore, this study plans to identify the relative importance of these characteristics and behaviors that distinguish QR code users from non-users.

The literature suggests that users and non-users of new technologies differ in many ways, and that individual characteristics significantly affect how each consumer perceives and accepts these technologies (Bina, Karaiskos, & Giaglis, 2007; Park, Kim, & Lee, 2010; Venkatesh & Davis, 2000; Verkasalo, López-Nicolás, Molina-Castillo, & Bouwman, 2010). Innovativeness has frequently been documented as one of the most important psychological characteristics explaining consumer adoption of new technologies (Aldás-Manzano, Ruis-Mafé, & Sanz-Blas, 2009; Bauer, Barnes, Reichardt, & Neumann, 2005; Kim et al., 2008). The role of market mavens has become increasingly prominent in mobile communications (Geissler & Edison, 2005). Since the QR code is an emerging mobile technology-enabled communication service, it is anticipated that its users

and non-users would differ in their levels of innovativeness and market mavenism.

Consumer shopping behavior is influenced by two shopping motivations, utilitarian and hedonic (Babin, Darden, & Griffin, 1994; Chitturi, Raghunathan, & Mahajan, 2008). From a utilitarian standpoint, shopping is a task, and shopping satisfaction is determined by how successfully and efficiently consumers can complete the task (Chitturi et al., 2008; Hirschman & Holbrook, 1982). Kim (2006) found that utilitarian-oriented consumers display achievement-seeking and efficiency-seeking behaviors. The former is directed toward finding all items listed on the shopping list, while the latter refers to saving time and resources during a shopping trip. From the hedonic perspective, shopping is characterized as a fun and adventurous activity (Babin et al., 1994; Chitturi et al., 2008). According to Arnold and Reynolds (2003), hedonic-oriented consumers prefer retail environments that stimulate emotional arousal (adventure-seeking), that allow them to collect shopping information about new trends, products, and services (idea-seeking), and that offer opportunities for discount shopping (value-seeking). Since both utilitarian and hedonic motivations affect consumer behaviors toward mobile communication services and technologies (Bina et al., 2007; Park et al., 2010; Sullivan Mort & Drennan, 2007), it is expected that users and non-users of QR codes would exhibit different levels of utilitarian and hedonic shopping behaviors.

## LITERATURE REVIEW

### *Innovativeness and Market Mavenism*

Innovativeness is an individual psychological characteristic that explains one's propensity to adopt new products and services (Aldás-Manzano et al., 2009). Innovative consumers favor new experiences and are inclined to internalize new technology-based products and services, including mobile

communications (Sullivan Mort & Drennan, 2007). Innovative consumers also tend to make shopping decisions based on the amount of product information received or available (Bauer et al., 2005), which accounts for their openness to new mobile marketing communications services available in the market. Peter and Olson (2002) demonstrated that a positive relationship exists between the level of consumer innovativeness and the amount of information obtained through mobile communications. Dou and Li (2008) asserted that the best mobile communication strategy is a pull strategy, in which marketing messages are conveyed through other objects or media that pull or compel consumers to access the messages. They further identified the QR code as a fitting example of the pull strategy. Rohm and Sultan (2006) empirically confirmed a positive relationship between innovativeness and consumer acceptance of mobile marketing in the United States. As the QR code is one type of mobile technology-based marketing communications, the following hypothesis is proposed:

**H1:** The degree of consumer innovativeness will be different between QR code users and QR code non-users.

Market mavens are more active in acquiring information about products and services (Feick & Price, 1987) and accepting new technologies (Geissler & Edison, 2005). They are confident in learning new technologies, and researchers have attributed this to their general affinity for technology (Barnes & Pressey, 2012). Market mavens are more likely to access media that discuss retail promotions and environments (Higie, Feick, & Price, 1987) and prefer to control their own shopping behaviors than non-mavens (Geissler & Edison, 2005). QR code marketing supports these findings, since it requires consumer initiative to scan the code with a mobile device; thus, consumers control their own actions in seeking shopping information and using new mobile technology-based

services. Thus, this study postulates the following hypothesis:

**H2:** The degree of market mavenism will be different between QR code users and QR code non-users.

### ***Utilitarian Shopping Behaviors***

The utility of technology is determined by the degree to which consumers perceive that the technology improves their performance (Davis, 1989). In retail settings, this performance could be defined as how completely and efficiently consumers are able to perform their shopping tasks using retail technology (Burke, 2002; Cotte, Tilottama, Ratneshwar, & Ricci, 2006; Szymanski & Hise, 2000). Scarpi (2012) discovered that consumers tend to buy online when they believe using such a shopping channel can help them complete shopping tasks quickly, conveniently, and efficiently. Numerous researchers have documented a positive relationship between the utilitarian benefits of mobile technology-enabled services and consumer adoption for such services (Cotte et al., 2006; Ha & Stoel, 2009; Kim et al., 2008; Nysveen, Pedersen, & Thorbjørnsen, 2005; Yang 2010). In a finding that more specifically applies to mobile shopping environments in the United States, Yang (2010) verified that utilitarian performance expectancy is a critical determinant of the propensity to engage in mobile shopping services.

Based on the classification by Arnold and Reynolds (2003) and Kim (2006), consumers' achievement-seeking and efficiency-seeking behaviors are oriented toward utilitarian shopping motivations. Examples show that many retailers implement QR code marketing to assist consumers to complete their shopping tasks in a faster, simpler, and more convenient way. For example, Best Buy's in-store signage with QR codes enables consumers to find product information without the assistance of sales associates (Goldberg, 2010). A big-box retailer in South Korea, Tesco Home Plus, uses the QR code as a

convenient entryway to access its virtual stores (Solon, 2011). These discussions and the examples of QR code usage in retail environments lead to the following hypotheses:

**H3:** *The degree of achievement-seeking shopping behavior will be different between QR code users and QR code non-users.*

**H4:** *The degree of efficiency-seeking shopping behavior will be different between QR code users and QR code non-users.*

### **Hedonic Shopping Behaviors**

The hedonic aspect of retail technology, which includes enjoyment and entertainment, is becoming a critical factor in consumer technology adoption decisions in the retail environment (Cotte et al., 2006; Ha & Stoel, 2009). The importance of hedonic motivations is also documented in studies on consumer adoption of mobile services in various contexts. Kim et al. (2008) found that consumers subscribe to a mobile broadcasting service to fulfill their entertainment needs, while Nysveen et al. (2005) confirmed that enjoyment derived from using mobile gaming and text messaging is a prominent reason for adopting such services. Finally, Yang (2010) evidenced that U.S. consumers' expectations regarding the hedonic benefits of mobile shopping services increase their intention to shop via mobile phones.

As noted earlier, this study deems that hedonic-oriented consumers seek adventure, ideas, and values from shopping (Arnold & Reynolds, 2003; Kim, 2006), and many retailers have exercised mobile marketing communications using the QR code to satisfy consumers' hedonic needs. For example, Macy's has utilized QR codes to highlight entertainment and information offerings by allowing adventure-seeking and idea-seeking consumers to access fashion tips and trends information (Batista, 2011). Value-seeking consumers, on the other hand, may be more likely to respond positively to Target's marketing communications that offer discount coupons via the

QR code (Batista, 2011). Recognizing the above discussions and examples of QR code marketing communications in retail environments, this study advances the following hypotheses:

**H5:** *The degree of adventure-seeking shopping behavior will be different between QR code users and QR code non-users.*

**H6:** *The degree of idea-seeking shopping behavior will be different between QR code users and QR code non-users.*

**H7:** *The degree of value-seeking shopping behavior will be different between QR code users and QR code non-users.*

### **Prior Mobile Shopping Experience**

The users of a certain product are encouraged to use other similar products because of the knowledge obtained from its use (Rogers, 2003). For example, the amount of knowledge about an Internet banking service and consumer adoption of such service are positively related (Pikkarainen, Pikkarainen, Karjaluoto, & Pahnla, 2004). Similarly, when consumers have previously used a certain mobile technology-enabled service, they are more likely to adopt other mobile technology-enabled services (Ozdemir & Trott, 2009). The same relationship is supported in the context of QR code advertising (Jung, Somerstein, & Kwon, 2012). Thus, this study posits the following hypothesis:

**H8:** *The extent of prior mobile shopping experience will be different between QR code users and QR code non-users.*

## **RESEARCH METHOD**

### **Data Collection**

The study sample included 358 undergraduate students taking introductory marketing or consumer behavior classes at a large Southwestern U.S. university. Students were recruited for the study because they were active users of mobile phones (Rohm & Sultan, 2006) and mobile technology-based

services (Kim et al., 2008; Kulviwat, Bruner, Kumar, Nasco, & Clark, 2007). In all, 340 completed surveys were collected. The survey included two screening questions to eliminate study participants who were not aware of QR codes: The first question asked whether they had seen or heard of QR codes before; the second asked whether they had ever scanned a QR code. If the responses to both questions were “no,” their surveys were excluded from the analysis. This screening process eliminated 82 surveys, and the remaining 258 surveys were used for the data analysis.

### **Measures**

Previously developed measurement scales were employed to assess each construct, while the wording of survey items was restated to reflect the objective of the current study. A pretest was administered to 99 university students, and its results were reflected in the refinement of the survey questions. All measurement items, except questions related to demographics and mobile shopping experience, were rated on a 5-point Likert-type scale ranging from 1 = strongly disagree to 5 = strongly agree.

To identify a consumer as an innovator a three-item consumer innovativeness scale (Bauer et al., 2005) was used. The scale confirmed high reliability ( $\alpha = 0.85$ ), and its mean score and standard deviation were 3.48 and 0.87, respectively. A consumer's market mavenism was assessed using a six-item market maven scale by Feick and Price (1987). The scale yielded a mean score of 3.79 and standard deviation of 0.78, with a high reliability of  $\alpha = 0.91$ .

Arnold and Reynolds's (2003) and Kim's (2006) research determined measurement of utilitarian-oriented (achievement-seeking and efficiency-seeking) and hedonic-oriented (adventure-seeking, idea-seeking and value-seeking) shopping behaviors. A four-item achievement-seeking scale ( $\alpha = 0.83$ ,  $M = 3.92$ ,  $SD = 0.79$ ) and a two-item efficiency-seeking ( $\alpha = 0.75$ ,  $M = 3.42$ ,  $SD = 0.95$ ) scale showed acceptable reliability. The adventure-seeking scale comprised

three items. The reliability was high ( $\alpha = 0.91$ ), and its mean score and standard deviation were 3.74 and 0.92, respectively. The idea-seeking scale, consisting of three items, yielded acceptable reliability ( $\alpha = 0.76$ ,  $M = 3.80$ ,  $SD = 0.80$ ). A three-item value-seeking scale confirmed high reliability ( $\alpha = 0.91$ ) with a mean score of 3.95 and standard deviation of 0.90.

Consumers' prior mobile shopping experience was assessed by means of a straightforward question asking whether they had previously used their mobile phones to purchase products and services in different categories. These categories included apparel, groceries, books, software, event and travel-related tickets, and banking services.

### **Data Analyses**

An independent-samples t-test, chi-square test, and two-group discriminant analysis were performed to analyze the data. The t-test was used to compare consumer characteristics and shopping behaviors of QR code users and non-users, and assess whether the differences between the two consumer groups were statistically significant (H1 – H7). The chi-square test was used to examine how consumers' prior mobile shopping experience differed between the two groups (H8). Lastly, the discriminant analysis was performed to identify which consumer characteristics and shopping behaviors most significantly differentiate QR code users and non-users.

## **RESULTS**

### **Sample Characteristics**

The survey respondents comprised 145 females and 113 males with a mean age of 24.1 years. Those who had previously scanned a QR code were assigned to the group of QR code users ( $n=137$ ). The remaining respondents ( $n=121$ ), who were aware of QR codes but had never scanned one, were classified as QR code non-users. Approximately 84% of the respondents ( $n=216$ ) had previously used their mobile phones to purchase products or services.



### **Consumer Innovativeness and Market Mavenism**

Hypothesis 1 postulated that the degree of consumer innovativeness would be different between QR code users and QR code non-users. The t-test result showed that consumer innovativeness varied significantly between the two consumer groups ( $t = 4.03, p < 0.001$ ), supporting Hypothesis 1.

Hypothesis 2 predicted that the degree of market mavenism would be different between QR code users

and QR code non-users. The t-test result confirmed that market mavenism differed significantly between the two groups ( $t = 3.16, p < 0.01$ ), so Hypothesis 2 was accepted.

Table 1 summarizes the mean comparison of consumer innovativeness and market mavenism between QR code users and non-users. As shown in Table 1, QR code users exhibited higher degrees of innovativeness and market mavenism than non-users.

**Table 1: Mean comparison of consumer innovativeness and market mavenism**

<b>Consumer characteristic</b>	<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>t</b>
Consumer innovativeness	QR code users	137	3.68	0.90	4.03***
	QR code non-users	121	3.26	0.77	
Market mavenism	QR code users	137	3.93	0.81	3.16**
	QR code non-users	121	3.63	0.71	

\*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

### **Utilitarian Shopping Behaviors**

Hypothesis 3 advanced that the degree of achievement-seeking shopping behavior would be different between QR code users and QR code non-users. Based on the t-test result, it was validated that two consumer groups displayed significantly different achievement-seeking shopping behavior ( $t = 2.03, p < 0.05$ ), supporting Hypothesis 3. The mean scores in Table 2 confirmed that QR code users sought greater shopping achievement than non-users.

Hypothesis 4 proposed that the degree of efficiency-seeking shopping behavior would be different between QR code users and QR code non-users. The t-test result indicated that there was no statistically significant difference in efficiency-seeking shopping behavior between the two consumer groups. Thus, Hypothesis 4 was rejected.

### **Hedonic Shopping Behaviors**

Hypotheses 5, 6, and 7 posited that the degrees of adventure-seeking, idea-seeking, and value-seeking shopping behaviors would be different between QR

code users and QR code non-users. The t-test results confirmed that all three shopping behaviors varied significantly between the two consumer groups (H5:  $t = 4.25, p < 0.001$ ; H6:  $t = 4.04, p < 0.001$ ; H7:  $t = 3.85, p < 0.001$ ), accepting Hypotheses 5, 6, and 7. Based on the mean scores in Table 2, it was concluded that QR code users sought greater shopping adventure, ideas, and values than non-users.

### **Prior Mobile Shopping Experience**

The chi-square test was used to assess Hypothesis 8, which stated that the degree of prior mobile shopping experiences would be different between QR code users and QR code non-users. The test result confirmed that two groups displayed different levels of prior mobile shopping experience. QR code users tended to engage in more mobile shopping than non-users. This difference was statistically significant ( $\chi^2 = 7.87, df = 1, p < 0.005$ ), and thus Hypothesis 8 was supported.

**Table 2: Mean comparison of shopping behaviors between QR code users and QR code non-users**

<i>Shopping behavior</i>	<i>Group</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>t</i>
Achievement-seeking	QR code users	137	4.01	0.82	2.03*
	QR code non-users	121	3.81	0.74	
Efficiency-seeking	QR code users	137	3.34	0.94	1.47
	QR code non-users	121	3.52	0.95	
Adventure-seeking	QR code users	137	3.96	0.87	4.25***
	QR code non-users	121	3.48	0.77	
Idea-seeking	QR code users	137	3.98	0.75	4.04***
	QR code non-users	121	3.59	0.81	
Value-seeking	QR code users	137	4.15	0.77	3.85***
	QR code non-users	121	3.73	0.98	

\*  $p < 0.05$ , \*\*\*  $p < 0.001$

### **Two-group Discriminant Analysis**

To determine which consumer characteristics and shopping behaviors most significantly distinguish QR code users and non-users, two-group discriminant analysis was performed. The group centroids confirmed the significant differences between QR code users and non-users (users = 0.44; non-users = -0.50;  $\chi^2 = 51.21$ ,  $df = 7$ ,  $p < 0.001$ ). Table 3 displays the relative importance of the variables that differentiate the two groups. Adventure-seeking shopping behavior was the most significant factor differentiating QR code users from non-users, followed by idea-seeking, consumer innovativeness, value-seeking, and market mavenism, respectively. Utilitarian shopping behaviors, namely achievement-seeking and efficiency-seeking shopping behaviors, were less important differentiators, since their discriminant function loadings were below the cut-off value of 0.30 (Burns & Burns, 2008).

**Table 3: Two-group discriminant analysis**

<b>Variable</b>	<b>Structure matrix correlation</b>
Adventure-seeking	0.56
Idea-seeking	0.53
Consumer innovativeness	0.52
Value-seeking	0.51
Market mavenism	0.42
Achievement-seeking	0.27
Efficiency-seeking	-0.19

### **DISCUSSION AND IMPLICATIONS**

In response to the emergence of the QR code as a profitable medium for communicating with consumers who use their mobile phones for shopping (Batista, 2011), this study attempted to investigate QR code users by comparing their characteristics and shopping behaviors with those of non-users. The overall findings support previous research findings of different characteristics and behaviors between users and non-users of new technologies (Bina et al., 2007; Park et al., 2010; Venkatesh & Davis, 2000; Verkasalo et al., 2010).

In this study, QR code users were found to be innovative consumers, an outcome that has great implications for retailers. Since innovative consumers tend to adopt new technology-based products and services and try new experiences (Sullivan Mort & Drennan, 2007), they could play an integral part in disseminating and promoting new products and services in the market. Retailers should utilize QR codes as an effective outlet for reaching out to innovative consumers and promote new merchandise through these consumers using the QR code. The word-of-mouth influencers known as market mavens are believed to be active consumers and market-savvy (Goldsmith, Flynn, & Goldsmith, 2003), and this study found that QR code users display characteristics similar to market mavens. Using the QR code, retailers could communicate regularly and cost-effectively with market mavens, each of whom could potentially influence the purchase decisions of an entire network of customers and prospects.

It is essential to understand how QR code users behave in the retail environment in order for retailers to implement the best practices for mobile marketing communications using the QR code. In comparing QR code users' shopping behaviors to those of non-users, this study found that the former seek more shopping adventure, ideas, and value (discounts) than the latter. These findings imply that consumers will willingly scan the QR code if they perceive the code to provide entertainment, information, or monetary benefit to them. In fact, many retailers have implemented the QR code for consumer experiential shopping and promotional offers (Kats, 2012; Ware, 2012).

The discriminant analysis results identified adventure-seeking and idea-seeking as the two most important factors that differentiate QR code users and non-users. Embedding information and entertainment ("infotainment") messages in the QR code could be the most useful and effective ways to encourage consumers to scan the code. Retailers such as Macy's

have exemplified the success of infotainment-oriented QR code marketing communications (Batista, 2011). This study tentatively confirms that U.S. retailers are moving forward in the right direction with their utilization of QR code marketing communications.

The data suggests that QR code users are seeking greater shopping achievement than non-users. Retailers could position the QR code as a shopping guide tool in the minds of achievement-seeking consumers to encourage them to initiate QR code scanning. By adding more in-store QR code embedded signage containing detailed product information or shopping tips, retailers can help consumers complete their shopping more quickly and conveniently.

Non-users appear to exhibit more efficiency-seeking shopping behavior than QR code users, but the difference was not significant in this study. This unexpected finding could signify that some consumers perceive scanning the QR code to be an extra step they have to take to complete shopping; thus, they may be hesitant to scan the code. Retailers should be cautious about overusing QR code marketing communications and should strategically implement the code in a limited and targeted fashion to improve consumer shopping efficiency. For example, retailers could include QR codes at self-checkout kiosks and link them to a mobile payment system to make customer checkout faster, easier, and more efficient. As an added benefit to retailers, self-checkout kiosks of this type could also reduce cashier staffing needs and associated labor costs.

The extent of prior mobile shopping experience appears to increase a consumer's tendency to scan QR codes. This finding holds considerable implications for retailers seeking to expand revenues and profits from their e-commerce sector. Solon (2011) introduced the case of QR code-based virtual stores in subway stations operated by South Korean big box retailer Home Plus to highlight the benefits of the QR code. The QR code-based Home Plus virtual stores display

product photos and QR codes; this enables customers to complete purchases by simply scanning the codes. Home Plus's online sales increased 130% within three months of the introduction of this innovative retail format. The success of this QR code-based virtual store suggests that the QR code can be an important tool for integrating multi-channel operations and creating a more interactive store environment. One simple step can be linking the QR code signage in stores to mobile-supported online stores. This type of in-store connectivity allows consumers easy and fast access to the online stores via their mobile phones. U.S. retailers could adopt this new retail format to enter saturated markets where finding spaces for physical retail outlets is challenging or costly. Along with pop-up retail (Ryu, 2011), QR code-based virtual stores can constitute more cost-effective and less risky retail formats to test the feasibility of emerging markets.

#### LIMITATIONS AND FUTURE RESEARCH

With retailers beginning to recognize the QR code as an important component of mobile marketing communications, this study provides an initial understanding of the characteristics and shopping behaviors of QR code users. The findings could be a valuable addition to the current body of literature on consumer adoption of mobile technology in the retail environment. However, considering that study participants were limited to college students, caution should be taken to generalize these findings to other populations, as previous research has shown that age differences affect rates of mobile technology adoption (Kolodinsky, Hogarth, & Hilgert, 2004; Kumar & Lim, 2008).

Future research conducted among survey participants with more diverse backgrounds could provide a better understanding of consumer adoption of QR codes. Researchers could also investigate consumer shopping behavior at QR code-based virtual

stores to evaluate the revenue potential of this new retail format.

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# SEGMENTATION, INVOLVEMENT AND THE REACH-ENGAGEMENT RELATIONSHIP: EVIDENCE FROM A QR CODE ADVERTISING CAMPAIGN

Paolo Di Betta, Francesco Lucera

## **Abstract:**

*This paper presents a procedure that practitioners must follow before assessing the reach-engagement relationship in a “pull” campaign. It is suggested to check for the independence between this relationship and that between segmentation and product involvement. If the two relationships are independent, then segmentation becomes less relevant when assessing the reach-engagement relationship. Otherwise, an unobservable segmentation variable must be accounted for in the reach-engagement relationship. These aspects of segmentation are never mentioned in the extant literature, which treats segmentation in “pull” campaigns the same way in which targeting is designed in “push” campaigns. This article presents an assessment of a cross-media campaign in which a Quick Response (QR) Code that links to the brand’s website has a central role in the narrative of print media advertisements. The context is void of viral content and without e-commerce sales. Evidence shows that the QR code has a great potentiality as a communication agent to increase the notoriety of high-involvement durables (apartments).*

**Keywords:** QR code advertising, reach, engagement, segmentation and targeting, multimedia campaign metrics

## **INTRODUCTION**

The relationship between engagement and advertising effectiveness is so complex that it even involves the measuring process itself. In fact, one of the staples of mobile marketing is that the campaign’s chance of success is improved if it is designed with an eye to measuring effectiveness (Sharma, Herzog, & Melfi, 2008), which must be conducted starting from the point of view of the campaign objectives (Karjaluoto, Lehto, Leppäniemi, & Mustonen, 2007, p. 13). Effectiveness is enhanced by engagement, because “consumers perceive stronger message strength from the advertising messages and exhibit stronger brand attitude” (Wang, 2007, p. 39). Finally, to complete the loop, engagement has become a hallmark on the path to measuring advertising effectiveness, as it represents “the quintessence of what we ultimately want from advertising metrics” and could “facilitate the comparison of and trade-off’s among alternative media types” (Woodard, 2006, p. 353).

Furthermore, it is not sufficient to measure effectiveness in terms of purchases only, because an integrated framework is more appropriate, one that includes engagement, reach, targeting, and viral effects (Sharma et al., 2008). The motivation of this paper derived from the need to disentangle this complex relationship by providing econometric implementations, as suggested by Sharma et al. (2008, p. 9) who called for further investigations aimed at presenting cross-media econometric modelling. In particular, we focus on the relationship between media exposure (reach) and media engagement and on how it relates to the relationship between segmentation and product involvement. We do so with a field report on a Quick Response (QR) code-based campaign in Palermo (Italy).

Along with social media, the QR code has become a strong member of a new posse of engagement enabler devices. Together with the well-known array of social media buttons, the QR code has become a recognizable fixture in print media advertisements. Its

force of attraction is, however, very poor because it is usually confined to the corner of the ad, where its role is limited to being a point of reference. As such, it is taken for granted by readers, it rarely catches the eye, and it cannot claim for itself a meaningful contribution to the ad's effectiveness in terms of media engagement. Still, it remains useful for customers who are involved with the product or brand, in which case the QR code is used for further involvement with the brand.

Contrary to this widespread utilization, in this paper we analyze a QR code-based campaign aimed at improving the notoriety of a new brand in which the QR code has a central place in the narrative of the advertisement. In the ad the prospective customer is literally invited to activate the QR code in order to browse the brand's website (see Figure 1). In such a case the QR code's contribution to the ad effectiveness is at its peak and we can assess its impact as a cross-media enabler at its best. Then, the comparative impact of each media in complementing the QR code to foster media engagement can be measured.

**Figure 1: A sample of the advertisement**



The campaign leveraged on the QR code as a low-cost device for product launch. It shows that the QR code can be fruitful even when the product (apartments) cannot be purchased online and viral content is absent (because apartments do not lend themselves easily to be featured in viral videos, especially if still at the building stage).

Because QR code-based campaigns link traditional offline (large circulation) print media (e.g., newspapers) to online media (the brand's website via the smartphone), people self-select to visit. This crucial aspect of segmentation is never mentioned in the extant literature, which treats segmentation in "pull" campaigns the same way in which targeting is designed in "push" campaigns, albeit substantially different in statistical terms. This self-selecting into the target segment has to be taken into consideration in the process of measuring advertising effectiveness. In particular, estimation can reveal if there are other unobservable factors left unaccounted for, but still relevant, for self-selection of prospective customers, hence, for segmentation. If there are no factors left unaccounted for, then the reach-engagement relationship can be measured independently of the segmentation-involvement one.

Our empirical estimation is aimed at testing the following null hypothesis:

**H<sub>0</sub>:** The relationship between media exposure (reach) and engagement is independent from the relationship between segmentation and involvement.

Said otherwise: There are no unobservable factors of segmentation that remain hidden and that should be included as regressors (along with media exposure explanatory variables) to explain engagement.

We test H<sub>0</sub> with the unique dataset from the campaign. We set up a two-step sample selection regression. The first step is the self-selection equation, which explains involvement with the product as mirrored by the force of attraction of the brand's



website. Involvement is explained by self-selection of prospective customers into the segment, so we adopt a behavioral criterion of segmentation. The second step is the outcome equation, aimed at assessing how print media (and a banner linking from another website) stimulate click-through to the brand's website. It explains engagement through a series of covariates that indicate the periods of exposure in each media.

To reject the hypothesis, the two equations must be correlated, in which case a new variable must be included to account for unobservable factors of segmentation. Operationally, the null hypothesis is:  $H_0$ : the correlation between the two equations is zero,  $\rho=0$ .

Our empirical evidence does not reject  $H_0$ , so the equation for the reach-engagement relationship is independent of the segmentation-involvement one. The explanatory variables included in the segmentation-involvement equation are sufficient to explain self-selection, so the segmentation problem can be very easily dealt with to detect product involvement, and once this is done, we can waive segmentation when measuring the relationship between reach and engagement. This is a great simplification of the complex relationship between engagement and advertising effectiveness.

The remainder of the paper is structured as follows. First, we present how our paper positions within the extant literature. Then, we illustrate the research design (we describe the campaign and the regression methodology) and show the empirical results. A brief discussion concludes.

## **LITERATURE REVIEW**

### ***Engagement***

The status acquired by media engagement as a theoretical construct has influenced scholars' perspective on what are the relevant metrics for effectiveness. Calder, Malthouse, and Schaedel (2009)

show that personal interest (to interact socially) with online media is positively associated with advertising effectiveness, especially when people "believe that the site provides information to help them make important decisions [...] in their lives" (p. 322). As underlined by Sloan (2008), "A more compelling mobile search experience will come from many forms of content discovery" and this has steered Sloan's preferences toward "measuring data usage, numbers of videos streamed to mobile, or content shared to mobile." These metrics "would be more useful to measuring mobile internet engagement" than other "not useful metrics," such as "measuring page hits and stickiness of websites."

In contrast, with QR code advertising it is not entirely true that only certain metrics are worth caring about. It is important to state clearly at the outset that our results are based on a different stance toward those "not useful metrics," such as hits and stickiness. We show that the situation may compel us to rely on them. The campaign's purpose was to invite the curious potential client to the brand's website to gather more information. Our campaign is void of viral content and e-commerce is not possible. The consequence is that we waive the metrics on viral effects and on transactions, and our metrics resemble traditional website ones such as pages browsed (engagement as stickiness) and daily visitors (involvement with the website as hits), exactly the opposite of what Sloan (2008) suggests. The QR code is still useful to increase the prospective buyer's interaction and permanence with the brand's world, even when doing humble chores such as that to attract the prospective buyer to the brand's website for more information on the product.

### ***Media Exposure***

The diffusion of QR codes has moved advertisers' interest from short messages to more creative practices empowered by cross-media openness. As pointed out by Karjalainen et al. (2007, p. 13), "mobile

marketing rarely works alone. In doing so we talk about cross-media marketing, which refers to the idea that mobile marketing needs connections to traditional media." We present a cross-media scenario in which old media converge with the new media, represented by smartphones and websites. Okazaki, Li, and Hirose (2012, p. 106) show that, among other things, print media were the instruments used most frequently in QR Code campaigns. We contribute to this strand of research by measuring in the field which media impacts more on engagement.

Wang (2007, p. 39) shows that "the effectiveness of cross-media integration of mobile and internet advertising is positive for advertisers. With cross-media integration, consumers may be more engaged in processing advertising messages." We show that this statement needs be conditioned upon product involvement.

At a strategic level, online and offline campaigns must employ a combination of communication tools and channels (Leppäniemi & Karjaluoto, 2008) and must be integrated in view of a higher-level aim (Karjaluoto et al., 2007), namely, the possibility of creating experiences for the client and to ignite viral spread of brand content (Sloan, 2008) in order to continually engage the customer, make the brand top of mind, and therefore build up a long-lasting relationship (Krum, 2010, p. 215). With a cross-media campaign it is common that the research phase is consumed online while the actual purchase remains offline. Also, "The lag time between research and the actual purchase decision can be long and usually is directly related to the cost of the item being purchased." (p. 216). This fits perfectly to our campaign concerning durables that cannot be bought online and whose purchase is the final act of a long evaluation process. The QR code is not used for an immediate follow through to the purchase; rather, it is used to memorize the website's URL for postponed

browsing from the home computer as a click-through technology.

### **Product Involvement**

Product attributes are very strong conditioning variables in marketing programs, even in our age of converging media. The relationship between media exposure and engagement has to consider the relationship between product involvement and media outlets. In this context media outlets, such as the brand's website, play the role of the ad. Therefore, the relationship between attitude toward the ad and advertising effectiveness has to be taken into consideration. This is a classical topic in that strand of consumer research which overlaps with social psychology (Petty & Cacioppo, 1981). For us, it is relevant to recall here that attitude toward the ad is a mediator for effectiveness (Lutz, Mackenzie, & Belch, 1983; Mackenzie, Lutz, & Belch, 1986) and that when involvement is high, individuals are keen to receive product information, therefore the advertisement will be more effective for their purchase intentions.

Narang, Jain, and Roy (2012) find that QR codes may not be effective for all product categories. They show that, when we consider customer attitudes (as in our case), it is involvement with the product that matters. They maintain that QR codes may be used by marketers in the high involvement category, and durables imply more involvement. Also, QR code utilization has different impact whether the marketer's aim is to enhance positive attitude for the brand/product or to improve sales.

The product category of interest herein is of high involvement, because for most people the decision to buy a house is perhaps the most relevant in their life. It stands to reason to expect high engagement with website content, because users will be keen to retrieve information useful for their decisions. We expect that on average people will look for an utilitarian experience and will browse a lot of pages, perhaps even as an alternative to a guided tour at the

building site. Therefore, involvement with the product is the major force of attraction to the website in a context in which people self-select to browse. At this level, the customer-product relationship is mirrored by that between product involvement and the force of attraction of the brand's website, cast as the attitude toward the advertisement.

### **Segmentation**

In mobile marketing targeting mostly means geographically locating users to give them information in near-by stores or collecting information on demographics, lifestyle, and attitude toward electronic devices, as delimited within the boundaries of permission marketing. In this paper legal aspects of permission marketing are irrelevant, so the sampling scheme cannot be planned and controlled a priori by the marketer, whence the need for a self-selection econometric procedure. To underline the substantial difference between customer self-selection into the segment (pull campaigns) and targeting (push campaigns), it is more appropriate to speak of segmentation rather than targeting. Ours is a pull campaign, in which the relationship is initiated by the unsolicited customer who takes the initiative to contact the marketer. Since prospective customers self-select to visit the website, in this paper involvement will be explained by a behavioral criterion of segmentation.

There are certain sampling problems that must be solved before measuring our pull campaign. Diffusion of technology is one (Leppäniemi, Sinisalo, & Karjaluoto, 2006; Vatamparast & Asil, 2007; Vatamparast & Butt, 2010). Besides considering smartphone and tablet diffusion, the researcher has to control for the population's changing behavior as determined by the familiarity with QR codes. Owing to the characteristics of the population in the geographical area of interest and to the time span of our analysis (September 2011-August 2012), we could safely conclude that technology acceptance does not

change too much during the campaign. The campaign extended for less than eleven months and we do not expect relevant modifications in the number of people using the QR code in this time span in the territory of interest. We also do not expect problems from the adoption of technology; but this supposition must be confirmed empirically. It will be confirmed if the selection equation does not unveil unobservable variables, namely, if the selection equation will be uncorrelated to the outcome equation.

## **RESEARCH DESIGN**

### ***The Campaign***

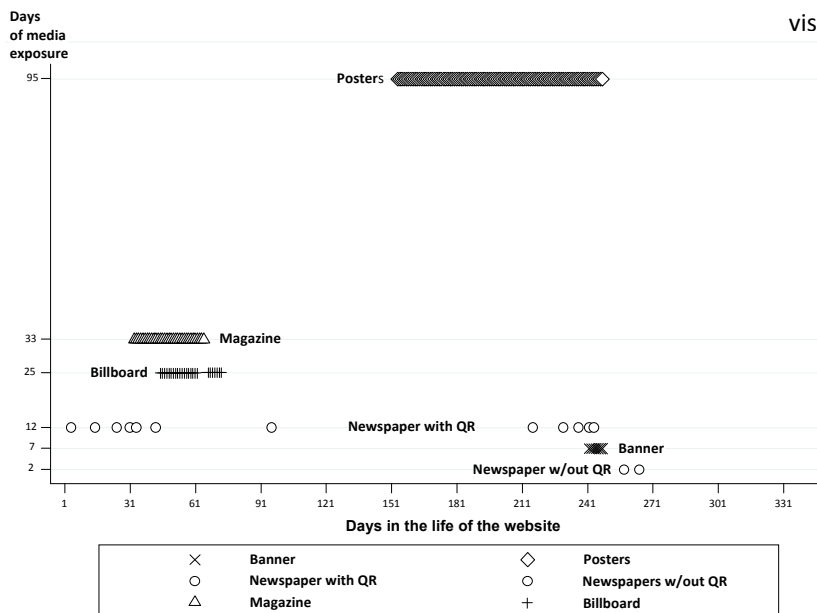
The marketer was *Immobil Residence s.r.l.*, a development and building company willing to sell prestigious apartments in condominiums and villas in Palermo (Italy), promoted under the new brand *Eletta Intelligent Buildings*, created in September 2011. The new website opened on September 23, 2011, when our dataset starts. The website's welcome page provides essential information on the buildings and from that visitors could move on to other website pages, where they could also watch the final rendition and features of the apartments. The landing page optimized for the mobile is different from the website's welcome page, but it contains a synthetic synopsis of the same information. Our dataset lasts until the end of August 2012, but the campaign was essentially active for eight months (September 30, 2011 – June 17, 2012).

The advertisements changed only slightly during the campaign; they were kept very similar to the sample shown in Figure 1. The purpose of the QR code is to invite the visitor ("Find our references") to visit the brand's website, as explained in the second paragraph to the right of the ad.

The ads were published (sometimes with, sometimes without the QR code) on the Palermo edition of the newspaper *Giornale di Sicilia*, whose circulation in Palermo is around 20,000 copies daily;

on the monthly magazine *I-love Sicilia* (5,490 copies sold that month, November 2011); on a billboard 3 by 5 meters positioned on the construction site (which was destroyed by the wind in less than a month); and on 25 A4 posters made of photographic paper, conveniently located in central spots of the city. A banner on the newspaper's website was also active, linking to the brand's website. Figure 2 reports the days of media exposure in the campaign.

**Figure 2: Days of media exposure in the campaign**



Visitors were mostly from the Palermo area, as expected. (While this is useful to detect local interest, one visitor from abroad could buy all the apartments!) We tracked users according to the kind of access they used and their technological gear. The aggregate monthly breakdown between smartphones and home computes is as follows (a daily report is not available). Access from smartphones was 16.7% in September 2011, 14.4% in October, 7.5% in November, 6% in December, 6.5% in January 2012, 5.8% in February, 3% in April and 2.4% in May; it was zero in all the other months (March, June, July, and August 2012). Tablets were not tracked, even though, of course, browsing on

the spot could be done via tablet, too, but in our zone of interest smartphones are much more common than tablets.

Our assumption to treat the QR code as a device to retrieve and save the brand website's URL is supported in many ways. Because the main purpose of the QR code was not to deliver a short message or a video clip or to conclude a purchase, but to induce a visit to the website; it is of no avail to distinguish between immediate browsing with the cell phone or visiting the website at home, so we do not distinguish the two kinds of access. Indeed, in either case the impact on online purchases is always zero. Data on sales could not be assessed with our tracking system. Those sales data that were kindly provided were still incomplete, and it was not possible to track which buyer was a QR code user anyway.

The website consisted of 37 pages. The page counter double counts the pages visited if the visitor goes back from one page to the one before and we could not keep track of this and amend it. Furthermore, while the IP address of one visitor is counted once per day, pages visited are accumulated for that IP address daily, either when the visitor is the same one returning or someone else having access to that IP.

**Research Methodology**

Our research design approach is similar to Li and Stoller (2007), insofar as the need to detach pre- and during-campaign periods is concerned, but three differences persist. First, while their analysis was based on a questionnaire survey, in our case the database was collected in the field. Second, while they considered a nationwide survey, our territory is limited to the metropolitan area of Palermo (around one million inhabitants). Third, their survey design allows them to extend their scope to brand

association, brand recall, and purchase intent, while all three remain outside the scope of our behavior-based regression analysis.

When mobile marketing targets people through permissions, the selection of customers is guided by statistical procedures in the hands of marketers. With QR code marketing the situation is reversed, because people self-select to visit the website. Hence, this factor must be accounted for. Segmentation is limited mostly to a behavioral criterion, namely, whether people react or not. Therefore, to assess the relationship between media exposure (reach) and engagement, we have to assess first the self-selection process, which is governed by how people are attracted to the product, so we have to assess first the relationship between segmentation and involvement.

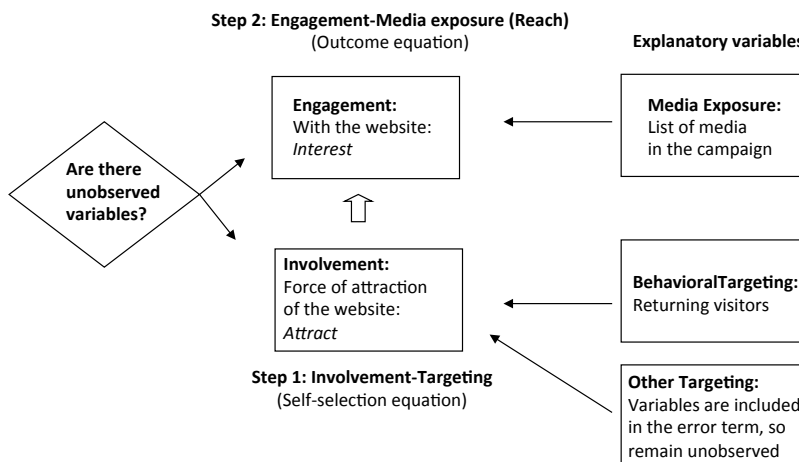
We present a two-step regression, whose logical scheme is in Figure 3. The sequence runs as follows. The first equation represents how people self-select to visit the website, which unveils the website’s force of attraction. The website’s force of attraction indicates involvement, measured by the number of unique daily visitors (*Visitors*), irrespective of visiting the landing page (from the mobile) or the welcome page (from the computer). In the first stage the dependent variable in the regression model is the indicator variable *Attract*, which is 1 if there is at least one visitor ( $Visitors > 0$ ) and 0 otherwise. This represents the decision of a

representative visitor who decides whether to visit the website or not, a “yes or no” decision. This stage represents the selection process and is determined by customer characteristics that we do not have.

The explanatory variables for involvement with the product, as mirrored by the website’s force of attraction, personify behavioral segmentation. Simply, we consider returning visitors from the days before; whether from one, two, or three days before will be established concurrently with econometric model selection. As you can see, at this stage many visitor’s characteristics remain unobservable to us, so they end up in the error term of the first equation as unobservables.

The second step of the regression model is the outcome equation. When consumer involvement with the product is high, engagement with the website will also be high, which means that visitors want to see many pages. Thus, a natural way to measure visitor engagement is to count the number of pages visited by all the visitors on a calendar day (*Pages*). The representative visitor’s engagement is how many pages they want to see, so we calculate the average number of pages seen by all visitors. The specification for visitor engagement is therefore based on the dependent variable *Interest*, which measures visitors’ engagement as the average count of pages seen on a given day; *Interest* is the ratio of pages over daily visitors ( $Interest = Pages / Visitors$ ).

**Figure 3: Logical scheme of the estimation**



**Table 1: Dependent and independent variables: description and summary statistics**

Dependent Variables	Description	Obs	Mean	Std.Dev.	Min	Median	Max
<i>Visitors</i>	Daily single visitor	344	2.238372	3.883303	0	1	34
<i>Pages</i>	Pages visited of the website, included as dependent variable	344	13.86047	24.69235	0	5	205
<i>Attract</i>	=1 if <i>Visitors</i> >0; =0 otherwise	344	.6744186	.4692742	0	1	1
<i>Interest</i>	= <i>Pages/Visitors</i> , missing value if <i>Attract</i> =0	234 110	6.301738	5.153744	1	5	32
Explanatory Variables							
<i>t</i>	Days of campaign, $t=1,\dots,344$	344	172.5	99.44848	1	174	344
<i>Visitors (t-1)</i>	Lag of independent variable, 1 day before	343	2.244898	3.887086	0	1	34
<i>Visitors (t-2)</i>	Lag of independent variable, 2 days before	342	2.245614	3.892759	0	1	34
<i>Banner</i>	=1 if banner on the newspaper ( <i>Giornale di Sicilia</i> ) website, =0 otherwise	344	.020349	0.141396	0	0	1
<i>Billboard</i>	=1 if QR code on billboard on building site; =0 otherwise	344	.072674	0.25998	0	0	1
<i>Magazine</i>	=1 if QR code inside an ad on the magazine <i>I-love Sicilia</i> , =0 otherwise	344	.09593	0.294925	0	0	1
<i>Posters</i>	=1 if A4 posters with QR code disseminated in the city (and manned), =0 otherwise	344	.2761628	.4477496	0	0	1
<i>QRnewspaper</i>	=1 if QR code inside an ad on the left page of the newspaper, =0 otherwise	344	.0348837	0.1837526	0	0	1
<i>QRNOnewspaper</i>	=1 if QR code absent in the newspaper ad, =0 otherwise	344	.005814	0.076138	0	0	1

In the second equation the explanatory variables are indicator variables for each media in the campaign, which are active (=1) on the day when there is an advertisement on that media. See Table 1 for the full list of the explanatory variables and the summary statistics.

Note that when *Attract* equals zero, we have missing values in *Interest*, and this happens one third of the time (110 out of 344 observations). We face a sample selection problem when we register zero visitors on the website. This does not mean that visitors' interest for the website and their involvement with the apartments has suddenly disappeared that day. Interest is still latent; there are still people wanting information on the brand. Unfortunately, in

such cases it is the researchers' fault that they cannot measure people's interest on a day with zero website visitors, because the instrument of measurement (website visits) has limited capacity and scope. But this is readily dealt with. Recall that if the hypothesis  $\rho=0$  is not rejected, we can restrict the estimation of the second equation to 234 non-missing observations (344-110) and neglect the latent, unobserved variables. In fact, the whole aim of the two-step regression is to check if the unobservable characteristics of segmentation (that end up in the error term of the first equation) are correlated with the unexplained part of the second equation, after controlling for media exposure (i.e., after including as explanatory variables each media in the campaign).

## RESULTS

For the two-step estimation we follow Heckman (1979), see Table 2 for estimation results. In the first step we estimate the selection equation (visit or not visit) as the website's force of attraction. This equation estimates a probability model. We include only lagged values of *Visitors*, at *t-1* (one day before) and *t-2* (two days before); following model selection criteria, visitors three days before were not significant so we dropped that variable. In the second step we estimate the resultant outcome equation for the engagement, *Interest* (average pages visited on a daily basis); see Figure 4 for a comparison of real and predicted values of the outcome equation. This equation includes the media variables as covariates. Overall significance of the two-stage model is guaranteed at the 5% level by the Wald test:  $\chi^2_{(7)}=15.11$  (p-value 0.0346).

The equation for the segmentation-involvement relationship (the dependent variable is *Attract*) shows that visitors already attracted to the website return to visit up to two days after their first visit. As for the impact on *Interest*, on average, people visit 7.6 pages. The passing of time has a negative effect: *t* allows us to detach pre- and during-campaign periods (see also Li & Stoller, 2007). In fact, the campaign ended in mid-June, more than a month before our last day in the dataset. Posters are the only significant media for engagement; they increase the number of average pages visited by 2.181.

The two-stage regression allows us to shed light on the relationship between reach and engagement as related to that between segmentation and involvement. The post-estimation likelihood ratio test of independence of the two equations cannot reject the null that the correlation between the two equations is zero ( $\rho=0$ ),  $\chi^2_{(1)}= 0.02$  with a p-value of 0.89. The two equations are independent, which allows us to sustain that all the available information in the selection process (attraction to the website as

**Table 2: Sample-selection regression for engagement: Interest**

<b>Outcome Equation: Engagement-media exposure (Reach)</b>	<b>Interest = Pages/Unique Visitors<sup>***</sup></b>
<i>Days of campaign, t</i>	-0.0109 <sup>***</sup> (0.00407)
<i>Banner</i>	-2.775 (2.179)
<i>Billboard</i>	1.147 (1.596)
<i>Magazine</i>	-1.467 (1.534)
<i>Posters</i>	2.181 <sup>**</sup> (0.835)
<i>QRnewspaper</i>	-1.256 (1.543)
<i>QRNOnewspaper</i>	3.216 (3.576)
<i>Constant</i>	7.584 <sup>***</sup> (1.269)
<b>Self-Selection Equation: Involvement-targeting relationship</b>	<b>Attract = 1 if Visitors&gt;0</b>
<i>Visitors (t-1)</i>	0.183 <sup>***</sup> (0.0549)
<i>Visitors (t-2)</i>	0.151 <sup>***</sup> (0.0503)
<i>Constant</i>	-0.0612 (0.111)
$\rho$	0.0497 (0.405)
$\ln(\sigma)$	1.606 <sup>**</sup> (0.0471)
$\sigma$	4.985
<i>N</i> (observations after adjustments)	342
<i>Censored observations</i>	110
<i>AIC</i>	1808.6
<i>BIC</i>	1858.4

Note: Heckman (1979) regression. Standard errors in parentheses.

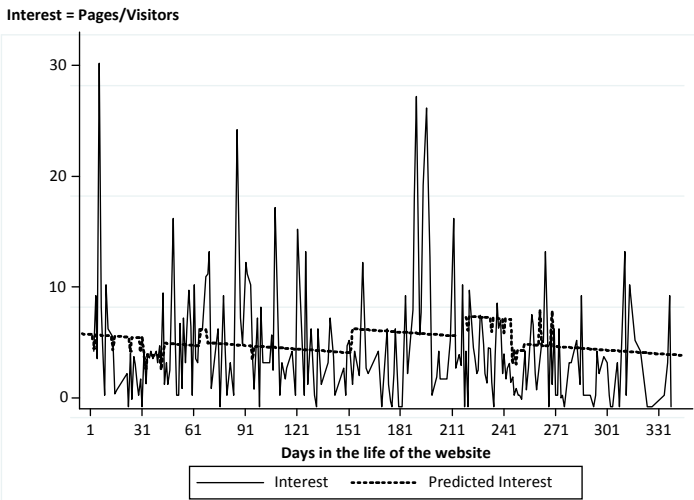
\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

$\rho$  is the correlation between the errors of the two equations

$\sigma$  is the standard deviation of the error term in the outcome equation

AIC and BIC are the Akaike and the Bayesian Information Criterion, respectively

**Figure 4: Real and predicted data from the estimation of Interest**



determined by self-selection of customers) is sifted by the included explanatory variables. In econometrics it means that selection is on observables. Nothing is left unexplained in the self-selection process. We can forget about other non-included variables, such as technological adoption. Segmentation then is fully accomplished once we consider returning visitors. (And once we take away from the list of visitors the competitor, who is checking on our offering, or the real estate intermediary, who is also browsing for business-related matter.)

Note the true implications of this evidence. Returning visitors from the one day before and from two days before are very poor explanatory variables; they do not say much. Yet, they saturate all the explanations needed for involvement, and nothing is left behind in terms of segmentation. Hence, what is coming out of this evidence is that segmentation is after all not relevant for the media exposure-engagement relationship.

Once segmentation is completed, involvement (the selection process) and engagement (the subsequent perusing of the website) are not correlated; the force of attraction is not correlated to the intensity of interest. The two equations can be modeled separately. There is no sample selection

problem after segmenting people according to their behavior in returning to website. The outcome equation (engagement) can be estimated by ordinary least squares using the selected sample; that is, by considering only the days when the website receives visitors.

If we had detected correlation instead ( $\rho \neq 0$ ), then the second equation would have required the insertion of another regressor. This additional covariate would have included those unobservable variables left unaccounted for in the selection process. We refer to Heckman (1976, 1979) to fix this problem (which is referred to as an omitted variable problem in the selected sample).

In a companion paper we run a regression having *Visitors* as the dependent variable. We deploy *Pages* as an explanatory variable for the variability of *Visitors*. To a certain extent that regression is the mirror image of the one just presented. In that paper we show that *Pages* reduces the overdispersion in *Visitors* (which can interpreted, as in this paper, as involvement with the product website). (Recall also that involvement with the product is mirrored by interest on the website, which can be considered as advertisement attitude.) The reduction in the overdispersion in involvement, as induced by a stronger engagement (more pages browsed), means a reduction in the days without visitors and a less dispersed distribution of the hits (i.e., the variance gets nearer to the expected value). So in the companion paper we show that engagement influences the overdispersion in involvement with the product (while controlling also for media exposure).

The results here and those in that paper jointly mean that engagement is not tied up symmetrically with involvement. The connection persists, as shown in the other paper, when we use engagement (*Pages*) as a variable that improves our explanation of the overdispersion in the data concerning involvement (*Visitors*). On the contrary, the linkage is not active the



other way round, as shown in the present paper, because once involvement is conditioned on behavioral segmentation, it is not related anymore with engagement (after controlling for how media exposure impacts on engagement).

## **DISCUSSION**

This paper contributes to the evaluation of advertising effectiveness for “pull” campaigns. For such cases, when analyzing engagement and reach, we suggest to consider that involvement is influenced by self-selection into the segment. Controlling for segmentation must be done beforehand in order to exclude unknown factors that may affect engagement, which is a major difference with targeting, where the segmentation criteria are designed by the marketer.

The external validity of this paper is based on the methodology, which is well-established and widespread. Our advice for practitioners is: In a campaign in which prospective customers self-select to visit a website, check first for independence between the segmentation-involvement relationship and the media exposure-engagement relationship. If independence is not rejected, segmentation is no more relevant to estimate the relationship between reach and engagement, so assessing advertising effectiveness (as related to media exposure) can be done without including explanatory variables for segmentation. Media engagement is independent from the segmentation phase and estimation proceeds with only the media indicator variables.

As far as our results are concerned, we show that behavioral segmentation (returning visitors) is sufficient. This simple segmentation criterion is all we need in our advertisement campaign based on QR codes. Data on demographics or lifestyle data or on technology adoption are not needed. This paper complements a companion article in which we show that engagement (pages browsed) explains the variability of involvement (daily unique visitors).

Overall, our field evidence corroborates the idea that engagement is effective in improving product notoriety. Of course, our field evidence may not apply to other geographical areas.

## **Limitations**

The limitations of the paper are related to the lack of evidence on sales and on how the QR code triggers a viral campaign. But this paper still speaks for QR code’s versatility. In fact, it also shows that much of its effectiveness is conditioned on the marketer’s aims, on product category, on the channels, and on the media. So we can conclude by affirming that, while we agree with the need to look at more viral content for the true appeal of mobile marketing, one lesson can be derived from plain vanilla marketing that it is still valid also for mobile marketing: Do not forget the nature of your product and the relationship between segmentation and product involvement. However exciting the technology is, we still live in a world constrained by product attributes (among which, most notably, is its proneness to be traded online), which constrain but do not impede the applicability of new devices. Furthermore, in a world where budgets on advertisements are tight, the QR code is a useful agent. In essence, we show that even when social interaction, and therefore potential for media engagement through the mobile, is absent, product involvement is still a relevant drive for the search of product information.

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# MOBILE MEDIA TECHNOLOGY AND POPULAR MOBILE GAMES IN CONTEMPORARY SOCIETY

Hyung-Min Kim

## **Abstract:**

*With the advent of smartphones, the global mobile applications market has increased exponentially. In particular, mobile games have become extremely popular. As such, this study explores which mobile technologies have been used in mobile games, and their relation to contemporary mobile gamers' download choices. Apple's App Store chart and Google Play chart were utilized to analyze the common technological and gaming design features of the contemporary mobile games that are most popular with the gamers, and also to examine similarities and differences between the most popular smartphone and tablet computer games. The results show that popular mobile games maximize players' touch-based enjoyment (i.e., swiping, sliding or drawing). In addition, the popular mobile games have at least two of the following features: simple rules, social interactions, and the removal of enemies and missions that do not require defeating an enemy to complete. Mobile games that require careful controls, such as tilting the screen or fast and unpredictable movements, tended to be more downloaded on the iPad than on the iPhone. In terms of ranking fluctuations, the paid iOS game charts were statistically more stable than the free iOS game charts.*

**Keywords:** mobile game, mobile technology, popular mobile game, smartphone

## **INTRODUCTION**

In contemporary society, mobile phones have become much more than simple mechanisms by which to make calls. From a functional aspect, they resemble "the Swiss Army knife of the digital era"; not only can phones be used to text others, they can also be used to take pictures, play music and hold your credit card information as a digital wallet (Choe, 2009). From the moment that we wake up until we fall asleep at night, our mobile phones are never far from our sides.

There were 6.8 billion global mobile phone subscriptions in 2013, according to the International Telecommunication Union (2013). No other technology has achieved as rapid an adoption rate as the mobile phone (Katz, 2007). Even older generations have adapted more to mobile phones than the Internet (Plaza, Martín, Martín, & Medrano, 2011).

In particular, smartphones have become one of the must-have items in this media convergence era. According to Nielsen (2013), 62% of all mobile phone

subscribers in the United States used a smartphone in 2013, an increase of 40% from 2011 ("Study: smartphone," 2011). As the smartphone market grows, so has the mobile applications market. It is estimated that the global mobile applications market will be worth \$20.4 billion by the end of 2013 (Portio Research, 2013). Most of all, however, mobile games have become the most often downloaded of all mobile applications (Emerson, 2011). eMarketer (2010) estimated the mobile game market by 2014 will be worth \$1.5 billion and 94.9 million people will play mobile phone games at least monthly; the number excludes on-deck gamers (i.e., those who just play pre-installed games) and has increased from 64 million in 2010. Thus, network operators and the game industry are focusing an increasing amount of attention in this arena (Chehimi, Coulton, & Edwards, 2008).

When it comes to social perspective, mobile games are more involved in a person's daily life than in the past. Accordingly, scholars also have begun to take an interest in smartphone-centric applications,

particularly mobile games. As this field of study is still young, more research is necessary to fully understand the market and its impact on society. Therefore, the purpose of this study is to explore which mobile technologies have been used in mobile games and their relationship to contemporary mobile gamer's download choices. The sample for this study focused on Apple's and Google's popular mobile games, which were taken from the two marketplaces' charts of popular game applications. The research analyzed the common features found in each of these games. The results should help enhance future game applications by allowing developers to tailor their games to users more successfully.

## **LITERATURE REVIEW**

Mobile games first appeared in society when second generation (2G) mobile phones were introduced. However, the number and quality of the games drastically increased with the advent and introduction of third generation (3G) mobile phones. Therefore, in order to fully understand where smartphones and their technology and games are today, one must understand their past.

### ***A Brief History of Mobile Phones***

The first generation (1G) mobile phone was launched in the early 1980s and was used solely for making phone calls. Moreover, it was heavy and big, a so called "brick" phone.

When the 2G mobile phone was introduced in the 1990s, it utilized a much more advanced data transmission system that converted the analog 1G signal to a digital 2G signal, which dramatically improved the voice quality while decreasing the amount of data needed for the process. In addition, for the first time, the 2G mobile phone allowed for the use of text messaging. After the 2G mobile was introduced, the global mobile phone market was shared by two types of communications technologies:

global systems for mobile communications (GSM) and code division multiple access (CDMA).

After the 3G mobile was introduced, more than 70% of the countries in the world began using the wideband code division multiple access (WCDMA), which originated with the GSM standard (ITU, 2011a). 3G allowed for a high-speed data service at a reduced cost (ITU, 2013). The new technology was quickly given the motto "mobile with Internet" (Hjorth, 2011; ITU, 2011b). The tremendous data transmission speed and wireless Internet access available with this development allowed mobile phone subscribers to watch video clips.

Following the success of 3G mobiles, the industry released the 4G mobile, which had a higher wireless data transmission speed. According to the International Telecommunication Union (ITU) (2010), 4G mobiles have, at the high end, a recommendation of approximately 100 mbit/s and, at the low end, 1 gbit/s. As these speeds are only recommendations, long term evolution (LTE) and worldwide interoperability for microwave access (WiMAX) are currently labeled as being 4G in the mobile market (ITU, 2010; Wisely, 2007). According to Teleco (2013), there are 64.8 million 4G mobile accesses in the United States and Canada; 126.1 million mobile accesses in the world. Today, 4G mobile phones can be used for just about anything related to media and technology.

### ***Mobile Games in the Media Convergence Era***

When mobile phone games first appeared on the 2G system they mainly consisted of on-deck, casual, flash-based games, such as Tetris (Hjorth, 2011). As the data transmission speeds of mobile phones improved in the 3G era, mobile service providers opened their paid-application markets. However, at the beginning, the application markets consisted of a few simple categories such as games, news and photography services.

The advent of the smartphone was a milestone in the mobile phone games industry and the entire

application market. Smartphones, which enabled the use of wireless Internet and high-resolution touch screens, enticed the creation of countless applications from a number of application developers (Wilson, Chesher, Hjorth, & Richardson, 2011).

With the development of advanced mobile technologies, mobile games were also upgraded in terms of entertaining gamers. In fact, the mobile game industry has tried to promote a sense of presence for successful users' enjoyment as with other entertainment media (Hartmann, Klimmt, & Vorderer, 2009). This sense of presence has become embodied in smartphones with the use of several developed technologies, such as high-speed wireless data transmission, high-resolution cameras and screens, global positioning systems (GPS) and touch panels. In the 2G era, a sense of presence in mobile games was restricted due to the technical limitations of the phones. Then, the media convergence in the 3G era enabled gamers to feel a sense of presence with mobile games, such as those based on hybrid reality and location-awareness (Hjorth, 2011; Wilson et al., 2011).

### **3D Technology and Mobile Games**

According to Chehimi et al. (2006), 3D computer graphics have not only attracted more gamers than games containing solely 2D content since they were first introduced in the early 1980s, but they have also become an important part of maximizing the gamers' playing experience. However, due to resource constraints, such as "small screen sizes, limited processing power, small memory footprints, and critical power consumption (Chehimi et al., 2006, p. 20)," mobile game developers have been faced with difficulties when designing 3D mobile games. Although mobile game play has improved with smart Web-capable touchscreen phones, such as the Apple iPhone, Samsung Galaxy and HTC Diamond (Richardson, 2011), mobile 3D technology is still not competitive in the mobile game market. Thus, mobile games have begun

focusing more on utilizing smartphone-centric features, such as wireless internet, touch screens and location-awareness functions, in order to maximize gamers' enjoyment with feeling a presence, specifically, a "Telepresence."

According to the International Society for Presence Research (ISPR), telepresence is a user's experiences of "being there" in a virtual environment and temporarily overlooking or misconstruing their mediating experience (ISPR, 2012; Hartmann, et al., 2009). Hybrid and augmented reality games are good examples of mobile telepresence. Moreover, their characteristics such as spatiality, sociability and mobility (de Souza e Silva, 2009) are also reflected in contemporary mobile games.

### **Hybrid Reality Games**

Hybrid reality games are archetypal mobile-centric games based on location-awareness and internet connection technology. For example, *Can You See Me Now?*, the pioneer of current hybrid reality games published by Blast Theory in 2001, was played by off-line and on-line players. The main goal for the off-line players was to catch the on-line players' graphical avatars as they moved around a specific part of the city. Both sets of players were able to discover their opponents' location on a digital map via an internet networking connection. With wireless internet and location awareness technology, mobile games have been trying to actualize hybrid reality games on smartphones.

**Spatiality.** All traditional games, such as video, board and physical games, have a primary play space. Salen and Zimmerman (2003) applied Dutch historian Johan Huizinga's concept of the "magic circle" to digital games. This magic circle encompasses a video game's screen, a board game's board and a physical game's arena. Hybrid reality games, however, do not have a particular playing space as they play simultaneously in physical and digital space, or physical and represented spaces (de Souza e Silva,

2009). Therefore, according to Wirth, Hartmann, Boecking, Vorderer, Klimmt, Schramm, & Wirth (2007), spatial presence is “a binary experience, during which perceived self-location and, in most cases, perceived action possibilities are connected to a mediated spatial environment, and mental capacities are bound by the mediated environment instead of reality” (p. 497). In this respect, users may feel a spatial presence in this hybrid space created by using internet connected mobile media (de Souza e Silva, 2006). In the case of mobile games, wireless internet and location-based games are considered as hybrid reality mobile games.

The first location-based mobile game, *Tron LiveCycle*, was released in late 2010; it was not popular with gamers. Strong virtual reality technology could better stimulate spatial presence, but the technology is still not perfect. The level of spatial presence can vary depending on the users’ interests, attention, arousal level and cognitive-spatial abilities (Wirth et al, 2007; Hartmann et al., 2009).

**Sociability.** Due to their sociability, hybrid reality games are frequently compared to several types of multi-user games, including multi-user dungeon (MUD), role-playing games (RPGs) and massively multiplayer online role-playing games (MMORPGs). Indeed, collaboration and interaction among gamers are necessary in order to play hybrid reality games during which gamers are connected via technology in the same way as in multiuser games (de Souza e Silva, 2009). On the other hand, hybrid reality games are not confined to a digital space because they occur in both the cyber and real world simultaneously as mobile media expands the gamers’ action “[from] specific private place[s] to public urban spaces” (de Souza e Silva, 2006, p. 270). Gamers not only communicate via texts or phone calls with other gamers, but also interact with strangers not playing the game. For example, an off-line player may ask for directions or clues from strangers on the street.

Some mobile games also have sociability, though most of them do not require the gamers to engage in face-to-face interaction. For example, *Draw Something* needs another gamer to play. In this game, player A explains one word among three random words by drawing that word. Player B is to guess what the word is based on the drawing. The process of drawing and choosing the letters for answering are recorded and displayed to both players, which induces a presence for the players. *QuizUp*, *Scramble With Friends*, and *Words With Friends* are also similar type mobile games.

**Mobility.** During the game, hybrid reality gamers hold mobile devices equipped with location-awareness, which encourages the players’ mobility in urban spaces instead of using an immovable computer screen, which limits their play space. Along the same line, contemporary mobile games have no restriction when it comes to mobility.

As mobile phones are almost always with their users, the borders between games and life are increasingly becoming blurred (de Souza e Silva, 2006; 2009). In contemporary society, gamers more frequently alternate between game play and real-life duties (de Souza e Silva, 2009). As such, they can and often do play mobile games in normal daily spaces, such as on the street while out walking, on public transportation or in bed (Sheller & Urry, 2006). Thus, the mobility causes the gamers to experience telepresence.

**Augmented Reality Games.** In recent years, augmented reality has become a popular concept in the mobile phone applications industry, especially for mobile games (Gu & Duh, 2011). Augmented reality games are referred to as “reality-based [games], which enfold the player into a temporary and incomplete simulation of real-world physics” (Richardson, 2011, p. 424). The first augmented reality game, *AR Soccer*, was released in 2004. This game was designed so that the gamers could “kick a virtual ball with [the gamer’s] real foot into the virtual goalpost” by tracking the

gamer's movement with an integrated camera (Gu & Duh, 2011, p. 103). In accordance with Merleau-Ponty's (1964) argument, actuality is "our corporeal or body schema...it allows us to incorporate technologies and equipment into our perceptual and corporeal organization" (Richardson, 2011, p. 422).

*Shark Fingers!* is a good example of an augmented reality mobile game. In this game, the gamer's pre-pictured photo or live camera is used for an underwater background. In the game, sharks bite a gamer's finger, and a player can tilt the smartphone, which is a gamer's shark tank. Developed mobile technologies, such as multi-touch interfaces, accelerometers, high-resolution cameras, and GPS are not only actualized augmented reality through mobile game, but also enable gamers to experience telepresence while playing the game (Richardson, 2011).

## RESEARCH QUESTIONS

In 1989, Nintendo released the hand-held game console Game Boy and its addictive puzzle game *Tetris* (Anderson, 2012). Compared to today's mobile games, *Tetris'* graphics were extremely simple and its motion monotonous; however, it sold more than 70 million copies (Anderson, 2012). It can be assumed that *Tetris'* gaming feature was corresponding to the hand-held game console's technological feature. Along the same line, the most popular mobile games tend to stay consistent, while a number of new mobile games are released every day across several worldwide application platforms. For example, the most often downloaded game of 2011, *Angry Birds* (Emerson, 2011), was at the top of the Apple's App Store charts as of April 2012. Therefore, it can be assumed that mobile gamers prefer a certain technological feature or gaming design feature when looking for new mobile games to download. This information leads to the first research question.

**RQ1:** What are the common technological and gaming design features in the most downloaded mobile games? And what are the popular mobile games' genres?

One area that seems to impact the number of downloads for a game is the device on which it can be played (i.e., the top game for a smartphone is different than the top game for a tablet computer). This information leads to the second research question.

**RQ2:** What are the common technological and gaming design features of popular mobile games for smartphones and tablet computers?

Another aspect that influences the popularity of a game is its cost (i.e., the popularity of the top free game is not the same as the top paid game). This influence remains true regardless of the device on which the game is played. This information leads to the third research question.

**RQ3:** What are the key differences between popular free and paid games?

## METHOD

According to Nielsen (2013), 52% of smartphone subscribers in the United States used Google's Android operating system (Android OS) in 2013, while 40% used Apple's iPhone/iPad operating system (iOS). Several mobile device manufacturers use Android OS, whereas iOS can only be used on Apple devices, such as the iPhone and iPad. In accordance with their operating systems, Google's Play Store is exclusively available for Android OS gamers and Apple's App Store is exclusively available for iOS gamers. For the validity of the research, this study utilized the data gleaned from Google's Play Store and Apple's App Store. This data was utilized in order to discover the common technological and gaming design features of the mobile games that are the most popular with gamers and also to examine the similarities and differences

between the most popular smartphone and tablet computer games.

No separate data charts exist for mobile phone and tablet computer games in terms of the Play Store, while the App Store provides separate data for the iPhone and iPad. The secondary data for this study was collected from appannie.com, which releases a daily top 500 mobile games application chart based on the App Store and Play Store charts. In order to make the data pool manageable, only data from the top 10 mobile games were collected. The research data were collected only from U.S. users for data consistency. Since the mobile games application market is fast-changing, the investigation period was limited to 30 days between November 1 and November 30, 2013. Based on the daily chart, the most downloaded game received 10 points and the least downloaded game

received one point. This method was applied to all of the research data as it allowed the researchers to discover the most popular games and their genre during the investigation period.

## RESULTS

*Candy Crush Saga* was the most downloaded free game on the Google Play Store chart (10.0 average points) (Table 1). During the investigation period, it was always on the top of the chart. *Pet Rescue Saga* was the second most popular free game for the Android OS (8.33 points). *Subway Surfers* (6.93 points) and *Deer Hunter 2014* (6.57 points) followed that as the most downloaded free Play Store game. Four Arcade & Action games and four Casual games were on the top 10 chart. The other two games were in the Sports and Brain & Puzzle genre.

**Table 1: Top 10 free Google Play Store games**

	Title	Genre	Ave. Score
1	Candy Crush Saga	Casual	10.00
2	Pet Rescue Saga	Casual	8.33
3	Subway Surfers	Arcade & Action	6.93
4	Deer Hunter 2014	Arcade & Action	6.57
5	Fanatical Football	Sports games	3.90
6	Despicable Me	Casual	3.30
7	My Talking Tom	Casual	2.83
8	Temple Run 2	Arcade & Action	2.57
9	Plants vs. Zombies 2	Arcade & Action	2.40
10	Find Objects	Brain & Puzzle	1.43

Note 1. Standard deviation = 2.91 / Variance = 8.47 / Median = 3.60

As displayed in Table 2, *Minecraft* was consistently the top paid game downloaded for the Android OS (10 points). *Plants vs. Zombies* were ranked ninth (2.40 points) on the free Play Store chart, while it ranked second (8.80 points) in the paid Play

Store chart. The other nine games in the paid Play Store chart did not coincide with the free chart. Eight out of the 10 games on the chart were in the Arcade & Action genre.



**Table 2: Top 10 paid Google Play Store games**

	Title	Genre	Ave. Score
1	Minecraft - Pocket Edition	Arcade & Action	10.00
2	Plants vs. Zombies	Arcade & Action	8.80
3	Need for Speed Most Wanted	Racing	7.10
4	Bloons TD 5	Arcade & Action	6.60
5	Osmos HD	Arcade & Action	4.77
6	Where's My Water?	Brain & Puzzle	4.43
7	Fruit Ninja	Arcade & Action	4.07
8	SuperGNES (SNES Emulator)	Arcade & Action	1.97
9	The Walking Dead: Assault	Arcade & Action	1.93
10	Grand Theft Auto III	Arcade & Action	1.77

Note 1. Standard deviation = 2.92 / Variance = 8.50 / Median = 4.60

During the investigation period, *Deer Hunter 2014* earned .14 points more than the second ranked game's average in the Top Free iPhone Games (Table 3). The third (*Candy Crush Saga*) and fourth (*Clumsy Ninja*) ranked games were 2.17 and 4.20 average points less than the most downloaded game. *QuizUp*,

*Clumsy Ninja*, *Call of Duty* and *NinJump Rooftops* have not been released for the Android OS. The majority of the iOS games were categorized into more than one genre. On the free iPhone chart, three games were regarded as being in the Action and Simulation genre.

**Table 3: Top 10 free iPhone games**

	Title	Genre	Ave. Score
1	Deer Hunter 2014	Action, Simulation	7.37
2	QuizUp: The Biggest Trivia Game In The World!	Educational, Trivia	7.23
3	Candy Crush Saga	Puzzle	5.20
4	Clumsy Ninja	Family, Adventure	3.17
5	Call of Duty	Action	3.07
6	NinJump Rooftops	Action	3.00
7	My Talking Tom	Family, Simulation	2.90
8	Skee Ball Arcade	Arcade, Family	2.83
9	Star Wars: Tiny Death Star	Adventure, Simulation	1.97
10	GT Racing 2: The Real Car Experience	Racing, Sports	1.67

Note. Standard deviation = 2.05 / Variance = 4.19 / Median = 3.03

There was a .07 average point difference between the most downloaded game (*Minecraft*: 8.10 points) and the second most downloaded game (*Duck Dynasty*: 8.03 points) on the paid iPhone chart (Table 4). All of the top 10 paid iPhone games have also been

released as free versions. While *Angry Birds Star Wars II* is an expanded version of *Angry Birds Free*, they are virtually identical games. The most popular genre on the paid iPhone chart was Action and Simulation; this genre contained four games that landed on the chart.

**Table 4: Top 10 paid iPhone games**

	Title	Genre	Ave. Score
1	Minecraft – Pocket Edition	Adventure	8.10
2	Duck Dynasty: Battle of the Beards HD	Action, Family	8.03
3	Heads Up!	Word	7.30
4	Backflip Madness	Sports	6.80
5	Angry Birds Star Wars II	Action, Arcade	6.13
6	Plague Inc.	Simulation, Strategy	4.80
7	Pixel Gun 3D - Block World Pocket Survival Shooter ...	Action, Simulation	3.07
8	Cops N Robbers (Jail Break) - Mine Mini Game	Adventure, Simulation	2.67
9	Rayman Fiesta Run	Action, Arcade	1.53
10	Hatch	Simulation	1.07

Note. Standard deviation = 2.69 / Variance = 7.26 / Median = 5.47

As can be seen from Tables 3 and 5, *Deer Hunter 2014* was the most downloaded free game for both the iPhone (7.37 points) and iPad (5.17 points). *Kids Face Paint*, *Baby Pet Vet Doctor* and *Cops N Robbers (FPS)* were only released for the iPad. Except for those

three games, all of the other games were included on both the top 10 free iPhone and iPad game charts. Four games were categorized in the Simulation and Family genres. Those two genres were the most downloaded genres on the free iPad chart.

**Table 5: Top 10 free iPad games**

	Title	Genre	Ave. Score
1	Deer Hunter 2014	Action, Simulation	5.17
2	My Talking Tom	Family, Simulation	4.93
3	Candy Crush Saga	Puzzle	4.07
4	Clumsy Ninja	Family, Adventure	3.13
5	Star Wars: Tiny Death Star	Adventure, Simulation	2.40
6	Kids Face Paint	Educational, Family	2.33
7	GT Racing 2: The Real Car Experience	Racing, Sports	2.20
8	NinJump Rooftops	Action	2.17
9	Baby Pet Vet Doctor - Kids Games	Educational, Family	1.80
10	Cops N Robbers (FPS) - Mine Mini Game	Adventure, Simulation	1.73

Note. Standard deviation = 1.28 / Variance = 1.64 / Median = 2.37

As displayed in Tables 4 and 6, *Minecraft* was the most popular paid game for the iPhone (8.10 points) and iPad (9.50 points). *Angry Birds Star Wars II* was the second most downloaded paid iPad game (7.93 points), while it ranked 5<sup>th</sup> on the paid iPhone chart (6.13 points). *Heads Up!* was ranked lower on the paid

iPad chart than on the paid iPhone chart during the data collection period.

*Oceanhorn*, *LEGO The Lord of the Rings*, and *Castle of Illusion Starring Mickey Mouse* were not released for the iPhone. In addition, *Blocky Roads* was not ranked on the top 10 paid iPhone chart.

**Table 6: Top 10 paid iPad games**

	Title	Genre	Ave. Score
1	Minecraft – Pocket Edition	Adventure	9.50
2	Angry Birds Star Wars II	Action, Arcade	7.93
3	Duck Dynasty: Battle of the Beards HD	Action, Family	6.97
4	Pixel Gun 3D - Block World Pocket Survival Shooter ...	Action, Simulation	4.77
5	Cops N Robbers (Jail Break) - Mine Mini Game	Adventure, Simulation	3.93
6	Oceanhorn	Adventure	2.70
7	LEGO The Lord of the Rings	Action, Adventure	2.53
8	Heads Up!	Word	1.77
9	Blocky Roads	Racing	1.73
10	Castle of Illusion Starring Mickey Mouse	Action, Adventure	1.47
Note. Standard deviation = 2.88 / Variance = 8.27 / Median = 3.32			

### **Top Free Games**

*Candy Crush Saga*, *Deer Hunter 2014* and *My Talking Tom* were on all of the top 10 free game charts, even though their rankings varied depending on the chart (see Tables 1, 3 and 5). On the Play Store chart, *Candy Crush Saga* was the most downloaded game. However, *Deer Hunter 2014* was downloaded the most on the iOS chart. *My Talking Tom* was more popular on the iPad chart than on the iPhone or Play Store charts.

### **Top Free Games in the App Store**

Including *Candy Crush Saga*, *Deer Hunter 2014* and *My Talking Tom*, seven games were ranked on both the free iPhone and iPad charts (see Tables 3 and 5). Some of the top 10 free Play Store games (i.e., *Pet Rescue Saga*, *Subway Surfers*, *Despicable Me*, *Temple Run 2* and *Plants vs. Zombies 2*) were also released for the iOS platform. However, they were not as popular for iOS users.

### **Top Paid Games**

On all of the platforms, *Minecraft* was the most downloaded paid mobile game (see Tables 2, 4 and 6). *Angry Birds Star Wars II* and *Heads Up!* were also available for the Android OS, but were not downloaded as much as they were for the top 10 paid iOS Store games.

### **Top Paid Games in the App Store**

*Minecraft*, *Angry Birds Star Wars II*, *Duck Dynasty*, *Heads Up!*, *Pixel Gun 3D* and *Cops N Robbers* were included on both the top 10 paid games for the iPhone and iPad, even though most of their rankings were not same (see Tables 4 and 6).

## **DISCUSSION**

Some genres were not included on the most downloaded game chart. For example, games within the Board, Card, Casino, Dice, Music and Role Playing genres did not appear on the top 10 iOS charts during the investigation period. However, Action, Adventure, Arcade, Family and Simulation were typical genres for iOS mobile games. In terms of the Android games' genres, Live Wallpaper and Widgets were not included on the top downloaded game charts. Arcade & Action and Casual were the most downloaded game genres for the Android OS.

Genre classification is the universal way to categorize a game's characteristic, but a cross-genre hybrid is common in mobile gaming (Deniozou, 2013). The App Store has determined 18 genres for mobile games, while the Play Store has eight genres. Unlike Android OS games, iOS games have overlapping genres. The two stores' classification criteria are also different. It was hard to generalize the popular mobile games' genres, not only because the games were

categorized into more than one genre, but also because even the same games are classified into different categories by platforms. Therefore, popular mobile games' common features were analyzed by their gaming designs, not their genres.

Based on the research results, it can be shown that screen size and price are considerable factors in regard to gamers' motivations to download a game. Mobile gamers often prefer a certain type of game based on whether it is for the smartphone or tablet computer (screen size) and whether it is free or paid (price). To be specific, the popular paid iPhone games (i.e., *Backflip Madness*, *Plague, Inc.* and *Rayman Fiesta Run*) were also released for the iPad, but were only popular for the iPhone. On the other hand, *Oceanhorn* and *Blocky Roads* were downloaded more by iPhone users. Racing and Sports games, such as *GT Racing 2* and *Blocky Roads*, were ranked higher on the top iPad chart than on the iPhone chart. Educational and Family games, such as *Kids Face Paint* and *Baby Pet Vet Doctor*, were also popular, but only for the iPad. Thus, games that require high quality graphics or careful controls, such as tilting the screen or fast and unpredictable movements, tended to be downloaded more for the iPad than the iPhone. This might be because the tablet computer's bigger screen allowed a better enjoyment for playing. Nevertheless, the boundary between phones and tablets has been blurred because brand new mobile devices have been introduced with a variety of screen sizes.

The *Angry Birds* paid version was more popular than the free version. Gamers are generally willing to pay for expanded versions. On the other hand, *Call of Duty*, *Kids Face Paint* and *Baby Pet Vet Doctor* were only popular on the free charts. Gamers might download paid versions after they play and enjoy the free versions.

The ability of the gamers to interact socially through the game also influenced their desire to download the game. For example, *Heads Up!* was

ranked high on both the paid iPhone and iPad charts, while *QuizUp* was ranked on the top 10 free iPhone chart. These games are not games that players can play alone as two players must be linked online or offline to play.

How the game is controlled might also be a considerable factor for popular mobile games. The charts analysis demonstrated that the most popular mobile games maximized the player's touch-based enjoyment with swiping, dragging or sliding. In addition, these games contained at least two of following features: simple rules, social interactions or no enemies against which to fight when accomplishing a mission.

For paid games, this factor was even more relevant. The most downloaded paid games for iOS (i.e., *Angry Birds Star Wars II*, *Duck Dynasty*, *Heads Up!* and *Cops N Robbers (Jail Break)*) have simple rules. The mission of the most notable game, *Angry Birds*, is to simply fling birds from a slingshot using a one finger flicking motion. The goal of the game is to get rid of the pigs, but they do not fight. Just swiping or flicking one's finger is all that is needed to play *Duck Dynasty*. *Heads Up!* is a simple social game. One player places a mobile device on his/her head and guesses the word on the screen from the other person's clues. In terms of the *Cops N Robbers (Jail Break)*, multiplayer are connected online and help each other break out of jail.

Another feature that some of the top paid games had in common was that they were originally released on other gaming platforms before being released in the Play Store. For example, *Need for Speed* was initially released for a video game console, while *Minecraft* and *Plants vs. Zombies* were originally computer games. As such, brand awareness might have positively influenced the download motivation of "Hard-offs," who download the mobile version of a hit console title (Chehimi et al., 2008).

When it comes to ranking fluctuations, the paid game charts were more stable than the free game

charts. The standard deviation for the top 10 paid iPhone game chart was 2.69 and the variance was 7.26. The standard deviation for the top 10 paid iPad game chart was 2.88 and the variance was 8.27. In addition, the standard deviation for the top 10 free iPhone game chart was 2.05 and the variance was 4.19. The standard deviation for the top 10 free iPad game chart was 1.28 and the variance was 1.64. These numbers imply that a couple of paid games were steadily downloaded by gamers, while the free game charts were subject to fluctuations. In the case of the free games, a gamer's decision to download a game was not weighted toward one certain game.

However, no significant differences existed between the free and paid charts for Android games. The standard deviation for the top 10 free Play Store game chart was 2.91 and the variance was 8.47. The standard deviation for the top 10 paid Play Store game chart was 2.92 and the variance was 8.50.

## CONCLUSION

Today, game developers attempt to blur the boundaries between virtual and reality by using developed technologies in order to give gamers more of a presence within a game. Various applied technologies in mobile media have allowed numerous types of mobile games from social to hybrid and augmented reality games. On the other hand, when it comes to telepresence, which is usually created via high-quality 3D and sound reality technology, mobile games are falling behind console and computer games. Thus, in order to overcome these limitations, until the technology has been perfected, game designers must rely on making the most out of the technology of today and make the games as addicting as possible. Since mobile media are deeply involved in the contemporary users' lives, mobility is the strongest asset of mobile games. In order to make the games addicting they must rely on features that appeal to the gamers.

Indeed, the most downloaded mobile games have the common technological and gaming design features (RQ1), such as touch-based enjoyment, the ability to play the game wirelessly, social interactions, simple rules, and the removal of enemies and missions that do not require defeating an enemy to complete. Furthermore, renowned games for video consoles or computers are popular for mobile platforms.

Mobile game developers should consider gaming platforms (RQ2) and price (RQ3). Games that need high-resolution and dynamic controls to play tend to be more popular for tablets, as it discussed above. Even though it is not free, games that have the popular games' features are likely to be downloaded more.

In contemporary society, mobile games are no longer a toy for young people. While the younger generation of gamers would be interested in more involved, complex games, older generations may prefer casual games that allow them to pass time, such as *Tetris* and *Bejeweled*, as they can have a positive influence on their mental and social health (Plaza et al., 2011). As the age of gamers varies from the very young to the very old, game designers must take the aforementioned main features of contemporary popular mobile games into consideration.

## LIMITATIONS AND FUTURE STUDY

The investigation period for this study was relatively short and, as new games are released daily, a longer investigation period may be useful in determining more conclusively the features that appeal to gamers. In addition, this study only focused on the top 10 games downloaded in the United States. In order to create a more robust data pool, future studies should also include other nation's charts as cultural differences might emerge when comparing the top charts of different nations.

As gamers have a tendency to follow the crowd and download popular applications, top 10 charts presented by third-party and market websites may actually influence the purchase decisions of gamers. Hence, future studies should focus on whether and to what extent these charts influence gamers' purchase decisions.

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# WANT TO BE LOVED? GO MOBILE!

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**Abstract:**

*Visitor psycho-cognitive and psycho-emotive response times were monitored on desktop computers (WindowsOS, Apple, Linux), laptops and netbooks (WindowsOS, Apple, Android, Linux), tablets (Android, WindowsOS, Apple), mobile phones (Android, WindowsOS, Apple) and web-enabled TV (Samsung, LG, Panasonic, Vizio, Sony). This data was matched both to self-described behavior during visits/use of branded apps, online behaviors captured during navigation and conversion and in-person observations of people using the different personal communication platforms listed above. The data demonstrated that consumers have stronger emotional responses to their site visits/branded app use when the visit is conducted on a mobile platform than other platforms. One aspect of these polarity response effects is that consumers believed brand messages were more trustworthy when received on mobile devices than on other personal communication devices.*

**Keywords:** *mobile, neuromarketing, emotional response, marketing, consumer response, attention, emotion, inhibition, affective evaluation, preference, interference control, cognition, functional integration, social brain, social cognition, theory of mind, audio, orienting response, structural features, memory, cognitive neuroscience, evolutionary psychology*

## INTRODUCTION

This study grew from a series of exploratory discussions between Critical Mass and NextStage Evolution in 2011-2012. Critical Mass, part of the Omnicom Group of companies, is an international digital agency that occasionally performs marketing research for its clients. NextStage Evolution is a privately owned research, training and technology company that has done research in human-machine interactions and related fields for more than 20 years, has published papers starting in 2001, holds several patents in these fields and regularly performs research for a variety of companies along human-machine interface lines.

The discussions culminated in a 3Q12 joint research project ("Love/Like") that produced a research paper, *The Heart as a Dollar Sign* (Carrabis, Carrabis, Boone, & Ford, 2012) on the real economic value of a "Like," "Friending" and similar social network marketing relational identifiers. Critical Mass supplied the online survey instrument and market research panel; NextStage Evolution supplied the survey instrument design, in-person and phone interviews, and correlation and analysis of resulting online and offline data.

That research and paper determined a reliable methodology for marketers, designers and content providers to use to accurately measure consumer emotional response and commitment to a given brand. The business community was hungry for reliable information on the value of their social efforts and the majority of publications were business promotional material with little to no scientific basis. Both Critical Mass and NextStage Evolution wanted experimental results that could be applied with equal accuracy across all social platforms, were not tied to a specific company's products or offerings and met with Karl Popper's (Popper, 1959) falsifiability requirement (if a theory B comes along which describes all existing phenomena of a particular type as well as the currently accepted theory A, yet also makes predictions which contradict those of A and later prove to be correct, then theory A should be abandoned and theory B put in its place. Theory A, if it is simpler, can still be retained for the purpose of doing calculations in restricted circumstances, but it must always be borne in mind that it is no longer the accepted model. Gravitation is the classic example of this; Newton's law is re-



placed by relativity, but is still acceptable for working out space probe trajectories). That research's major finding was that it is possible for brands to create deep emotional commitment and ego-identification within consumers intentionally. The report explained how to do this in general and provided several different scenarios for implementation. These results are currently being used by Critical Mass with several major brands

Analysis of the Love/Like data indicated an anomaly that was related to the visitor's device (Web-enabled TV, desktop, laptop, notebook, netbook, tablet, mobile); visitors routinely demonstrated stronger emotional responses when interacting with sites via smaller devices than with larger devices. The more a given interaction was "in the visitor's hands," the greater the response, the quicker the response and the more polarized the response. Responses via mobile devices to brand logos/icons demonstrated a willingness to act "without thinking," a serious concern for brands wanting to be liked/loved or simply wanting some consumer awareness/mindshare.

We considered two possibilities for this anomaly: 1) device optimized digital properties ("responsive" sites) were causing stronger and polarizing emotional responses, and 2) increased emotional responses were device based and were not influenced by device optimized digital properties. A preliminary study of mobile users indicated use of apps outnumbered users visiting mobile sites, responsive or otherwise, by a factor of 6:1, so a decision was made to investigate whether or not emotional responses were device based. For example, one individual in the preliminary survey commented, "Mobile sites? I visit sites. I prefer the non-mobile versions. The mobile versions seem to offer limited or harder to disseminate content."

## LITERATURE REVIEW

It has been understood since the late 1990s that consumers' first impressions (Hinkle, 2009; Carrabis, 2007e; Carrabis, 2006c) of a given site are formed

non-consciously and dictate whether or not a conversion takes place (Bernard & Sheshadri, 2004). Site presentation greatly influences visitor behavior (Carrabis, 2006d) and people's behaviors change as they move from offline to online environments (Carrabis, 2006a).

Behavioral change is determined by controllable design factors such as color and position (van Geel, 2006; Carrabis, 2007a; Carrabis, 2007c; Carrabis, 2007f), fonts (Shaikh, Chaparro, & Fox, 2006; Bernard, Mills, Peterson, & Storrer, 2001; Bernard, Mills, Frank, & McKown, 2001; Bernard, Liao, & Mills, 2001; Shaikh & Dawn, 2009), information download time (Selvidge, 2003), language (Shaikh, Chaparro, & Fox, 2009), layout (Shrestha & Owens, 2008; Shaikh, 2005; Baker, 2005; Chaparro, Shaikh, & Baker, 2005; Rosenkrans, 2009), factors that design can not control such as time of day (Carrabis, 2013), individual personalities (Lida, 2002; Copas, 2003; Wise, Hamman, & Thorson, 2006) and cultural biases (Adam, Mulye, & Palihawadana, 2001; Adam & Shaw, 2001; Frank, Sundqvist, Puumalainen, & Taalikka, 2001; Ellison, Heino, & Gibbs, 2006; Fullwood, Thelwall, & O'Neill, 2011; Carrabis, 2007b) that can be addressed by knowledgeable, informed design and have only become recognized requirements in the past few years.

All of the above references are valuable and little research has been done on how devices effect individual performance (existing research seemed limited to video game environments (Lenz, 2008; Kuhn, et al., 2011; Green & Bavelier, 2003; Lenz & Fox, 2008; Green, Pouget, & Bavelier, 2010; Kätsyri, Hari, Ravaja, & Nummenmaa, 2013)) and consumer emotional bias to presented information (with the exceptions of violence pathology (Bushman & Whitaker, 2010), and sex and gender (Yao, Mahood, & Linz, 2010; Feng, Spence, & Pratt, 2007; Carrabis, 2006b) studies).

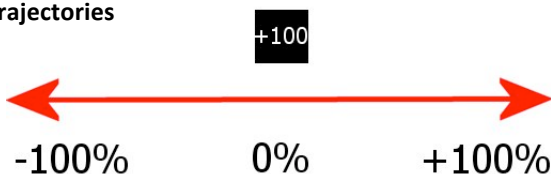
## RESEARCH DESIGN AND METHODOLOGY

The Love/Like research project involved a biopsychosocial (Baltes & Smith, 2008; Scheepers, 2008) survey applied across all previously listed platforms (desktop, laptop, tablet, mobile and Web-enabled TV) in three separate phases based on the same survey instrument. Cognitive, behavioral/effective and motivational elements (or modalities) were isolated for each age and gender group once data gathering was completed.

Responses were analyzed for cognitive, behavioral/effective and motivational similarities using a NextStage modified Linguistic Inquiry and Word Count (LIWC (Petersen, Tenenbaum, Havlin, & Stanley, 2012; Petersen, Tenenbaum, Havlin, Stanley, & Perc, 2012; Lienard, et al., 2010)) algorithm based on Chomsky's Transitional Grammar's Semantic Base concepts and substituting semiotic bases (conceptual primitives) (Carrabis, 2004, 2006, 2009) for Chomsky's semantic bases (Hauser, Chomsky, & Fitch, 2002; Cook & Newson, 1996; Dunn, Greenhill, Levinson, & Gray, 2011; Crain & Thornton, 1998; Wierzbicka, 1999; Bickerton, 1995; Devitt & Sterelny, 1990). These modalities were matched to the brands referenced by participants to create the survey instrument for the mobile-only research documented in this paper.

The mobile specific research relied on a NextStage modified GNAT-like task in which previously identified brand logos were used instead of words. GNAT (Go/No-Go Association Task) tests measure implicit social cognition between a concept ("brand" in this study) and an attribute ("placement in the visual field" in this study). Participants were shown an instruction interface similar to Figure 1 below.

**Figure 1: Used to train participants and to provide baseline values for accelerations, pressures and trajectories**



Participants were told that they would be shown rounds of three logos presented sequentially. They were to move the logo to a place on the arrow indicating their level of commitment to the brand. Each logo stayed on the screen until the participant removed their finger from the screen at which time there would be a one-second pause and the next logo would appear. After each round of three logos a "Thanks/Stop/Next" screen appeared (Figure 2).

**Figure 2: Participants were shown the interface after completing each round. Pressing "Stop" closed the instrument, pressing "Next" continued to the next round**



Tapping "Next" generated the next round of logos, tapping "Stop" closed the instrument. Participants could take part in up to 10 rounds. The logos were based on a stock of 100 brands referenced by participants in the Love/Like study and were presented at random with the following caveat; each round had a logo that the original research participants most often associated as negative, a logo that was most often associated as neutral and a logo most often associated as positive.

NextStage monitors visitor site activity for a number of businesses worldwide. These businesses range from etailers to travel to research to health to automotive and more. The goal of NextStage monitoring is to provide actionable marketing information to client companies. Three hundred participants were

selected at random from a pool of over 2,000 visitors who used a mobile device to visit a NextStage monitored site. These randomly selected participants were provided an invitation (link) via the mobile interface to visit a temporary site housing only the survey instrument and used solely for this research. The invitation was continually sent out until the goal of 300 participants was obtained. The average number of rounds per individual was 7.9 with a median of 8. Age and gender data is shown in Figure 3.

**Figure 3: Survey participants' age and gender data**

Age Group (years old)	Population %
15-24	18.94
25-34	22.36
35-44	17.08
45-54	16.77
55-64	15.53
65+	9.32
Gender	Population %
M	45.3
F	54.7

Participants played training/practice rounds consisting of three logos, one marked "-100," one marked "0" and the third marked "+100," and asked to place them in their correct positions on the bar. Correct positioning was rewarded with a green on black "Excellent/Play" button, incorrect positioning with a blue on black "Again" button. No participant was given more than three practice rounds to achieve correct positioning. Individuals who remained unsuccessful after three training runs were allowed to complete the app but their data was removed before calculations were performed. Two hundred and ninety-two individuals' interactions were used in this research.

Training results were used to calculate norms for pressure, acceleration, velocity and total contact time. Velocities were calculated as screen distance/ start-

tap-time plus drag time. Accelerations were determined by determining changes in velocities and weighting for pressure gradients during movement. Emotional response to a brand logo was determined by average pressure gradient/the transit duration times the length of time the participant's finger was in contact with the logo.

We also investigated if brand affinity would produce a savoring effect as demonstrated by Quidbach, Dunn, Petrides, and Mikolajczak (2010), who demonstrated that wealthy individuals have an impaired ability to enhance and prolong positive emotional experience, with the ability to enhance and prolong positive emotional experience as "savoring." Further, they presented evidence "...supporting the widely held but previously untested belief that having access to the best things in life may actually undercut people's ability to reap enjoyment from life's small pleasures." We conjectured that brand affinity would produce a savoring effect resulting in the participant keeping contact with the brand logo longer and this savoring could be predicted by the participant's self-described income level and the brand's prestige.

Lastly, we used a "curvature" variable measuring the average arc of the transit as calculated by the tangent of the transit's highest point above a straight line from source to destination (0 for a straight line, higher values for greater arcs). This curvature variable basically revealed that there are neither straight lines nor standard transits on mobile interfaces.

All values were normalized (Figures 4, 5 and 6) within their groups then rationalized so that 1 Positive = 1 Neutral = 1 Negative. This rationalization corrected for different screen sizes, source to target distances, familiarity with the touchscreen interface (we assumed users were familiar with their devices if they had been in use for more than one week) and age related dexterity challenges.

**Figure 4: Normalized positive response correlation values**

Correlation	Value
Average Pressure/Distance	0.83
Starting Pressure	0.95
Stopping Pressure	0.72
Pressure Change/Distance	0.98
Acceleration	0.71
Velocity	0.62
Curvature	0.17
Savoring Time	0.86
Total Action Time	0.92

**Figure 5: Normalized neutral response correlation values**

Correlation	Value
Average Pressure/Distance	0.86
Starting Pressure	0.70
Stopping Pressure	0.77
Pressure Change/Distance	0.98
Acceleration	0.73
Velocity	0.67
Curvature	0.78
Savoring Time	0.13
Total Action Time	0.94

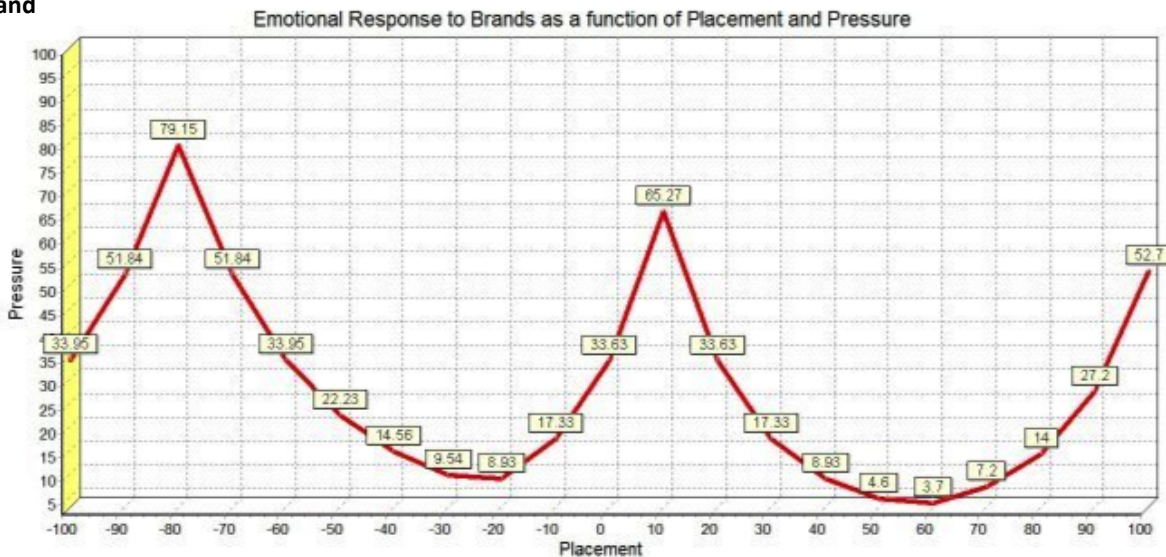
**Figure 6: Normalized negative response correlation values**

Correlation	Value
Average Pressure/Distance	0.91
Starting Pressure	0.99
Stopping Pressure	0.92
Pressure Change/Distance	0.99
Acceleration	0.81
Velocity	0.94
Curvature	0.30
Savoring Time	0.12
Total Action Time	0.79

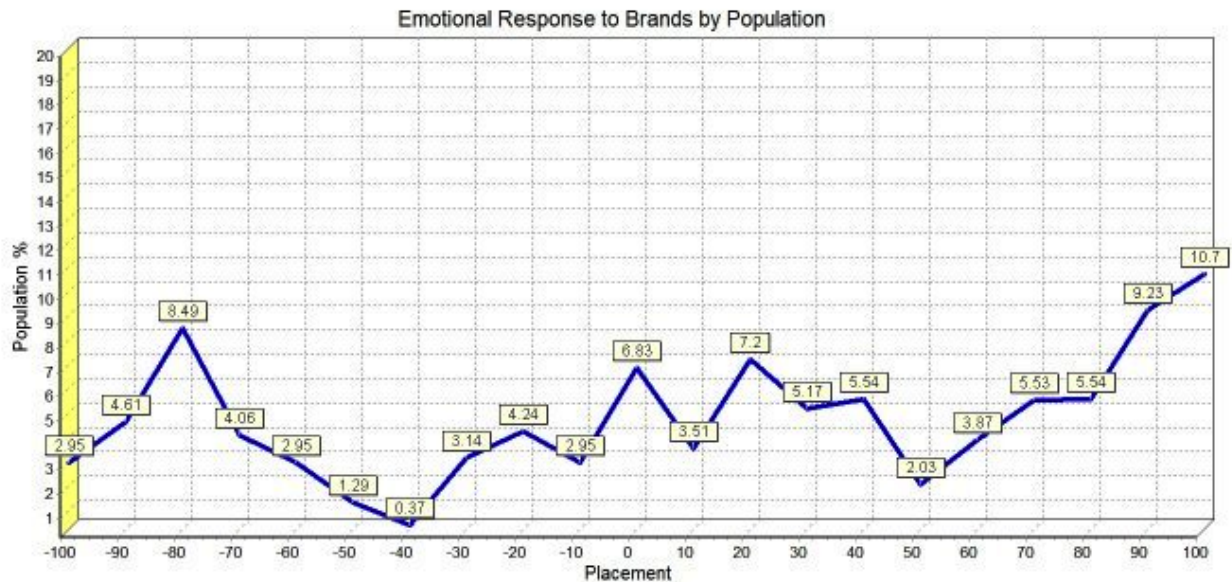
**RESULTS**

Plotting emotional response as a function of placement on the app's -100 to +100 affinity line results in Chart 1, indicating that individuals exert more pressure (hence are demonstrating a greater emotional response) when making negative and neutral/slightly positive evaluations than when making positive evaluations. Chart 1 only tells the story, however. Compare the results of Chart 1 with Chart 2, Emotional Response by Population and Chart 3, Savoring.

**Chart 1: Plotting emotional response as a function of placement by pressure indicates that individuals' dislike (negative ego-identification) of a brand is generally stronger than their like (positive ego-identification) of a brand**



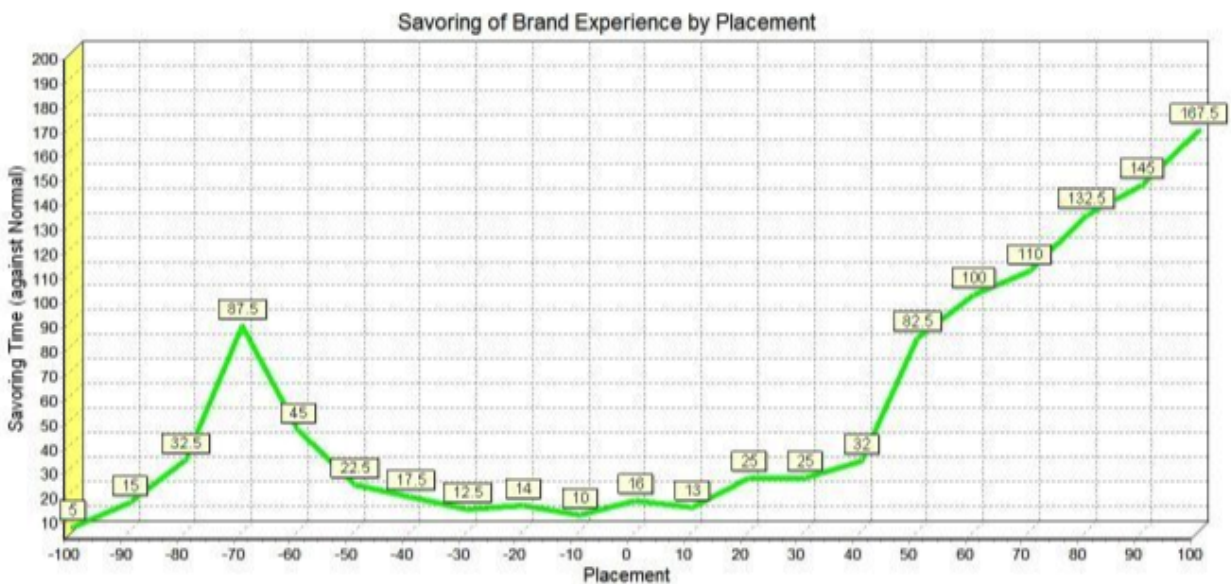
**Chart 2: This chart indicates that more people will identify a brand as "completely" positive rather than "completely" negative. Comparing Charts 1 and 2 indicates that people may not go completely negative, but when they do go negative, it is stronger than when they go positive**



Consumers may have a stronger negative than positive emotional response to a given brand, but they are more willing to be completely positive rather than completely negative about a brand. We believe there

is good news in this; consumers who are not 100% negative are redeemable under the correct circumstances and with the correct messaging.

**Chart 3: Savoring (lingering on the brand icon after movement has stopped, hence the target has been reached) indicates that consumers savor positive to negative brand experiences by 2:1**



The major brand take-away in this study is shown in Chart 3, Savoring of Brand Experience by Placement. Savoring was determined by the length of time a consumer's finger stayed on a brand logo/icon after movement had ceased. The conjecture is that remaining on the logo/icon at movement completion was more due to the consumer re-experiencing brand events and not evaluating their decision because few participants demonstrated any hesitation in movement or direction once their fingers had made contact with the icon/logo. There may have been hesitation before engagement; pre-engagement time was not measured in this experiment.

Whether or not the decision is taking longer to make or the individual is re-experiencing the brand, the brand is in conscious awareness longer and that re-experiencing causes an inward focus that prolongs the "at-rest" portion of the response (the lingering or savoring of the event).

What causes stronger responses on smaller devices? Is it the fact that mobile devices' size makes them increasingly personal and therefore users have a need to exhibit greater control over their devices? The concept of device as an extension of the self, when considered in an information-deluged world, perhaps requires users to be more definitive in their acts? Is there a need to have clear beginnings and endings that is being manifested in the use of mobile devices?

We also believe that consumers downloading a branded app has greater cogno-emotive resilience/identification than browser-style bookmarking does because the app or mobile site is now a distinctly personal choice (the consumer has it with them as long as they have their mobile).

Decision speed was demonstrably faster than that determined by the original Critical Mass-NextStage study. It is possible that this increase in cognitive-decision processing is due to mobile devices having a naturally greater social factor; their ubiquity plays against brands needing "mindshare" to establish

themselves in awareness because the interface fosters a desire to jump from one task to another as different apps, etc., vie for the individual's attention.

Males showed a greater emotional response to brand logos than did females. We are not sure how to interpret this or if there is greater meaning than the obvious.

### ***Industry Implications***

The ubiquity of mobile devices and people's interaction with them indicate that simpler interfaces with easier to identify targets and rewards will dominate future mobile properties. Easily identifiable targets and rewards tend to demonstrate polarity values as seen in currently available mobile games' lowest difficulty play levels. These low-difficulty levels provide training and hooks for consumers; the easy wins are encouragement to buy more advanced games with higher difficulty levels. It is suggested brands make use of mobile gaming user psychology studies when designing their apps and sites.

Businesses must determine the spending potential of their mobile audience sector and let that determine the sophistication of their mobile property spend. The best mobile properties will be along the lines of what were called microsites; they had one purpose only, visitors either converted or moved on.

There were three major findings to this study:

1) The length of time between a brand message being received on a mobile device and being acted upon by the consumer is recognizably shorter than that same brand message being received on other personal communication devices.

The majority of mobile use is when people are reafferent with their environment. This environmental reafference requires individuals to apply a narrow focus and quick decision to the immediacy of the mobile information platform in order to provide attention to the remaining environment (think of the "driving while distracted" problem and you get the idea).

Brands need to make their message immediately compelling and convertible. Immediate convertibility is best used at the actual decision point, not before or after, as the limited time window for conversion means any minor "push" in a conversion direction causes the consumer to convert simply because the easier path (to conversion) has been provided and recognized.

2) The consumer's emotional response to a brand message received on a mobile device causes a polarized response more often than on other personal communication devices.

Results from the Critical Mass-NextStage study demonstrated that brand responses on non-mobile platforms were subject to more deliberation and required more time between query presentation and initial response action than on mobile devices. This lack of deliberation and decision time shows up on Chart 1, Emotional Response to Brands as a Function of Placement and Pressure, as the three spikes in the negative, neutral and positive positions. Each spike represents a polarity of emotion with the neutral spike indicating a definite lack of emotion, brand involvement and ego-identification.

Brands need to provide simple, easily actionable mobile interfaces that are highly targeted to specific demographics and are strongly reward-oriented to cause conversion.

3) Consumers responded positively to brand messages delivered on mobile devices more often than they did to similar brand messages delivered on other personal communication devices.

Results from the Critical Mass-NextStage study demonstrated that consumers using non-mobile devices have a greater emotional response range to a given brand than when using mobile devices. This greater emotional response range allows consumers time to engage in internal dialogue regarding the brand offer, more often than not resulting in a decision against conversion.

As above, brands need to provide easily recognized, assimilated and immediate rewards to mobile users if they wish to increase brand-identification, mindshare and conversion.

#### **Limitations**

Pressure on some mobile platforms was determined by surface area contact with low surface area contact equated with low pressure and large surface area contact with high pressure. The root mean square of the contact area as a portion of the entire surface area was calculated to provide these contact area proxy pressure values.

Individuals who remained unsuccessful after three training runs were allowed to complete the app but their data was removed before calculations were performed. Two hundred and ninety-two individuals' interaction was used in this research.

#### **Future Research**

The immediacy of sharing mobile-based results (handing your mobile to someone else to demonstrate a fact or datum) causes mobile branded users to have greater influencer value in "offline" social settings than their desktop/laptop bound compatriots in online social settings. Investigators should study if branded apps with social factors cause decisions to be made at the fastest cognitive-decision speeds and if so, does this increase in social cognition come at a savorability price.

Another investigation could determine if mobile branded networks, perhaps an extension of social shopping (Carrabis, 2007d), would create stronger, more active branded communities offline.



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# U.S. HISPANICS GO MOBILE: ADOPTION AND MARKETING ENGAGEMENT TRENDS

Mary Beth McCabe

**Abstract:**

Seven in 10 U.S. Hispanics now uses a smartphone, and digital analytics can identify these engagement patterns as Hispanics bypass desktop and laptop computers for tablets and mobile phones. What are these behavior pattern changes and what are marketers doing to adapt their communications to reach them effectively? Considering the facts about Hispanic smartphone usage, research papers relating to Hispanics and mobile marketing are lacking in quantity and substance. This paper discusses the following topics: 1) smartphones usage for U.S. Hispanics. Why are they bypassing the desktop and even the laptop for phones and tablets; 2) shopping behavior on smartphones and tablets; and 3) a SWOT analysis of Hispanics and mobile.

**Keywords:** mobile marketing, smartphones, Hispanic marketing, marketing strategies, SWOT analysis

## INTRODUCTION

U.S. Hispanics accounted for 56% of the total population growth in the 2010 census. They represent 37% of the population in California, and are growing in importance to marketers across the country. This study can help marketers understand future mobile communications needs of U.S. Hispanics and therefore provide crucial information for decision-making purposes.

## LITERATURE REVIEW

### *Behavior Changes and Implications for U.S. Hispanics*

We know that wireless media messages are expanding as unlimited data plans increase, screen images are improved and consumers are more satisfied with the apps available (Schiffman & Kanuk, 2010).

Consumer behavior teaches us that there is a segment of the population that understands technology and is highly competent with this exposure. Those without computer skills are now technologically underachieving, and parents seek computer exposure for their children to a point. Researchers have even gone so far to say that geeks are now viewed as friendly and fun (Schiffman & Kanuk, 2010). Clearly the social status of

nerds is changed for the better if you enjoy new technology.

We can see examples of how marketers are changing their interactive messaging in the B2B, B2C, B2G (government) in the United States and in Mexico. (Johnson, 2013; Elliot, 2012; Wentz, 2012).

For Hispanics, who have traditionally been slower to accept some trends, such as driving hybrid vehicles, (McCabe, Weaver, & Corona, 2013), the trend has been fast to accept digital media in the entertainment sector. For the business-to- consumer (B2C) market, Univision Communications has introduced new Spanish language platforms, including: 1) a Web music company, Vevo; 2) original Web TV series, Salseras; 3) five new Uvideos channels; and 4) an online digital video platform for younger Hispanics who identify with millennials, called Flama. (Elliot, 2013).

Core values such as spending time with the family, organized religion, culture, language, and music are important to Hispanics (Meneses, 2011). Hispanics are not so concerned with schedules or timeframes, and enjoy the moment. The percentage of Hispanics earning \$100K or more is half of that of the working population in the United States. Some of the lower

incomes can be attributed to younger workers who do not have a high earning potential due to limited experience and seniority. Just to have enough to get by is satisfactory for many U.S. Hispanics. Hispanic cultural values retain optimism, enhance human experience, and embrace spirituality. (Korzenny & Korzenny, 2005).

Marketers trying to reach Hispanics must advertise on television. Mobile marketing and other digital competition is expected to expand (Korzenny & Korzenny, 2005). Mobile apps such as Pandora and Spotify can provide Hispanics with entertainment that substitutes for radio formats. Radio had always been something of a folklore carrier for education about culture and history for Hispanic immigrants, as well as practical tips for living. (Korzenny & Korzenny, 2005).

U.S. Hispanics' growth of time spent online, on broadband connections and on smartphones is growing. There were 23 million Hispanics online in 2009, more than 50% of the U.S. Hispanic population (eMarketer.com, 2009). Many marketers and online publishers created advertising campaigns in both English and Spanish languages to reach an audience that switches between language and culture. (eMarketer, 2009).

Hispanics like to read news online, and younger, more acculturated Hispanics will use the Internet for sports news, such as soccer, baseball, and boxing, and for national and international news. For Hispanics without Internet access, newspapers in print copy is preferred. In addition, Hispanic consumers surf TV channels seeking entertainment, education and to satisfy their interests, in both English and Spanish languages (Meneses, 2011).

Hispanic Internet users are young; nearly two thirds are under age 35. Eight out of 10 Hispanic adults own a cellphone, and for 25% of these adults their mobile is their primary phone. They use smartphone features, including accessing the Internet, at higher

rates than other mobile subscribers (eMarketer, 2009).

Hispanics, like non-Hispanics, are visiting mobile websites via smartphones and tablets in large percentages, but this is a recent phenomena. Hispanics prefer TV and the Web for media such as news, and non-Hispanics selected magazines, newspapers and the Web for their news. Facebook ranked about the same for both Hispanic and non-Hispanic, but Twitter is only used by 5% of Hispanics versus 18.4% of non-Hispanics. Mobile adoption rates were not considered in this 2012 study. (McCabe, Corona, & Weaver, 2012).

## **DATA AND METHODOLOGY**

A Hispanic marketing research service reported that U.S. smartphone penetration in 2012 approached 50%. (Essany, 2012). That number has moved to 70% in 2013 (Nielsen, 2013). Hispanics and African Americans are adopting new mobile shopping technologies at a faster rate than Caucasians, with 18% of African American shoppers and 16% of Hispanic shoppers using their mobile device to make purchases as compared to 10% of non-Hispanic whites (Essany, 2012).

One in five African American shoppers (21% versus 13% of Caucasian shoppers) use their phone to read product reviews and maintain shopping lists, and one in five Hispanic shoppers (20% versus 13% of non-Hispanic white shoppers) use their mobile device to compare prices on products (Essany, 2012) Natural entry level points would be SMS and mobile Websites for business to reach Hispanics (Essany, 2012). The Digital Divide is the gap between the computer haves and have-nots (James, 2011). In California, 20% of adults do not use the Internet and 30% do not have broadband access at home, about the same as the national average. Those left behind are increasingly in the Digital Divide as more of life's basic information,

like community news, transit schedules or job listings, are online, but they are not (James, 2011).

The divide is most pronounced in California's Latino community, where one third of adults do not use the Internet and only 50% have broadband access at home. Other demographic groups fare better, according to a 2010 study by the Public Policy Institute of California, a nonpartisan research group: whites (90% use the Internet, 82% have broadband access at home); Asians (87% use the Internet, 77% use broadband); and blacks (82% use the Internet, 70% use broadband) (James, 2011).

#### ***Why Bypass the Desktop and Laptop?***

There has been a recent increase in "leapfrogging" among Latinos, accessing the Internet via smartphones, which costs less than computers and Wi-Fi. (James, 2011).

Nationally, 93% of teenagers are online, but in a study done near Berkeley, California, 30% of teenagers did not have an email address (James, 2011).

The literature points to the youthfulness and lack of broadband access at home. Because they are younger, they do not have the buying power for the newest desktop machines plus all of the required software and IT required. Even laptops cost hundreds of dollars, if not a thousand dollars for a high-end model. But a smartphone can cost as little as \$100 without a 2-year contract, and email can be combined with texting and phone service for as little as \$50 per month plus taxes. So, the initial investment can be low, which is appealing to the more youthful audience. Paying for broadband access at home plus paying for desktop broadband requires a double payment, so many opt for only the more portable and useful device, the smartphone.

#### ***How Shopping Behavior Is Changing***

For the B2B market, Univision offers advertisers opportunities to combine their advertising messages across multiple platforms, including mobile. Advertisers traditionally use television, radio, online, social media, and now are entering into mobile (Elliot,

2013). They consider themselves leaders in technology as Hispanics have high penetration of smartphone ownership (72%). Hispanics also watch more online video, 62% more than for non-Hispanics (Nielsen, 2013).

B2C examples like Target stores, one of the top 30 advertisers in Hispanic media (Ad Age, 2013), show how big brand early adopters of mobile marketing have strived to focus on the Hispanic community through cutting edge mobile marketing techniques.

#### ***Case Study: Beverages***

A B2C example is an alcoholic beverage company that created a Hispanic mobile marketing campaign (Johnson, 2013). Coors/Miller used three different mobile marketing platforms: texting, mobile websites and their Android application, to engage their Spanish language customers. This example shows how using mobile engagement in sports became a successful outreach for a beer company.

The promotional push included "Text to Win" chances to tickets to a soccer game in Mexico, allowing for a dialog with Coors/Miller Hispanic customers in Spanish. This became an ongoing conversation, due to multiple interactive channels (i.e., texting, websites and apps) that fostered engagement with the brand. The mobile website connected Hispanics on the go with the Coors Light brand through their smartphones. The first step for the consumer was to enter their date of birth to be sure they were at least 21 years old. Then users had access to a calendar of upcoming games, exclusive articles on players and teams, and video games to play. The Fans del Frio Android app allowed them to find out about upcoming games and allowed them to add game reminders to their device's calendars. The SMS codes found on bottles and cans of beer allowed them to enter the codes for a chance to win a trip and tickets to a championship soccer final match in Mexico. This was not the first beer company to promote using mobile. Miller Lite had done a similar campaign earlier, promoting watching live soccer games on their mobile website. Prior

to this mobile campaign, MillerCoors had sponsored a soccer team, Club Deportiva, in Guadalajara, Mexico (Johnson, 2013).

**Case Study: Entertainment**

Hispanics buy a quarter of all movie tickets sold in the United States. But do they need their own place to buy them? In February 2013, Spanish language broadcaster Telemundo introduced a digital movie ticket service aimed at Latinos called Fandango Cine. Separate from Fandango, this app highlights Hispanic movies, actors and original video clips. In a struggling entertainment industry, Hispanic moviegoers bought 286 million movie tickets in 2011, and they go to an average of seven films per year, compared with five movies a year for non-Hispanics, according to the Motion Picture Association of America (Chozick, 2013).

At the same time, Hispanics are 68% more likely than non-Hispanics to watch video on the Internet, according to Nielsen. Fandango had an average of 41 million unique visitors a month in 2012, a record for the service, which charges users a fee to buy movie tickets in advance.

Fandango sees the data from Hispanics preferring movies and mobile technology. Fandango Cine highlights Hispanic actors and directors under the heading "Overlooked by Oscar." A segment called "Cine Buzz" provides celebrity scoops on Latinos in Hollywood in addition to selling tickets to Spanish language films, for example, "Snitch," starring Benjamin Bratt as a Mexican drug lord, and "Bless Me, Ultima," based on the novel by Rudolfo Anaya (Chozick, 2013).

**ANALYSIS**

Figure 1 describes how the elements of the Hispanic family are connected to mobile marketing, shopping and technology. Youthful Hispanic consumers tend to have strong connections to family. Those connections help keep Hispanics texting, talking and involved. For shopping, we know that Hispanics

are brand loyal, so businesses that can attract and maintain good relationships have a better opportunity to gain and keep Hispanic customers. The language and the culture both are important to the connections that involve the family and values.

**Figure 1: Hispanics are mobile and family focused**

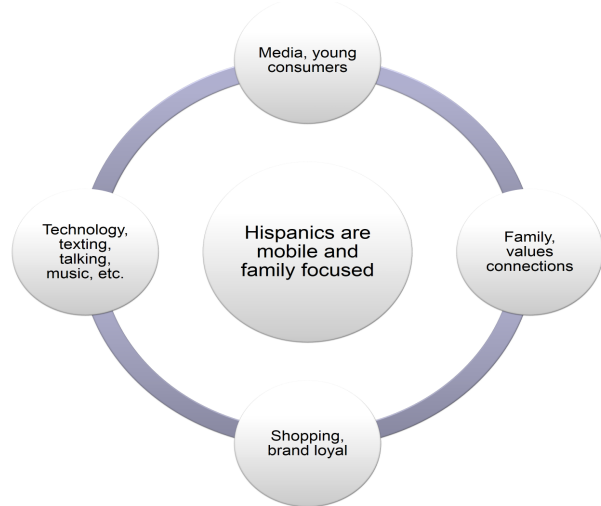


Chart 1 shows that Hispanics are more likely to use smartphones than the total marketplace. They are more likely to interact with their smartphones for many measured activities, including text messaging, streaming music, streaming video/TV and using mobile apps (eMarketer, 2012).

**Chart 1: Digital media use among U.S. Hispanic vs. total shoppers (eMarketer, 2012)**

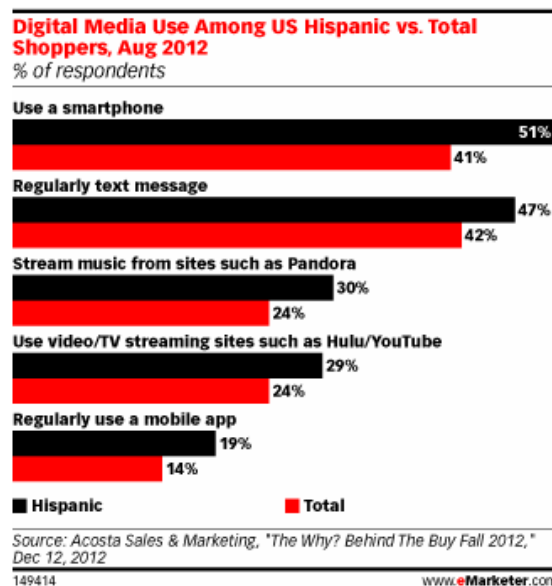
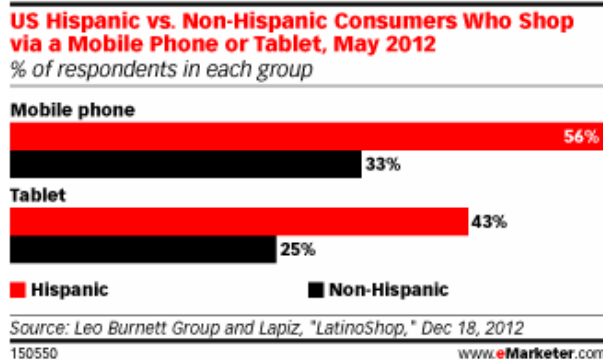


Chart 2 describes the percentage of Hispanics who shop with a mobile phone or tablet (56%) as nearly double that of non-Hispanic (33%) (Leo Burnett, 2012). This means that many types of businesses are more likely to get Hispanic customers using a mobile phone or even a tablet, and they should be creating content that reflects these segments. They should make sure the mobile Websites and apps are easy to use, easy to read text and sized properly for the smaller screens. In order to make the user experience positive, companies should test their messaging on all major phone device manufacturers.

**Chart 2: U.S. Hispanic vs. non-Hispanic consumers who shop via a mobile phone or tablet (Leo Burnett, 2012; eMarketer, 2012)**



Based upon Chart 3, Hispanics would be a solid target market for the purchase of event tickets on smartphones. Clearly, this is the largest category for purchasing consumer products/services thus far, and this goes for the tablets as well. With nearly 11% of share of commerce for smartphone and 4.5% of tablet, expect this percentage to be increasing as the desktop commerce diminishes for Hispanics. Marketers should consider this for ease of product tracking, delivery and convenience for the future for certain product categories such as concerts, sporting events, and cultural outings.

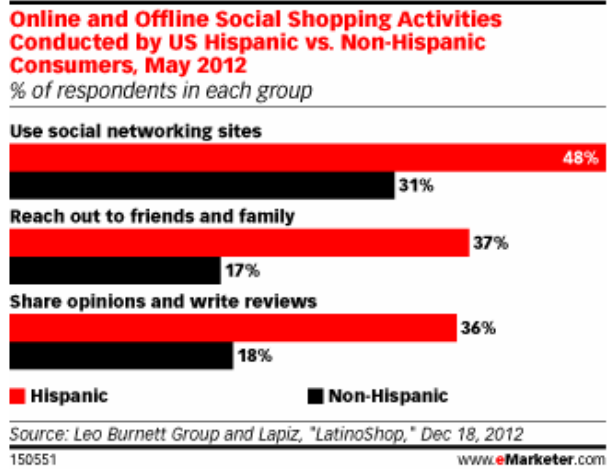
**Chart 3: Share of total digital commerce spending by platform: Leading product categories, Q1-Q2 2013 (comScore, 2013)**

Source: comScore M-Commerce and E-Commerce Measurement			
	Share of Total Digital Commerce by Platform		
	Desktop	Smartphone	Tablet
<b>Total Digital Commerce</b>	<b>90.4%</b>	<b>6.0%</b>	<b>3.5%</b>
Apparel & Accessories	90.3%	6.2%	3.5%
Computer Hardware	94.5%	3.3%	2.1%
Consumer Packaged Goods	95.6%	3.0%	1.3%
Consumer Electronics	94.4%	2.6%	2.9%
Event Tickets	84.6%	10.9%	4.5%

Chart 4 indicates that social shopping activities are very important to Hispanics. Not only do they use social networking sites, they tend to share more often. This sharing is done both online in the form of writing reviews, but also sharing of content and "likes." They also do more offline sharing, reaching out to friends and family, often by phone, to communicate their favorite activities and products.



**Chart 4: Online and offline social shopping activities (Leo Burnett, 2012)**



**SWOT Analysis**

Traditional marketers are familiar with the SWOT analysis (Humphrey, 2005). Chart 5 shows results of a SWOT analysis of Hispanics and mobile marketing. A SWOT analysis can be carried out for a product, place, industry or person. In this case it is a subset of an industry. For the U.S. Hispanic mobile market, the specific objective is to identify the strategic internal and external factors that are relevant to success.

Strengths are internal aspects of mobile with a product or market focus. Those include text messaging, streaming music and video, Hispanics love of language and conversation, ease of use of mobile phones, younger market, improved technology, and new technology such as SMS, QR codes and geo-location.

Weaknesses, which are also product or market focused, are privacy, lower levels of trust (Banamex, 2013), language barriers of mobile apps, and mobile websites. An example of this weakness is when a mobile transaction is initiated by a Spanish speaking person. Often the commerce from Spanish goes through English before the transaction is completed, thus creating a barrier to that transaction completion. The education gap is also a weakness as fewer Hispanics have a formal education than the general public. This is changing, but

slowly. Part of this is due to the youth of the market compared to non-Hispanic youth.

Opportunities, which are market focused, include growing in political influence, low barriers to entry, brand loyalty, sporting and music events, higher cell-only and cell-mostly customers. (Lee, Elkasabi, & Streja, 2012)

Threats, which are also external, include market saturation already, poor education historically, and the digital divide (i.e., the education and economic differences between the haves and the have-nots (Scott, 2011)), is still large.

**Chart 5: Discussion and illustration of SWOT analysis for Hispanics and mobile marketing.**

**Internal (Product and Market)**

Strengths	Weaknesses
Text messaging	Privacy
Streaming music and videos	Low levels of trust
Love of language and talking	Fewer Spanish language apps/mobile websites
Younger market	Education gap
High penetration levels of smartphones	
Use social networking sites	
Reach out to friends and family	
Share opinions and write reviews	

**External (Environmental)**

Opportunities	Threats
Political influence rising	Security
Low barrier to entry, low costs	Unlimited data issues and rising costs
Brand loyalty	Digital divide
Sporting and music events	

### **Summary: Hispanics and Mobile Marketing Engagement**

Mobile engagement is rising for U.S. Hispanics with more than 70% adoption rates by Hispanics for the smartphone (Nielsen, 2013). Many bypass the desktop and laptop for tablet and mobile devices. This represents an innovative segment, which in the past was a laggard in new technology adoption. These market changes will alter how many marketers look at the Hispanic opportunity.

### **CONCLUSIONS AND RECOMMENDATIONS**

The purpose of this paper was to share insights on Hispanic use of mobile phones and tablets. The SWOT analysis identifies strategies that future marketers may want to consider when planning future campaigns and marketing direction.

Mobile media and marketing for U.S. Hispanics will grow and flourish:

1. Overall data traffic increases and a growing population with more mobility will make that growth faster for mostly younger Hispanics.
2. Screen image quality is enhanced as smartphones and tablets improve technology and make it easier to produce content in Spanish.
3. Consumer-user experiences with Web applications improve across all interests, including entertainment, political, travel, and health organizations.
4. Advertisers may consider using more mobile campaigns to address their Hispanic customers.

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# THE IMPACT OF VALUE CREATION PRACTICES ON BRAND TRUST AND LOYALTY IN A SAMSUNG GALAXY ONLINE BRAND COMMUNITY IN IRAN

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## **Abstract:**

The new and emerging modes of communication and advertising such as word-of-mouth have enthralled many to discover cheaper and more effective ways of marketing goods or services. Even some of the recent arrivals in the field, such as social media, are stepping into similar fields of identifying how value is created and spread (Laroche, Habibi, Richard, & Sankaranarayanan, 2012a). This paper explores whether value creation practices have positive effects on brand trust and brand loyalty. For this purpose, 196 users of Samsung Galaxy cell phones in Shiraz, Iran were selected as the statistical sample and issued a standard questionnaire developed by Laroche et al. (2012a). To discuss the relationship between the research variables Pearson's correlation was used; path analysis was used for hypothesis testing to evaluate the structure of the recommended framework. Results show that only one of the practices (community engagement) contributes to brand trust.

## **INTRODUCTION**

According to brand research one of the main aims of building and enhancing brand communities is to make customers loyal to the brand (McAlexander & Schouten, 1998; McAlexander, Schouten, John, & Koenig, 2002; Muniz & O'Guinn, 2001; Schau, Muniz, & Arnould, 2009; Zhou, Zhang, Su, & Zhou, 2011). Although there is evidence, how the process of becoming more loyal to the brand happens is still not clear. Researchers ( e.g., Laroche et al., 2012a; Ba, 2001; Walden, 2000) believe that social media based brand communities build and enhance loyalty through the enhancement of brand trust. In fact "trust is one of the main antecedents of loyalty" (Laroche et al., 2012a). Therefore, brand trust can mediate the effects of brand community on brand loyalty.

Brand trust is defined as "the willingness of the average consumer to rely on the ability of the brand to perform its stated of functions" (Chaudhuri & Holbrook, 2001, p. 82). Trust plays a key role in reducing the uncertainty and lack of information in situations of uncertainty and information asymmetry; thus, making customers feel comfortable with the

brand (Chiu, Huang, & Yen, 2010; Doney & Cannon, 1997; Gefen, Karahanna, & Straub, 2003; Moorman, Zaltman, & Deshpande, 1992; Pavlou, Liang, & Xue, 2007). Holms (1991) points out at least two mechanisms: First, repeated interactions and long-term relationships are key in developing trust; second, information sharing and dissemination between different elements of the brand that reduce information asymmetry and uncertainty, and increases brand predictability (Ba, 2001; Lewicki & Bunker, 1995). According to brand trust literature, repeated interaction and long-term relationships are crucial in building trust (Holmes, 1991; Wang & Emurian, 2005). All value creation practices increase the level of interactions between different elements of a brand community (McAlexander et al., 2002). As Doney and Cannon (1997) state, trust also involves a "calculative process" (p. 37), which relates to the value that people receive from the relationships. "In brand community and through value creation practices people develop relationships and draw values from the long-term interactions; it makes them trust and love the brand" (Laroche et al., 2012a).

Therefore, the goal of this study is to examine the effects of value creation on brand trust and brand loyalty in the Samsung Galaxy online brand community.

## **THEORETICAL BACKGROUND AND THE HYPOTHESES**

### ***Value Creation Through Online Brand Communities***

Various disparate streams of management have enticed researches in the recent decade to decipher the actual process of value creation. From streams such as consumer research, new product development and service management, the studies have shown that consumers are a main source of value creation. The new and emerging modes of communication and advertising such as word-of-mouth have enthralled many to discover cheaper and more effective ways of marketing goods or services. Even some of the recent arrivals in the field, such as social media, are stepping into similar fields of identifying how value is created and spread (Laroche et al., 2012a).

Schau, Muniz and Arnould (2009) in their study compiled an exhaustive list of practices which are common to brand communities and organized them into four categories: Social Networking, Community Engagement, Impression Management, and Brand Use.

#### ***Social Networking Practices***

Social networking practices focus on creating, enhancing, and sustaining ties among brand community members. Welcoming, empathizing and governing are different social networking practices that enhance similarities among members and homogeneity of brand communities (Schau et al., 2009). We believe social networking practices are fostered by community markers (i.e., shared consciousness, rituals and traditions, and obligations to society). Schau et al. (2009) bring exactly the same example (field note) for supporting social networking practices that Muniz and O'Guinn (2001) brought for supporting shared consciousness. This implies that

these concepts are highly related; moreover, in our context, social media could foster such practices as welcoming, empathizing and governing. However, there is no empirical data to support it.

#### ***Community Engagement Practices***

Community engagement practices reinforce members' escalating engagement with the brand community (Schau et al., 2009). It includes practices such as milestone and documenting important events in the brand community, and evolving cohesive personal brand narratives. In our view, the concept of engagement goes beyond community participation; it is the process of working collaboratively with relevant partners who share common goals and interests. Although some researchers believe that the Internet and in general the new technologies make people increasingly detached from meaningful social relationships and less likely to engage the community as they spend more time online (Davis, 2001; Gackenbach, 1998; Turkle, 1996), others reject this idea and say that "being wired," which they refer to being connected online, has the potential to foster and build social associations and encourage community building (Dertouros, 1997). In particular, the individuals who use Internet communities to explore interests and gather data are found to be more, rather than less, socially engaged (Shah, Holbert, & Kwak, 1999). Thus, we believe that communities in the context of social media have the capability to foster engagement.

#### ***Impression Management Practices***

Impression management practices are "activities that have an external, outward focus on creating favorable impressions of the brand, brand enthusiasts and brand community in the social universe beyond the brand community" (Schau et al., 2009, p. 34). It includes practices such as evangelizing and justifying through which customers preach the brand, share good news about it and bring some arguments to encourage others to use the brand. Online

communities foster impressionable facts about the brand through word-of-mouth communications and by sharing personal experiences. Consumers engage in these activities for altruistic nature or to attain higher status (Dichter, 1966; Gatignon & Robertson, 1986), but Kozinets, de Valck, Wojinicki, and Wilner (2010) found that these intentions are more complex. Whatever their motivation, members of a community are involved in managing impressions activities. We believe that these activities are not only observable in social media communities, but are enhanced by the capabilities of social media.

### **Brand Use Practices**

Brand use practices relate to the member's tendency to help other members with newer, improved and enhanced ways to use the focal brand. These basically include the information given by one member to another with regards to customizing the product for better applicability to their needs. They also relate to feelings of one member toward helping or assisting other members who are relatively new to the community. Brand use practices include grooming, customizing, and commoditizing. All these activities result in enhanced uses of the focal brand (Schau et al., 2009). Social media could foster these activities through keeping brand devotees and other members in touch and facilitating their information and resource sharing. In addition to these explanations about value creation practices, we believe that brand community markers directly affect value creation practices within the brand community. Moreover, regarding the enabling role of social media in fostering and facilitating communication, information access and networking, the embeddedness of such brand communities in social media contexts results in the enhancement of value creation practices (Laroche et al., 2012a).

The stronger the feelings of shared consciousness, shared rituals and traditions and obligations to society, the more members of a community and the company

feel united, close to each other and motivated, which enhance collaborative value creation practices. For example, if members consider themselves highly obligated to society, they are more likely to preach and evangelize the brand, help each other better use the branded products, or try to enhance and sustain their ties, all of which are value creation practices. It was also shown that shared consciousness enhances interpersonal ties in a group and increases the willingness to share information and resources with other members, to provide support and to commit to goals identified by the group (Walther, 1996; Wellman, 1999).

### **Brand Trust**

Marketers seek to achieve profit maximizations stemming from the loyalty of their customers in order to associate price premiums and increased market share (Chaudhuri & Holbrook, 2001). This concept, however, depends on another construct, brand trust, which is defined as "the confident expectations of the brand's reliability and intentions" (Delgado-Ballester, Munuera-Alemán, & Yagüe-Guillén, 2003). Like many other marketing constructs, brand trust has also received a lot of attention from scholars across various disciplines such as economics, psychology, sociology, management and marketing (Delgado et al., 2003), but still the study of brand trust has not flourished in the context of branding literature (Chaudhuri & Holbrook, 2001). This could possibly be accredited to the difficulty to integrate the various perspectives on trust and to find a consensus on its nature. However, researches have revealed that brand trust is an important factor to consider which connects to building strong brands and brand loyalty (Hunt, 1997; Srivastava, Shervani, & Fahey, 1998, 2001).

Thus, this study postulates the following hypotheses:

**H1:** Social networking practices positively influence brand trust.

**H2:** Community engagement practices positively influence brand trust.

**H3:** Impression management practices positively influence brand trust.

**H4:** Brand use practices positively influence brand trust.

### **Brand Loyalty**

Building and maintaining loyalty has been a central theme for many companies. They seek to maintain the strategic competitive leverage of loyal customers, as it provides them with various advantages, such as premium pricing, greater bargaining powers with the distribution channels, reduced selling costs, stronger entry barriers to potential start-ups in to the product or service category, along with strategic line and category extensions (Reichfeld, 1996). This has also been termed the “holy grail,” which most marketers seek (McAlexander et al., 2002). Oliver (1999) defines the concept of loyalty as “a deeply held commitment to re-buy or re-patronize a preferred product or service consistently in the future, thereby causing repetitive same-brand or same-brand set purchasing, despite situational influences and marketing efforts having the potential to cause such switching behavior.” Marketers devise various short-term activities such as promotional tools in order to boost up and shape the brand image (Knox, 1996).

The Internet allows a company to do both of these in a unique way. It removes the passivity of the one-sided communications of traditional marketing activities and allows a more active participation of the customers. In many cases these interactive communications lead to a far improved long-term solution, such as customization of products, larger sets of choices, quality assurance of the products, information about brand history, and transparent pricing.

Information technology’s recent advances have led to development of social media that allows self-

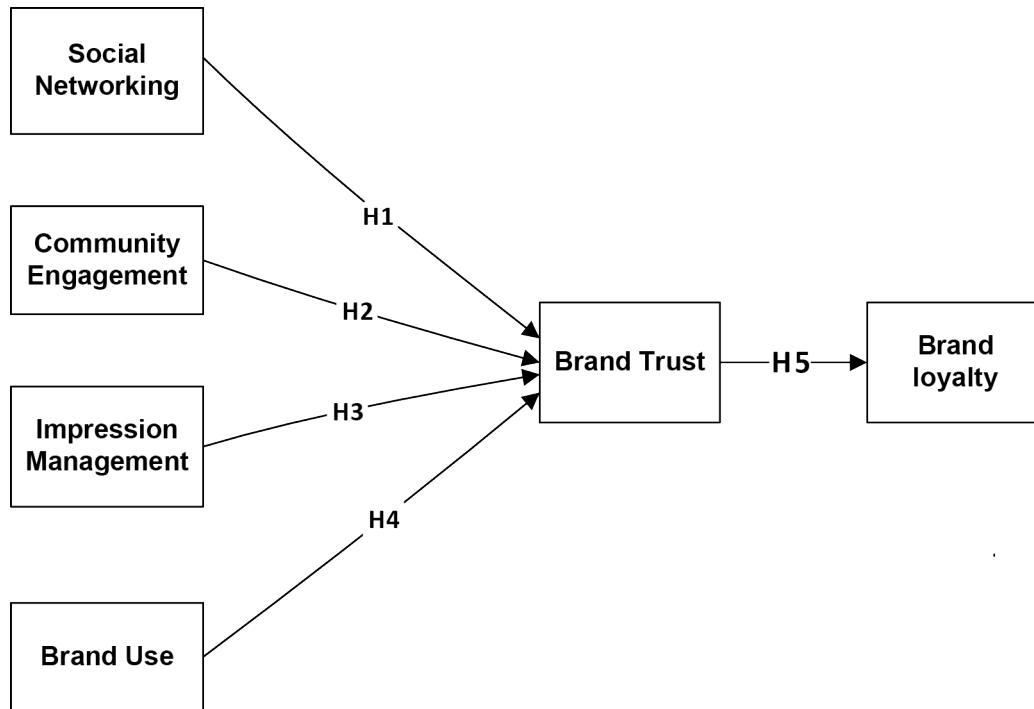
expression and information sharing. This allows the consumers to gain useful information from the Internet rather than off line. Customers also enjoy far greater access to information about products or brands. It helps people to approach and evaluate products without any time limits. It also facilitates discarding unwanted alternatives. The information empowers them to compare products from various companies and evaluate them in terms of pricing, quality, features and other value propositions. The customer-to-customer interaction in social media enables the customer to share first-hand information and experiences with others. Hence, it is far more suitable to spread the positive information about the product or the company at a faster rate owing to the wide reach of the medium (Laroche et al., 2012).

Loyalty is a key requirement in establishing any kind of relationship marketing, which plays an important role in the expansion of commerce. As a result it has enticed numerous researchers to study and analyze the factors affecting loyalty, such as service quality (de Ruyter, Wetzels, & Bloemer, 1998; Bloemer, de Ruyter, & Wetzels, 1999; Kelley, Gilbert, & Manicom, 2003), information quality (Parasuraman & Grewal, 2000; Andreassen & Lindestad, 1998), product quality (Oliver, 1999; Selnes, 1993; Bruning, 1997), corporate image (Andreassen & Lindestad, 2010), price (Martin-Consuegra, Molina, & Esteban, 2007; Krishnamurthi & Pal, 1991; Grabowski & Vernon, 1992; Grewal, Iyer, Krishnan, & Sharma, 2003), commitment (Jauch, Glueck, & Osborn, 1978; Evanschitzky, Iyer, Plassmann, Niessing, & Meffert 2006; Dimitriades, 2006) and price transparency (Soh, Markus, & Goh, 2006). However, little research has been done in analyzing loyalty’s relationship with online brand community. The small amount of research done of loyalty and brand community has proven that the commitment of the members toward the community positively influences the loyalty (Jang, Olfman, Ko, Koh, & Kim 2008). McAlexander et al.

(2002) posit that the brand loyalty in terms of brand community depends on the level of community integration and is moderated by customer satisfaction.

**H5:** Brand trust positively influences brand loyalty.  
Figure 1 represents a conceptual model of the effects of brand community on brand trust.

**Figure 1: Conceptual model of the effects of brand community (Laroche et al., 2012)**



**METHOD AND FINDINGS**

**Subjects and Procedure**

Following the work of Laroche et al. (2012), the model was tested in the context of value creation practices on brand trust and brand loyalty. The target population was members of Samsung Galaxy communities on social networking websites in Shiraz, Iran. A survey was conducted as an online interview and questionnaires were completed by the researchers to ensure the completeness of data. The survey was conducted in fall 2012. All 196 participants in the study were users of Samsung Galaxy cell phones. Considering the fact that there was no existing data in this field, the statistical society was considered unlimited and estimated as follows:

$$n = \frac{z_{\alpha/2}^2 \times p(1-p)}{\epsilon^2} = \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.07)^2} \cong 196$$

The sample included 57.5% males and 42.5% females. The age range varied between 18 and 55.

**Survey Instrument Development (Measures)**

The questionnaire was constructed using 5-point Likert items. The items were organized in 10 sections, each section measuring one variable. A pretest with 30 respondents was conducted to validate the constructs. The Cronbach’s alpha was 0.904.

**RESULTS**

In order to assess the validity of the measures a path analysis was used with SPSS Amos 16.0. The chi-square for this model is significant ( $\chi^2 / df = 2.696$ ). However, since the chi-square statistic is sensitive to sample size, we also assessed additional fit indices. The comparative fit indices (CFI), the goodness-of-fit index (GFI), and parsimony comparative fit index



(PCFI) of this model are 0.859, 0.845, and 0.622 respectively. We also assessed the root mean square error of approximation (RMSEA), which was 0.087, indicating a good fit to the population. Although the achieved GFI is a bit lower than the acceptable range (>1.96), the other meaningful indices obtained support for our model. Figure 1 displays the structural model for the suggested framework. The paths whose critical ratio (CR) exceed 1.96 support the hypotheses.

**Discriminate Validity**

Discriminate validity is achieved when the correlations between the constructs differ significantly from 1 or when chi-square difference tests indicate that two constructs are not perfectly correlated. As a test of discriminate validity, the correlations among the latent variables were checked to determine if they

are significantly different. Tables 1 and 2 show the results for the discriminate validity, confirming the validity of all constructs.

**The Relationship Between Variables and Hypotheses Analysis**

The effects of social networking, impression management and brand use practices on brand trust (H1, H3, and H4) are not supported with CR values, respectively, 1.203, 1.173 and 0.927. However, the effect of community engagement on brand trust (H2) is significant (CR= 5.159, CR>1.96). As expected, the effect of brand trust (CR=7.917) on brand loyalty (H5) is strongly supported (CR>1.96). That is, brand trust fully mediated the effects of social networking practices and community engagement on brand loyalty.

**Table 1: Regression weights: (Samsung Galaxy community)**

			Estimate	S.E.	C.R.	P
Brand Trust	<---	Social Networking	0.114	0.095	1.203	0.229
Brand Trust	<---	Community Engagement	0.469	0.091	5.159	***
Brand Trust	<---	Impression Management	0.084	0.072	1.173	0.241
Brand Trust	<---	Brand Use	0.061	0.066	0.927	0.354
Brand Loyalty	<---	Brand Trust	0.506	0.064	7.917	***

**Table 2: Correlation matrix for the Samsung Galaxy community**

	SN	CE	BU	IM	BL	BT
SN	1.00					
CE	0.49	1.00				
BU	0.35	0.389	1.00			
IM	0.33	0.343	0.218	1.00		
BL	0.23	0.385	0.285	0.342	1.00	
BT	0.25	0.441	0.254	0.219	0.485	1.00

**DISCUSSION AND IMPLICATIONS**

Concerning the fast growing phenomenon of brand communities established on social media,

Laroche et al. (2012) proposed a model of the effects of brand community on brand community markers, value creation practices and the way they convert to brand loyalty through brand trust. This paper investigated value creation practices on brand trust and loyalty.

Contrary to expectations, findings show that only one of the practices (community engagement) contributes to brand trust. According to Laroche et al. (2012), the effects of practices in social media-based brand communities evolve over time. Therefore, the effects of these practices may not have evolved enough to significantly affect brand trust and loyalty.

Since the concept of and prevalence of social media is new in the world, and especially in the context of our study in Iran, the effects are emerging as time goes on and consumer engagement in the activities of social media deepens. The nature of practices may also cause differences. That is why the results of this study differ from those of Laroche et al. (2012).

The model Laroche et al. (2012) developed shows how brand loyalty is increased in brand communities. The whole model shows brand trust mediated between loyalty, and value creation practices enhancing loyalty. Our finding fully supported the mediating role of brand trust.

Laroche et al. (2012) point out that aggregating data from different communities, and the existence and non-existence of some elements in different communities, might have neutralized each other's effects. Thus, some of the effects were not significant in their research. As the present study considered two specific brand communities (Samsung), our results in some cases differ those of Laroche et al. (2012).

Furthermore, Laroche et al. (2012) mainly concentrated on general notions and concepts in the brand community and social media literature. However, this study investigates more variables, brand type and culture, which in turn might have affected the results.

#### **LIMITATIONS AND FUTURE RESEARCH**

We acknowledge the limitations of this research and accordingly propose new avenues for future research. First, investigating other brand types and cultures, the context of the study, may affect the results. One avenue for research is to investigate the effects of other brand communities or brand types and other cultures on brand community markers, value creation practices, brand trust and brand loyalty. Second, as Laroche et al. (2012) mention, the effects of value creation practices evolve over time. Since the brand type investigated in this research (Samsung

Galaxy) was relatively new in the context of study participant use, the results may differ as time passes. Therefore, future research may consider the differences of such effects over time.

#### **CONCLUSION**

This article demonstrated the effects of Samsung Galaxy online brand communities on the underlying elements of the communities. To sum up briefly, our findings echo the optimism of brand community researchers such as McAlexander et al. (2002), Muniz and O'Guinn (2001), Algesheimer et al. (2005) and Laroche et al. (2012). As stated by Laroche et al. (2012), social media-based brand communities enhance feelings of community among members. Marketers may do well to take advantage of the opportunities that such brand communities present.

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## **Appendix A**

### **Summary of Measures**

#### 1. Community engagement

Ce1 – I benefit from following the community's rules.

Ce2 – I am motivated to participate in the activities because I feel good afterwards or because I like it

Ce3 – I am motivated to participate in the community's activities because I am able to support other members

Ce4 – I am motivated to participate in the community's activities because I am able to reach personal goals

#### 2. Impression management

Im1 – Community encourages discussions related to company, brand or the product

Im2 – Members actively engage in discussions in order to justify their reasons for their affinity towards the brand

Im3 – Members actively defend/refute the actions of the company's management

#### 3. Brand use

Bu1 – Members of my community share useful tips about better uses of the product or brand

Bu2 – Members of my community share their experiences about their successful and unsuccessful attempts at customization of the product

Bu3 – Members of my community monitor and foster the activities deemed to help community building.

#### 4. Brand loyalty

L1 – I consider myself to be loyal to the brand

L2 – If the brand is not available at the store I would buy the same brand from some other store

L3 – I am willing to pay more for my brand

#### 5. Brand trust

BT1 – My brand gives me everything that I expect out of the product

BT2 – I rely on my brand

BT3 – My brand never disappoints me



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