

Cross-cultural Exploration of Consumers' Beliefs and Behavioral Intentions towards QR Codes in Marketing: An Experimental Study in India and USA

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Abstract: Current study focuses on examining consumers' beliefs and behavioral intentions towards QR Codes in marketing across different cultures such as India & USA. Study also examines select variables that moderate the relationship between beliefs and behavioral intentions. For this a scenario based experimental design was used. Findings suggest positive relationship between beliefs & behavioral intention and between culture & beliefs. Based on the empirical findings, study make important implications for the marketers so as to bring effectiveness in QR Code based marketing campaigns. Use of QR Codes in marketing is prevailing rapidly, however its effective integration in marketing mix remains mysterious as very little is known about consumers' beliefs and behavioral intentions towards it. Reason is that such academic research is practically non-existent, thus current study is of particular value.

Keywords: India; Intentions; Mobile Marketing; USA; QR Codes

JEL Classification: M37

1. Introduction

Since its launch, mobile phone penetration has been explosive worldwide and mobile phones have been adopted at fastest rate leaving behind the adoption of other information & telecommunication technologies like landline phones, pagers, internet (ITU, 2010). At present, Western Europe exhibits the highest mobile phone penetration, followed by North America & Asia and worldwide mobile phone penetration has already touched 86.7% mark (The World Fact Book, 2011; Mobi Thinking 2011, June). This is one of the reasons why recent years have witnessed growing interest of marketers in mobile phone as a channel of marketing communication and it will continue to gain marketers' attention further (Wohlfahrt, 2002). The high global penetration of mobile phones is only one indicator of the high potential of mobile marketing. The specific characteristics of the mobile phone like geo-targeting, ubiquity, immediacy, customization, measurability and interactivity encourage use of mobile phones in hardcore marketing (Bauer et al.

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2005; Haghirian et al., 2005). Further, use of mobile phones in marketing offers diverse modes matching desired communication viz. SMS (Short Message Service), MMS (Multimedia Messaging Service), WAP (Wireless Access Protocol), Mobile Videos, JAVA apps etc. (Beschizza, 2009).

Apart from above modes of mobile marketing, one very innovative mode has been catching marketers' eyeballs in recent times in current digital space i.e. QR Codes. QR Code is an abbreviation for Quick Response Code. Basically it's a 2D code which once scanned by a Smartphone -with a scanning application software either preinstalled or downloaded like Scanlife, RedLaser, i-nigma, QuickMark & an active internet- connects user to some specific online content say connecting to a website, linking to an email address, delivering e-coupons, texting, leading to registration etc. (Handley, 2012, Feb; Bisel, 2011). QR Code was first conceptualized by Denso Wave, a Toyota subsidiary in Japan in 1994. Intention was quick and convenient tracking of vehicles, as a QR Code was able to accumulate 10 times more information than a simple barcodes and can be scanned at very high speed with great ease. Because of QR Code's efficiency in the auto industry, marketers later began to realize functionalities of the QR Code which could be transferable to marketing domain i.e. potential to connect easily & swiftly with customers on the go (the quick part of QR Code) and encourage customers' engagement (the response part of QR Code). Thus QR Code became commercialized in 2011 with the telecommunications industry picked up on the trend and with the growth of Smartphones (Denso-wave n.d.).

1.1. Marketing Potential of QR Codes

Consumers have different expectations on mobile—they want easy access and a quick payoff – Chan, H. (2011)

QR Code offers gamut of advantages to marketers due to unmatched technological capabilities. QR Codes are open as Denso Wave (developer of the QR Code) not patented it, thus tools to generate & scan-decode QR Codes are freely available. This enables marketers to easily implement their campaigns and supports consumers to scan the codes used in those campaigns (Matt, 2011, Sep). A QR Code is Omin-directional scannable which means unlike barcodes, it can be scanned from any angle due to position detection patterns on three corners of the code thus offering further ease to consumers. Further, QR Code can be divided into multiple data area allowing printing in a narrow area due to structure append feature of code. Another interesting attribute of QR Code is error correction capability which means data can be restored even if a QR Code is damaged up to 30%. QR Code also offers great versatility to marketers as they can be enlarged to the size of a billboard or minimized to the size of a stamp (QRCode.com, 2011)

and as being simply an image so can be printed on any surface like newspaper, magazine, billboard, product packaging, product itself, visiting card, in-store and pamphlet (Bisel, 2011). Even these black & white codes can easily to be transformed to “designer” QR code by adding colors and putting brand name or logo in the forefront of the code image (Podfigurny, 2011). Further, QR Code enables marketers to track the number of scans on each code and identify which medium the scan came from - newspaper, magazine, billboard, etc. This is certainly a great aid to marketers in measuring consumer activity at micro level and analyzing the effectiveness of various advertising mediums used by them (Patel, 2012). Finally, at their best QR Codes can bridge the online and offline worlds as a QR Code provides possibility of integrating online content say a website and offline content say a newspaper ad. Thus QR Code enables markets execute multichannel marketing and enrich their marketing efforts in an unmatched creative way (Handley 2012, Feb). And, for consumers it means offering an exciting avenue of interactivity, engagement & exploration (Bisel, 2011, Sep). All above benefits reflect that the QR Code can become the crest of tremendous customer engagement & lead generation tools. Certainly, QR codes can significantly enhance the return on marketing investment (Podfigurny, 2011).

1.2. Current Status of QR Codes in Marketing

Many technologists think that advantageous innovation will sell themselves, that the obvious benefits of the idea will be widely realized by potential adopters, but situation is different – Rogers, E. M. (2003)

Today one of the most ubiquitous trends in marketing is the use & analysis of QR Codes especially in Japan, USA and Western Europe. Further, with the increased adoption of Smartphones, they are rapidly gaining in popularity across Asia especially in India, Korea, Indonesia. Definitely high penetration level of the Smartphones is the biggest driver of commercial popularity of QR Code in marketing (Denso-wave n.d.; Pola, 2012). Last couple of years observed tremendous growth in both QR Code usages and QR Code scan worldwide. From January 2010 to January 2011, QR Code scans increased by a whopping rate of 4549% (Daniells, 2011). Similarly, ScanBuy - on the basis of analysis of scans coming from 128 countries - found that between April and June 2011 there was an 850% increase in active users, a 400% increase in scanning application downloads, and an 810% increase in total QR Code scans (Tolliver-Walker, 2011). Currently, 11 out of 50 Fortune companies are incorporating QR codes into their marketing strategy (Daniells, 2011).

Despite the rapid growth of QR Codes many critics are convinced that QR codes are just a fad and marketers are merely following QR Code trend in order to give

off the “innovative impression” to their consumers and competitors (Patel 2012). But, on the other hand many think that QR Code itself is a very powerful & cost effective tool, problem is in its application part. According to them, these are the marketers who are not focusing on clear objectives and value addition thus failing to drive customer engagement through QR Codes (Podfigurny, 2011; Jason, 2011; Handley, 2012; Kats, 2012; Anonymous, 2012; Kats 2012). For example, a QR Code scan simply leading to homepage of a website which is not optimized for mobile phones or a QR Code placed on billboard on a speedy highway. Further, some authors are of opinion that problem area is awareness about QR Codes and marketers must increase awareness level of consumers on QR Codes -how to get a scanner, how to scan a codes, what to expect from a code scan- so as to lead easy diffusion of QR Codes (Tolliver-Walker, 2011; O'Reilly 2011; Cummings, 2011). As O'Reilly (2011) suggests marketers should focus on educating consumers about their purpose, rather than simply adding QR Codes to their products and advertising campaigns. Reason being just 36% of consumers know what OR Codes are for and how to scan them, despite the growing number of brands using the QR Codes.

1.3. Scope of the Study

Earlier, couple of studies did preliminary exploration on use of QR Codes in marketing (e.g. Okazaki et al., 2012; Probst, 2012). However none had a focus on behavioral intentions part, but on consumers’ perception only. Secondly, both of the above studies focused on developed countries only (Japan & USA respectively); whereas research on developing country like India is practically nonexistent. This study focuses on in-depth exploration of consumers’ beliefs & behavioral intentions towards ‘QR Code in Marketing Promotions’.

Study further attempts to explore consumers’ beliefs about QR Code marketing across cultures like India and USA. Reason being that the culture & advertising are intrinsically linked and impact of culture on consumers’ beliefs and attitudes towards marketing promotion is well documented in the literature (Durvasula & Lysonski, 2001; La Ferle et al., 2008; Roberts & Ko, 2001; Mooij, 2011; Wang & Sun, 2010a; Wang & Sun, 2010b). India and USA are the two countries selected for cross-cultural comparison because both have entirely different cultural orientation and both differ in terms of technological & socioeconomical environment. These differences render a meaningful comparison to examine the impact of culture on QR Code marketing. Because on one hand, USA has high penetration of Smartphones - basic device required for code scanning- and enjoys most QR Code scans after Japan (infographics 2011). Further, the country was the origin of 48.1% of total global QR Codes in Q1 2012 and thus retained its number one position as a

country with maximum origin of QR Codes (QRStuff, 2012). In June 2011 approx 14 million USA consumers i.e. 6.2 percent of the total USA mobile audience scanned a QR code which is substantial for such a new concept (MobiLens, 2012). On other hand in India, Smartphone penetration is low and Smartphones constitute only approx 8% of total mobile phones in the country (Gartner, 2009). Further, India attained 1.8% of total global QR Codes in terms of country of origin and gained 6th position worldwide in number of QR Code origin (QRStuff, 2012). But India is witnessing rapid diffusion of the Internet & Smartphones so, it is sensible to analyze QR Code marketing in India along with USA.

At last, this study attempts to explore moderating role of select variables on the relationship between culture & consumers' beliefs. The findings may offer some valuable perspectives on the evolving nature of QR Codes in marketing and may provide useful implications for businesses to expand across cultures.

2. Literature Review

2.1. Relationship between Beliefs & Behavioral Intentions

Individual's behavioral intentions, in psychology are assumed to capture the motivational factors that influence a particular behavior, thus they are indications of how much of an effort that individual is planning to exert and of how hard s/he is willing to try, in order to perform the behavior (Ajzen, 1991). Many authors tag individual's intention to be outcome of his/her set of beliefs (e.g. Heider, 1944; Milier, 1956; Anderson, 1974; Godin & Shephard, 1987; Wu & Wang, 2005). As a general rule, the more favorable the beliefs with respect to a behavior, the stronger should be an individual's intention to perform that behavior referred as behavioral intention (Ajzen, 1991). Thus individual forms beliefs about an object by associating it with certain attributes and ultimately get linked with the particular behavioral intention. It is these salient beliefs that are considered to be the prevailing determinants of an individual's behavioral intentions and subsequent actions (Wang & Sun, 2010a).

In similar manner, authors report consumers' beliefs about marketing promotions (both offline & online media) to be determining consumers' behavioral intentions towards advertising (Ducoffe, 1996; Mehta, 2000; Brackett & Carr, 2001; Tsang-Sing et al., 2004; Bamba & Barnes 2006; Karson et al., 2006; Chun & Wan, 2009; Mafe' et al., 2010; Wang & Sun 2010a; Bamoriya & Singh, 2012). Specifically in context of mobile marketing, Bamoriya & Singh (2012) empirically concluded that consumers' beliefs about mobile marketing influence their behavioral intentions in terms of receiving SMS ads. Similarly, Mafe' et al. (2010) explored the consumers' beliefs under attitudinal, normative & subjective dimensions towards SMS

mediated promotions. They concluded that consumers' beliefs strongly influence their behavioral intentions to respond mobile promotion. As QR Codes being one of the modes of mobile marketing so in this study consumers' beliefs about QR Codes were considered to be positively associated with their behavioral intention.

At last, on the basis of related literature review following directional hypothesis was proposed:

H1- The stronger positive beliefs about QR Codes in marketing, the more likely one will intent to scan a QR Code.

2.2. Culture, Beliefs and Marketing Promotions

According to Hofstede (2001) an individual's set of beliefs can be tied into 5 cultural dimensions viz. individualism vs. collectivism, power distance, uncertainty avoidance, masculinity vs. femininity and long-term vs. short-term orientation. Index values of all these dimensions vary across cultures, as reflected in *Table 1* for India and USA indicating cultural differences between two. Mooij (2011) intensively studied the application of the Hofstede's cultural dimensions' findings in international marketing context and reported that due to cultural differences (significantly different index values of cultural dimensions) different belief sets and attitude towards advertising should prevail.

Table 1. Index Values of Cultural Dimensions

Dimension / Country	India	USA
Individualism	79.9	105.1
Power Distance	52.6	22.7
Uncertainty Avoidance	42.2	18.7
Masculinity	42.1	55.5
Long-term Orientation	32.5	46.7

Source: Maria et al. (2003)

The relationship between culture and beliefs towards marketing promotions is well researched and documented (Gregory & Munch, 1997; Taylor et al., 1997; Roberts & Ko, 2001; Durvasula & Lysonski, 2001; Mojsa & Rettie, 2003; Al-Juhiam, 2008; La Ferle et al., 2008; Wang & Sun, 2010a; Wang & Sun, 2010b; Usman et al., 2010). In general, findings from past studies suggest that beliefs about marketing promotions vary a cross culture in terms of favorableness thus these variables should be intrinsically linked. Further, with rapidly growing globalization marketers are increasingly interested in cross-cultural studies in various business domains including mobile marketing & use of QR Codes in it. Insights from such

studies would enable them to understand culturally diverse markets and respond accordingly. Hence, it will be of significance to examine beliefs about QR Code in marketing across cultures. However, due to practically non-existence of research on comparing QR code in marketing between Indian and USA or any other countries, it would be premature to predict how culture influences these two variables. Hence, following non-directional hypothesis was proposed:

H2- Culture will influence individual's beliefs about QR Codes in marketing.

2.3. Variables Moderating the Relationship between Beliefs and Behavioral Intentions

Findings of focus group study of Okazaki et al. (2012) hint that location of customer where s/he would encounter QR Code (say home or bus stop) and type of media used (say magazine or billboard) may influence customer's intention to scan a QR Code. But there is no explicit academic literature on the variables which might moderate the relationship between beliefs about QR Codes in marketing and subsequent behavioral intentions. There could be other possible moderators apart from media & location affecting above relationship between beliefs & behavioral intentions. So couples of informational interviews were held with a range of subject matter experts to explore the area. Majority of the experts strongly opine that media and location should moderate the relationship between beliefs and behavioral intention in context of QR Codes in marketing, thus adding validity to the findings of qualitative study by Okazaki et al. (2012). Further, majority opine that on-campaign instructions may be very critical in driving desired behavior, as general awareness about QR code is still not very high. Online marketing survey by market research firm Simpson Carpenter verifies it, which states that only 36% consumers know what a QR Code is and how to scan it (Charlton 2011). Hence, on the basis of above views and studies following non-directional hypotheses were proposed:

H3- Type of media used will moderate the relationship between beliefs about QR Codes in marketing and behavioral intention to scan QR Codes.

H4- Location of customer will moderate the relationship between beliefs about QR Codes in marketing and behavioral intention to scan QR Codes.

H5- On-campaign instructions will moderate the positive relationship between beliefs about QR Codes in marketing and behavioral intention to scan QR Codes.

3. Conceptual Framework

Figure 1 presents the conceptual model underlying the current study. The model posits that culture influences beliefs about QR Codes in marketing. Further, beliefs about QR Codes in marketing influence behavioral intention to scan QR Code. This relationship of beliefs and behavioral intention is moderated by the variables viz. Media, Location and On-campaign instructions.

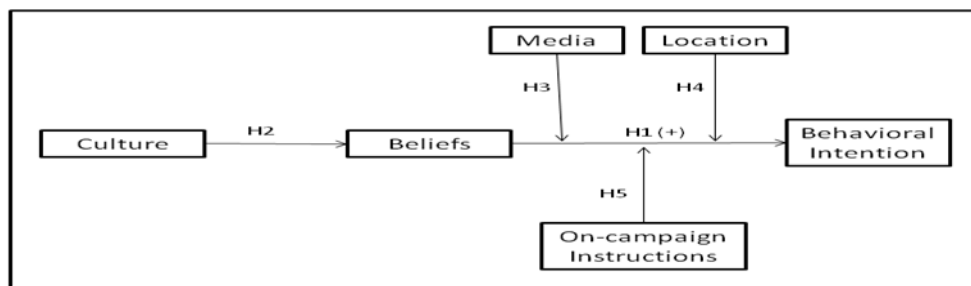


Figure 1. Conceptual Model

4. Methodology

4.1. Design & Sampling

A 3 (media: magazine, product packaging & pamphlet) X 2 (location: home & shopping mall) X 2 (with & without on-campaign instructions) between-subjects ‘scenario based experimental design’ was used to test the hypotheses set forth (See Table 2). For this study, media types selected were magazine (coded as 3), product packaging (coded as 2) & pamphlet (coded as 1).

Similarly, home (coded as 2) and shopping mall (coded as 1) were selected as the location where customer will encounter a QR Code. “On-campaign instructions” variable was chosen as dichotomous; with instructions (coded as 2) – a scenario where marketing communication explicitly specifying how to scan QR code, where to find application and what to expect after a scan and without instructions (coded as 1). These twelve scenarios were intended to be administered across culture where Indian culture was coded as 1 while American culture was coded as 2 to from dichotomous variable “culture”.

Table 2. Experimental Scenarios for the Study

Media	Location	On-campaign Instructions (OCI)	Scenario
Magazine	Home	With OCI	1
Magazine	Home	Without OCI	2
Magazine	Shopping Mall	With OCI	3
Magazine	Shopping Mall	Without OCI	4
Product Packaging	Home	With OCI	5
Product Packaging	Home	Without OCI	6
Product Packaging	Shopping Mall	With OCI	7
Product Packaging	Shopping Mall	Without OCI	8
Pamphlet	Home	With OCI	9
Pamphlet	Home	Without OCI	10
Pamphlet	Shopping Mall	With OCI	11
Pamphlet	Shopping Mall	Without OCI	12

In all above scenarios a hypothetical person, Mr. Z was used as suggested by Havlena and Holbrook (1986) to provide a projective task and thereby to discourage social desirability effects and to avoid problems involving individual differences in reactions to specific set of activities. So, a narration of each scenario was prepared describing location (home/ shopping mall) of Mr. Z and media (newspaper/ product packaging) on which a QR Code is placed. In six scenarios with on-campaign instructions, adjacent to the QR Code clear some instructions were placed regarding what Mr. Z should do to get a code reader, how to scan the code and what would be there for Mr. Z if he scans the code. But in remaining scenarios i.e. without on-campaign instructions, QR Code had no such instructions. All scenarios included a visual representation of a QR Code along with a verbal description. Subsequently, each scenario was subject to pretest using convenience sampling to gauge the clarity of the scenario and to determine face validity. Based on the total 33 responses received against two open ended questions in pretesting, editing and minor rewriting of scenarios was done.

A purposive sampling (unit of analysis; graduate students) was executed at one Indian and one American university, on the basis of three screening questions related to mobile internet usages and exposure to QR Codes. Overall, 289 questionnaires were collected in India and 261 in USA. After cleaning data for missing values and outliers a total of 545 usable questionnaires (286 for the Indian sample, 259 for the American sample) were available for analysis. Among Indian respondents, 63.3% were male and 34.6% female. Among American respondents, 53.4% were male and 46.5% female. On an average, American respondents ($M=6.3$ yrs) had longer history of mobile internet usages than Indian respondents ($M=$

2.5 yrs). Further, American respondents (M= 2.89, SD=.93) reported higher exposure to QR Codes than Indian respondents (M= 1.95, SD=.90).

4.2. Measurement

Beliefs about QR Codes in marketing were measured before administrating scenario based experimental study. To measure it a 4-item five point semantic differential scale (worthless/ valuable, unnecessary/ necessary, unimportant/ important & insincere/ sincere) was adopted from Durvasula et al. (1997). Original study reported above scale to be reliable (Cronbach's alpha=.93) and valid. As in Structural Equation Modelling (SEM) ensuring convergent validity is very critical (Abramson et al. 2005), so Product Moment Correlation was estimated for data from India and American samples. Analysis suggested convergent validity as moderate to strong correlation existed between four items measuring belief construct. Further, Cronbach's alpha values were also exceeding recommended value of .7 for both Indian (.84) and American samples (.91).

Behavioral intention towards QR Code in marketing was measured after administrating scenario based experimental study. It was conceptualized as intention to scan QR code and was measured on a 5 point likert scale; 1 for "very unlikely" to 5 for "very likely".

4.3. Procedure

To one of the twelve scenarios, groups of about 20+ respondents were randomly assigned each from Indian and American Samples. Appropriate coding was done for "culture" variable and for 3 moderating variables viz. media, location and on-campaign instructions. Respondents were asked to read the written scenario and answer the questionnaire to measure their behavioral intention towards QR Code in marketing.

5. Analysis

5.1. Linear Effects

Structural equation modeling (SEM) using AMOS 18.0 was performed to assess the proposed model fit and test the hypotheses. Here, Generalized Least Square (GLS) estimation method was used as it is scale free technique (Kline 2005). In order to test hypotheses H1 and H2, a SEM was first conducted without the moderating effect of media, location and on-campaign instructions (*See Figure 2*). AMOS took 8 iterations to achieve minimization. Results indicated a good model

fit with $\chi^2(11) = 14.32$; $p > .001$; $\chi^2/df = 1.301$; GFI = .908; RMSEA = .066 and a significant improvement over null model with GFI = .908; CFI = .930; NFI = .901.

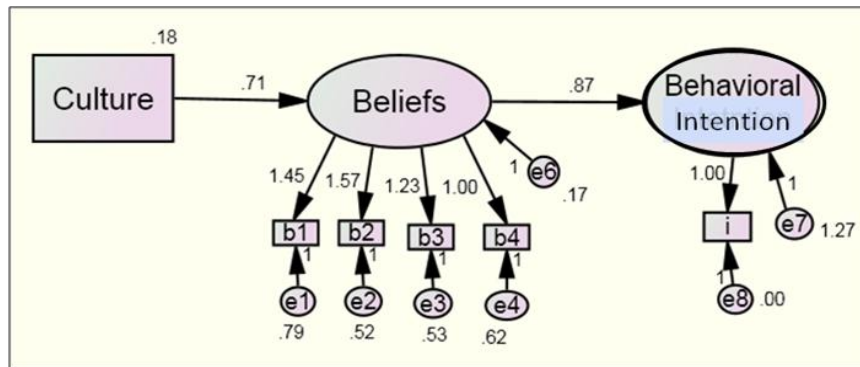


Figure 2. Structural Model without Moderating Effects

Note: Unstandardized Estimates

Findings suggested that hypothesized relationships between culture & beliefs (regression weight=.71; $p < .05$) and beliefs & behavioral intention (regression weight=.87; $p < .001$) are significant. Hence, hypothesis H2 that “*Culture will influence individual’s beliefs about QR Codes in marketing*” is not rejected. Similarly, hypothesis H1 that “*The stronger positive beliefs about QR Codes in marketing, the more likely one will intent to scan a QR Code*” is not rejected.

5.2. Moderating Effects

To estimate moderating effects of media, location and on-campaign instructions on the relationship between beliefs about QR Codes in marketing and behavioral intention, General Linear Model (GLM) univariate analysis was performed, separately for each moderator. Here, behavioral intention (i) was dependent variable while composite scores (scores calculated by averaging scores of the subscale items that belonged to the construct) for beliefs about QR Code in marketing was fixed factor (b). Model was balanced as each category of hypothesized moderating variables had equal number of cases. First, moderating variable media (m) was selected as covariate and estimated for effect of beliefs (b), media (m) and interaction (b*m) on behavioral intention (i). Subsequently, same procedure was performed for remaining two moderating variables viz. location (l) and on-campaign instructions (o) (See Table 3).

Table 3. GLM Analysis Results for Moderating Effects

Effect	Mean Square	F	P
<i>GLM Analysis 1</i>			
Beliefs (b)	.917	.605	.009**
Media (m)	.579	.382	.02*
Interaction (b*m)	.161	.097	***
<i>GLM Analysis 2</i>			
Beliefs (b)	.867	.599	.03*
Location (l)	1.081	.903	.089 (n.s.)
Interaction (b*l)	.367	.289	.301 (n.s.)
<i>GLM Analysis 3</i>			
Beliefs (b)	.811	.602	.02*
On-campaign inst.(o)	.619	.481	.03*
Interaction (b*o)	1.82	.113	.002**

*Significant at.05, **Significant at.01, ***Significant at.001 level

Findings of GLM univariate analysis suggested that in case of influence on behavioral intention, interactions between beliefs & media (.097, $p < .001$; GLM Analysis 1) and between beliefs & on-campaign instructions (.113, $p < .01$; GLM Analysis 3) were significant. But interaction between beliefs & location (.289, $p = .301$; GLM Analysis 2) was not significant. Hence, hypothesis H3 that “Type of media used will moderate the relationship between beliefs about QR Codes in marketing and behavioral intention to scan QR Codes” and H5 that “On-campaign instructions will moderate the positive relationship between beliefs about QR Codes in marketing and behavioral intention to scan QR Codes” are not rejected. But hypothesis H4 that “Location of customer will moderate the relationship between beliefs about QR Codes in marketing and behavioral intention to scan QR Codes” is rejected.

6. Overall Discussion & Implications

Use of QR Codes in marketing is already quiet prevailing in USA and now making its initial footprints in India. This study attempted to explore the relationship between consumers beliefs & behavioral intentions towards “QR Code in Marketing Promotions” across cultures like India and USA. Further, study attempted to explore moderating role of media, location and on-campaign instructions on the relationship between beliefs and behavioral intention. Findings of SEM & GLM analysis provide insightful implications.

Main research objective was to explore consumers' beliefs and behavioral intention towards QR Codes in marketing promotions across cultures. Preliminary analysis suggests that USA is ahead of India in average hours of mobile internet usages. Analysis further suggests that Americans have higher level of exposure to QR Codes as marketing tool in comparison to Indians. One obvious reason could be marketers' higher familiarity and usages level with QR Codes in USA, as the USA tops in terms of origin of QR Codes worldwide (QRStuff, 2012, April). Along with it higher penetration level of Smartphones in USA in comparison to India is another plausible reason for the same. Aggregately, self reported level of exposure to QR Codes is low, so marketers should focus on educating consumers about QR Codes and its purpose, rather than simply adding QR Codes to their products and advertising campaigns.

SEM analysis suggests that consumers' beliefs about QR Codes in marketing positively influences their behavioral intentions. This finding is consistent with previous studies in relatable areas like online advertising (Ducoffe, 1996; Mehta, 2000; Brackett & Carr, 2001; Karson, McCloy & Bonner, 2006; Wang & Sun, 2010a) and mobile marketing (Bamba & Barnes, 2006; Bamoriya & Singh, 2012). Precisely these findings suggest that those consumers who believe that use of QR Codes in marketing is necessary, valuable, important and sincere are very likely to scan a QR Code used in a marketing promotion. This is a very important implication for marketers. First, if marketers want desired response from consumers then their QR Code marketing promotion should be well planned. Marketers looking to implement QR codes into their overall strategies should define their goals and objectives in crystal clear manner. Else it would give impression of an unnecessary promotional effort from marketer's side merely following current trend (Patel, 2012). Second, Marketers must provide some real value to customers once they scan a QR Code. Here focus on the consumer experience after the scan will be the most important element to success (*See Appendix 1*). For creating value marketers should utilize tracking capabilities of QR Codes and should analyze data in terms of location, operating system, time, duration & demographics of engaging consumers. Such metadata generated should be used in making QR Code experience highly relevant to consumers thus creating value for them. Third, QR Code marketing promotion must avoid any insincere approach as it would lead to consumers' frustration. A common case is non-optimized mobile webpage for mobile phones and Kats (2012) reports that approx 90% of the times a QR Code scanned through mobile phone would lead to a desktop webpage. Many a times marketers are not using URL shortners resulting in very dense QR Codes which are difficult to scan by 'not so high camera resolution' mobile phones. Even companies tend to put QR Codes on billboards placed on speedy highways/expressways or at such places where there is no mobile signals

(See Appendix 2). Marketers should avoid such insincere approaches while dealing with QR Codes.

SEM analysis also suggests the link between culture and beliefs. Thus a key finding of this study that “culture would influence an individual’s beliefs about QR Codes in marketing” is consistent with past relatable studies (Roberts & Ko 2001; Durvasula and Lysonski 2001; Mojsa & Rettie, 2003; La Ferle et al., 2008; Wang & Sun, 2010a; Wang & Sun, 2010b; Mooij, 2011). In context of use of QR Codes in marketing promotions, American respondents have more positive beliefs about QR Codes than Indian. Further, American respondents reported higher behavioral intentions to scan a QR code used in marketing promotion. According to the hierarchy of effect theory, belief is likely to have a positive impact on behavioral intention (Lavidge and Steiner 1961). Naturally, Americans’ positive beliefs further led to higher behavioral intentions towards QR Code marketing. These findings may be attributed to the cultural differences between India and USA. Reason being significantly different index values of Hofstede’s cultural dimensions for India and USA. Especially, the two countries differ on uncertainty avoidance dimension which is particularly relevant to innovative marketing practices (See Table 1; Maria et al., 2003). Uncertainty avoidance explains the degree to which people are tolerant of uncertainties (Marinov et al., 2001) and compared to USA, Indian culture is low in uncertainty avoidance. This means in general, Indian consumers would avoid interactions with very recent & innovative tools like QR Codes. And, this is what findings of current study suggest. This is another important implication for the marketers. International marketers need to be aware of such cultural differences when employing a centralized mobile marketing approach using QR Codes around the world.

GLM univariate analysis suggests that type of media used for QR Code marketing promotion moderates the relationship between beliefs and behavioral intention towards QR Code in marketing. This finding is consistent with qualitative research by Okazaki et al. (2012). In the current study three media types were used viz. magazine, product packaging and pamphlet to from different scenarios. On the basis of cell mean comparison for behavioral intention for these media types, magazine was found to be associated with more favorable behavioral intention to scan QR Codes while pamphlet with least. Reason could be nobility and credibility associated with magazines as a marketing communication media (Pollay, 1985). Here lies an implication for marketers, they may need be careful while selecting optimum media for QR Code marketing campaigns. Similarly variable ‘on-campaign instructions’ has moderating effect on the relationship between beliefs and behavioral intention towards QR Code in marketing. QR Code marketing campaigns with instructions for consumers were found to significantly influencing behavioral intentions to scan QR Codes. Kats (2012) reports that QR Code based

promotions offering clear instructions can drive consumer scans up by 500 to 800%. Naturally, use of QR Codes in marketing is not very old and consumers are not fully aware about them (Charlton, 2011; O'Reilly, 2011; Tolliver-Walker, 2011; Cummings, 2011). This is an important implication suggesting that marketers should focus on increasing consumers' awareness level on QR Codes i.e. how to get a code reader, how to scan codes, what to expect from a code scan, so as to lead easy diffusion of QR Codes. At last, GLM analysis suggests that location of customers where they would encounter a QR Code marketing promotion (in the current study- home and shopping mall) does not moderate the relationship between beliefs and behavioral intention towards QR Code in marketing. This finding is contrary to the preliminary results of qualitative study by Okazaki et al. (2012) in Japan. Reason could be that the Japanese consumers shall be differing from participants of the current study.

7. Limitations & Future Research

This study also has certain limitations and underlies the implications for future research. First, in this study concept of culture was operationalized as cultural background of the respondents. This may cause loss of robustness of cross-cultural model, as strong individual differences could exist within a cultural group. Second, study only dealt with behavioral intention rather than actual behavior i.e. intention to scan a QR Code. Here, use of behavioral intention as a measure for actual behavior might have led to loss of some explanatory power of the model. Third, for sake of parsimony and understanding (as research area is almost virgin) model was constrained only key constructs of theoretical importance. This implies that there could be other significant variables in context of mobile promotions such as social norms (Karjaluoto et al., 2008), attitude towards advertising in general (Singh & Vij, 2008) on which future studies could focus. Fourth, due to very short history of QR Code marketing especially in India, consumers' beliefs may still be evolving. Thus current cross-sectional design is far from enough to capture that evolution. Hence, a longitudinal study in future may provide more insights into the QR Code marketing from consumers' point of view. Fifth, the student sample both from India & USA used in the study may limit the generalizability of findings. Future research could examine a broader profile of consumers so as to facilitate better generalizability. Sixth, as it is recommended that the final model to be tested on a second sample (Kline, 2005), but due to sample size consideration in the study model replication was not exercised. So future studies could replicate the model across geographies & ethnic groups. At last, study tested moderating effects of media, location and on-campaign instructions on the relationship between beliefs and behavioral intentions towards QR code marketing promotions. Future studies

may examine other possible moderators viz. code placement & design, incentives offered for code scan, privacy issues etc.

8. References

- Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*. <http://courses.umass.edu/psyc661/pdf/tpb.obhdp.pdf>. Retrieved Oct. 13, 2009.
- Al-Juhaim, O.M. (2008). An Empirical Investigation of the Cultural Impact on Consumer Perception and Attitude towards Advertising. University of Huddersfield Paper Series, <http://eprints.hud.ac.uk/4995/1/ojuhaimfinalthesis.pdf>. Retrieved Oct. 15, 2010.
- Anderson, N.H. (1974). Cognitive Algebra: Integration theory Applied to Social Attribution. *Advances in experimental social psychology*. L. Berkowitz, Ed., NY: Academic Press.
- *** (2012). June 16. Square Deal: After many False Starts, QR codes are Finally Taking off. *The Economist*, June Issue.
- Bamba, F. & Barnes, S.J. (2006). Evaluating Consumer Permission in SMS Advertising. *Sprouts: Working Papers on Information Systems*, <http://sprouts.aisnet.org/6-41>. Retrieved Aug 16, 2009.
- Bamoriya, Hemant & Singh, R. (2011). Attitude towards Advertising and Information Seeking Behavior – A Structural Equation Modeling Approach. *European Journal of Business and Management*, (3)3, pp. 45-54.
- Bamoriya, Hemant & Singh, R. (2012). SMS Advertising in India: Is TAM a Robust Model for Explaining Intention? *Organizations and Markets in Emerging Economies*, (3)1, pp. 89-101.
- Bauer, H.H.; Reichardt, T.; Barnes, S.J. & Neumann, N. (2005). Driving Consumer Acceptance of Mobile Marketing: A Theoretical Framework and Empirical Study. *Journal of Electronic Commerce Research*. www.citeseer.ist.psu.edu/viewdoc/summary?doi=10.1.1.137.2625. Retrieved July 17, 2009.
- Beschizza, F. (2009). Managing Mobile Marketing and Advertising Campaigns. COI, Version 1, pp. 29-30.
- Bisel, J. (2011). Mobile Marketing and QR Codes. *Hudson Valley Business Journal*, September Issue, p. 21.
- Brackett, L. & Carr, B. (2001). Cyberspace Advertising vs. other Media: Consumer vs. Mature Student Attitudes. *Journal of Advertising Research*, www.emeraldinsight.com/bibliographic_databases.htm?id=1436657&PHPSESSID=d3449uq5nm6s9q17rlql5s0nc2. Retrieved Nov 25, 2010.
- Chan, H. (2011). Stated in New Wine in New Bottles by Jason Ankeny. *Entrepreneur*, p. 42.
- Charlton, G. (2011). Two Thirds of Consumers don't know what QR Codes are. eConsultancy. <http://econsultancy.com/in/blog/7959-two-thirds-of-consumers-don-t-know-what-qr-codes-are-survey>. Retrieved March 26, 2012.
- Chun, G.; Cheung, S. & Wan, L.K. (2009). The Perceptions and Attitudes towards SMS Advertising in Hong Kong. <http://libproject.hkbu.edu.hk/trsimage/hp/07013930.pdf>. Retrieved May 07, 2011.

- Cummings, Sean (2011). *Why the QR code is Failing*. iMedia. www.imediaconnection.com/content/30267.asp. Retrieved Jan 12, 2012.
- Daniells, K. (2011). The Rise of QR Codes. Infographic. www.digitalbuzzblog.com/infographic-the-rise-of-qr-codes/. Retrieved Jan 02, 2012.
- (2011). Denso-wave. n.d. QR Codes. www.denso-wave.com/qrcode/aboutqr-e.html Retrieved Feb 14.
- Ducoffe, R. (1996). Advertising Value and Advertising on the Web. *Journal of Advertising Research*. www.accessmylibrary.com/advertising-value-and-advertising.html. Retrieved July 23, 2011.
- Durvasula, S. & Lysonski, S. (2001). Are there Global Dimensions of Beliefs toward advertising in General: A Multicultural Investigation. *Globalization and its managerial implications*, C. P. Rao, Ed., Westport, CT Press.
- Durvasula, Srinivas; Mehta, S.; Andrews, J. & Lysonski, S. (1997). Advertising Beliefs and Attitudes: Are Students and General Consumers Different? *Journal of Asian Business*. http://epublications.marquette.edu/cgi/viewcontent.cgi?article=1036&context=market_fac Retrieved Feb 29, 2012.
- Gartner Newsroom (2009). www.gartner.com/it/page.jsp? Retrieved Dec 25, 2011.
- Godin, G. & Shephard, R.J. (1987). Psychosocial Factors Influencing Intentions to Exercise in a Group of Individuals Ranging from 45 to 74 years of Age. International perspectives on adapted physical activity, M. E. Berridge & G. R. Ward, Eds., Champaign, IL: Human Kinetics Pub.
- Gregory, G.D. & Munch, J. (1997). *Cultural Values in International Advertising: An Examination of Familial Norms and Roles in Mexico*. *Psychology & Marketing*. [http://onlinelibrary.wiley.com/doi/10.1002/\(sici\)1520-6793\(199703\)14:2%3c99:aid-mar1%3e3.0.co;2-i/abstract](http://onlinelibrary.wiley.com/doi/10.1002/(sici)1520-6793(199703)14:2%3c99:aid-mar1%3e3.0.co;2-i/abstract). Retrieved Jun 23, 2011.
- Haghirian, P.; Madlberger, M. & Tanuskova, A. (2005). Increasing Advertising Value of Mobile Marketing – An Empirical study of Antecedents. *Proceedings of the 38th Hawaii International Conference on System Sciences*. <http://arnetminer.org/publication/increasing-advertising-value-of-mobile-marketing-an-empirical-study-of-antecedents-245172.html;jsessionid=085806612e01e725cf81cee37fbd77c6.tt>. Retrieved Oct 19, 2010.
- Handley, A. (2012). Cracking the Mobile Code. *Entrepreneur*, pp. 56-57.
- Havlena, W.J. & Holbrook, M.C. (1986). The Varieties of Consumption Experience: Comparing Two Typologies of Emotion in Consumer Behavior. *Journal of Consumer Research*, 13 (3), pp. 394-404.
- Heider, F. (1944). Social Perception and Phenomenal Casualty. *Psychological Review*, <www.doi.apa.org/psycinfo/1945-00991-001>. Retrieved Jan 15, 2012.
- Hofstede, G. (2001). *Cultural Dimensions*. www.clearlycultural.com/geert-hofstede-cultural-dimensions/. Retrieved Nov 28, 2011.
- ITU Report (2010). *International Telecommunication Union*. www.itu.int/en/pages/default.aspx. Retrieved Oct 12, 2010.
- Jason, A. (2011). New Wine in New Bottles. *Entrepreneur*, pp. 42-43.
- Karjaluoto, Heikki (2008). Customers' Intention to Engage in Permission based Mobile Marketing Communications. *Proceedings of the European Marketing Academy Conference*. <https://www.econ.jyu.fi/>. Retrieved March 22, 2010.

- Karson, E.; McCloy, S. & Bonner, G. (2006). An Examination of Consumers' Attitudes and Beliefs towards Web Site Advertising. *Journal of Current Issues and Research in Advertising*, 28, pp. 77–91.
- Kats, Rimma (2012). How to Create an Effective QR Code Campaign. *Mobile Marketer*. www.mobilemarketer.com/cms/news/software-technology/13452.html. Retrieved Aug 06, 2012.
- Kats, Rimma (2012). Why are Marketers not taking QR Codes Seriously? *Mobile Marketer*. www.mobilemarketer.com/cms/news/software-technology/12892.html. Retrieved June 01, 2012.
- Kline, Rex B. (2005). *Principles and Practice of Structural Equation Modeling* (2nd Ed.). New York: Guilford Press.
- Korgaonkar, P. & Wolin, L. (2002). Web Usage, Advertising and Shopping: Relationship Patterns. *Internet Research: Electronic Networking Applications and Policy*, 12(2), pp. 191–204.
- La Ferle, C.; Edwards, S. & Lee, W. (2008). Culture, Attitudes, and Media Patterns in China, Taiwan, and the U.S. -Balancing Standardization and Localization Decisions. *Journal of Global Marketing*, 21, pp. 191–205.
- Lavidge, R. & Steiner, G. (1961). *The Hierarchy of Effects Model*. www.learnmarketing.net/hierarchy_of_effects_model.html. Retrieved March 09, 2009.
- Leppäniemi M. & Karjaluocto, H. (2005). Factors Influencing Consumers' Willingness to Accept Mobile Advertising: A Conceptual Model. *International Journal of Mobile Communications*, 3(3), pp. 197-213.
- Mafe', Carla Ruiz; Sanz, S. Blas & Tavera-Mesi'as, J. (2010). A Comparative study of Mobile Messaging Services Acceptance to Participate in Television Programmes. *Journal of Service Management*. www.emeraldinsight.com/1757-5818.htm. Retrieved Oct 25, 2010.
- Maria, P. et al. (2003). A Cross-Cultural Comparison of Ethical Attitudes of Business Managers: India, Korea and the United States. *Journal of Business Ethics*, www.slu.edu/Documents/business/cscms/cross-cultural_ethics.pdf. Retrieved Jan 19, 2012.
- Marinov, M.A. et al. (2001). Marketing Implications of Communist Ideological Legacy in Culture in the Context of Central and Eastern Europe: A comparison of Bulgaria, Romania and Ukraine. *Journal of Euromarketing*, 11(1), pp. 7–36.
- Matt, B. (2011). *10 Reasons QR Codes Will Be Absolutely Everywhere*. www.notixtech.com/blog/10-reasons-qr-codes-will-be-absolutely-everywhere. Retrieved Oct 23, 2011.
- Mehta, A. (2000). Advertising Attitudes and Advertising Effectiveness. *Journal of Advertising Research*, 40(3), pp. 67–72.
- Miller, A. (1956). The Magical Number Seven Plus Minus Two: Some Limits on Our Capacity for Processing Information. *Psychological Review*, www.bibsonomy.org/bibtex/2a5acd9332fe6e530ee7b01a986666645/trude. Retrieved March 18, 2012.
- MobiLens (2012). *Research in the News*. www.narm.com/services/research/research-in-the-news/. Retrieved July 29, 2012.
- MobiThinking (2012). *Global Mobile Statistics-2012*. <http://mobithinking.com/mobile-marketing-tools/latest-mobile-stats/a#subscribers>. Retrieved July 07, 2012.

- Mojsa, Magdalena & Rettie, R. (2003). Attitudes to Internet Advertising: A Cross-Cultural Comparison. *Kingston Business School Paper Series*. <http://eprints.kingston.ac.uk/6350/1/Rettie-R-6350.pdf> Retrieved Aug 26, 2010.
- Mooij, M. (2011). *Consumer Behavior and Culture; Consequences for Global Marketing and Advertising* (2nd Ed.). SAGE Publications, Inc.
- Okazaki, S.; Li, H. & Hirose, M. (2012). Benchmarking the Use of QR Code in Mobile Promotion. *Journal of Advertising Research*. www.emeraldinsight.com/bibliographic_databases.htm?id=17035456. Retrieved April 28, 2012.
- O'Reilly, Lara (2011). Most People have no Idea of what QR Codes are for. *Marketing Week*, p. 4.
- Patel, K. (2012). Marketer Love for QR Codes Not Shared by Consumers. *Advertising Age*. <http://adage.com/article/digital/marketer-love-qr-codes-shared-consumers/231854/>. Retrieved July 14, 2012.
- Podfigurny, R. (2011). Enhancing Your Marketing with QR Codes & Smart-Phone Technology. *The Central New York Business Journal*, p. 15.
- Pola, S. (2012). *From Madison St. to Mumbai: Quick Response (QR) Codes Conquer the World*. *INGurus*. www.ingurus.com/from-madison-st-to-mumbai-quick-response-qr-codes-conquer-the-world/. Retrieved Feb 26, 2012.
- Pollay, R. (1985). The Subsiding Sizzle: A Descriptive History of Print Advertising. *Journal of Marketing*. www.jstor.org/discover/10.2307/1251613?uid=3738256&uid=2&uid=4&sid=21101080026373 Retrieved July 08, 2010.
- Pollay, R. & Mittal, B. (1993). Here's the Beef: Factors, Determinants, and Segments in Consumer Criticism of Advertising. *Journal of Marketing*. www.sauder.ubc.ca/faculty/people/faculty_members/pollay_richard/~media/files/faculty%20research/publications/pollay%20-%20criticism%20of%20advertising.ashx. Retrieved March 12, 2009.
- Probst, A. (2012). The Expectations of Quick Response (QR) Codes in Print Media: An Empirical Data Research Anthology. *UW-L Journal of Undergraduate Research*. www.uwlax.edu/urc/JUR-online/PDF/2012/probst.ali.pdf. Retrieved May 11, 2012.
- QRCode.com (2011). *QR Code Features*. <http://www.qrcode.com/en/qrfeature.html>. Retrieved Dec 28, 2011.
- QRStuff (2012). *Q1 2012 -QR Code Trends*. www.qrstuff.com/blog/2012/04/08/q1-2012-qr-code-trends. Retrieved June 30, 2012.
- Roberts, M. & Ko, H. (2001). Global Interactive Advertising: Defining what We Mean and Using what We have Learned. *Journal of Interactive Advertising*. <http://jiad.org/vol1/no2/robert>. Retrieved March 13, 2009.
- Rogers, E.M. (2003). *Diffusion of innovations*, 5th ed. NY: Free Press.
- Singh, Raghbir & Vij, S. (2008). Public Attitude toward Advertising: An Empirical Study of Northern India. *ICFAI Journal of Marketing Management*, 7(1), pp. 49-66.
- Tan, S. & Chia, L. (2007). *Are We Measuring the Same Attitude? Understanding Media Effects on Attitude*. *Marketing Theory*, <http://mtq.sagepub.com/cgi/content/abstract/7/4/353>. Retrieved Sep 30, 2010.

Taylor, Charles R.; Gordon, M. & Wilson, R. (1997). The Impact of Information Level on the Effectiveness of U.S. and Korean Television Commercials. *Journal of Advertising*, <http://digital.library.villanova.edu/files/villanovadigitalcollection/facultyfulltext/taylorcraymond/54634863-880e-4cb0-a30c-fbb7b61c603e/c559491c-5b82-4c7e-9d36-b50c12894d4a.pdf>. Retrieved Jan 12, 2102.

The World Fact Book (2011). *Country Comparison: Telephones - Mobile Cellular*. www.cia.gov/library/publications/the-world-factbook/rankorder/2151rank.html. Retrieved Jan 13, 2012.

Tolliver-Walker, H. (2011). Making Best Use of QR Codes: Gleaning Lessons from the Latest Data. *The Seybold Report*, 11(23), pp. 2-7.

Tsang, Melody M.; Ho, Shu-Chun & Liang, Ting-Peng (2004). Consumer Attitudes toward Mobile Advertising: An Empirical Study. *International Journal of Electronic Commerce*. [www.ecrc.nsysu.edu.tw/liang/paper/17-mobile%20advertising%20\(ijec%202004\).pdf](http://www.ecrc.nsysu.edu.tw/liang/paper/17-mobile%20advertising%20(ijec%202004).pdf). Retrieved Aug 27, 2009.

Tsang-Sing, C.; Geng, C. & Geng, C. (2004). Consumer Attitudes toward Marketing in a Transitional Economy: A Replication and Extension. *Journal of Consumer Marketing*, www.emeraldinsight.com/journals.htm?articleid=1509192&show=html&wt_mc_id=alsoread&phpsesid=0ss4f1r3e365iuk3nof6gj1n23&&nolog=531613. Retrieved Dec 09, 2011.

Usman, Muhammad; Saqib, T.; Hussain, F. & Qureshi, T. (2010). General Attitude towards Advertising: Cultural Influence in Pakistan. *International Journal of Marketing Studies*, www.ccsenet.org/journal/index.php/ijms/article/view/8118/6154. Retrieved Dec 23, 2011.

Wang, Y. & Sun, S. (2010a). Modeling Online Advertising: A Cross-cultural Comparison between China and Romania. *Journal of Marketing Communications*. <http://dx.doi.org/10.1080/13527260902884904>. Retrieved Aug 11, 2011.

Wang, Y. & Sun, S. (2010b). Assessing Beliefs, Attitudes, and Behavioral Responses toward Online Advertising in three Countries. *International Business Review*. www.elsevier.com/locate/ibusrev. Retrieved Sep 03, 2011.

Wohlfahrt, J. (2002). Wireless Advertising. In *Mobile Commerce: Grundlagen, Geschäftsmodelle, Erfolgsfaktoren*, Günther Silbere, Jens Wohlfahrt and Thorsten Wilhelm. eds., Wiesbaden Press.

Wu, J.H. & Wang, S.C. (2005). What Drives Mobile Commerce? An Empirical Evaluation of the Revised Technology Acceptance Model. *Information and Management*, 42, pp. 719-729.

9. Appendices

Appendix 1: Value for Customers

Shopper who scans the QR Code on the wine bottle of Sacre Bleu is forwarded to a mobile-optimized webpage providing brand information along with interesting tips on food-wine pairing from renowned chef Brad Sorenson.



Source: *Entrepreneur*, Oct. 2011, www.entrepreneur.com/article/220359

Appendix 2: Insincere in Approach

Bandwashed placed a QR Code based promotion on billboard 50 feet underground in a Subway which offers no Internet connection. Making it impossible for anyone to scan it.



Source: *2D Bar Code Strategy*, Oct. 2011, www.2d-barcodestrategy.com/2011/10/brandwashed-revisited.html