



Research Article

QR Code: A New Opportunity for Effective Mobile Marketing

Teuta Cata, Payal S. Patel and Toru Sakaguchi

Northern Kentucky University, Highland Heights, KY 41099, USA

Correspondence should be addressed to: Teuta Cata; catat@nku.edu

Received date: 22 April 2013; Accepted date: 27 June 2013; Published date: 27 August 2013

Academic Editor: Naila Aaijaz

Copyright © 2013. Teuta Cata, Payal S. Patel and Toru Sakaguchi. Distributed under Creative Commons CC-BY 3.0

Abstract:

Quick Response code, commonly known as “QR code” is the latest phenomenon in the mobile marketing world. QR code’s attribution of linking brick and mortar world to digital domain is changing the approach of marketing. It gives marketers an opportunity to interact with consumers and engage them with their brand. Previous research and survey statistics demand the proper implementation of marketing campaign to create awareness among consumers for this new technology. Two cases of QR code implementations are used to illustrate two different frameworks which classify the marketing strategies based on the level of product/services involvement, and the marketing communication system used. Based on the product characteristics, high involvement versus low involvement and intensity of interaction in a hybrid network may result in different QR code implementations taking place.

Keywords: QR code, mobile marketing, mobile marketing systems, consumer behavior

Introduction

Quick Response Code, widely known as “QR” code, is a two-dimensional digital image that can be easily scanned by any mobile device’s camera. Once scanned, it will quickly direct to the data embedded in the code. Today, the QR code gained major commercial popularity due to mobile technology. The penetration rate of mobile devices has increased from 15.6% (2001) to 74.9% (2010) globally (Narang, Jain, & Roy, 2012). As mobile technology is on rise, it is the best and the quickest

medium for this mesmerizing technology to gain success (Anonymous, 2010).

Marketing industry is taking longer than expected to catch up with QR code technology. Even though it takes only a few seconds to scan the code that lends customers to the product’s website, very few customers scan the code. Moreover, it is less popular in western countries than in Asian countries such as China, Hong Kong, Japan, South Korea, and Taiwan (Liao and Lee, 2010). However, it is lately gaining popularity in the medium of marketing (Walsh, 2009). In academic research

area, there are a few studies done in Asian countries (e.g., Narang, Jain, & Roy, 2012; Okazaki, Li, & Hirose, 2012; Okazaki, Navarro-Bailón, & Molina-Castillo, 2012). While marketers' interest in using QR codes for advertising campaigns are increasing, the academic study of QR codes in marketing area is still in its infancy (Jung, Somerstein, & Kwon, 2012).

The purpose of this study is to see how actual QR codes are used in accordance with the marketing theories researched in those studies. This paper will first go over the background of QR codes and its history, followed by a literature review of a few studies done in marketing area. A couple of cases are used to illustrate this implication of marketing theories. The paper concludes with a suggestion and recommendation on how to fully utilize the potential of QR codes in marketing practices.

Background

QR codes were first used in 1994 by Denso Wave, a Toyota subsidiary company in Japan. QR codes provided a quick and convenient approach to track vehicles during manufacturing process at automotive industry (Walker, 2011). After its successful implementation at Denso Wave, other industries attempted to adopt this technology too. Denso Wave has patented the QR code, but it's open for worldwide use. In 2011 the QR code became commercial for the very first time through telecommunications industry. Today the QR code has gained major commercial popularity due to mobile technology. With the rise of mobile technology, it was the best and the quickest medium for this mesmerizing technology to gain success (Anonyms, 2010).

The QR code is similar to the Universal Product Code (UPC), the traditional bar code. A UPC is found on most of the products in stores (Crompton, LaFrance, & Hooft, 2012). UPC works well even today for all types of products, but QR code has some specification that makes it the new and the upcoming trend in the marketing world. This little black matrix-looking box can hold up to 7,089 characters compared to traditional bar code that can hold at most 20 digits. Thus, much more information can be stored in QR than UPC (Crompton, LaFrance, & Hooft, 2012).

These quick response codes can contain various types of data, which includes text such as short

messages, URLs to websites or videos, coordinates on a map, or a phone number or text contact (Crompton, LaFrance, and Hooft, 2012). These codes can entrench more than 350 times the information than a traditional bar code used at retail or grocery stores. Another important aspect of this revolutionary idea is its ease of use. A portable device with an internet or Wi-Fi connection, camera, and a QR code reader are required to be able to scan this code (Crompton, LaFrance, and Hooft, 2012). This scanning takes less than few minutes to retrieve data.

Applications of QR Codes in Marketing

The trend in the marketing community is the use of QR code. They are found on magazine pages, billboards, cereal boxes, beverages, weekly advertisement papers, and other marketing mediums. A qualitative focus group study conducted in Japan found that loyal customers would use QR codes in order to access promotional information and discounted items (Okazaki, Navarro, and Campo, 2013). Even educational institutions, museums, and various public places use QR codes to provide more information about an on-going program, a particular event, or an object (Law and So, 2010). The primary goal of marketing is to interact with a customer or a potential customer. The QR code can help to achieve it by providing better engaging service to customers than other traditional ad mediums.

Although adoption of this technology is slower than expected, marketers believe in the success of this innovation and try to incorporate the QR code into different mediums. Frequent occurrence of the QR code in marketing will create curiosity among customers and will motivate them to learn about it. As smart phones are becoming very common in the market, QR codes should show the successful implementation (Anonymous, 2011). www.nellymoser.com performed survey on every issue of the top 100 U.S. magazines by circulation in year 2011 and the first two quarters of year 2012, and analyzed the trend for QR codes. According to the survey, 2200 codes were printed in Q2 of 2012 versus 1062 in Q2 of 2011. The magazine industry alone has shown massive growth in the printed number of QR codes.

Nowadays, the little two-dimensional matrix box is commonly found on all sorts of marketing supplies from printed brochures to in-store shelves. QR

codes are becoming a popular marketing element. According to a www.vox.com marketing study, 14 million users have scanned QR codes at least once and 58 percent of the customers scanned a QR code from their home. Almost 39 percent of people scanned QR codes from retail stores (Walker, 2011). As per these statistics, QR codes are becoming the next new wave for marketing.

In 2012, according to the study by eMarketer (Anonymous, 2012), 40.7 percent of QR codes in United States provided a link to an advertisement for some product information, a company website, or provided purchase opportunities. Approximately 12.7 percent of advertisements featured quick response code links to videos; around 7.8 percent were embedded with sweepstakes or contest sign ups, and lower than 3 percent provided a link to store information.

Literature Review

QR Code Applications in Marketing

There are few studies that investigated the usage of QR codes in advertisement. Their focus of interest varies and so do their underlining theories, ranging from Utility Maximization Theory, to Product Involvement and Elaboration Likelihood Model.

Privacy Concerns: Using 680 participants from a Japanese research firm, Okazaki, Navarro-Bailon, and Molina-Castillo (2012) studied privacy concerns of consumers when they use QR codes. They found that contextual variables of high social anxiety and high involvement services (such as services with banks as opposed to glossary stores) have more impact on consumer's privacy concerns when they use QR codes to access the businesses' web sites. Okazaki, Li, and Hirose (2012) used a survey of 240 participants to study consumers' privacy concerns, transaction risk, and trust in different locations (in front of the store, on a subway, and at home). The findings indicated that consumers are likely to perceive risks on accessing QR code promotion when they are out even though one of the strongest advantages of using mobile devices is its ubiquitous capability.

Motivation: Based on an online survey of 160 U.S. college students, Jung, Somerstein, and Kwon (2012) studied consumers' motivations to use QR codes on advertising. The results suggest that perceived benefit/usefulness (information and

entertainment) is the strongest predictors of consumers' intention to use QR codes. From a content analysis of 260 QR codes collected from advertising media, Okazaki, Li, and Hirose (2012) found that QR codes are found mostly (86 percent) in printed media, and they are mostly used to promote loyalty programs. Furthermore, using focus groups, they found that convenience, savings, and quality are drivers of QR code use.

Involvement: While Okazaki, Navarro-Bailon, and Molina-Castillo (2012) found that high involvement in the services impacted the consumers' privacy concerns with using QR codes, Narang, Jain, & Roy (2012) found that the effect of QR codes varied between low involvement and high involvement product. It implied that product involvement has impacted consumers' attitude towards the advertisement and thus, the presence of QR codes was well received as more means to gain information.

Limitations of Using QR Codes in Marketing

A recent study on primary and secondary data on QR codes identifies three major drawbacks that should be considered by marketers (Probst, 2012).

End Users' Confusion on how to use QR codes: Consumers, especially not the tech savvy ones, don't know how to scan a QR code and what information they will receive if they do so. It is the responsibility of marketers to better inform consumers on the actions they need to take in order to get the best information from such codes. A call-to-action statement will provide opportunity to download a QR scanner, give instructions on how to scan, and provide insight on what kind of information an end user will obtain if they scan the QR code.

Lack of Uniformity of Bar Scanning Apps: Each smartphone brand and service provider provides different mobile apps to scan a bar code (Patel, 2012). Such apps may be part of the bundle provided in the first place by the provider, or the users may download them at their convenience. This means that users must find value in the app they download, otherwise they will not feel as though they're useful.

Useless Online Content: Marketers need to customize websites for mobile devices. Consumers may scan QR codes which lead them to a regular website with an inadequate or difficult to navigate

page. Such bad experience may discourage the consumers to further scan other QR codes and receive the benefits of such marketing tool.

Theoretical Model of Mobile Marketing Systems

Ye (2007) provides a conceptual framework of Mobile Marketing Systems (MMS), and its categories based on two dimensions: Intensity of Interaction and Channels of Communications. The focus of this framework is to understand and respect the willingness of consumer's to communicate with marketers.

According to the MMS framework there are four categories of mobile marketing systems related to mode of communication: Types A, B, C, and D. These types are the intersection of two dimensions:

- The mode/intensity of marketing communication: The interaction may be *Intense* or *Mild*.
 - o *Interaction - Intense* is a communication mode where both consumer and marketer are exchanging messages usually initiated by the consumer.
 - o *Interaction - Mild* is the traditional marketing approach where marketers initiate the communication via many different approaches such as TV, billboard, etc.
- With mobile commerce, consumers may initiate the communication related to information about products or services, and the marketer is required to promptly respond to such communication. Therefore this kind of communication may be considered an *Interaction-Intense* one.
- The second dimension is marketing channel used in the communication.
 - o The *Hybrid - Channel*, which allows two different networks to participate in the

communication: Internet and Mobile networks. For example a consumer may use a wireless device to send an e-mail to a marketer.

- o The *Single - Channel* happens when only one network is used in communication. For example a marketer uses a wireless network to communicate to consumers via consumers' mobile devices.

Based on two above mentioned dimensions there are four different types of MMS:

- Type A: is an Interaction-Intense communication via hybrid channels. Consumers initiate a communication with marketers from their mobile devices and invoke a response from marketers in the real time. For example, consumers may scan a QR code from a magazine; they are then e-mailed a discount coupon by the marketer because of the consumers' interaction.
- Type B: is an Interaction-Mild communication in a hybrid channel (Internet and mobile networks). This communication may be initiated by the marketers who may find little or no response from the consumers. Or consumers who may use their mobile devices to scan a QR code and they are sent to the marketer's website to access product information.
- Type C: Consumers initiate communication with a marketer by using their mobile devices, and the marketer interacts by using the same network. For example a consumer sends a text message to the marketer about product prices, and a marketer responds via mobile networks to such request.
- Type D: Marketer initiates the interaction via mobile networks to consumers in order to promote their products or services. For example, a

marketer may use push technology to send promotional messages if the marketers' mobile transmitters detect the consumers' mobile devices within the proximity of the marketers' location.

Application of QR Code Business Cases to MMS Framework

The following example cases are presented to demonstrate how QR codes should be used in advertisements and discuss the implications from the literature review.

Case Study 1:

HoneyBaked Ham uses QR code application in a simple but very effective way. A "Customer Secret Offer" urgently captivates reader's attention and engages them to look into the offer. Along with the enchanting offer, it also includes instructions to upload the app and scan the QR code. All these details perfectly fit the mobile product screen. The simple click leads to the page with the great offer, and a tempting picture of a product followed by "Buy Now" and "Call Now" buttons. HoneyBaked Ham frequently changes its promotions, allowing customers to take advantage of on-going offers. Honey Baked Ham's execution, engagement, call, and action as a whole makes it one of the best end-to-end uses of QR code (Ackerman & Brayfield, 2012).

This application of QR code in the product advertisement is in line with the results of several empirical studies and MMS framework. Their products are in low-involvement category, so the consumers will not feel much of risks or privacy concerns. The QR code simply directs them to their catalog and there is no need to register right away. Then, they use attractive incentives such as savings and specials to lead the consumers to their catalog site. Again, this is in line with the studies which identified as perceived benefits and savings are very strong drivers of QR code usage.

This application of QR code is an effective (Type A) communication between the consumer and the marketer. The communication is initiated by the consumer using a mobile network and device, and the marketer is responding via Internet and mobile networks. Type A application of QR code gives the consumers the ability to obtain information on the products and the sale

promotions, while at the same time benefit from such interaction.

Case Study 2:

DELiA*s, a clothing line for teens, used a QR code in its advertisement. The QR code provided on the back of DELiA*s catalog encourages its young customers to visit the company's facebook page. This is a brilliant idea and appropriate, as facebook is probably the most common media for young adults as the target audience. However, it's a weak idea to call an action. The actual page does not provide any opportunity to interact, customize or benefit from it. It is just a normal facebook fun page. By not adding any engaging content on the landing page, DELiA*s misses the opportunity to interact with its consumers (Ackerman and Brayfield, 2012).

Since no active communication is present, this system would be categorized as Type B in the MMS framework. This Type B application doesn't lead to an interactive communication with consumers and may lead to consumers abandoning the QR scanning app, since they do not perceive any benefit from scanning such QR codes.

Furthermore, from the involvement and privacy concerns view point; this facebook marketing strategy using the QR code may not be recommended, either. By definition, facebook involves many personal data. The targeted audience of this magazine is young adults, many of whom have facebook accounts of their own and connect to personal friends through it. Therefore, this media is highly involved, even though their line of products is not in high-involvement category. That will give the consumers privacy concerns that could turn them away from scanning the QR code.

Instead, it should have linked to a normal web page where consumers do not need to reveal their identity, and then have a link to facebook for those who have more confidence in facebook security and privacy protection. Also, the company should have offered something that could have motivated teen audience such as latest trends in clothing and accessories or including an offer such as "Deals of the Day", as such benefits can be drivers of the QR code usage.

Conclusions

Using QR code marketing strategy, while it is simple, will add value to the firm. QR codes provide companies an effective way to advertise their products that a printed page or a billboard cannot replicate. QR codes can engage customers much better than traditional printed advertisements. Based on Ye's MMS framework. We can notice that QR code best fit the Hybrid-Channel technology implementation. Marketers need to better integrate the mobile devices and networks to a mobile internet platform in order to provide an easy and pleasant experience to smoothly move from one network to another. Furthermore, a Type A communication, which includes a hybrid approach with an Interaction-Intense communication, can lead to best results of using QR code for marketing purposes. Type B implementation should be used for informational only purposes in High Involvement products, since consumers need more information in order to make their purchasing decision.

Improper implementation, poor execution, and lack of enough awareness among the users are hurdles on the way toward advancement of QR code in mobile marketing. Despite some of the drawbacks, QR codes can be a resourceful tool for marketers. It's the matter of coming up with simple but strategic techniques. Inventors create the product but it's the industrialist who creates value out of that invention. Hence, it is up to marketers and business professionals to use the QR code to its best and gain success through it.

Acknowledgement

The authors would like to express their gratitude and appreciation to Joshua Quest, a work study at Northern Kentucky University, for his help with proof-reading and editing.

References

- Ackerman, L. and Brayfield, L. (2012), 'Making the most of QR codes,' *MCM/Catalog Critique*. *MULTICHANNELMERCHANT.COM* [Online], [Retrieved March 1, 2013], <http://multichannelmerchant.com/catalog/catalog-critique-qr-codes0201tpp7/index5.html>
- Anonymous (2010), 'Bar Code to 2D Code,' *Denso Wave Incorporated*. [Online], [Retrieved March 1, 2013], <http://www.denso>

[wave.com/qrcode/aboutqr-e.html](http://www.wave.com/qrcode/aboutqr-e.html)

- Anonymous (2011), 'QR Codes in Magazine Advertising,' Nellymoser Inc. [Online]. [Retrieved March 1, 2013], <http://www.nellymoser.com/action-codes/qr-codes-and-tags-in-magazine-advertising>
- Anonymous (2012), 'Mobile Barcodes Drive Traffic to Brand Sites from Print,' *eMarketer Inc.* [Online]. [Retrieved March 21, 2012], <http://www.emarketer.com/Article.aspx?R=100916andecid=a6506033675d47f881651943c21c5d4>
- Crompton, H., LaFrance, J. and Van't Hooft, M. (2012), 'QR Codes 101,' Learning and Leading with Technology. [Online] [Retrieved March 2013], <http://www.abss.k12.nc.us/cms/lib02/NC0100105/Centricity/domain/1580/information%20an%20technology/QR%20Codes.pdf>
- eMarketer Inc. 'Mobile Barcodes Drive Traffic to Brand Sites from Print,' [Online]. [Retrieved March 21, 2012], <http://www.emarketer.com/Article.aspx?R=100916andecid=a6506033675d47f881651943c21c5ed4>
- Jung, J.-H., Somerstein, R., and Kwon, E.S. (2012), 'Should I Scan or Should I Go?: Young Consumers' Motivations for Scanning QR Code Advertising,' *International Journal of Mobile Marketing*. Winter 2012, 7 (3), 25-37.
- Law, C. and So, S. (2010), 'QR Codes in Education,' *Journal of Educational Technology Development and Exchange*, 3(1), 85-100.
- Liao, K.C., and Lee, W.H. (2010), 'A Novel User Authentication Scheme Based on QR-Code,' *Journal of Networks*, 5(8), 937-941.
- Narang, S., Jain, V., and Roy, S. (2012), 'Effect of QR Codes on Consumer Attitudes,' *International Journal of Mobile Marketing*, 7 (2), 52-64.
- Nellymoser Inc. (2011), 'QR Codes in Magazine Advertising,' [Online]. [Retrieved February 14, 2012], <http://www.nellymoser.com/action-codes/qr-codes-and-tags-in-magazine-advertising>
- Okazaki, S., Li, H., and Hirose, M. (2012), 'Benchmarking the Use of QR Code in Mobile

Promotion,' *Journal of Advertising Research*, 52 (1), 102-117.

Okazaki, S., Navarro, A., and Campo, S. (2013), 'Cross-Media Integration of QR Code: A Preliminary Exploration,' *Journal of Electronic Commerce Research*, 14(2), 137-148.

Okazaki, S., Navarro-Bailón, M.Á., and Molina-Castillo, F.-J. (2012), 'Privacy Concerns in Quick Response Code Mobile Promotion: The Role of Social Anxiety and Situational Involvement,' *International Journal of Electronic Commerce*, 16 (4), 91-119.

Patel, K. (2012), 'Marketer Love for QR Codes Not Shared by Consumers,' *Advertising Age*, 83(1), 2.

Probst, A. (2012), 'The Expectations of QuickResponse (QR) Codes in Print Media: An

Empirical Data Research Anthology,' *UW-L Journal of Undergraduate Research XV*.

Walker, J.D. (2011), 'QR Codes Are the Next Marketing Wave,' *Courier-Tribune, the* (Asheboro, NC). News Bank Access World News. [Online]. [Retrieved June 26, 2013] http://asheboro.courier-tribune.com/local_news/story/2011/10/06/qr_codes_are_next_marketing_wave

Walsh, A. (2009), 'Quick Response Codes and Libraries.' *Library Hi Tech News*, 26(5/6), 7-9.

Ye, G. (2007), 'Mobile Marketing Systems: Framework and Technology Enabler,' *International Journal of Mobile Marketing*, 2(1), 43-49.