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Consumer Attitudes Towards Using QR Codes in a Retail Setting

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Consumer Attitudes Towards Using QR Codes In A Retail Setting

by

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For graduation with Distinction

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Abstract

Corresponding with the increased use of smartphones and other mobile devices equipped with a camera, quick response (QR) codes have been introduced. QR codes allow large amounts of data (e.g., product information, discounts, usage suggestions) to be compressed into a small, printed square. To access the information, consumers must scan the QR code with a smart device (smartphone, tablet, etc). Korean and Japanese consumers appear more willing to scan QR codes in retail settings compared to their American counterparts. This reluctance is explored through the Technology Acceptance Model (*TAM*).

Furthermore, consumers' motivation toward QR code use is made explicit and explained by extending TAM to include apathetic motivation. The evidence suggests that extrinsic motivation exists through apathetic motivation, which influences consumers' likelihood of using a QR code. If retail or brand managers want to encourage consumers to scan QR codes, then retail or brand managers will have to provide greater forms of extrinsic motivation to overcome consumers' higher levels of apathetic motivation. Examples of motivators include discounts only available through a QR code and making QR codes more visible to consumers.

The larger implications of this model's explanation of QR code adoption by consumers extend to enabling retailers to create more efficient marketing campaigns, and to better predict what later technological trends might best succeed with consumers. Consumers reap the benefits of increased convenience, savings on products (via promotional offers), and better-directed marketing campaigns. Simultaneously, retailers increase the perception of their brand as being technologically up-to-date and gain new utilities to track consumer interest in ongoing campaigns, resulting in a win-win situation for both retailers and consumers.

Table of Contents

Acknowledgements.....	i
Abstract.....	ii
List of Tables	iv
List of Figures.....	v
Introduction.....	1
Literature Review.....	3
QR Codes.....	3
Model Development	5
Behavioral Intention	7
Attitude	7
Perceived Ease of Use.....	8
Perceived Usefulness	9
Apathetic Motivation	9
Methods	11
Survey Development	11
Sample	12
Analysis	13
Model	14
Face Validity	16
Convergent Validity	16
Discriminant Validity	17
Reliability	18
Discussion	18
Limitations	20
Future Directions	21
References	22
Appendix	33

List of Tables

1	Multi-Item Constructs Exhibit Reliability and Convergent Validity	27
3	Interitem Correlation	28
4	R-Squared Strength	29
6	Demographic Count Data	30

List Of Figures

1	UPC and QR Barcodes	24
2	Hypothesized Model	25
3	Structural Model	26

INTRODUCTION

Quick response codes (hereafter *QR codes*) represent a new source of information. QR codes, also known as 2D barcodes (Denso Wave, 2010) operate in similar fashion as the Stock Keeping Unit barcode (hereafter *barcodes*). A user needs a device that scans the image (e.g., QR code, barcode) and the device translates the image into information. Barcode readers are typically used by retail personnel to track inventory. Recently, some retailers, such as Target, have encouraged consumers to use a retailer-supplied barcode reader to create a registry for a wedding or an impending childbirth (Target, 2012). QR codes are more flexible than barcodes because they can contain over twice the information, running both horizontally and vertically, as opposed to standard barcodes, which carry information only horizontally.

Unlike barcodes, a QR code can be used by anyone with a smart device (e.g., an iPhone) to receive the information embedded in the image. The QR code functions as a link between reality and the virtual world by allowing users to scan a printed object (via their phones' cameras), giving access to content, such as a website, a video, a coupon, etc. The creator of the QR code decides what content will appear when the code is scanned. These codes offer unique opportunities for marketing, with the chance to have extremely specific directed marketing based on the location the code is available and improves the brand's reputation for being tech-forward and convenience-oriented, giving customers yet more reasons to be more brand-loyal to the QR code-using retailer.

QR codes, created in 1994 in Japan for industrial purposes (Denso Wave, 2010), gained widespread acceptance among consumers and retail managers in Japanese and South Korean markets by 2006 (O'Dell, 2011; Fiorella, 2007). Retailers in Asian markets have found

innovative uses for QR codes. For example, Tesco Homeplus placed subway-station billboards of grocery shelves with each product's image accompanied by a QR code, which allowed commuters to purchase groceries via their smartphones or other mobile devices while waiting for their train. The groceries were then delivered to the users' homes. Tesco reported a 130% increase in online sales and increased consumer satisfaction subsequent to this initiative (Tesco, 2011).

American retail managers have been slower to adopt QR codes and, correspondingly, appear reluctant to include QR codes in their marketing programs. Furthermore, many consumers have not downloaded QR code 'scanner' apps, which would allow them to use a smart device (e.g. iPhone) to receive the information from a QR code. Currently, only 28% of smartphone users have downloaded an app that would provide consumers with the ability to scan a QR code (Mobio, 2011; O'Dell, 2011). This lack of use by consumers appears puzzling, given 52% of consumers were aware of QR codes. (Mobio, 2011; O'Dell, 2011). This lack of activity could reflect a sense by consumers that scanning a QR code is not particularly easy. Adding instructions, or showing consumers how to scan a QR code, could improve use levels. For example, a case study on the Boston Books Festival suggested that the inclusion of a brief how-to notice next to visible QR codes resulted in much higher use (Hanly, 2010).

Additional explanations could exist to explain the lower use levels of QR codes by American consumers relative to their Korean and Japanese counterparts. Consumers in the United States could (a) perceive that QR codes offer little in the way of extrinsic motivation, (b) care little about using QR codes, and/or (c) hold low attitudes toward using QR codes. These unexamined explanations, taken together, could provide insight into why consumers have so far been unwilling to use QR codes in a retail setting.

Hence, the overarching purpose of this research project is to examine consumers' intention to use QR codes. This question is explored through the Technology Acceptance Model (Davis, 1989). Briefly, this model attempts to predict an individual's intention to use a particular technology given the individual's perceptions related to how easy and useful the technology is to operate, as well as the individual's attitude toward using the technology. This paper attempts to extend this model by including the individual's level of apathetic motivation toward using the technology. Such an extension serves two purposes. One, it would improve the model's explanatory power and corresponding predictiveness. Two, it would position the individual's levels of motivation in the foreground of the model (Warshaw, Davis, & Bagozzi, 1989). The remainder of the paper is organized as follows: (a) a review of literature is conducted and hypotheses are proposed, (b) a model is presented and tested, and (c) results of the tested model are discussed along with managerial implications and directions for future research.

LITERATURE REVIEW

QR Codes

Quick response codes (hereafter *QR codes*) were introduced in 1994 for use in the Japanese shipping industry (Denso Wave, 2011). QR codes (see Figure 1) require a user to scan the code with their smart device (e.g., any handheld device that can connect wirelessly to the internet and includes a camera). Additional information, a coupon, or other content is then displayed on the consumer's smart device. The QR code creator, such as a retailer or a manufacturer, decides what content is available and for how long.

To scan a QR code, three conditions are necessary and sufficient. The consumer must have (1) a smart device, (2) an application that can scan and translate the QR code, and (3) a

willingness to scan the QR code. In absences of these three items, QR code use by consumers will not increase.

In Japan, QR codes' home market, 76% of consumers are both aware of and capable of scanning QR codes (compared to 28% of Americans), and on average scan 1.24 codes each week (O'Dell, 2011; Cohen, 2011). This level of use should not appear surprising because 79% of Japanese consumers and 75% of Korean consumers own an internet-capable smart device – the two highest prevalence rates worldwide (MobiThinking, 2012; Chipchase, 2011). Furthermore, of nations with highest mobile broadband penetration, Korea ranks first and Japan ranks second (MobiThinking, 2012). It appears that Japanese and Koreans have two of the three necessary and sufficient conditions. As to the third, a willingness to scan QR codes, Tesco's success with non-traditional retailing – where consumers scan the market offerings' QR codes to order and pay for delivery of groceries – signals that the third condition has likely been achieved.

American consumers lag behind their Japanese and Korean counterparts. Each month, only 1.8% of Americans scan a QR code in a retail setting (ComScore, 2012). Sales of smart devices, such as the iPhone and iPad are increasing, but only 48% of Americans own such a device, and many do not have mobile connectivity on their device (Montgomery, 2011; Lavey-Heaton, 2012). America's mobile broadband penetration ranks 24th worldwide (MobiThinking, 2012). It appears that Americans have not met two of three necessary and sufficient conditions compared to their Korean and Japanese counterparts. The signals related to the third necessary and sufficient condition appear mixed.

However, Americans have shown a willingness to scan QR codes in a non-retailing context. For example, at music/cultural festival South by South West, many marketers incorporated QR codes in promotion efforts such as signage and displays (Sullivan, 2010). The

number of QR codes appearing in magazine advertisements is also increasing, as are QR code appearances in general, fueling the twelve-fold (1200%) increase in scanning between July and December 2010 (Mobio, 2011; O'Dell, 2011).

Additionally, consumers' interest in such technology remains low, industry experts expressing concern over the potential for QR codes to merely be a fad (Smith, 2012; McCray, 2011; Sweeney, 2012). Consumers' lower level of intent to use this technology could be explained by their attitudes and motivations related to their intention to use QR code technology.

Model Development

Many theories exist to explain and predict consumers' intention to use personal technology. The Theory of Reasoned Action (Fishbein & Ajzen, 1975; Sheppard et al, 1988), Theory of Planned Behavior (Ajzen, 1991), Decomposed Theory of Planned Behavior (Taylor & Todd, 1995), and Unified Theory of Acceptance and Use of Technology (Venkatesh et al, 2003) represent efforts to model technology usage behavior by consumers. These theories attempt to capture consumers' perceptions related to social norms, perceived behavioral control, and facilitating conditions respectively, while moderators have been proposed to improve different models' explanatory power (c.f., Venkatesh et al. 2003).

The Technology Acceptance Model (Davis, 1989; hereafter *TAM*) represents a special form of the Theory of Reasoned Action for use in technology contexts. TAM draws on the attitude construct from the Theory of Reasoned Action but adds two constructs, perceived usefulness and perceived ease of use, to improve the model's predictiveness.

Recently, researchers have focused on the role of motivation because motivations remain a prime predictor of an individual's behavior (Deci & Ryan, 2000). Motivation Model (Davis, Warshaw, & Bagozzi, 1992; Levin, Hensen, & Laverie, 2012) attempts to treat motivation as an

explicit predictor of consumers' intention to use a personal technology. Indeed, Davis, Warshaw, and Bagozzi (1992) measure extrinsic motivation and intrinsic motivation, while Levin, Hansen, and Laverie (2012) extend this model by including apathetic motivation.

The perceived usefulness construct reflects an interesting conceptualization. In TAM research, perceived usefulness is related to the idea that the individual can benefit from using a particular technology. In Motivation Model research, perceived usefulness is treated as a form of extrinsic motivation where the individual receives recognition through using a particular technology. That is, TAM treats the individual's motivation as implicit to explain the individual's behavior, while conversely, Motivation Model treats the individual's motivation as explicit.

Levin, Hansen, and Laverie (2012) and Venkatesh et al (2003) note that TAM and Motivation Model are context dependent. TAM appears predictive in a non-workplace environment, such as using technology at home or otherwise away from work. Furthermore, such use appears voluntary, where the individual can choose whether to use or not to use a particular technology. Conversely, Motivation Model is predictive in a workplace environment and use appears involuntary where the individual has little choice to use a particular technology.

Consistent with Levin, Hansen, and Laverie (2012) and Venkatesh et al (2003), TAM is used for this research project because QR code use appears in a non-workplace environment where use is considered voluntary. Consumers can choose to scan a QR code while shopping. Consumers could decide that no discount or amount of information is great enough to convince them to change behaviors by buying a different market offering in a particular product category. Hence, to model consumers' intention to use a specific technology, the model has to be grounded in the proper context. As shown in Figure 2, the hypothesized model adds the apathetic

motivation construct while treating perceived usefulness as extrinsic motivation to the TAM constructs of perceived ease of use, attitude, and behavioral intention.

Behavioral Intention. Davis, Bagozzi, and Warshaw (1992) define behavioral intention as the probability that an individual will engage in a given activity. For this paper, the given activity is using QR code technology. Behavioral intention is regarded as critical step in understanding the individual's behavior (Fishbein & Ajzen, 1975; Sheppard et al, 1988). It appears as a distinct step from actual use of technology and remains a "key dependent variable" (Venkatesh et al, 2003, p. 3). Consistent with Venkatesh et al (2003), Sheppard et al (1988), and Taylor & Todd (1995), behavioral intention is treated as the criterion variable of interest (see Figure 2).

Attitude. Attitude is defined as "an individual's positive or negative feelings (evaluative affect) about performing the target behavior" (Fishbein & Azjen, 1975, p. 216). It reflects the consumer's beliefs and opinions in regard to a given object or concept. Debate exists about the role of attitude in technology use models.

Davis (1989) included attitude initially in TAM but removed the construct to simplify the model without impairing the model's predictiveness. Venkatesh et al. (2003, p. 455) argued against the inclusion of attitude because of the possible spurious nature between attitude and intention. Other researchers, such as Taylor and Todd (1995), retained attitude in TAM because it improved the model's fit, or ability to reflect reality.

The issue related with the inclusion of attitude could reflect the context of use. It could be that in a nonvoluntary setting, the individual's attitude toward a specific technology would not matter when establishing a predictive relationship to intention. In a voluntary setting, though, the individual's attitude toward a specific technology such as a QR codes could matter. Hence, this

paper argues for the inclusion of attitude because scanning a QR code in a retail context should appear voluntary for the consumer and would predict the consumer's intention to use QR code technology. Formally,

H1: Attitude positively relates to the intention to use QR code technology.

Perceived Ease of Use. Davis (1989) defines perceived ease of use as “the degree to which a person believes that using a particular system would be free of effort” (p. 320). If an individual cannot understand how to use a piece of technology or believes that its use is not easy, then the individual's intention to use that technology appears low. Individuals are likely to avoid using a technology that requires complex instructions or otherwise does not initially appear easy to use.

Consumers could perceive QR codes as being not easy to use because the potential scanners have had no previous need to use their smart device in such a fashion. Coupons have traditionally been offered through the mail, on the shelf, on the product, or at the register. Information has usually been available from other sources, but appears relatively limited when appearing on a package. Consumers would not necessarily perceive the package as offering more information compared to talking with other consumers, and/or reading reviews posted on social media.

The individual's perceptions of how easy a technology would be to use could affect the individual's attitude toward a technology (Davis, 1989; Taylor & Todd, 1995). An individual with a higher degree of good opinion on how easy a specific technology is to use could have an improved attitude toward the technology compared to an individual with a lower degree.

Formally,

H2: Perceived ease of use positively relates to attitude toward using QR code technology.

Perceived Usefulness. Davis (1989) defines perceived usefulness, as “the degree to which a person believes that using a particular system would enhance his or her job performance” (p. 320). By using a particular technology, the individual believes he or she will be a better, or more effective, employee. This conceptualization appears consistent with extrinsic motivation, which is defined as a condition where the individual will perform a particular activity because “it is perceived to be instrumental in achieving valued outcomes that are distinct from the activity itself” (Davis, Bagozzi, & Warshaw, 1992, p. 1112).

As individuals perceive a specific technology is easier to use, individuals are more likely to find the specific technology is useful. If the individual does not have to exert much effort or allocate personal resources to use a system, then the individual could perceive greater benefit from using the specific technology such as QR codes. Formally,

H3: Perceived ease of use positively relates to perceived usefulness toward using QR code technology.

Consistent with prior efforts with TAM (Davis 1989; Venkatesh et al 2003), perceived ease of use is considered a predictor of attitude. As individuals perceive that they will benefit from using the particular technology, then their attitude toward the particular technology should improve. Formally,

H4: Perceived usefulness positively relates to attitude toward using QR code technology.

Apathetic Motivation. Improved job performance, such as becoming a better or more effective employee, would be a form of extrinsic motivation. Hence, “perceived usefulness is an example of extrinsic motivation” (Davis, Bagozzi, & Warshaw, 1992, p. 1112). In this fashion, though, TAM treats extrinsic motivation as an implicit antecedent. To treat extrinsic motivation as an explicit antecedent, an additional construct – apathetic motivation – is introduced.

Apathetic motivation is defined here as lack of interest or enthusiasm for performing a specific task or activity (Levin, Hansen, & Laverie, 2012; Vallerand, Fortier, & Guay, 1997). This construct has gained the attention of researchers (Baker, 2004; Deci & Ryan, 2000) because it provides additional insight to explain why some individuals do not exert effort toward a particular action.

Hansen and Levin (2010) and Levin, Hansen, and Laverie (2012) found that apathetic motivation exists as a separate and distinct construct from extrinsic motivation and intrinsic motivation. Furthermore, apathetic motivation does explain why some individuals show greater levels of intention to use a specific technology compared to other individuals. Finally, by including apathetic motivation, Hansen and Levin (2010) noted that the R^2 , or the amount of variance explained by the predictor variables, for behavioral intention improved from 30% without apathetic motivation to 36% with apathetic motivation.

To treat motivation as a more explicit concept within TAM, apathetic motivation is included because it could aid in the explanation as to why some consumers are more likely to scan a QR code. Furthermore, retailers or manufacturers could need to increase the level of extrinsic motivation to overcome consumers' level of apathetic motivation. Consumers who do not care about QR codes would need more reasons to engage in the behavior. Higher levels of extrinsic motivation could be required (Deci & Ryan, 2000).

In a technology use setting, retailers or manufacturers could provide greater or different promotional activities. However, these amounts would only be available to consumers who scanned the QR code. For example, a bag of coffee is priced at \$9.99 for a 12-ounce bag. If a consumer scans the QR code, however, a \$3-off coupon would be available. This higher form of

extrinsic motivation could be required to overcome consumers' higher levels of apathetic motivation toward QR code use. Formally,

H5: Perceived usefulness negatively relates to apathetic motivation.

H6: Apathetic motivation negatively relates to behavior intention.

METHODS

The overarching research question is: do attitudes and motivations influence whether a consumer intends to scan, or use, a QR code? To answer this question by testing an extended version of TAM, a causal research design was deployed. A causal design is a structural model that “infers that relationships have a sequential ordering in which a change in one brings about a change in another” (Hair, Black, Babin, Anderson, & Tatham, 2006, p. 844). Because the question of this research project is about the connection between two constructs, a causal design is the best choice for the research performed.

Survey Development

A multi-item survey was developed from previously published scales. Questions related to Apathetic Motivation were extended from Hansen and Levin (2008) and Levin et al (2012). Scales about Perceived Usefulness (i.e., Extrinsic Motivation), Perceived Ease of Use, Attitude, and Behavioral Intention were adapted from Davis (1989), Venkatesh et al (2003), Barkhi, Belanger, & Hicks (2008), and Jayasingh & Eze (2010) respectively. All items were measured using a 7-point Likert scaling technique (scale endpoints: 1 = strongly disagree to 7 = strongly agree), but for attitude, which was measured on a 7-point semantic differential scale. Hence, all constructs in the model were treated as reflective in nature (Hair et al, 2006). Furthermore,

demographic data related to respondents' age, income, education, mobile device brand, years of phone ownership, number of applications, and gender were obtained (see Table 4 and Appendix).

The survey was pre-tested prior to deployment. Two individuals with an expertise in reflective measures, as well as two smart device owners, reviewed the survey. No items were deleted. However, clarifications were added, such as examples in the question stem.

It was decided that the survey should focus on measuring respondents' perceptions and attitudes toward QR codes and intention to use QR codes in a store setting. The pre-survey instructions were heavily revised in order to ensure respondent comprehension of the nature of the survey. Further, to eliminate potential confusion, divergent question paths were created depending on whether the respondent had previously scanned a QR code to ensure verb choice would not alter respondent perception of the questions' intentions.

Sample

The survey was distributed through social media sites including Facebook, Twitter, LinkedIn, and Google+. Furthermore, the survey was distributed through an email distribution list that was created using a convenience sampling method. The survey was available exclusively online, and was distributed and advertised solely online as well. The social media and email distribution methods ensured that adults (e.g., 18 years or older, working at least 20 hours outside the home, and not enrolled full-time in school) were offered the survey.

Given the nature of the research question, a screening question related to smart device (e.g., iPhone, BlackBerry, iPad, etc.) ownership was added at the beginning of the survey. If a respondent did not own a smart device, then the respondent's survey was closed. Otherwise, the respondent completed the survey. It was estimated that a respondent would need about 15

minutes to complete the survey. Respondents were offered an opportunity to participate in a raffle for a \$20 gift card from their preferred retailer.

In total, 93 surveys were completed. Of these, four had to be discarded due to being outside the target population (i.e., consumers who owned a smart device). In all, 89 valid surveys were submitted. Demographically, 48% of the respondents earned less than \$50,000 per year, while 57% were born in 1980 or later. 46% of respondents were women, indicating a roughly gender-balanced population of respondents, and 43% were iPhone users. 26% of respondents had owned their phones for three years (see Table 4).

ANALYSIS

To test the hypothesized model (see Figure 2), correlation-based structural equation modeling was selected as the appropriate analytic technique (Hair et al, 2006, p. 231). Hair, Ringle, and Sarstedt's (2011) recommend this analytic technique if "the goal is...identifying key 'driver' constructs" or "if the research is...an extension of an existing structural theory" (p. 144). Such a theory (TAM)'s extension is required by the research question at hand, and focuses on the key driving constructs of behavioral intention associated with consumers' intention to use QR codes. Thus, correlation-based structural equation modeling represents the most appropriate analytical tool for testing the proposed extension of TAM.

Additionally, the 89 completed, useable responses should be treated as a small sample (Hair et al, 2006, p. 80). Finally, given the sampling frame, issues of normality associated with the data could be a concern. For these reasons (e.g., the sample is less than 200 hundred completed responses; assumptions about normality do not hold), consistent with Chin (1998), SmartPLS software (Ringle, Wende, & Will, 2005) was selected.

Jackson (2003) recommends that the minimum sample size must be at least 10 times the sum of the endogenous variable with the most predictor paths as well as the multiple items associated with that specific endogenous. For this model, as shown in Figure 2, the Attitude construct has three predictor paths along with four items. Thus, the minimum sample needed is 70. The 89 completed responses indicates the model exceeds the minimum sample needed.

Hansen and Levin (2010) used correlation-based structural equation modeling to test TAM. In their model, attitude was retained to improve model fit. Given this prior analysis, along with other prior research on TAM (Lee, Kozar, & Larsen, 2003), questions about the underlying structure should not be in doubt. Hence, exploratory factor analysis was not conducted. Instead, confirmatory factor analysis was used to analyze the hypothesized structural model. Validity, the “extent to which a measure or set of measures correctly represents the concept of study” (Hair et al, 2006, p. 3), should be established in order to make the data useful.

Model

All hypothesis were supported. Figure 3 contains the standardized path coefficients, *t*-values, and Table 3 the R^2 values to indicate predictive ability of the behavioral intention variable. Because partial least squares regression as a distribution-free technique relies on the bootstrapping re-sampling technique to determine path significance, 5000 re-samples were taken to perform the bootstrap (Levin and Hansen, 2008). *T*-values were computed based on the bootstrapping procedure, and their significance levels were determined using a two-tailed distribution with 4,999 degrees of freedom (Ringle, Wende, & Will, 2005).

The role of apathetic motivation merits further discussion. A moderating mediator variable is a limiter that permits movement from initial variable X to outcome Y through moderating mediator variable M, as opposed to movement over a direct path XY (Kenny, 2011).

Completely moderating mediator variables insist that not only does M have to be passed through along one potential path to Y, but that it is the *only* way to travel from X to Y, and can explain an observed behavior with no other known reasoning.

To establish that apathetic motivation is indeed a moderating mediator, four steps must be completed: (1) the initial variable must be correlated with the outcome, (2) the initial variable must be correlated with the mediator, (3) the mediator must affect the outcome variable, and then, (4) to determine how completely the mediator variable moderates, the effect of X on controlling Y must be determined (Kenny, 2011). Apathetic motivation meets these criteria. One, perceived usefulness (i.e., initial variable) correlates with attitude (i.e., outcome variable) ($r = .76, p < 0.001$). Two, perceived usefulness (i.e., initial variable) correlates with apathetic motivation (i.e., mediator) ($r = -.68, p < 0.001$). Three, apathetic motivation (i.e., mediator) shows an effect on attitude (i.e., outcome variable) (*path coefficient* = -0.44, $t = 5.5, p < 0.001$). Four, apathetic motivation, as the mediator, fully carries the effect of the relationship between perceived usefulness and attitude (Sobel statistic = 4.8, $p < 0.001$).

Chin (1998) argues that we can describe the endogenous latent variables as substantial, moderate, or weak, based on R^2 values of 0.67, 0.33, or 0.19, respectively. We can describe attitude ($R^2 = 0.77$) as strong, behavioral intention ($R^2 = 0.61$), apathetic motivation ($R^2 = 0.47$) and perceived usefulness ($R^2 = 0.38$) as moderate.

Face Validity

Content, or face validity consists of the “assessment of the degree of correspondence between the items selected to constitute a summated scale and its conceptual definition” (Hair et al, 2006, p. 102), and is the test by which the relevance of the kind of scale selected to the concepts being explored is confirmed. This measure of validity was achieved in two ways. One,

the model and the associated scales were selected from previously published research. Two, the pretest participants considered the survey to be good.

Convergent Validity

By contrast, convergent validity “assesses the degree to which two measures of the same concept are correlated” (Hair et al, 2006, p. 137). That is, the scale items selected are measuring the appropriate construct. Convergent validity is assessed by the construct’s average variance extracted (AVE) and is considered achieved when the AVE exceeds .5 (Chin, 1998). The construct values range from .69 to .81. Hence, convergent validity should be considered achieved.

Discriminant Validity

The third and final mandatory validity is discriminant validity. Discriminant validity is “the degree to which two conceptually similar concepts are distinct” (Hair et al, 2006, p. 137), and ensures that there are not overlapping constructs present in the model. Discriminant validity is achieved by comparing the square root of the AVE to the interitem correlations (MacMillan et al, 2005). If the square root of the AVE exceeds the interitem correlation values for the respective construct, then discriminant validity has been achieved. All the constructs meet the condition for discriminant validity.

Reliability

The final necessary check of the data is its reliability. Reliability is “the degree to which the observed variable measures the ‘true’ value and is ‘error free’” (Hair et al, 2006, p. 8). This test ensures that the variables selected to be measured are consistent with the constructs they are connected to. Reliability is measured by the latent construct’s Cronbach’s alpha, which should be

at least .7. The Cronbach's alpha for each latent construct ranges from .83 to .92. Hence, reliability should be considered achieved.

DISCUSSION

This research project presents results that should benefit retail managers. Consumers' attitudes toward QR technology affect their intention to use QR code technology. By improving the signage (i.e., perceived ease of use) related to using QR code technology as well as offering compelling reasons (i.e., extrinsic motivation) to use it, retail managers could improve consumers' intention to use this technology. In turn, retail managers could find more consumers frequenting the store (i.e., activation) and getting them to buy merchandise (i.e., conversion). Hence, these efforts would improve the retailer's performance. Performance could also be enhanced for retailers who pride themselves on being 'tech-forward' should use the QR codes' presence as a point of differentiation from competitors. Moreover, the convenience of QR codes, as demonstrated by Tesco's subway successes, can help to increase consumer brand loyalty, while also streamlining the couponing process of operations, minimizing waste and improving efficiency.

As shown in Figure 3, consumers' perceptions related to how easy QR codes are to use matters. Indeed, these perceptions have a greater impact on consumers' perceptions to extrinsic motivation compared to their attitudes toward QR codes. Retail managers need to explain in words and pictures how to download and then scan a QR code through in-store signage. Signage that offers verbal and visual instructions should be considered for maximum effectiveness. This signage, which would offer both verbal and visual communication, should improve consumers' perceptions of how easy QR codes are to use. Also, retail managers should consider adding a link

to the needed application from the retailer's website, or provide a direct link to the needed application.

Three constructs – apathetic motivation, perceived usefulness, and perceived ease of use – influence consumers' attitudes toward using QR code technology. Of the three, apathetic motivation has greater influence on consumers' attitude, as its standardized beta coefficient for the relational path is $-.436$ (see Table 2). Based on the analysis, consumers do not perceive QR code use as a worthwhile activity. To improve consumers' attitude toward using QR code technology, retail managers need to offer greater forms of extrinsic motivation. As the retail managers increase the level of extrinsic motivation, the consumers' level of apathetic motivation decreases and, as suggested by the data, causes the consumers' attitude to improve.

To effect this change, retail managers could provide a coupon, bundle pack, or premium that would be available only by scanning the QR code. Furthermore, recipes or other use suggestions could also be available through the QR code. Finally, the retail manager could encourage consumers to share the information acquired from the QR code with other consumers, or offer other forms of unique and direct communication. These efforts to provide additional extrinsic motivation should, ultimately, improve the consumer's attitude toward using QR code technology, and in turn, the QR-using brand.

Limitations

This research project carries two limitations that could pose potential problems for generalizing the findings to a larger population. One, QR codes represent a new technology, which could result in few consumers being aware of it. Indeed, for this survey, 48% of possible respondents viewed the first screen that contained information about QR codes and opted not to

start the survey. Over time, consumers could become more familiar and/or aware of QR codes, which could result in a higher incidence rate.

Two, the sample was drawn using non-probabilistic sampling techniques. In the first wave of data collection, respondents were notified through email. The authors collected these addresses; hence, the sampling was convenient. In the second wave of data collection, respondents were found through social media sites such Facebook, Twitter, and Google+. Users of these social media sites passed along the links. Hence, the sampling was a snowball.

Future Directions

The model presented in this paper offers at least three areas for additional research. One, the sample for this paper is 89. A larger sample, as well as a sample drawn using a probabilistic technique, would be beneficial to verify the model. Two, TAM as presented in this paper brings motivations to the fore by measuring both explicit motivation and apathetic motivation.

Additional research should also consider the role of intrinsic motivation to understand how consumers' level of enjoyment would affect their intention of using QR codes. Three, the version of TAM discussed here does not include the role of social norms. Should QR codes gain wider acceptance, the role of opinion leaders and other forms of experts as captured through the social norms construct could be considered as an antecedent to consumers' intention of QR code usage.

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Figure 1
UPC versus QR Barcodes

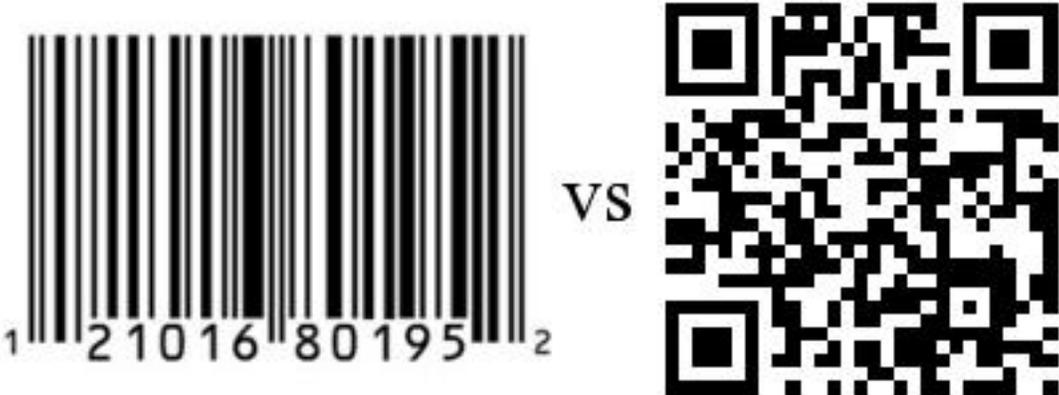


Figure 2
Hypothesized Model

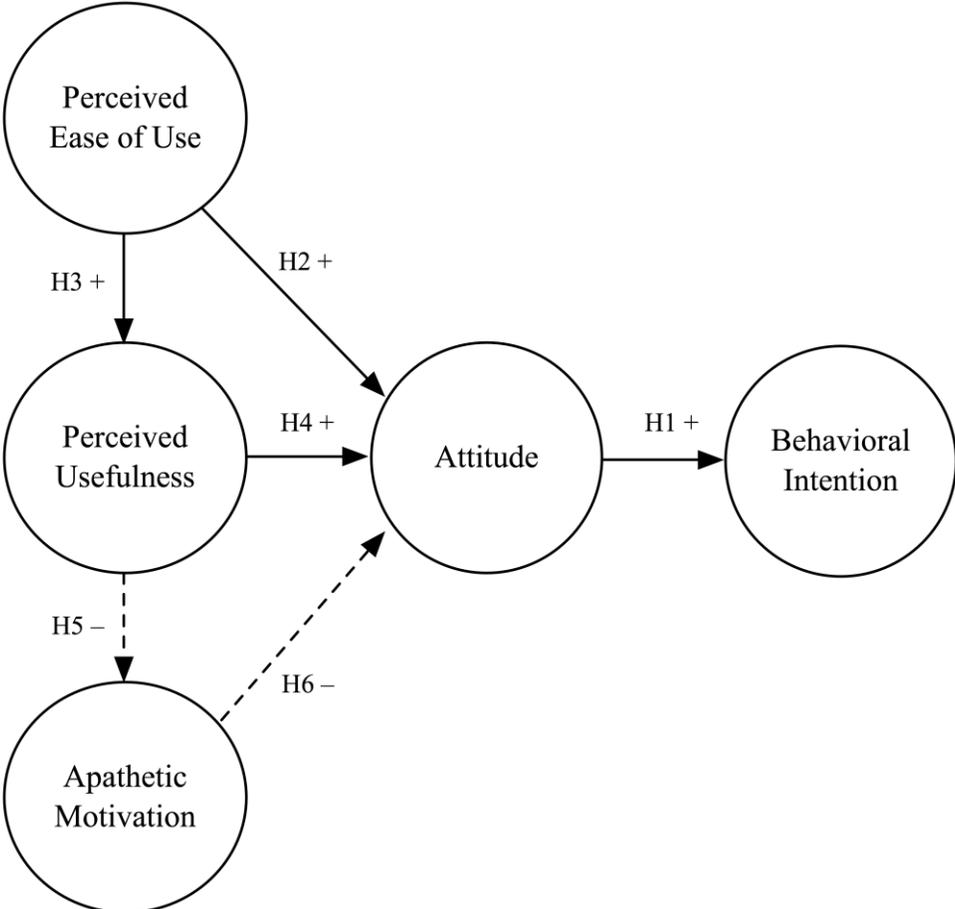
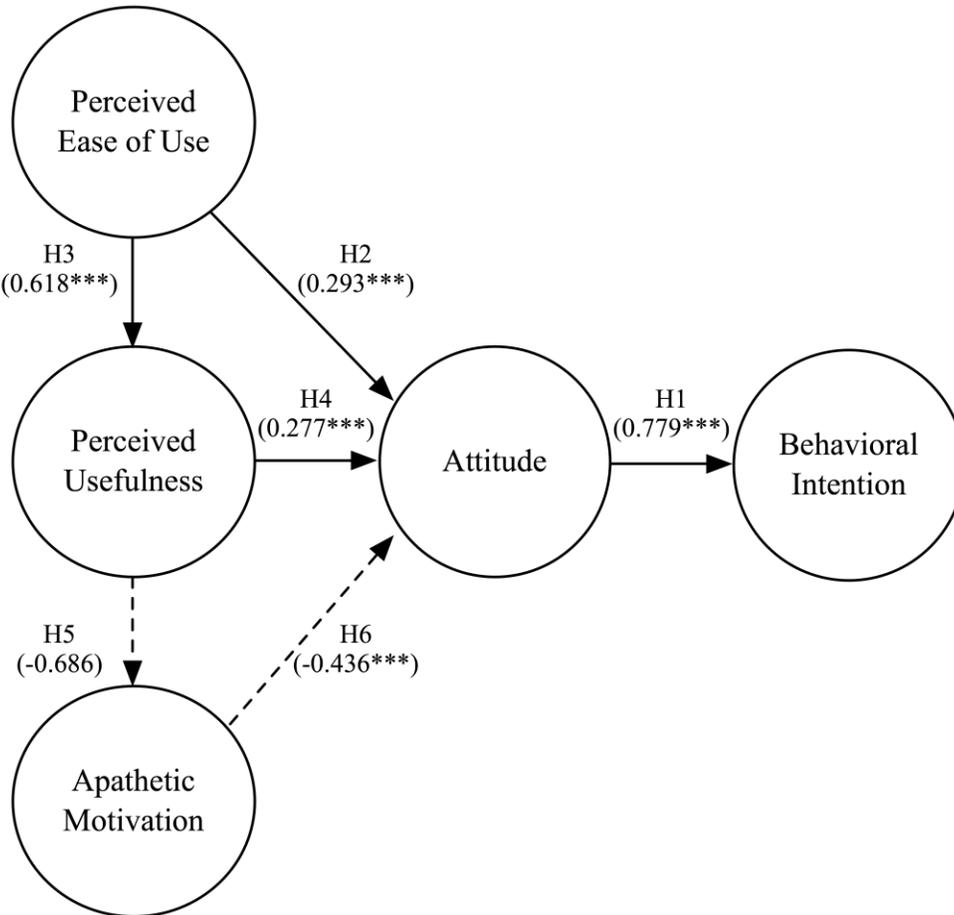


Figure 3
Structural Model



Note: *** $p < .001$; ** $p < .05$; * $p < .01$

Table 1
Multi-Item Constructs Exhibit Reliability and Convergent Validity

Construct	Mean	S.D.	Loading
<i>Apathetic Motivation (Reliability 0.95, AVE 0.81, Alpha 0.92)</i>			
1. Scanning QR codes in a retail store is a waste of my time.	3.55	1.51	0.89
2. I see no reason to scan QR codes in a retail store.	3.70	1.68	0.91
3. Scanning QR codes in a retail store will not help me.	3.68	1.58	0.93
4. I have better things to do than to scan QR codes in a retail store.	4.25	1.67	0.88
<i>Attitude (Reliability 0.89, AVE 0.68, Alpha 0.83)</i>			
1. Using QR codes in a retail store is a (bad/good) idea.	4.52	1.39	0.90
2. I (dislike/like) the idea of using QR codes in a retail store.	4.21	1.59	0.83
3. Using QR codes in a retail store is (simple/complicated).	4.83	1.54	0.61
4. Using QR codes in a retail store is a (bad/good use of time).	4.01	1.59	0.91
<i>Behavioral Intention (Reliability 0.93, AVE 0.78, Alpha 0.91)</i>			
1. I will download a QR code that appears in a retail store.	3.60	1.80	0.89
2. I intend to use QR codes frequently when shopping.	3.01	1.57	0.95
3. I intend to use QR codes in my next visit to a retail store.	2.72	1.67	0.84
4. I plan to seek out opportunities to use QR codes in a retail store.	3.14	1.89	0.84
<i>Perceived Ease of Use (Reliability 0.89, AVE 0.62, Alpha 0.85)</i>			
1. Using a QR code in a retail store will be clear.	3.96	1.63	0.80
2. Scanning a QR code in a retail store does not require a lot of mental effort.	4.86	1.59	0.83
3. Scanning a QR code in a retail store is easy.	4.79	1.51	0.89
4. Using QR codes in a retail store will be too much work to scan while shopping.	4.60	1.63	0.67
5. It will be difficult for me to become skillful at using QR codes in a retail store.	5.39	1.50	0.72
<i>Perceived Usefulness (Reliability 0.93, AVE 0.73, Alpha = 0.91)</i>			
1. Using QR codes in a retail store will make me a smarter consumer.	3.95	1.44	0.89
2. Scanning QR codes in a retail store will improve my shopping experience.	3.77	1.66	0.87
3. I will use QR codes if they made a product price lower.	5.65	1.69	0.76
4. I will use QR codes in a retail store if it takes less time than a traditional coupon.	5.49	1.61	0.82
5. Overall, scanning QR codes in a retail store will be very useful when shopping.	4.43	1.57	0.92

Table 2
Interitem Correlations

	Apathetic Motivation	Attitude	Behavioral Intention	Perceived Ease of Use	Perceived Usefulness
Apathetic Motivation	0.910				
Attitude	-0.795***	0.823			
Behavioral Intention	-0.711***	0.779***	0.882		
Perceived Ease of Use	-0.576***	0.715***	0.582***	0.788	
Perceived Usefulness	-0.686***	0.757***	0.649***	0.618***	0.853
*** $p < .001$; ** $p < .005$; * $p < .01$					
Note: Diagonal values contain the square root of the construct's AVE.					

Table 3
R-Squared Strength

Construct	R-Squared Value	Strength of Relationship
Apathetic Motivation	0.4707	Moderate
Attitude	0.7656	Strong
Behavioral Intention	0.6062	Moderate
Perceived Usefulness	0.3824	Moderate

Table 4
Demographic Count Data

Years of Smartphone Ownership	Number
1	16
2	21
3	23
4	14
5	6
6	2
7	2
8	2
9	2
10	0
11	1

Apps Downloaded	Number
10 or less	23
11 to 20	30
21 to 30	14
31 to 40	8
41 to 50	4
51 to 60	3
61 or more	7

CONSUMER ATTITUDE TOWARD QR CODES IN A RETAIL SETTING

Income	Number
At or below \$19,999	34
\$20,000 - \$49,999	9
\$50,000 - \$79,999	8
\$80,000 - \$109,999	17
\$110,000 - \$139,999	6
\$140,000 - \$169,999	4
\$170,000 - \$199,999	3
\$200,000 and above	8

Education	Number
Some Highschool	0
Highschool Diploma	1
Some College	15
College Diploma	16
Some Grad School	30
Graduate Degree	27

Gender	Number
Male	48
Female	41

CONSUMER ATTITUDE TOWARD QR CODES IN A RETAIL SETTING

Device Brand	Number
iPhone	38
BlackBerry	12
Palm	2
HTC	9
Samsung	7
Droid	16
LG	4

Age	Number
61 and above	4
51- 60	4
41 - 50	12
31 - 40	18
21 - 30	35
18 - 20	16

APPENDIX

QR Code Usage

Instructions to Respondents

In the next several screens, you will be asked about smartphone ownership and use behaviors and your opinions, beliefs, and attitudes about QR codes. You must own a smartphone or equivalent device to be eligible for this survey. Smartphones are defined as mobile phones that incorporate a Personal Digital Assistant, and must contain at least a camera, a Web connection, the ability to use applications, and functionality as a telephone. “Equivalent devices,” for this survey, are tablets that must have a camera, a Web connection, and the ability to use applications.

Smartphone brands include: iPhone, HTC, BlackBerry, etc. Tablet brands include iPad, HTC Flyer, BlackBerry Playbook, Samsung Galaxy, etc.

This survey will take about 15 minutes to complete. Your responses will be kept confidential.

Completion of this survey makes the respondent eligible, but not required, to sign up for a chance to win a \$20 gift card to a major retailer of the respondent’s choice.

This is a completely voluntary survey. If you are not willing to divulge information about smartphone-related behaviors, do not complete the survey. No identifying information about respondents will be disclosed to any third party for any non-academic purpose. After the study is completed, all identifying information will be destroyed.

If you agree to participate in this survey, please click “start survey” below. If you have any questions, please contact the survey administrator, Chris Thayer, at chris.thayer@otterbein.edu

I own a smartphone [e.g., iPhone, Android, BlackBerry, Windows, Palm, etc.] or equivalent device [e.g., iPad, HTC Flyer, BlackBerry Playbook, Samsung Galaxy Tab, etc]:

- Yes [Skip to 2]
- No [Screen Out]

Page 2 - Heading

Quick Response (QR) codes are the next evolution of barcodes. After scanning the QR code with your smart phone or smart device, you receive information such as a coupon about the product. QR codes can appear any place such as magazine advertisements, on retailer shelves, posters, store signs, etc. Click "submit" whenever you feel ready to proceed.

Page 3 - Question 2 - Choice - One Answer (Bullets)

I have a 2-D Barcode/QR code scanner app on my smartphone/tablet.

- Yes
- No
- Don't Know

CONSUMER ATTITUDE TOWARD QR CODES IN A RETAIL SETTING

Page 3 - Question 3 - Choice - One Answer (Bullets)

I have scanned a QR code in any setting before.

- Yes
- No [Skip to 11]

Page 4 - Question 4 - Choice - Multiple Answers (Bullets)

I have scanned a QR code in these settings (check all that apply):

- on a poster/flyer
- on a print advertisement [magazine, newspaper, etc]
- in a catalog
- on product packaging
- on television
- at a concert
- in a social [concert, event, etc.] setting.
- in a work [office, offsite project, work research, etc] setting.
- in a retail [grocer, clothing store, etc] setting.
- in another location/format. Please specify:

Page 5 - Question 5 - Rating Scale - Matrix

Please select the option that best represents your level of agreement with the statement provided. All items below refer to QR codes in a retail setting such as a grocery store, a department store, a convenience store, etc.

- | | Strongly Disagree | | | | | | | Strongly Agree | | |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Using QR codes in a retail store will make me a smarter consumer. | <input type="checkbox"/> |
| Scanning QR codes in a retail store will improve my shopping experience. | <input type="checkbox"/> |
| I will use QR codes if they made a product price lower. | <input type="checkbox"/> |
| I will use QR codes in a retail store if it takes less time than a traditional coupon. | <input type="checkbox"/> |
| Overall, scanning QR codes in a retail store will be very useful when shopping. | <input type="checkbox"/> |

Page 6 - Question 6 - Rating Scale - Matrix

Please select the option that best represents your level of agreement with the statement provided.

- | | Strongly Disagree | | | | | | | Strongly Agree | | |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Using a QR code in a retail store will be clear. | <input type="checkbox"/> |
| Scanning a QR code in a retail store does not require a lot of mental effort. | <input type="checkbox"/> |
| Scanning a QR code in a retail store is easy. | <input type="checkbox"/> |
| Using QR codes in a retail store will be too much work to scan while shopping. | <input type="checkbox"/> |
| It will be difficult for me to become skillful at using QR codes in a retail store. | <input type="checkbox"/> |

CONSUMER ATTITUDE TOWARD QR CODES IN A RETAIL SETTING

Page 7 - Question 7 - Rating Scale - Matrix

Please select the option that best represents your level of agreement with the statement provided.

Strongly Disagree							Strongly Agree
I will enjoy scanning QR codes in a retail store.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
Scanning QR codes in a retail store will be pleasant.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
I will have fun scanning QR codes in a retail store.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
I will find scanning QR codes in a retail store to be personally rewarding.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Page 8 - Question 8 - Rating Scale - Matrix

Please select the option that best represents your level of agreement with the statement provided.

Strongly Disagree							Strongly Agree
Scanning QR codes in a retail store is a waste of my time.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
I see no reason to scan QR codes in a retail store.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
Scanning QR codes in a retail store will not help me.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
I have better things to do than to scan QR codes in a retail store.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Page 9 - Question 9 - Rating Scale - Matrix

Please select the option that best represents your opinion toward the statement.

Bad							Good
Using QR codes in a retail store is a (bad/good) idea.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Page 9 - Question 10 - Rating Scale - Matrix

I (dislike/like) the idea of using QR codes in a retail store.

Dislike							Like
	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Page 9 - Question 11 - Rating Scale - Matrix

Using QR codes in a retail store is (simple/complicated).

Simple							Complicated
	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Page 9 - Question 12 - Rating Scale - Matrix

Using QR codes in a retail store is a (bad/good use of time).

Bad Use of Time							Good Use of Time
	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

CONSUMER ATTITUDE TOWARD QR CODES IN A RETAIL SETTING

Page 10 - Question 13 - Rating Scale - Matrix

Please select the option that best represents your level of agreement with the statement provided.

Strongly Disagree	Strongly Agree					
I will download a QR code that appears in a retail store.						
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
I intend to use QR codes frequently when shopping.						
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
I intend to use QR codes in my next visit to a retail store.						
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
I plan to seek out opportunities to use QR codes in a retail store.						
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Page 10 - Question 14 - Choice - One Answer (Bullets)

Almost done! Select an option below to continue.

- a [Skip to 17]
- b [Skip to 17]

Page 11 - Question 15 - Rating Scale - Matrix

Please select the option that best represents your level of agreement with the statement provided. All items below refer to QR codes in a retail setting such as a grocery store, a department store, a convenience store, etc.

Strongly Disagree	Strongly Agree					
Using QR codes in a retail store would make me a smarter consumer.						
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
Scanning QR codes in a retail store would improve my shopping experience.						
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
I would use QR codes if they made a product price lower.						
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
I would use QR codes in a retail store if it takes less time than a traditional coupon.						
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
Overall, scanning QR codes in a retail store would be very useful when shopping.						
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Page 12 - Question 16 - Rating Scale - Matrix

Please select the option that best represents your level of agreement with the statement provided.

Strongly Disagree	Strongly Agree					
Using a QR code in a retail store would be clear.						
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
Scanning a QR code in a retail store would not require a lot of mental effort.						
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
Scanning a QR code in a retail store would be easy.						
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
Using QR codes in a retail store would be too much work to scan while shopping.						
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
It would be difficult for me to become skillful at using QR codes in a retail store.						
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

CONSUMER ATTITUDE TOWARD QR CODES IN A RETAIL SETTING

Page 13 - Question 17 - Rating Scale - Matrix

Please select the option that best represents your level of agreement with the statement provided.

Strongly Disagree							Strongly Agree
I would enjoy scanning QR codes in a retail store.							
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	
Scanning QR codes in a retail store would be pleasant.							
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	
I would have fun scanning QR codes in a retail store.							
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	
I would find scanning QR codes in a retail store to be personally rewarding.							
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	

Page 14 - Question 18 - Rating Scale - Matrix

Please select the option that best represents your level of agreement with the statement provided.

Strongly Disagree							Strongly Agree
Scanning QR codes in a retail store would be a waste of my time.							
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	
I see no reason to scan QR codes in a retail store.							
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	
Scanning QR codes in a retail store would not help me.							
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	
I have better things to do than to scan QR codes in a retail store.							
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	

Page 15 - Question 19 - Rating Scale - Matrix

Please select the option that best represents your opinion toward the statement.

Bad							Good
Using QR codes in a retail store would be a (bad/good) idea.							
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	

Page 15 - Question 20 - Rating Scale - Matrix

I (dislike/like) the idea of using QR codes in a retail store.

Dislike							Like
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	

Page 15 - Question 21 - Rating Scale - Matrix

Using QR codes in a retail store would be (simple/complicated).

Simple							Complicated
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	

Page 15 - Question 22 - Rating Scale - Matrix

Using QR codes in a retail store would be a (bad/good use of time).

Bad Use of Time							Good Use of Time
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	

CONSUMER ATTITUDE TOWARD QR CODES IN A RETAIL SETTING

Page 16 - Question 23 - Rating Scale - Matrix

Please select the option that best represents your level of agreement with the statement provided.

	Strongly Disagree						Strongly Agree
I intend to download a QR code that appears in a retail store.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
I intend to use QR codes frequently when shopping.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
I intend to use QR codes in my next visit to a retail store.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
I plan to seek out opportunities to use QR codes in a retail store.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

Page 17 - Question 24 - Choice - Multiple Answers (Bullets)

I own a: smartphone / tablet / both?

- smartphone
- tablet
- both

Page 17 - Question 25 - Choice - One Answer (Bullets)

I take a smartphone / tablet with me when shopping.

- Smartphone
- Tablet [Skip to 19]**

Page 18 - Question 26 - Choice - One Answer (Bullets)

Smartphone Brand:

- iPhone
- BlackBerry [Curve, Torch, Bold, etc]
- Palm [Pre, Treo, Centro, etc]
- HTC [Arrive, Desire, Explorer, etc]
- Samsung [Galaxy, Captivate, Fascinate, etc]
- Droid [Charge, Razr, Bionic, etc] / Nokia
- LG [Quantum, Optimus, Thrive, etc]
- Dell Venue
- Other, please specify:

Page 18 - Question 27 - Open Ended - Comments Box

What year did you first buy a smartphone?

Page 18 - Question 28 - Choice - One Answer (Drop Down)

Total Number of Apps Downloaded: **[Skip Unconditionally to 20]**

- 10 or Less
- 11-20
- 21-30
- 31-40
- 41-50
- 51-60
- 61 or More

Page 19 - Question 29 - Choice - One Answer (Bullets)

Tablet Brand:

- iPad
- BlackBerry Playbook
- HTC [Slate, Flyer, etc]
- Samsung Galaxy Tab
- Dell [Streak, Inspiron, etc]
- Other, please specify:

Page 19 - Question 30 - Open Ended - Comments Box

What year did you first buy a tablet?

Page 19 - Question 31 - Choice - One Answer (Drop Down)

Total Number of Apps Downloaded:

- 10 or Less
- 11-20
- 21-30
- 31-40
- 41-50
- 51-60
- 61 or More

Page 20 - Question 32 - Choice - One Answer (Drop Down)

Gender:

- Male
- Female
- Other

Page 20 - Question 33 - Open Ended - Comments Box

What year were you born?

Page 20 - Question 34 - Choice - One Answer (Drop Down)

Income:

- At or under \$19,999
- \$20,000 - 49,999
- \$50,000 - 79,999
- \$80,000 - 109,999
- \$110,000 - 139,999
- \$140,000 - 169,999
- \$170,000 - 199,999
- At or above \$200,000

Page 20 - Question 35 - Choice - One Answer (Drop Down)

Education:

- Some high school
- High School Diploma
- Some college
- Bachelor's Degree [BS, BA, BFA, etc.]
- Some graduate school
- Graduate Degree [MBA, MFA, MA, PhD, JD, MD, DOD, or similar]

Page 21 - Heading

Thanks for answering – and here's your chance to win!

Thank you very much for your participation in this survey. By completing it, you have become eligible, though not required, to enter a drawing for a \$20 gift card to the major retailer of the winner's choice. There is a 1 in 20 chance to win. If you win, you will be contacted via email for prize forwarding information. If you would like to enter this drawing, please enter your contact information below

Page 21 - Question 36 - Open Ended - Comments Box

Name:

Page 21 - Question 37 - Open Ended - Comments Box

Email address (must be valid in order to claim prize):

Page 21 - Question 38 - Open Ended - Comments Box

Other contact information if desired:

Page 21 - Question 39 - Open Ended - Comments Box

Comments:

Thank You Page