

Quick-Response Codes and their acceptance in mobile shopping

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ABSTRACT,

The following paper aims at providing an analysis of the current literature concerning QR Codes and their influence on consumer behavior. It is designed to provide insight into current theories and applications and conclude with future research recommendations. In order to achieve this, a literature review and a SWOT analysis were conducted to ensure a clear overview while covering the necessary literature. The research question is concerned with what factors contribute to the adoption of QR Codes in retail. It was discovered that one must make a distinction between various influences, here divided into extrinsic/intrinsic motivation and privacy concerns. Of these three forces, marketers are recommended to focus on the extrinsic motivation as it is the easiest to influence as an external party. Inside this motivation, yet another separation can be made, between utilitarian and non-utilitarian benefits. The most noteworthy finding here was that Infotainment, a combination of information and entertainment, appears to be the most sought out non-utilitarian benefit and should receive some focus from both future researches and marketers. Regarding the limitations, the most pressing issue is the lack of literature since the topic of QR Codes is still in a development stage while the technology continues to diffuse. This paper also depicts theoretical and managerial implications as it suggests a new theoretical framework for the topic combining existing theories such as the TAM and U&G, and can be used by managers in the future.

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KEYWORDS

QR Codes, shopping experience, infotainment, TAM, U&G, literature review

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1. INTRODUCTION

The introduction of portable devices with the ability to connect to the internet brought a new channel for companies to connect to their customers. Mobile marketing, a marketing approach that reaches customers by means of their mobile devices, has expanded rapidly, allowing for great potential business ('Mobile Marketing'). It is currently a part of the Marketing Science Institute's research priorities for the timespan between 2016 and 2018, demonstrating the importance of further research ('Research Priorities 2016-2018'). With a predicted 100.6% penetration rate of mobile devices in 2020, the rapid diffusion has prepared the basis for a large market (Narang, Jain & Roy, 2012). According to Leo Burnett (2011), 50% of US-citizens between ages 18-64 made use of mobile shopping during the time of that study. Amongst the arising benefits is its impact on search costs, which are the combination of money, energy and time invested into the research of a product or service ('Search Cost'). Mobile marketing has reduced these, for example due to search tools that let you compare prices between various retailers (Lynch Jr. & Ariely, 2000). A further benefit for consumers is the increase in product variety and availability. Focusing on the book market, Brynjolfsson (2003) states that the impact of the increased variety and availability - due to solving issues such as limited storage options - on the consumer welfare is significantly larger than that of reduced prices. Nonetheless, pricing is a crucial influence factor for consumers as saving money on some products allows for more overall products. Mobile marketing influences pricing in multiple ways, for instance by allowing for online retailers to adjust their prices in a more convenient way without being required to print anything. This empowers them to immediately adjust to market fluctuations with ease whenever the necessity arises. Also, due to the previously mentioned search tools, it is easier for customers to locate the cheapest (online) retailer for a certain product which in turn leads to increased competitiveness concerning the prices offered (Brynjolfsson, 2000). Finally, when considering mobile marketing in relation to consumers, a key word is convenience, simply defined as being able to proceed with something without difficulty. The introduction of the mobile use of internet has enabled a large upsurge of potential convenience that can be offered to customers. This begins with the ability to save data such as addresses and bank details, the aforementioned search tools for comparison throughout various retailers, online delivery services with low to non-existent fees, personalized offers and much more. One innovation that can be of convenience for consumers and will be closely studied throughout this paper is the Quick Response Code (from here on out referred to as QR Code). Developed by Denso Wave in Japan in 1996, it is a two-dimensional barcode that can be scanned with any modern mobile device (Shin, Jung & Chang, 2012). Its possible applications range far beyond mere marketing, however due

to the nature of the research, this paper will largely focus on the application of QR Codes in the marketing section.

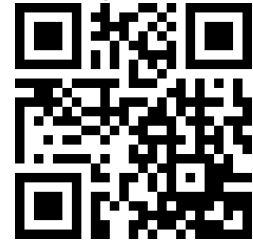


Figure 1 - QR Code example

Above is a depiction of what a QR Code may look like. Codes similar to this one can be found on various products and marketing tools such as posters. Smartphones have the ability to scan these by use of the camera and a suitable application, leading the user to a specified location such as the company's website. QR Codes have a high potential of increasing mobile marketing's impact on mobile shopping, as smartphones have already diffused globally and QR Codes allow for an easy marketing strategy is they too diffuse well (Shin, Jung & Chang, 2012). A survey conducted in 2011 by comScore.com demonstrated that already then 6.2% of all U.S. mobile users had used QR Codes. That amounts to approximately 14 million users solely in the U.S., supporting the previous statement of this tool's potential. However, like most innovations related to the use of mobile devices and the internet, QR Codes also bear risks. Security risks involved may stem from multiple sources, such as the redirection to virus infested website or phishing attacks (the process of gaining private information including passwords and bank details by pretending to be an authentic entity such as a bank or the police) (Jain, Shanbhag, 2012).

1.1 Relevance & Research Questions

1.1.1 Relevance

The following section assesses the relevance of this thesis. First off, one must distinguish between social and scientific relevance. Social relevance elaborates on the social concerns of the project, the way it could impact societal constructs. The research addresses the influence of QR Codes on mobile shopping, thus facilitating the understanding of QR Codes which will in turn provide relevant, structured insights to individuals in the marketing section. This paper will analyze strengths and weaknesses of using QR Codes as a marketing tool and focus on finding solutions to existing and arising problems.

Scientific relevance on the other hand discusses the impact this assignment will have in scientific fields. Since this is a critical literature review, it will summarize a lot of information already known concerning this topic. Thus it can be utilized for conducting future research in related mobile marketing or consumer behavior subjects. Furthermore it will draw conclusions based on that, possibly resulting in

new theories which are of great value to the scientific area. It should also be noted that the current level of literature concerning this topic is rather low, presumably mainly due to the fact that it is a very new innovation. While there is some existing literature, this thesis will be able to determine which parts have already been covered by it and, based on that, show which gaps must yet be filled. Hence we can conclude that the project is both socially and scientifically relevant.

1.1.2 Research Questions

Research questions are required to enable a more focused and guided study. The following question and sub questions will be used to provide a general direction of the paper.

Research Question:

What factors contribute to the adoption of QR Codes in retail?

Sub Question 1:

What currently motivates consumers to make use of QR Codes during their shopping experience?

Sub Question 2:

What are potential strengths and weaknesses involved with making use of QR Codes from the perspective of retailers?

1.2 Methodology

1.2.1 Type of research

The research methods applied will be qualitative since the topic of mobile marketing is relatively new and I can thus use the flexibility of qualitative research in order to discover new influencing factors and possibly create new theories (Maxwell, 2013). The paper will be a critical literature review as a systematic review has a more rigorous approach, focusing on covering every piece of knowledge already existing in order to cover all the bases rather than shifting some focus to new discoveries (Jesson & Lacey, 2006). Furthermore the systematic approach limits my choice of literature to that selected by the coding process and does not allow me to adjust that throughout my work. Various papers will be used as a foundation for the arguments and conclusions drawn throughout this project. Beginning with a review of the literature on mobile marketing with a focus on QR Codes, the critical evaluation will follow in order to answer the posed research question and the subquestions in a well-argued manner. Using the critical literature review approach will additionally allow me to objectively analyze the topic, summarize the knowledge that already exists through logical and structured reasoning and based on that provide future researchers with a recommendation as to what is yet required (Jesson & Lacey, 2006). In order to highlight certain findings, provide an overview and gain additional insight, a SWOT analysis will be included. This will also provide a suitable procedure to answer the second sub question.

1.2.2 Sources of Data

Secondary data sources:

- Google Scholar
- Web of Science
- Scopus
- Google (for definitions)

Keywords:

I generally entered all keywords I used in all but the last data source in order to receive the broadest amount of results.

QR Codes, QR Codes (negative) influence/effect/impact on consumer behavior, mobile marketing QR codes, mobile marketing approaches, mobile marketing opportunities, search costs, mobile marketing, critical literature review, QR Code privacy risks, consumer behavior pricing, push/pull based marketing, QR codes drawbacks, mobile marketing (product) variety,

Primary data collection plans:

Since the thesis will be a critical literature review, there will be no primary data collection, all information used will be extracted from existing literature.

2. LITERATURE REVIEW

As previously stated, this paper will answer the questions based on a literature analysis of the various existing knowledge concerning QR Codes and try to develop a research agenda for future application. Since mobile marketing in general is already a relatively modern topic, the amount of published literature is limited. Furthermore, QR Codes have many application purposes that range from medicinal aid to attracting the youth to visit museums and libraries more frequently (Samwald & Adlassnig, 2013; Schultz, 2013). While these diverse options will be further investigated, the main focus will lie on researching the connection between QR Codes and mobile shopping.

2.1 Push and Pull Marketing

In order to do so, one must first look at the distinction between push and pull marketing in the mobile sector. Push based strategies involve the company engaging the consumer while pull based strategies have the opposite function, allowing the consumer to take control of the communication (Unni & Harmon, 2013). During the beginning stages of smartphones, push marketing was the first to emerge on the mobile market and received the most research attention (Okazaki & Barwise, 2011). It did not require a high technological standard and sending a short message service (SMS) or a multimedia message service (MMS) turned out to be a more effective marketing strategy than television commercials or advertisement sent via direct mail (Bamba & Barnes, 2007). However, push based marketing had its drawbacks. Various research indicates that consumers wish to remain in control of their communication with companies, especially when it comes to their personal mobile devices. One study showed that the key criteria for consumers - concerning their acceptance level of mobile

marketing - are unobtrusiveness, relevance and added value (Atkinson, 2013). Atkinson (2013) went further to demonstrate that these criteria are fulfilled more by pull based approaches. They are much less obtrusive since the choice lies with the consumer and whether he wishes to gain further information on a certain topic. A study measuring the acceptance of mobile marketing demonstrated that permission-based acceptance plays a crucial role concerning consumer attitude towards mobile marketing (Gao, Rohm, Sultan & Pagani, 2013). Due to what is described as the spatial-temporal context, which concerns itself with being at the right place at the right time, pull based strategies have a higher relevance compared to push based ones that could for example be an SMS advertising for a product at any place and time, oftentimes making it irrelevant for the consumer. Finally, the added value can also be seen more in pull based marketing approaches. As Atkinson (2013) states, the information that one can gain from pull based approaches is more in-depth and can thus increase the perceived added value for consumers.

2.2 The Introduction of QR Codes

Thus after some research, it was found that pull based mobile marketing strategies were, theoretically, more effective than push based ones. However, until recently the only option for pull based marketing was for the consumer to type the URL or certain keywords provided by marketers into their mobile device which was considered to be not worth the effort (Xue & Herong, 2008). To tackle this challenge, the already existing QR Codes were introduced into the marketing system. They were used as a solution to the effort problem that pull strategies faced so far. By simply requiring a scan from the camera incorporated in any modern mobile device, it can provide consumers with in-depth information in the ideal spatial-temporal context without the company intruding privacy (Atkinson, 2013).

Generally speaking, it would appear that currently most papers that have been published focus on the benefits of QR Codes with only a select few stating some of the potential dangers that may be involved. The purpose of this analysis is to provide a research agenda for future research by the process of analyzing the existing information and determining key points that require further research. By doing so, this paper will offer a summary of the current knowledge concerning QR Codes' influence on mobile shopping and simultaneously demonstrate apparent knowledge gaps.

2.3 The Theories

When researching the topic, one can find various existing theories being applied for the analysis of mobile marketing and QR Codes. However, two theories in particular stand out due to their frequent use. Those are the Technology Acceptance Model (TAM) and the Uses & Gratifications Theory (U&G). These two theories and the key variables unobtrusiveness, market mavenism and added value provide a structure throughout most of the existing literature that can be followed and assessed. While other theories and variables such as the innovation diffusion theory, the elaboration

likelihood model or innovativeness are also used in certain papers, they are either not frequent enough, not relevant enough or replaceable by similar variables.

2.3.1 Technology Acceptance Model

The Technology Acceptance Model was developed in order to measure consumer satisfaction towards media. It determines the impact of external variables on perceived usefulness and perceived ease of use, two crucial factors when demonstrating why consumers do or do not use a certain form of technology. (Legris, Ingham & Collette, 2003; Davis, 1989). Since the TAM is usually applied to determine the adoption of technology inside an organization, when looking to use it for mobile marketing or specifically QR Codes, there are various adapted versions to be found, such as the one proposed by Gao et. al. (2013) which contains three new variables to further explore technology acceptance (Gao, Rohm & Sultan, 2009). However, the core principle of showing why a specific media technology is accepted or not remains constant.

Sang Ryu and Murdock (2013) have determined that this form of technology requires a wider scope than merely viewing the utilitarian benefits as further variables are also likely to impact the willingness to accept the use of QR Codes. The outcome of their survey containing 340 students as a sample supports this statement as it determined more variables such as market mavenism as influencers of consumer acceptance of QR Codes.

2.3.2 Uses and Gratification

The Uses and Gratifications approach has been developed and adapted for distinct applications throughout history. Specifically the Media Uses and Gratification approach is crucial for this review. Assuming that individuals are goal-oriented, it focuses on determining the influencing factors of utilitarian, rational and hedonistic origin that lead to a consumer's decision to incorporate a certain medium into their daily life (Stafford, Stafford & Schkade, 2004). By understanding what leads to such decisions, organizations are given the opportunity to adapt their marketing strategy to consumer needs and thus potentially increase their profit (Sultan, Rohm & Gao, 2009). In relation to the current research of QR Codes, the Uses and Gratifications approach is likely to demonstrate at least some factors that influence the consumers' decisions to use or not use them. While Stafford et. al. defined the factors as utilitarian, rational and hedonistic, Sang Ryu and Murdock (2013) simply describe utilitarian and non-utilitarian urges to be the influencing factors. On the utilitarian side is basically the Technology Acceptance Model as Nysveen, Pedersen & Thorbjørnsen (2005) state that the utilitarian gratifiers seek perceived ease of use and perceived usefulness. The non-utilitarian gratifiers on the other hand appear to mostly seek added value in the form of entertainment as Kim et. al. (2008) discovered in their cross-national research. Finally, taken from an article of the international journal of mobile marketing, Jong Hyuok, Somerstein and Eun Seon (2012) found that the motivation to use and accept a new form of media technology stems from the four variables entertainment, information, convenience and escapism.

2.3.3 Unobtrusiveness

This variable is mentioned in most papers concerning mobile marketing in relation to consumers. As previously stated, it was found that consumers prefer to remain in control of the communication they have with organizations when using their mobile devices. Receiving SMS advertising for anything was considered an invasion of privacy by some (Watson, McCarthy & Rowley, 2013). As such, a less obtrusive marketing approach appeared to be more favorable. Permission-based marketing is a solution to this issue, providing consumers with the choice to receive advertisements or not (Watson et. al., 2013). However, merely providing the consumer with a choice does not necessarily make the approach unobtrusive, it merely reduces the extent of privacy invasion, and thus QR Codes demonstrate a logical solution, giving the consumer full control over the communication. While unobtrusiveness alone will not be able to sell a product, it is a key variable that should be considered when attempting successful mobile marketing as it increases the probability of consumers showing interest since it is not forced upon them.

2.3.4 Market Mavenism

In 1987, Feick and Price defined market mavens as 'individuals who have information about many kinds of products, places to shop, and other facets of markets, and initiate discussions with consumers and respond to requests from consumers for market information' (p.85). According to current research, this variable appears to have an impact on the willingness to use QR Codes. There are various studies, supporting this suggestion, for example Sang Ryu and Murdock (2013) in their survey that received 340 usable responses. In the same year, Jay Sang Ryu (2013) also conducted a survey with 258 respondents that not only supported his hypothesis stating that the level of market mavenism would differ between QR Code users and non-users but also showed that it is higher amongst the QR Code users. This can be easily explained as market mavens are more aware and accepting towards new technology and are thus more likely to adapt the QR Codes in their mobile shopping behavior (Atkinson, 2013). Furthermore a study by Jay Sang Ryu (2013) showed that market mavens and QR Code users share similar qualities concerning buying behavior.

2.3.5 Added Value

The most important variable appears to be the added value. This will be defined as anything that benefits the consumer, ranging from a coupon to entertainment. As QR Codes are a mobile marketing strategy, they should generally aim to add some sort of value to give the consumer a reason to scan the code. Sang Ryu's (2013) research implies that consumers will likely scan QR Codes if they appear to contain entertainment, information or monetary benefits, all of which are forms of added value. Thus this variable will be further split into three sections:

2.3.5.1 Entertainment

Already for push advertising the benefits of including some form of entertainment were researched. It was considered crucial for the consumer's attitude towards mobile

marketing in general (Barwise & Okazaki, 2011). According to Watson et al. (2013), the added entertainment factor can lead to consumers viewing a company more positively which in turn can increase turnover. Furthermore, various studies imply that the expectation of hedonistic – non-utilitarian – benefits and specifically entertainment can increase the willingness for mobile shopping in general (Yang, 2010; Sang Ryu & Murdock, 2013). Referring to the uses and gratifications theory mentioned earlier, Murdock & Sang Ryu (2013) go on to state that the non-utilitarian gratifiers focus on entertainment as the most influential factor. Based on a study they conducted comprised of 340 US American university students, the perceived enjoyment of where the QR Code leads appears to have a positive effect on the perceived usefulness, ease of use and overall favorableness of using QR Codes (Murdock & Sang Ryu, 2013). Finally, an analysis by Sang Ryu (2013) demonstrated adventure-seeking and idea-seeking to be the most crucial factors when determining differences between QR Code users and non-users. Those two factors can also be viewed as entertainment and information, thus leading to the conclusion that a combination of both, so called infotainment, may be a viable implementation in order to popularize ones' QR Codes. A survey conducted by Jong Hyuok, Somerstein and Eun Seon (2012) with 160 university students supports this statement by showing that information and entertainment are the strongest predictors of future usage of QR Codes.

2.3.5.2 Information

As stated, information is a further way to add value to something. In the mobile marketing area, information can be viewed from two perspectives. In the context of the aforementioned infotainment, the author saw information as idea-seeking, thus one would apply QR Codes to assist customers with their shopping. An example of the combined infotainment can be found at the fashion clothing and accessories retailer Macy's where they use QR Codes to provide their customers with fashion advice (Santos, 2011, March 10). This is merely one of many possible applications of QR Codes in the marketing sector that have been applied throughout the world. The ability to provide consumers with product information without requiring the presence of an employee not only improves the shopping experience but also increases the flexibility of stores.

The second perspective is derived from consumers' trust in the brand, company or product. This institutional trust is considered a necessity for mobile marketing in general due to the spatial and temporal distance between the communicating organization and the consumer (Mallat, Rossi, Tuunainen, & Öörni, 2008). The increased distance makes individuals more hesitant to disclose private information such as their name, phone number or credit card information during an online shopping process. This trust is greatly influenced by the perceived characteristics of an organization as the consumer uses this perception to evaluate if the organization is considered trustworthy (Mallat et. al.). In the field of QR Codes, the required level of trust in general is lower since it is a pull-based marketing strategy, thus providing the consumer with a choice to participate or not (Bamba & Barnes, 2007). However, research shows that while consumers are continuously moving towards shopping with a morally guided conscience they have also become

more distrustful towards labels that make ethical claims such as organic health labels and others (D'Souza, Taghian, Lamb, & Peretiatko, 2007; Shrum, McCarty & Lowrey, 1995). The implementation of QR Codes containing more in-depth information concerning the precise meaning of labels and other characteristics of the products will likely increase the institutional trust and subsequently, turnover (Atkinson, 2013). Furthermore, by providing extensive information it becomes more difficult to distinguish between advertisement and service, making it much more tolerable (Barnes, 2002).

2.3.5.3 Monetary Benefits

While entertainment and information appear to be at least as important, monetary benefits are the most apparent added value since they are easily measurable. An example of monetary benefits stems from Target, a discount store retailer that provides coupons for price reductions on their products by letting consumers scan their QR Codes (Santos, 2011, March 10). In fact, a study conducted by Okazaki, Li

and Hirose (2012) comparing 260 unduplicated QR Codes, showed that most of them are used to offer differing forms of loyalty programs to customers. This allows the organization to personalize the offers for each participating customer as they gain more in-depth information about the individuals. Overall however, it would appear that there has not been much research on this particular factor of added value.

2.4 Literature Overview

The following is a graphic overview of the literature used for the review sorted according to the theories and key variables that could be found within the paper to support the previous statements. In order to make it more lucid, the table will be limited to the literature applied in 2.3 and also exclusively contain papers that provided information regarding the key variables and theories listed in the columns.

Table 1 - Literature Overview

Author(s) & Year	TAM	U&G	Unobtrusiveness	Market Mavenism	Added Value
Atkinson (2013)		X	X	X	X
Bamba, Barnes (2007)					X
Barnes (2002)					X
Barwise, Okazaki (2011)					X
Cata, Patel & Sakaguchi (2013)					X
Jong-Hyuok, Somerstein, Eun Seon (2012)	X	X			X
Feick, Price (1987)				X	
Gao, Pagani, Rohm, Sultan (2013)	X		X		X
Gao, Rohm, Sultan (2009)	X				
Hirose, Li, Okazaki (2012)					X
McCarthy, Rowley, Watson (2013)			X		X
Sang Ryu (2013)				X	X
Sang Ryu, Murdock (2013)	X	X		X	X
Schkade, Stafford, Stafford (2004)		X			

What is most noticeable about the table is that the key variable 'added value' is represented in all but two of the 14 papers from section 2.3 that met the criteria of the table. This is most likely partially due to the fact that it has a very wide scope, ranging from utilitarian to hedonistic benefits and also because these benefits are a large part of both theories discussed.

Besides that the focus was to utilize multiple papers for each topic in order to strongly support the statements made throughout that section of the literature review, thus a minimum of three papers for each topic was set as a basis.

2.5 Diffusion inhibitors

While QR Codes are spreading fast, there are still certain reasons that keep them from diffusing at their full potential. For instance the fact that most research is quite new, thus leading to marketers possibly misusing the codes by focusing on incorrect priorities such as only utilitarian benefits, denying crucial hedonistic benefits such as entertainment and information. The underlying issue is the fact that the factors mentioned earlier ranging from the TAM over U&G to the key variables unobtrusiveness, market mavenism and added value must all be considered when applying a marketing strategy including QR Codes. An

example for clarification purposes is the variable 'perceived usefulness' from the TAM. When a new technology is released, it will not diffuse as planned if consumers do not perceive it as useful enough to be adopted into their daily life (Shin, Jung & Chang, 2012). A further issue is the overall awareness concerning the existence of QR Codes. A survey conducted by Walsh (2009) displayed that merely 8% of the 163 respondents within a library environment knew what a QR Code was and two years later a study by comScore (2011) showed that only 25% of smartphone users had scanned a QR Code before, thus it may help if more people knew not only of the existence but also the potential benefits of QR Code use.

2.6 Further Potential for QR Codes

While QR Codes have proven themselves to be a great pull based marketing tool, the above shows that their use is still limited. Due to this fact, the following section will provide some insight into further applications of QR Codes outside of the mobile shopping sphere. Spreading this technology in other functions is likely to increase the overall awareness of QR Codes and their perceived usefulness, thus having a beneficial impact on the diffusion and acceptance of said technology.

The possibilities that will be discussed here have two directions. The first will focus on the use of QR Codes in libraries and museums, thus spreading the acceptance among the youth. The latter will demonstrate possible medical applications of QR Codes that may generally spread awareness and increase the perceived usefulness due to its potential benefits.

On first thought, the addition of QR Codes in libraries and museums appears to be counterproductive, increasing and even promoting the use of smartphones in areas where one should commonly abstain from doing so. However, after some research it can be found that the addition of QR Codes in such environments has the potential of improving the quality of the institution and simultaneously aid in the diffusion of QR Codes in general. While the amount of existing literature on this topic is scarce, the results of some of the articles are promising. For instance, Walsh (2010) conducted two surveys within a library environment. The first was returned by 163 respondents of which merely 8% knew what QR Codes were. After said survey, a competition was held over the length of approximately 3 months, with its focus lying on scanning QR Codes. While only a few students were willing to compete for the prize of a 100\$ coupon for a new smartphone, a new survey at its end showed promising results. Out of 306 respondents, 22% knew what QR Codes were (Walsh, 2010). This is indeed still a low number, however one must keep in mind that this was researched in 2010, thus in the emerging stages of QR Codes. The results of these surveys lead to the conclusion that increasing the awareness may be an overall slow process, however one can achieve a burst of high impact in the early stages.

Currently, the focus of libraries and museums is to establish a link between the physical and the virtual perspective by using QR Codes. This can be in form of a floor map, a search system, more in-depth information or a helpful guide for museums (Schultz, 2013; Walsh, 2010).

Concerning the medical application of QR Codes, there appear to be various ideas on the rise. The first idea stems from Al-Khalifa (2008) and introduces a system for visually impaired and blind people to utilize QR Codes as a form of instruction for certain objects. The code will be marked with a note in the braille alphabet in order for the target users to have the ability to identify it. After having scanned it with a smartphone, the code will redirect the user to a URL that will contain an explanation in form of a voice recording. The idea was developed with planned applications in museums and general shopping, however there is a lack of significant research that would support this. Nonetheless, this could have an impact on perceived usefulness or to some perhaps even on perceived ease of use since this would mean that visually impaired and blind people were capable of utilizing QR Codes.

The second medical application, going into a more complicated field of research is concerned with the use of QR Codes in relation with pharmacogenomics. This is also known as the study of the influence of genes on individuals' responses to drugs (Samwald, Adlassnig, 2013). The idea is based on the fact that genetic testing has become affordable for most and that the information gained from such tests can greatly improve the decision making process of prescriptions due to additional crucial information. A QR Code would contain the pharmacogenomic information and could be printed on a card held by the patient and possibly the medical records in order for medical professionals to have easy access to relevant data, allowing for improved care and more accurate drug prescriptions (Samwald & Adlassnig, 2013).

A QR Code application such as this may help to popularize their general use as this may be perceived as beneficial towards the users' health.

Overall, this section is used to demonstrate various applications of QR Codes, thus reaching a wider target scope, allowing for the diffusion speed of the codes in general to increase.

2.7 What currently motivates consumers to make use of QR Codes during their shopping experience?

Based on the existing literature the first sub question posed in this thesis can be answered. In order to provide a basic overview, the following depiction will demonstrate the previously determined influences on consumers' shopping experiences.

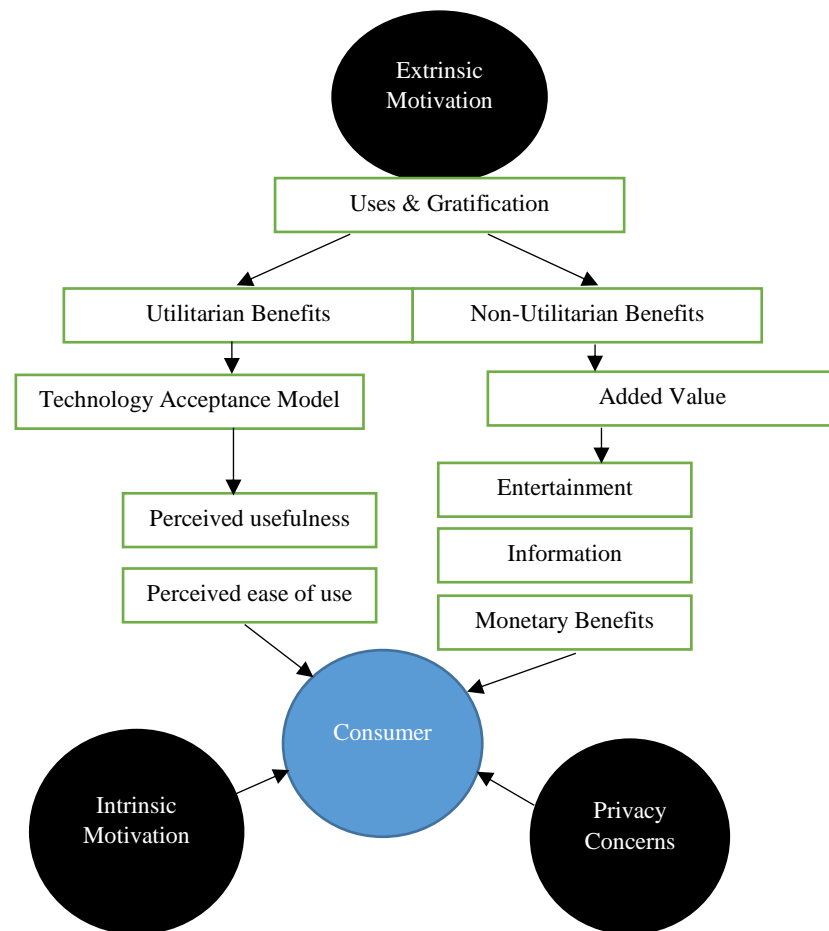


Figure 2 – Motivation Model for Consumers' Media Technology Acceptance

When reviewing the literature regarding the influence of QR Codes on the shopping experience, one can quickly distinguish between three main factors: Extrinsic motivation, intrinsic motivation and privacy concerns. While the latter two are both concerned with few factors, intrinsic motivation is based on the degree of market mavenism an individual has and privacy concerns focus on the unobtrusiveness variable, they are still crucial as they appear to have a great impact on the 'if' and 'how' of using QR Codes. However, the extrinsic motivation appears to have the highest degree of literature coverage since it is the most susceptible to outside influence. In order to create an overview, the uses & gratification theory is a convenient header. As previously stated, it is divided into utilitarian and non-utilitarian benefits. On the utilitarian side, concerned

with perceived performance improvement by using a certain technology, the technology acceptance model covers the list by measuring perceived usefulness and perceived ease of use. On the other hand, the added value in form of entertainment, information and monetary benefits can be viewed as the non-utilitarian perspective of the uses & gratifications theory.

In order to determine what currently motivates consumers to make use of QR Codes during their shopping experience, one must view all three main perspectives, extrinsic/intrinsic motivation and the consumers' privacy concerns. As a marketer, it is most crucial to try and influence the users' decision making with extrinsic motivation as intrinsic motivation is much harder to influence from an external position.

3. SWOT ANALYSIS

In order to determine if utilizing QR Codes as a marketing tool is an improvement for an organization, one must first determine the strengths, weaknesses, opportunities or threats. The most common theory concerned with these factors is the SWOT analysis which will be applied in this section. While this is best done using a company as a case study, the novelty factor surrounding QR Codes lead to a lack of options concerning that process, subsequently leading to an alternate approach that will apply much of the aforementioned theory section to determine the strengths, weaknesses, opportunities and threats of QR Codes for retailers.

3.1 Strengths

Beginning with possible strengths, many have been mentioned throughout this paper. QR Codes are a pull-based marketing approach, thus they are amongst the least intrusive strategies, placing the consumer in control concerning the communication with the company, thus increasing their willingness to make use of the marketing tool. A further strength is the low cost factor of QR Codes. Creating them can often be done for free on certain websites while printing them does not lead to high expenditures either, as QR Codes are black and white and cover a small surface (Want, 2014). According to current research, a further strength that can be drawn from QR Codes is its potential improvement of the shopping experience. By providing the previously mentioned Infotainment, a combination of offering information and entertainment, consumers are likely to enjoy their purchasing endeavors more, leading to a potential increase in profit for the companies offering such service. The experience is also improved by adding other forms of value such as time saving – QR Code scanning is barely time consuming – and price reductions through means such as loyalty programs.

3.2 Weaknesses

However, any new idea or form of technology will always include potential weaknesses. First off, as various research – for instance Walsh (2010) – demonstrated, QR Codes have not diffused far enough yet. There are still many consumers who do not know of their existence or their potential. Additionally, there are technical drawbacks such as the necessity of having a mobile internet connection when using

a code scanner, thus providing some form of a barrier to certain consumers. However due to the high diffusion rate of smartphones and the increasing overall availability of low cost phone contracts including mobile internet connections, this weakness is likely to solve itself in due time.

A final weakness of QR Codes originates from the marketers who apply them as a strategy. They must ensure that the code serves its purpose – marketing a product or service in an engaging way - or consumers will likely lose interest in their usage.

3.3 Opportunities

As far as opportunities go, the largest part of existing literature demonstrated a large variety of possible applications for QR Codes, some of which were mentioned previously and can be found in section 2.6. Keeping in mind that those were merely a select few of the vast amount of options, there appear to be many opportunities to apply QR Codes in numerous fields of research. Furthermore, with the emerging trend of researching pull-based marketing mechanisms, QR Codes are likely to be seen as front-runners on the topic, providing insight into why pull-based marketing is preferred by consumers and more. Thus, involvement may provide organizations with a pioneer advantage, having sought out an innovation in the early stages of diffusion.

3.4 Threats

Concluding the SWOT analysis, the potential threats to QR Codes will be reviewed. Possible replacement could be perceived as the greatest threat. While so far no research could be found on substitution options for QR Codes, with the exponential growth of technology development, it is an option that must be considered. However, while this would likely disrupt research on the topic, due to the low cost implementation of QR Codes, it is probable that it would have a very low negative impact on retailers.

A further threat is based on the technology acceptance model. According to said model, consumers must, amongst other things, perceive a technology as useful in order to accept it. If the perceived usefulness by consumers is too low, the rejection of QR Codes is highly probable.

4. DISCUSSION

Generally speaking there is much to be said and much to be researched concerning QR Codes. Throughout the literary research done in this paper, some important thoughts have manifested.

In order to answer the research question proposed in the first section of this thesis, one must connect the answers to both subquestions in order to determine what services are sought out by consumers that lead them to the willingness of using QR Codes. This is partially to be viewed from the motivational perspective of section 2.7 but should also include the findings of the SWOT analysis, introducing a more in-depth view of the potential QR Codes.

The motivation model for consumers' media technology acceptance demonstrates that what users seek is not necessarily susceptible by external means. A part of the motivation appears to originate within the consumer. Here

viewed as market mavenism, it is a form of drive that makes certain consumers more receptive towards new technology (Feick & Price, 1987). While it is difficult for an organization to influence levels of market mavenism within individuals, they should use them to increase the diffusion speed of new technologies in the early stages. The second factor in the model is the demand for unobtrusiveness concerning mobile marketing tools. Various research demonstrated the demand for less invasive marketing strategies linked to mobile devices. Individuals wish to be in control of the communication with advertising firms (Watson, McCarthy & Rowley, 2013).

However, the most crucial section of the model is the extrinsic motivation. The importance arises due to the fact that this is influenceable by external forces. Thus, marketers have the ability to increase the extrinsic motivation being exerted on the consumer. This can be approached with various methods, some of which will now be listed as examples. The retailer Toys'R'Us in the USA applied QR Codes as a holiday special in December 2011, leading to unlocking secret features, gaining points in a loyalty program and other advantages for those who scanned the codes. As a result, there were more than 30.000 scans within that month, demonstrating the power of well selected extrinsic motivation (Roman, 2016). The strongest example provided by Roman (2016) is Tesco in South Korea. They created a virtual store in a subway station that provided the feeling of the regular store with increase convenience. As a result, their customers increased by 76% and their revenue by 130%.

While these were examples of marketers using the extrinsic motivation factor to improve the experience for consumers, there are also companies that tried making use of QR Codes but failed to adhere to these guidelines. The Goldman Sachs Group, a multinational investment firm, applied QR Codes in 2012 as part of their advertisement. However, the code lead to a four minute promotional video of the company, thus acting solely as a commercial without providing any form of benefit. The video did not even include a form of contact or a further link (Marquis, 2012). This form of QR Code application generally has a high probability to fail as a marketing strategy and should subsequently be avoided.

On the other side, the SWOT analysis provides an insight into the potential of QR Codes for consumer experience, a further elaboration on what services users may seek. While the analysis also highlights aspects that had previously been mentioned, it includes factors such as time saving which is a further improvement of the shopping experience.

5. LIMITATIONS AND IMPLICATIONS FOR FUTURE RESEARCH

5.1 Limitations

As is the case for any subject, the literature on the topic of QR Codes is limited. Due to the fact that this is a very new field, there is still a lot of research required, not only to increase the scope but also to solidify current statements. A further noticeable impact is made by the fact that most studies that can be found containing a sample are limited to US American citizens, most frequently students. This is likely to lead to a statistical bias. Thus it may be useful to

expand the reach of future surveys to more countries and also age groups since the youth is being focused to date.

A final remark concerning the limitations is linked to the introduction section. As I had mentioned, during the early stages of my research I expected to find literature evaluating the negative aspects of QR Codes and possible threats that could accompany them. However, the coverage on this topic is very limited and as such one could not draw a conclusive statement from it. It may be recommendable to perform more in-depth research on the downsides of QR Codes as the sudden emergence of a security threat may strongly inhibit their diffusion.

5.2 Theoretical Implications

The most important theoretical implication that can be drawn from this paper is that after summarizing and grouping a number of papers it becomes clear that technological acceptance, especially in relation to media, requires a more in-depth theory to cover more aspects. By combining theories such as the TAM and U&G, one can achieve this, however this was merely a first step towards that end.

This paper can be used as a form of guideline, providing a summary of much of the existing literature, offering a new theoretical proposal and certain suggestions as to further research recommendations.

Finally, based on the literature that has been published so far, this last future research recommendation is basic and yet appears to be essential. Since the TAM considers ease of use to be a crucial indicator for accepting new technology, the fact that most smart phones to date require an application that scans the QR Code instead of integrating that function in the camera application would appear to be of great impact on the acceptance of QR Codes by consumers in their everyday lives (Legris, Ingham & Collerette, 2003; Walsh, 2010; Cata, Patel & Sakaguchi, 2013). While research on this topic is certainly required, this may also lead to an increased diffusion speed of QR Codes in the future.

5.3 Managerial Implications

The managerial implications of this paper focus on two points. Decision-making and time saving. First off, by having summarized literature on the topic and highlighted the findings, managers can use this to gain insight on the topic of QR Codes in relation to consumer experience, without having to spend too much time reading various papers. This can be very useful as it appears recommendable to all managers who conduct some form of marketing to get acquainted with the theoretical approaches of QR Codes.

Furthermore the findings of this paper can be used to provide guidelines for decision-making when attempting to make use of QR Codes. It depicts what consumers seek from QR Codes and how marketers can best influence the consumers' perception of this.

6. CONCLUSION

In conclusion, it can be said that while there is already some existing research around the topic of QR codes and their influence on shopping experience, there is still a lack knowledge. What can be said is that extrinsic motivation appears to be the main point of influence for marketers and as such should be placed in their focus when trying to develop a successful marketing strategy involving QR Codes. Concerning the general question of the application of QR Codes for marketing purposes, they appear to have great potential if their diffusion is enabled by correctly designing the code. However, since their use appears to be increasing at the current status, the greatest threat to their diffusion is the aforementioned lack of integration within the smartphone's camera application and the resulting reduced degree of perceived ease of use.

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