AN EMPIRICAL STUDY OF CONSUMER MOTIVATIONS TO USE IN-STORE MAPPING APPLICATION

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This study examines how consumers' motivations and personality characteristics influence the use of in-store mapping applications. In-store mapping applications are mobile applications that provide real time location information to consumers while also providing a means by which marketers may deliver to consumers both coupons and other sales promotions at the target location. In-store mapping applications enhance consumers' in-store experiences by providing the means to more efficiently research and purchase products. In this study, we draw on theories concerning utility and technology acceptance to develop a model that suggests that perceived usefulness, perceived ease of use, and entertainment benefits are significant in explaining intentions to use in-store mapping applications. Moreover, perceived unwillingness to sacrifice market security and deal proneness are important consumer traits for the usage of in-store maps. Overall, we conclude that in-store maps may provide an added value to the consumer shopping experience by providing functional and emotional benefits.

INTRODUCTION

This research is designed to empirically investigate the motivational and personality characteristics of young American consumers which affect adoption of in-store mapping applications. Mobile technology has become a ubiquitous feature of consumer culture and the predominant means by which consumers interact with one another and the Internet (Xu, 2016). In retailing, smartphone mapping applications have been developed which allow consumers to track their locations inside stores. Pioneered by Google in late 2012, in-store electronic maps have since been adopted by individual retail chains such as Home Depot, Walgreens, Schnucks, and Ikea, as well as such diverse consumer environments as Mall of America, Caesar's Palace Casino in Las Vegas, Wembley Stadium in London, and the Atlanta Jackson International Airport (Fiegermanov, 2012; Tode, 2013). While experts suggest this shift has far-reaching implications for marketers (Tode, 2013), there are no empirical studies in the marketing literature that examine American consumers' motivations to use in-store mapping applications. This is particularly troublesome in an era where shortened product lifecycles are the norm for technology businesses in advanced western economies. Due to the practical importance of this subject, efforts to develop an empirical analysis of what motivates shoppers to use in-store mapping applications in the U.S. are necessary.

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In-store mapping applications help both customers and businesses. They allow customers to see their positions inside a retail store. They also provide information regarding products and promotions, as well as customer reviews. Some mapping applications also allow users to create shopping lists, check prices, and locate items in the store (Halter, 2014). Customers benefit from the convenience of information and discounts. Businesses are afforded the ability to focus customers' attention on inventory they want to move quickly and reduce the need for customer service, among other things. Despite concerns on the part of both businesses and building owners over issues ranging from the control of indoor data to revenue sharing, stores remain committed to expanding these applications (Burrows, 2012).

This paper is developed as follows. First, we provide an overview of the literature on both physical maps in retail settings and the mental maps which consumers construct to help guide them in the navigation of retail spaces. We then provide a theoretical framework, reviewing expected utility theory, the technology

acceptance model, and more general consumer traits, to construct a series of hypotheses. Third, we detail our method, analysis, and findings. Finally, we discuss implications for both retailers and future researchers.

LITERATURE REVIEW

Understanding the customer-environment relationship is essential to the formulation of important marketing decisions such as store layout, design, and merchandising. Studies in environmental psychology highlight consumer orientation as a significant factor that impacts buyer behavior at the point of sale (Donovan & Rossiter, 1982; Eroglu & Harrell, 1986). The existence of physical maps in store environments (e.g., displaying the location of service points, products, escalators) influences customer sentiments concerning shopping convenience (Groeppel-Klein & Bartmann, 2008). These studies also suggest that consumers store mental maps of retail stores. These help consumers internally represent large -scale environments cognitively (Gulliver, 1908; Trowbridge, 1913; MacKay & Olshavsky, 1975). Consumers use their mental maps to determine the value of traveling a distance to obtain certain products or to create efficiencies in shopping (by combining purchases in one-stop shopping or choosing one location over another for more product variety in a single trip, for example). When consumers have better mental maps, their ease of orientation can be improved (Groeppel-Klein, Bartmann, 2008).

Most previous studies on mental maps focus solely on consumers' mental representations of their existing location relative to a store. They have not extensively studied consumers' mental maps of store interiors. Exceptions exist including work concerning the relationship between the level of mental map detail of store interiors and perceived ease of orientation (Sommer & Aitkens, 1982) and the relationship between stimulating in-store spatial knowledge and retailing success (Groeppel-Klein, & Bartmann, 2008). In the latter study, presentation of merchandise was found to manipulate buying decisions at the point-of-sale. Groeppel-Klein and Bartmann (2008) point to significant evidence in marketing research that the existence of maps of shops correlate to shopping convenience, product recall, positive evaluations towards the store and willingness to spend money. In earlier work, these researchers found that when ease of orientation is improved, approach behaviors result. Approach behaviors involve extended duration of stay, increased likelihood to recommend the store to others, and a heightened positive overall impression of the store. Approach behaviors are considered crucial for the success of stores. Grossbart and Rammohan (1981) found that cognitive maps, by providing indicators of direction and distance, allow consumers to more easily locate merchandise, stores, and sales, and to form more favorable impressions of salespersons. As customers mentally position themselves within retail spaces, they are better able to predict the stores, merchandise, and activities they will encounter as they move about the retail space. This network of beliefs can provide a basis for evaluating the consequences of various shopping behaviors such as coming to the area, choosing routes for multipurpose trips, visiting certain stores, and finding certain merchandise and services. Thus, by referencing cognitive maps and consequently evaluating these, customers are better able to make a variety of shopping decisions.

In an early study of store interiors and mental mapping of spatial behavior and cognitive orientation, Sommer and Aitkens (1982) showed floor plans for two supermarkets to customers and asked them to indicate the placement of various product categories. Items on peripheral aisles were recalled more frequently and accurately than items in central aisles. Moreover, the study found that accuracy of mental maps was directly related to frequency of patronage. Further, large and diversified interior environments such as office buildings, department stores, supermarkets, hospitals, and airports were frequently confusing to their occupants. As buildings get larger and more differentiated in function, orientation becomes a more acute problem. This was found to be particularly problematic for supermarkets (the size of which had doubled in the thirty years prior to the study).

Arguably, studies of mental maps must be revisited with the widespread adoption and availability of both street-by-street navigation

and more recent in-store mobile maps, which to some extent, changed the way we use mental maps. We argue that it is precisely the expansion of these tools that dictates more contemporary understandings of the relationship between improving consumers' knowledge of store interiors and retailing strategy. A small number of studies in the marketing literature examine the changes imposed by technology on the retailing landscape. The paucity of this work is surprising, given the fact that technology is perhaps the most profound environmental variable used to gain competitive advantage. In retailing, recent examples of innovative technologies include digital displays with interactive features and virtual reality practices (Pantano & Corvello, 2010; Pantano & Naccaratto, 2010). Yet, consumers' adoption and usage of innovative retail applications remains an underdeveloped area of exploration in the marketing literature. Relatedly, technological innovation is seen as key to enhancing the buying process – a process which has, from the consumer's perspective become increasingly multichannel in nature – and providing a more stimulating shopping experience. In this last event, technology offers opportunities for retailers to enhance promotions, movement, sights and sounds that make shopping more appealing (Pantano & Laria, 2012).

We assess how motivational and personality characteristics of consumers affect behavioral intentions to use in-store mapping applications. Consistent with prior research on the adoption of technology in the domain of both mobile applications and social media (Yang, 2013; Zolkepli and Kamarulzaman, 2015), we investigate the adoption of smartphone mapping applications by young consumers. These consumers (often described as Generation X and Y) are considered highly responsive to technology and tech savvy. They are commonly reported to invest significant money, time and effort to learn about and use the newest technology products.

Theoretical Framework

In this study, we combine expected utility theory (Mongin, 1997; for perceived unwillingness to sacrifice security) with the technology acceptance model (TAM) (Davis, 1986, 1989; Davis, Bagozzi & Warshaw, 1989), and consider several consumer traits of general deal proneness (Lichenstein, Netemeyer, & Burton, 1995) (or involvement with sales promotion deals), market mavenism, and time pressure, in order to study consumer intentions to use in-store mapping applications.

Expected utility theory (Mongin, 1997) holds that consumer decisions are a tradeoff between a subjective assessment of risks and expected utilities for each consumer choice. The consumer weights utility values of decision outcomes, multiplied by their corresponding contingencies (Mongin, 1997). This is a cost/ benefit assessment based on the individual's subjective appraisal of available knowledge. Therefore, consumers will consider the tradeoff between the utility gained by the usage of technology and the loss that may be incurred as a result of this usage (Rust et al. 2002; Milne & Gordon, 1993; Angeles, 2007). We believe that this kind of tradeoff relates to user response to in-store mapping applications.

The technology acceptance model (TAM; Davis, 1986) is adapted from the theory of reasoned action (TRA) by Fishbein and Ajzen (1975). TRA was developed to model user acceptance of information systems. The objective of the TAM is "to provide an explanation of the determinants of computer acceptance that is general, capable of explaining user behavior across a broad range of end-user computing technologies and user populations, while at the same time being both parsimonious and theoretically justified" (Davis, Bagozzi & Warshaw, 1989, p. 985). TAM conceptualizes perceived convenience as having two dimensions: perceived ease-of-use (PEU), defined as the "degree to which a person believes that using a particular system would be free from effort," and perceived usefulness (PU), defined as the "degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989, p. 320). The constructs of ease of use and usefulness are closely associated with the adoption of technology by consumers. These constructs are allied to the perceived value of in-store mapping applications' benefits through expected utility theory (Angeles, 2007). From these constructs,

we hypothesize that:

H_1: There is a positive relationship between PU and behavioral intention to use in-store mapping applications.

H_2: There is a positive relationship between PEU and behavioral intention to use to use in-store mapping applications.

From the consumer's standpoint, the utility of in-store mapping application may not be limited to the convenience that derives from its features. Early research on acceptance of mobile technology conducted by Nysveen et al. (2005) suggests that the consumer's motivation to adopt specific media ranges from functional to non-functional, including the degree to which the consumer is entertained. Similarly, Bauer et al. (2005) emphasize the importance of tailoring mobile marketing messages to consumers' entertainment preferences. More recent scholarship (Watson et al., 2013) finds that consumers rely on their phones for information, communication, and entertainment purposes. Yang (2013) finds that adoption of mobile applications by young American consumers is driven, in part, by entertainment and enjoyment. Consumers, then, value being entertained during the mobile consumption experience. Situated in the TAM model, entertainment benefits (EB) are emotional features which represent the utility of excitement consumers experience when interacting with new technology. Innovations are compelling because they bring a unique improvement to consumer lifestyles. They also provide stimulation through being novel and interesting. Hence, we posit:

H_3:. There is a positive relationship between EB and behavioral intention to use in-store mapping applications.

Consistent with Expected Utility Theory, Hossain and Prybutok (2008) define perceived security as the degree to which a consumer feels protected against security threats resulting from the use of technology. Our assessment focuses on the perceived unwillingness to sacrifice security (SS) dimension of the perceived security concept (Hossain & Prybutok, 2008). Concurrently, when consumers are concerned about sacrificing security, they are less likely to use new technology. Therefore,

H_4: There is a negative relationship between SS and behavioral intention to use in-store mapping applications.

As defined by Lichenstein, Netemeyer and Burton (1995), consumer general deal proneness (DP) is a construct measuring a consumer's tendency to buy products associated with sales promotions and the enjoyment that accompanies this process. It indicates a broad leaning rather than the probability that the behavior materializes for any specific product class. DP (Lichenstein, Netemeyer, & Burton, 1995) is also cited as involvement with sales promotion deals. DP is associated with a multitude of marketplace behaviors. Because in-store maps can be used to provide consumers with contests, sweepstakes, coupons or other promotional deals by retailers, we believe that consumers who are more disposed to sales promotions would be more likely to use in-store mapping applications. Hence,

H_5: There is a positive relationship between DP and behavioral intention to use in-store mapping applications.

Market mavenism (MV) measures the degree to which a person has a wide range of knowledge regarding products to buy, places to shop, and other consumption-related activities and influences others by sharing this information. Urbany, Dickson & Kalapurakal (1996) developed a model of price search for the retail grocery industry that included a relatively complete accounting of economic and noneconomic returns, as well as search costs. They found that market mavenism accounted for a significant amount of variance in specials-related search beyond that explained by economic costs and returns. Since in-store mapping applications directly relate to obtaining knowledge on the stores as well as special promotions and discounts, we argue that market mavenism is potentially a predictor of intentions to use in-store mapping applications. Therefore,

H_6: There is a positive relationship between MV and behavioral intention to use in-store mapping applications.

Originally used by Mittal (1994), the time pressure measure (TP) denotes the lack of time

a person perceives there to be available for doing what needs to be done in her/his life. Higher scores on this scale indicate that respondents consider themselves to be very busy. We argue that consumers who feel time crunched would be more prone to using in-store maps and take advantage of their benefits. Hence,

H_7: There is a positive relationship between TP and behavioral intention to use in-store mapping applications.

Overall, our study model comprises several constructs – perceived usefulness (PU), perceived unwillingness to sacrifice security (SS), perceived ease of use (PEU), entertainment benefits (EB), deal proneness (DP), market mavenism (MV), time pressure (TP) and the behavioral intention to use in-store mapping applications (Figure 1).

METHODOLOGY

We used a quantitative research methodology to test the hypothesized relationships. Descriptive research is well-suited to our research question because it is possible to identify the relevant constructs within a theoretical framework that matches our problem (Burns & Bush, 2010; Leedy & Ormrod, 2013). Existing research fails to address our research question because of a lack of focus on electronic versions of store maps.

The data for this study were collected from a convenience sample of students at three state universities located in the American Midwest, South and Pacific regions through an online questionnaire administered outside class hours. Even though the use of a convenience sample of college students is far from ideal, they are frequently used in marketing and consumer behavior research; up to 75% of research subjects in two leading academic marketing journals were college students (Peterson and Merunka, 2014). We believe that the use of a

FIGURE 1:
Model for Behavioral Intention to Use In-store Mapping Applications

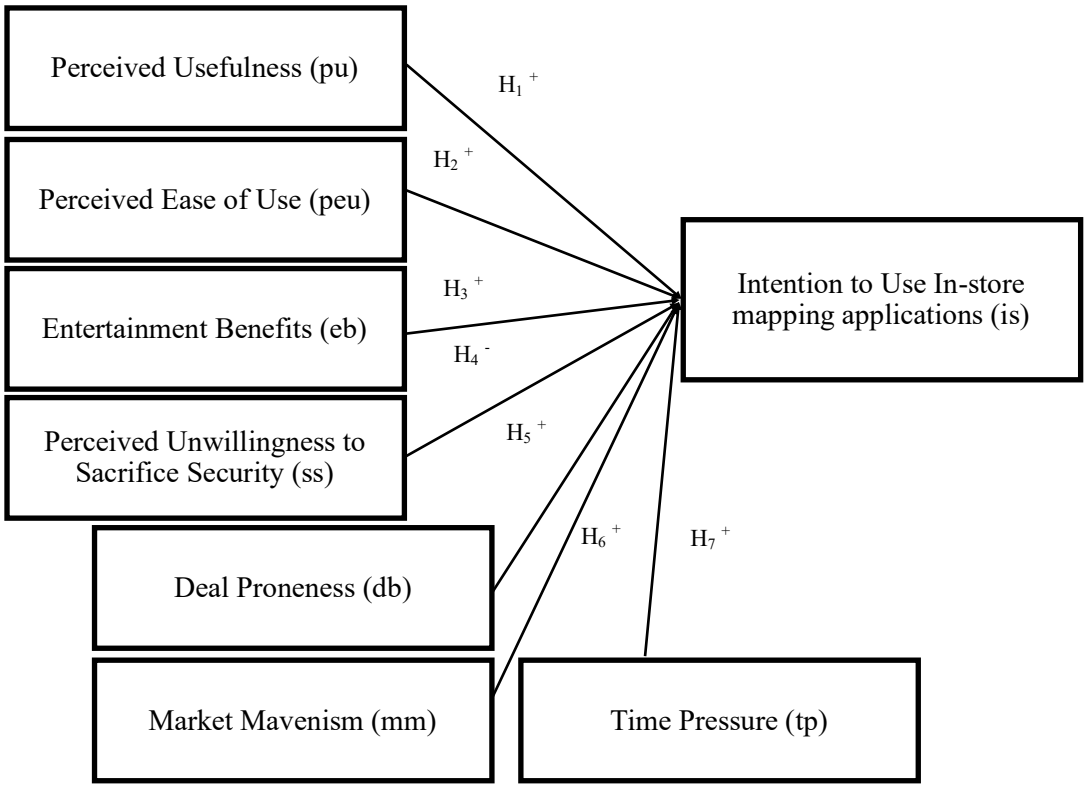

TABLE 1:
Construct-wise Sources of Pre-existing Scales

	Construct	Source
Dependent Variable		
is	Usage Intention (behavioral intention to use In-store mapping applications)	Okazaki, Skapa and Grande (2008); Jong-Hyuok, Somerstein & Kwon (2012); Jeong (2011)
Independent Variables		
pu	Perceived Usefulness	Davis (1989)
eb	Entertainment Benefits	Adapted from Dwyer & Kim (2011); Jong-Hyuok, Somerstein & Kwon (2012); Jeong (2011)
dp	General Deal Proneness (Involvement with Sales Promotion Deals)	Lichenstein, Netemeyer & Burton (1995)
peu	Perceived Ease-of-use	Davis (1989)
ss	Perceived unwillingness to sacrifice security	Ajzen (1991), Malhotra & Galletta (2005)
mv	Market Mavenism	Feick & Price (1987)
tp	Time Pressure	Mittal (1994)

convenience sample of college students is justified in our study because, as indicated in Table 2, 95.7% of our sample was a member of either Generation Y or Generation X, with a nearly even distribution for gender. In particular, our sample consisted of the age ranges of 18-21, 22-25, 26-29, and 30-33 with percentage composition of 45.1%, 35%, 8.6% and 3.1% respectively. All scale items were pre -existing constructs that were previously validated in the literature (Table 1).

Survey instrument design. For behavioral data collection for this research, all items were rated on a psychometric scale. A six-item Likert scale that ranged from "Strongly Disagree" (1) to "Strongly Agree" (6) was utilized, to exclude neutrality in responses. The questionnaire opens with a brief introductory paragraph that describes the context of the study, indicating that smartphone map applications recently have made it possible for users to zoom into retail environments as well as track their location inside the stores. The psychographic items were followed by the demographics questions.

ANALYSIS AND RESULTS

The respondents in this study were college students that are representative of the target demographic (Table 2). The questionnaires were administered to students of several classrooms with sizeable non-traditional student populations from March through May 2015 by an online questionnaire prepared in Qualtrics. In total, 304 students participated. Forty-six responses were deemed invalid because all or most questions were left unanswered, leaving 258 valid responses. The requirement for the minimum final sample size for exploratory factor analysis (EFA) was satisfied for a medium effect size and seven independent variables. The detailed demographics of the surveyed students show that respondents were members of Generation X and Y. Hence, the sample accommodates generalizability to the study population of Generation X and Y consumers (Huck 2008; Kerlinger & Lee 2000; Hair et al. 2010).

TABLE 2:
Profile of the Survey Respondents

Demographics (sample size=258)*		**Frequency**	**Percentage**	
Gender	Male	126	48.8	%
	Female	132	51.1	%
Age	18-21	116	45.1	%
	22-25	90	35.0	%
	26-29	22	8.6	%
	30-33	8	3.1	%
	34-37	10	3.9	%
	Over 37	11	4.3	%
Education Level	Some High School	3	1.2	%
	High School / GED	97	37.6	%
	A.A. or A.S. Degree	71	27.3	%
	Bachelors Degree	78	30.2	%
	Masters Degree	9	3.5	%
	Doctoral Degree	0	0	%
Annual Household Income	Below $20,000	108	41.9	%
	$21,000 – 40,000	55	21.3	%
	$41,000-60,000	33	12.8	%
	$61,000-80,000	19	7.4	%
	$81,000-100,000	21	8.1	%
	Above $100,000	22	8.5	%
Employment Status	Unemployed	47	18.2	%
	Part-time	121	46.9	%
	Full-time	64	24.8	%
	Summers Only	26	10.1	%
Own a device that can connect to the Internet	Yes	258	100	%
Smartphone map application already downloaded on smartphone	Yes	147	57.0	%
Tried an in-store mapping application before	Yes	76	30	%

*One respondent did not provide age data.

Analysis. In order to assess the internal factor structure of the scales, we conducted a principal component analysis with varimax rotation. We dropped one item from the deal proneness scale due to poor loading. The remaining constructs had satisfactory loadings (see Table 3). The bivariate correlation chart showed higher within -construct correlation than across-construct correlation in the case of each of the seven constructs (Nunnally, 1978).

Regression. We performed stepwise multiple linear regression. The resulting t-statistics, beta weights, and the significance values are in Table 4.

According to the regression results, the model was found to be significant for intentions to use in-store mapping applications (R^2=.696, F (7,257) =81.891, p<.000). Perceived usefulness (pu) (β=.440, p<.005), perceived ease of use (peu) (β=.173, p<.005), entertainment benefits (eb) (β=.322, p<.005), deal proneness (dp) (β=.211, p<.005), perceived unwillingness to sacrifice security (ss) (β=-.103, p<.005) are significant at the 0.05 level in predicting consumer intentions to use in-store mapping applications and hence support for H_1, H_2, H_3, H_4 and H_5 at 0.05 level.

The p-value was found to be 0.395 for market mavenism (β = -.007) as the independent variable, and hence H_6 was not supported. Thus market mavenism (MV) was not found to be significant for predicting consumers' behavioral intention to use in-store mapping applications. The p-value was found to be 0.169 for time pressure (β = -.0053) as the independent

TABLE 3:
Factor Structure with Cronbach's Alpha

	1	2	3	4	5	6	7
Perceived Ease of Use							
pez1 Learning to operate in-store mapping applications would be easy for me	0.805						
pez2 I would find it easy to get in-store mapping applications to do what I want it to do	0.781						
pez3 My interaction with in-store mapping applications would be clear and understandable	0.739						
pez4 I would find in-store mapping applications to be flexible to interact with	0.708						
pez5 It would be easy for me to become skillful at using in-store mapping applications	0.781						
pez6 I would find in-store mapping applications easy to use	0.801						
Perceived Usefulness							
pu1 Using in-store mapping applications in my shopping would enable me to accomplish tasks more quickly		0.826					
pu2 Using in-store mapping applications would improve my shopping performance		0.852					
pu3 Using in-store mapping applications in my shopping would increase my efficiency		0.835					
pu4 Using in-store mapping applications would enhance my effectiveness on the shopping		0.772					
pu5 Using in-store mapping applications would make it easier to do my shopping		0.768					
pu6 I would find in-store mapping applications useful in my shopping		0.726					
Entertainment Benefits							
eb1 I use in-store map applications because it makes learning about stores more enjoyable			0.489				
eb2 I use in-store map applications because it is a fun way to spend my time			0.76				
eb3 I use in-store map applications because it provides an entertaining escape from my day to day activities			0.777				
eb4 I use in-store map applications when I have nothing better to do			0.82				
eb5 I use in-store map applications to pass time when I am bored			0.816				
Perceived Unwillingness to Sacrifice Security							
ss1 I am willing to sacrifice secure applications in my decision to use a network computing system				0.761			
ss2 I am willing to sacrifice computer and network system security in my decision to use a network system				0.864			
ss3 I am willing to sacrifice protection from malicious software in my decision to use a network system				0.731			
ss4 I am willing to sacrifice user identification and authentication in my decision to use a network system				0.838			
ss5 I am willing to sacrifice backup and recovery in my decision to use a network system				0.847			
General Deal Proneness							
dd1 I enjoy buying a brand that is “on deal”					0.658		
dd2 Beyond the money I save, buying brands on deal makes me happy					0.764		
dd3 Compared to other people, I am very likely to purchase brands that come with promotional offers.					0.676		
dd4 Receiving a promotional deal with a product makes me feel like I am a good shopper.					0.754		
dd5 I’m usually not motivated to respond to promotional deals on products (reverse coded)							
dd6 When I purchase a brand that is offering a special promotion, I feel that it is a good buy					0.793		
dd7 I feel like a successful shopper when I purchase products that offer special promotions					0.775		
dd8 I love special promotional offers for products					0.781		
Time Pressure							
tp1 I am too busy to relax						0.841	
tp2 I am often juggling my time between too many things						0.845	
tp3 "So much to do, so little time", this saying applies very well to me.						0.82	

TABLE 3 (*continued*)

Market Mavenism							
mv1 I like introducing new brands and products to my friends							0.65
mv2 I like helping people by providing them with information about many kinds of products							0.62
mv3 People ask me for information about products, places to shop, or sales							0.81
mv4 If someone asked where to get the best buy on several types of products, I could tell him or her where to shop							0.78
mv5 My friends think of me as a good source of information when it comes to new products or sales							0.74
mv6 Think about a person who has information about a variety of products and likes to share this information with others. This person knows about new products, sales, stores, and so on, but does not necessarily feel he or she is an expert on one particular product. This description fits me very well.							0.62
FACTOR STRUCTURE: 73.8% of total variance explained	12.3	13.4	9.3	10.1	12.9	6.1	9.61
CRONBACH's ALPHA for RELIABILITY: For Dependent Variable: 0.892	0.93	0.95	0.90	0.91	0.91	0.85	0.88

Italized item dropped from analysis due to poor loading

Independent variable (purchase intentions)

is1 My general intention to use in-store mapping applications is very high

is2 I will think about using in-store mapping applications

is3 I will use in-store mapping applications in the future

TABLE 4:
Multiple Linear Regression Results

Model	**R**	**R Square**	**Adjusted R Square**	**Standard Error of the Estimate**
1	0.834[a]	0.6956	0.688	0.607

ANOVA	**Sum of Squares**	**df**	**Mean Square**	**F (Sig.)**
Regression	211.612	7	30.230	81.891 (0.000[a])
Residual	92.288	250	0.369	
Total	303.90	257		

Coefficients				
	Unstandardized Coefficients		t	Sig.
	B	Standard Error		
(constant)	-0.162	0.362	-0.448	0.655
pu	0.440	0.056	7.839	0.000
peu	0.173	0.065	2.661	0.008
dp	0.211	0.063	3.364	0.001
mv	-0.007	0.056	-0.129	0.898
eb	0.322	0.048	6.749	0.000
tp	-0.053	0.039	-1.380	0.169
eb	-0.103	0.043	-2.404	0.017

[a]dep. var.: is; predictors: ss, tp, pu, peu, mv, eb, dp, (constant)

variable. Hence, our study did not indicate support for H_7, in that time pressure (TP) is significant for predicting consumers' behavioral intention to use in-store mapping applications.

DISCUSSION

The goal of this study was to examine the motivation behind using in-store mapping applications among young American consumers. The investigation simultaneously modelled and tested this objective with the inclusion of several key consumer traits.

The significance of perceived usefulness, perceived ease of use, and entertainment benefits in explaining intentions to use in-store mapping applications, while perhaps not counter-intuitive, is important. This implies that consumers perceive significant benefits from this electronic instrument not just functionally, but also emotionally. This differs from one's conventional beliefs concerning the use of printed maps. Retailers must now consider not merely clarity in communicating directions but, rather, the consumer experience. When consumers feel confident that they can operate in-store maps with ease, they have higher intentions to use them and gain added overall value during their physical store shopping experience. Therefore, businesses that add this tool to their retailing total product can benefit from increased customers' value and hence be more competitive in the overall marketing exchange process.

Our study also highlights the significance of key consumer traits of perceived unwillingness to sacrifice security and deal proneness on the usage of in-store mapping applications. Security is an important consideration for consumers in online media and other viral forms of communications in the adoption of innovations, and their impact could be investigated more thoroughly in future empirical research. In addition, marketing managers should note the finding that consumers who are interested in getting discounts and store deals are prone to using this instrument, and it is suggested that sales promotions be made a part of their in-store mapping applications.

Finally, our analysis indicates that market mavenism was not a significant factor that influenced consumers' intentions to use in-store mapping applications. This may be explained by the fact that most consumers use their smartphones without regard to their level of knowledge about markets. Therefore, this consumer characteristic is not instrumental in differentiating intentions to use this instrument. Time pressure also was not seen as a factor that significantly related to usage intentions. The fact that time pressure was not statistically significant in explaining intentions to use in-store mapping applications may be more due to the fact that consumers, whether time crunched or not, may be interested in using this novel instrument, and hence inability of our construct to differentiate between the two. It is recommended that future studies employ different constructs and/or research methodologies in order to further explore the effect of time pressure on in-store map application usage.

Overall, we conclude that in-store mapping applications may be a feasible alternative to printed maps and signage in store environments. In-store maps can also be used to provide coupons and other sales promotions at the target location. Hence, due to their effectiveness, they can be a viable alternative to mail-in or printed coupons. In addition, in-store mapping applications are useful in accompanying consumers throughout their website browsing as well as physical store visits for the purposes of researching and purchasing products. Smartphone in-store mapping applications may be an additional means by which retailers may enhance consumers' shopping enjoyment. In light of the importance of mobile recognition in the future of marketing, this study is expected to have a significant contribution in the technology and retailing area.

The findings of our study lay the foundation for successive studies in both the area of in-store mapping applications and other mobile recognition instruments which may accompany or replace in-store mapping applications in the future. Our study considered the motivations of young American consumers. It sheds little light on the motivations of these consumers' parents, grandparents, or younger siblings, who may arguably vary in the extent to which they are motivated by, for example, the need to be entertained or the need for security. However, it should be noted that the sample was drawn from a subset of these consumers, all of whom were college students. We did not test for differences in motivations between college and non-college students. Nor did we examine other potential points of differences between those two groups that might affect, for example, deal proneness or comfort with technology. Similarly, while we suggest benefits to retailers of in-store mapping applications, we can also imagine limitations. A highly functional consumer might utilize in-store mapping

applications to effectively counteract retailers' efforts to extend the time consumers remain in the store and might be less influenced by point-of-sale marketing materials. Research concerning the "darkside" of in-store mapping applications might be particularly interesting.

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