NAVIGATING THE RETAIL ENVIRONMENT: AN EXPLORATORY INVESTIGATION OF IN-STORE MAPPING APPLICATIONS

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ABSTRACT

For more than one decade, consumers have access to sophisticated geographic information systems (GIS) enabled through handheld digital devices like mobile telephones, laptops and tablets. The overarching deliverable is the convenience of finding locations on a street-by-street basis, enhanced by satellite systems that facilitate virtual updates to applications such as Google Map. These GIS systems or mapping applications have been extended to retail environments in which consumers can navigate any retail environment, ranging from shopping malls to large sports arenas.

Google's introduction of in-store electronic maps has spawned a myriad of competitive applications, including but not limited to RedLaser, Aisle411, Micello and Meridian. All of these mapping applications offer different levels of advanced digital mapping of shopping malls, business campuses, and sports arenas to wireless device users, as well as information about store inventories and pricing. The present study explores U.S. consumers' attitudes toward in-store mapping applications. The results of this investigation reveal that consumers have a positive attitude toward these mapping applications. Furthermore, the study identifies a number of retail GIS attributes that delivered value: inventory levels of desired products; comparative pricing; alignment of retail layouts and "shopping list" items; and sales promotions. We also found that in-store map applications fit well into U.S. culture and are likely to become even more popular in the future.

INTRODUCTION

Consumers are offered new mobile products on a continuous basis as a result of relentless improvements in computer hardware and software. It has been over one decade since *MapQuest* introduced street-by-street navigation for Web surfers which lets users track their own outdoors location on electronic maps (Burrows, 2012). Recently, consumers are able to navigate all types of retail and entertainment venue – mega-malls, big box retail stores, airports and other large services landscapes – through the use of mobile in-store map applications.

Google's introduction of in-store electronic maps in Year 2012 includes hundreds of Home Depot stores, IKEA stores [in the U.S.] and more than 20 U.S. airports. This has generated a great deal of interest from consumers and marketers, generating market entrants such as Aisle411, Micello, RedLaser and Meridian. These competitive retail mapping applications compete to offer various levels of detailed locational, product and pricing information in major shopping malls, business campuses, and sports arenas to wireless device users (Tode, 2013; Burrows, 2012). Mobile mapping applications are growing as a manageable marketing mechanism to attract and develop customer relationships and fortify the retail experience. The implementation of mapping application software includes thousands of retail giants like Target

and Walgreens. The retailers' adoption of in-store mapping application afford consumers convenience and direct them to specific products and promotions in their stores. Using this marketing tool, the retailers can "push" targeted SKUs that offer greater profit margins (Halter, 2014; Tode, 2013). While these in-store and retail environment mapping applications offer many benefits to retailers, they also pose several challenges. Both retailers and developers are challenged to preserve the integrity and privacy of data garnered from software developers and potential "hackers." Another challenge in negotiating how advertising revenues generated from a shopper's location will be shared. Global flagship stores in mega-malls like the Mall of America and Westfield Malls in the U.S. and Bondi Junction Mall in Australia are in the process of rolling out even more features to their in-store map applications (Burrows, 2012). An increased number of retailers are joining the in-store mapping application landscape, including Hy-Vee, Price Chopper, Schnucks, Shop 'n' Save, Winco and Strack & Van Til (Tode, 2013).

When consumers use in-store map applications, they can locate their position inside different sections of the retail environment. They can learn more about the store, explore the products offered by the business and take advantage of sales promotions throughout the process. For instance, through the integration of Point Inside's StoreMode platform into the Lowe's iOS and Android mobile apps, Lowe's customers can now explore over 100 million precise, in-store products and store services via interactive maps displayed on their smart phones. All in-stock items' bay locations are represented as pins on an interior map of the specific Lowe's store. The Lowe's app also delivers store-specific product searches, prices, inventory levels, detailed product information, customer ratings and reviews, and weekly ads. In addition, customers can create and manage personalized shopping lists the same way they would on a piece of paper using natural language terms (Lowe's Press Room, 2013).

The U.S. and many Western markets already have high levels of smart phone users. At 163.9 million smart phone users, smart phone penetration rate in America is above 70%. China will have a majority of the population using smart phones by Year 2018. The increasing penetration rates of smart phones in major markets is likely to spread to many other countries. In 2014, the number of smart phone users around the globe was estimated at 1.76 billion people. By 2015, it is estimated that 15 countries worldwide will have seen more than half of their populations adopt smart phones. Consumers' adoption of mobile technology approaches 500 million people in these countries, impacting media usage, e-commerce and marketing strategies. By 2017, it is estimated that more than one-third of all people around the globe will be smart phone users (Goldstein, 2014). As the number of cell phone users is rising, recent research from the Interactive Advertising Bureau found that 73% of consumers say they have used their mobile phone while shopping (Tode, 2013). For smart phone users in particular, 8 out of 10 reported being assisted by their mobile phones while shopping (Aisle411, 2014). As people become more reliant on technology, companies that choose to implement in-store maps to their online presence gain an advantage because they empower shoppers with a smart phone app that offers retailer-initiated information and guidance. Accordingly, mobile recognition instruments will be a mainstay for marketers in the upcoming decade.

LITERATURE REVIEW

Consumer orientation is one of the major factors influencing buyer behavior at the point-of-sale. Several studies in retailing show evidence of a significant correlation between existence of physical maps of shops in store environments (knowledge of product location, assortments, service points, escalators, etc.) and sentiments about the convenience of shopping (Groeppel-

Klein and Bartmann, 2008). The literature to date indicates that retailing management decisions regarding location, design, layout and in-store displays could be greatly enhanced by improved comprehension of consumer-environment relationships (Eroglu and Harrell, 1986; Donovan and Rossiter, 1982). Theoretical background to consumer orientation is inextricably linked to the literature in environmental psychology and neuropsychology.

The cognitive approach to environmental psychology tries to determine how individuals perceive and remember environments (Groeppel-Klein and Bartmann, 2008). The grounding for this capacity is cognitive or mental store maps in consumers' memories. The concept of cognitive maps is concerned with how people internally represent large scale environments, and it has been an enduring theoretical stream derived from the earliest contributions of Gulliver (1908) and Trowbridge (1913). Later, the concept of cognitive maps or spatial imaging emerged under the rubric of environmental cognition (Downs and Stea, 1973; Ittelson, 1973). There are several notable findings from this research stream. One of the important findings is that there is a maximum amount of mileage and time which consumers will invest in travel for a particular product. Likewise, consumers generally purchase goods and services from the closest place that offer these services. The distance:time ratio is an important consumer metric of convenience and ensuing retail patronage intentions. Consumers prefer to combine purchases on a single trip and may even go past a store offering a desired product if they can purchase several products at one stop where there is a greater variety of merchandise (Mazze, 1974). Overall, when mental maps are improved, the ease of shoppers' orientation can be enhanced (Groeppel-Klein, Bartmann, 2008).

Although mental maps are useful for locating individual stores, far less research attention has been afforded to consumers' mental maps inside the store and other large-scale indoor environments such as arenas and campuses. A notable exception is Sommer and Aitkens' (1982) study where they studied mental maps for store interiors in order to measure the level of mental map detail and its relationship to perceived ease of orientation. In addition, Groeppel-Klein and Bartmann's (2008) found that embedding in-store spatial information in the shopper's mind is a key factor for retailing success (Groeppel-Klein, and Bartmann, 2008).

In fact, past studies on mental maps were done before electronic maps were even introduced in mobile devices. Marketing research is slow in coping with the breath of quick changes in mobile retailing technology. Retail systems exploited virtual and augmented reality, virtual salespersons, innovative decision support systems, interactive kiosks and displays, and RFID systems in connecting with customers (Pantano and Naccaratto, 2010; Pantano, 2010). However, the number of studies in the marketing literature that studied the impact of technology in the retail landscape is limited, especially from the customer's perspective. The main characteristics of these technologies are their ability to increase consumers' visual attention at the point of sale by underlying product features and improving the store layouts with tempting elements. Furthermore, these technologies provide detailed and customizable information from a customers' point of view. From a marketing manager's stand-point, they yield constantly updated information on product movements, consumers' purchases and retail performance metrics.

Overall, there is an increasing interest in developing new tools for making the points-of-sale more attractive, in terms of store appeal, product displays, and consumer facilities. They also offer insights on innovative retail atmospherics and merchandising portfolios to update traditional and outdated stores. This is amplified by the fact that multichannel retailing has grown tremendously during the past decade. Today, customers are accustomed to using several

channels when making purchases. Due to these prominent trends in retail practice and theory, simultaneous use of multiple channels has attracted more and more attention (Schramm-Klein et al., 2011). Also, it is widely believed that consumer interest is an influencing factor in innovation process, (Lubeck, Wittmann, and Battistella, 2012) and this is linked to consumer preferences (Olsen and Welo, 2011). Although it is well understood that new product development is compulsory for business profitability, there exists a lack on innovation regarding consumers' successful involvement in the processes of point- of-sale retailing. Nevertheless, firms are forced to innovate in retail landscape in order to maintain existing customers and attract new ones (Pantano and Laria, 2012). With an increasing consumers' interest toward the online channel, the introduction of novel technologies in the traditional point of sale is becoming a key factor to maintain existing clients and attract new ones (Giuseppe and Pantano, 2012).

The increasing smart phone diffusion rates in the U.S. characterizes a transforming market for mobile devices. The impact of new technologies to create enhanced applications is another factor that complicates the marketing environment. Therefore, consumer motivations for technology usage are never the same over time, and there is a need for augmenting the findings of existing innovative technology studies. To what extent newly developed virtual representation technologies can be positively introduced and accepted by consumers in retailing is still underdeveloped in the marketing literature (Laria and Pantano, 2012).

Overall, there are no exploratory studies that examine American consumers' attitudes toward in-store map applications. As mobile devices are by definition portable, users now have access to timely and location bound retail information (Ghose, Goldfarb and Han, 2013). Also, technology products have very short life cycles and fast diffusion rates. Therefore, there is an urgent need for studies that reflect changes in the contemporary marketing environment. Recent studies also show that U.S. consumers are more familiar with mobile technology than many other countries (eMarketer, 2013). Given the practical importance of this research challenge, we explore U.S. consumers' attitudes towards in-store map applications.

Specific Goals

Generation X, Generation Y and Baby Boomer consumers are known to be technology-savvy and well-educated. They are also resourceful and potentially very profitable market segments for expanding technology products, services and sectors. Therefore, our study focuses on analyzing the cognitive and behavioral dimensions of these demographic segments' attitudes toward in-store mapping applications.

METHODOLOGY

Given the exploratory nature of the research domain, a qualitative research approach is adopted. The choice of qualitative research for our research question is desirable because existing theories are not directly applicable to the rapid changes imposed by mobile technology diffusion. Also, there is a wide range of variance not just in terms of technology penetration rates but also product attributes and functionalities that result in major shifts in consumer motivations and lifestyles.

Our study is composed of four focus group sessions that was arranged and conducted by trained moderators in a mid-size city in the Midwest U.S. during a period ranging from June

2014 to August 2014. Participants were not compensated by any means and they were voluntarily present in the sessions. We developed an identical underlying list of 25 open-ended questions. The moderators were instructed to direct probing questions whenever they notice a need to go deeper into understanding the rationale behind the responses. Probing questions were used only when a consensus or disagreement by the majority of respondents were observed on a particular question. In this way, some commonality in discussion platforms could be gleaned during independent focus group sessions.

Our analysis spanned several aspects of consumer attitudes. Firstly, we looked at consumer perceptions of group influences (G1, G1p1, G1p2, G2). Secondly we aimed at exploring consumer behavioral attitudes in terms of frequency of usage (BA1), general usage (BA2, BA3, BA5, BA7), affect of ability to use in-store map applications on product purchase (BA4), and future usage intentions (BA6).

As a final dimension of attitudes, we examined consumer general cognitive attitudes (CAG1, CAG1p, CAG2), cognitive attitudes about usefulness (CA1, CA4, CA5, CA6, CA7), attitudes toward information security (CA2), and ease of use (CA3). We also asked respondents for their suggestions for product improvement. Finally, we had two introductory questions (I1, I2, I2p) and three questions for consumer suggestions for product improvement with probing questions utilized as necessary (SFI1, SFI2, SFI3, SFI3p).

The identical questions set was used in Session A with BA1 and CA7 skipped as these were discussed in previous questions. In Session B, some questions are added as probing questions (BA4p, BA3p) (Table 1). On Session C, again the same set was used except CA4 was combined with BA4 due the question being discussed ahead of time by respondents and a probing question added (BA5p). On Session D, four questions were omitted based on existing answers (SIT1, CA6, SFI2, BA5) and to keep the session duration under check (less than an hour) and enhance flow of communication (Table 2). We covered the underlying list of 25 questions and kept the order of questions identical over all four sessions. We had a variation in the size of each session that allows for an examination of social group influences at different group size levels. There were seven respondents in Session A, six respondents in Session B, six respondents in Session C and four respondents in Session D. The moderators audiotaped and transcribed the sessions (the session transcripts are available upon request).

ANALYSIS AND RESULTS

The final sample of this study consisted of 23 respondents that are representative of the target demographic (Table 3). All respondents owned a device that can run in-store map applications. Almost all respondents used a street-by-street electronic map application before and 30% of the participants used specifically an in-store map application. The remaining respondents learned more about them during the sessions.

Consumers who have used in-store map applications commonly agreed that it is easy to use. In session B, Heather indicated that “it was useful to maneuver the store I was in, to find the product I was looking for.” Meghan concurred stating that “it was helpful.” Lucas in Session C also agreed that “It did its job, I mean, it didn’t steer me wrong.” Although Brook hasn’t used it before, she stated that “it’s probably easy to use. Because I am very good at technology, so it must be pretty simple to figure out if I can do it” (CAG1). Matt in Session A similarly made an inference from his experience using a smart phone app to locate his car when he was back from a trip.

Table 1
SESSIONS A AND B QUESTIONS LIST

Questionnaire Items	# of Respondents	Average Age
Session A	7	50.7
Session B	6	35.2
I1: Do you have a smart phone that has a map application? I2: Have you ever used a map application before? CAG1: If so what did you think of it? I2p: Have you ever zoomed into a store with a map application before? CAG1p: If so what did you think of it? CA3: How easy or difficult do you think it is to use in-store map applications? CA1: How would you estimate the usefulness of in-store map applications? CA5: What do you think in particular that is most useful about in-store map applications? G1: Who do you think is the typical user of in-store map applications? G1p1: Do you think people who shop with shopping lists would be more likely to use in-store map applications G1p2: Do you think people who are time-crunched would be more likely to use in-store map applications SIT1: Where would you most likely use in-store map applications? CA4: Do you find the stores available for in-store map applications (large malls and big box hardware stores) worth zooming into? BA4: Are you more likely to purchase a product from a store if you can zoom in it with an in-store map application? BA4p**: Why not? CA6: What is the most important problem about in-store map applications? BA5: How would in-store map applications change consumer behavior for the future? SFI1: Do you have any suggestions of improvement for future in-store map applications? G2: How do in-store map applications fit into American culture? CA2: Is security a concern of yours when dealing with in-store map applications? BA1*: How often are you likely to use in-store map applications? CAG2: Overall, what attracts you to the use of in-store map applications? BA2: Do you think you are more likely to use in-store map applications for personal or business use? BA3: Are you always on the lookout for an in-store map application that can zoom into a store whenever you see a store? BA3p**: Why not? SIT2: In which situations is an in-store map application particularly useful? CA7*: What attributes of in-store map applications matter to you most? SFI2: If you were to come up with your own in-store map application, how would it be like (what features would you like to see in it)? SFI3: If you were to create your own in-store map application what stores would it be for? SFI3p: Overall, do you think in-store map applications are going to be more popular or less popular BA6: Would you use in-store map applications in the future? BA7: Is there an alternative to using in-store map applications?		

**BA1 and CA7 skipped in Session A*

***Probing questions BA3p and BA4p asked in Session B only*

Table 2
SESSIONS C AND D QUESTIONS LIST

Questionnaire Items	# of Respondents	Average Age
Session C	6	28.3
Session D	4	38.3
I1: Do you have a smart phone that has a map application? I2: Have you ever used a map application before? CAG1: If so what did you think of it? I2p: Have you ever zoomed into a store with a map application before? CAG1p: If so what did you think of it? CA3: How easy or difficult do you think it is to use in-store map applications? CA1: How would you estimate the usefulness of in-store map applications? CA5: What do you think in particular that is most useful about in-store map applications? G1: Who do you think is the typical user of in-store map applications? G1p1: Do you think people who shop with shopping lists would be more likely to use in-store map applications G1p2: Do you think people who are time-crunched would be more likely to use in-store map applications SIT1[**]: Where would you most likely use in-store map applications? CA4[*]: Do you find the stores available for in-store map applications (large malls and big box hardware stores) worth zooming into? BA4: Are you more likely to purchase a product from a store if you can zoom in it with an in-store map application? CA6[**]: What is the most important problem about in-store map applications? BA5[**]: How would in-store map applications change consumer behavior for the future? BA5p[***]: If you went to a store using an in-store map application, and a product appeared that was a suggested product that was in a way related to that product [that you are looking for], would you take a look at it? SFI1: Do you have any suggestions of improvement for future in-store map applications? G2: How do in-store map applications fit into American culture? CA2: Is security a concern of yours when dealing with in-store map applications? BA1: How often are you likely to use in-store map applications? CAG2: Overall, what attracts you to the use of in-store map applications? BA2: Do you think you are more likely to use in-store map applications for personal or business use? BA3: Are you always on the lookout for an in-store map application that can zoom into a store whenever you see a store? SIT2: In which situations is an in-store map application particularly useful? CA7: What attributes of in-store map applications matter to you most? SFI2[**]: If you were to come up with your own in-store map application, how would it be like (what features would you like to see in it)? SFI3: If you were to create your own in-store map application what stores would it be for? SFI3p: Overall, do you think in-store map applications are going to be more popular or less popular BA6: Would you use in-store map applications in the future? BA7: Is there an alternative to using in-store map applications?		

[*] *CA4 combined with BA4 on Session C*
[**] *CA6, BA5, SIT1 and SFI2 skipped in Session D*
[**] *Probing question BA5p asked in Session C only*

Consumers indicated that they are more likely to use in-store map applications if they are new to a store, and if they are looking for a particular product. Tammy in Session D said "I would like it better if I was looking for something and I wasn't familiar with the store" (CA1). Katie agreed that if she is travelling and goes to a new place on some trip, it would be easier to use it rather than store directories or physical maps that are cumbersome and not interactive. Angela in Session A thought that in store employees sometimes seem to lack product location knowledge and this instrument would help alleviate the strain on the shopper. She said "I mean, you ask people where such and such is and they say oh I don't know, let me find somebody." Respondents agreed that the convenience of saving time by being able to find something more quickly and eliminating the need to ask store employees or using signposts attracts them to in-store map applications (CAG2; BA7). Heather on Session B indicated that she is attracted to in-store maps because it is "something new, fun, gadgety" (CAG2). Jake agreed that in-store map applications also provide entertainment.

Consumers mentioned that they are most likely to use in-store map applications when they are in out of town, new or unfamiliar stores, stores that are under remodeling, large malls or shopping centers. In terms situational influences, they mentioned that they are more likely to use them when they are in a hurry or with a set appointment (SIT2). Angela brought up the influence of urgency of healthcare. She stated that if it was a situation where it is one o'clock in the morning and she has a sick child and they are out of medicine, then it is better to go to a store's app and see that the medicine is there versus searching different stores physically. Consumers on all sessions agreed that they are not always on the lookout for an in-store map application although they can understand its utility (BA3).

Most consumers on all sessions indicated that they are not more likely to purchase a product merely based on whether an individual store has an in-store map or not (BA4: 77% agreement). On Session A, Jon indicated that price, quality and customer service all come ahead in purchase intentions rather than if a store has an in-store app or not. However he also stated that if two stores are identical on those dimensions, then he would choose a store that has an in-store map application. Rick added that if price information is provided by the in-store map application, it would influence his purchase intentions for one store over another. Jim brought up the issue of the necessity of third party apps in regards to price, which would allow price comparisons and hence affect purchase intentions.

All consumers indicated that security of their personal information is not a concern to them due to a general sentiment that keeping their data confidential is not possible. They indicated that the terms and conditions already require that their data will be used anyway. Also, concern for viruses on phones was deemed minor as that wasn't commonly experienced as a problem before (CA2).

The respondents indicated that there are some problems with the information provided by in-store map applications. Firstly, comparison pricing is currently not given and this can be handled by third party apps. Secondly, the accuracy of in-store map applications was a concern on most sessions especially in terms of inventory, location shifting and store remodeling. Consumers stated that apps need to be frequently updated to make them more accurate (CA6). On Session C, all respondents agreed that addition of product recommendations such as 'other customers who purchased this product also purchased these other products' would be useful. The issue of sales promotions was also discussed on Session B with the recommendation of attaching coupons to the items and information on specials or offers in the area around the user. Kari brought up that Google introduced street view which allows users to see the actual point of view

Table 3
PARTICIPANT PROFILES

Session	**Moderator**						
A	E. Deatrick	**Respondent Name**	**Occupation**	**Income Range**	**Education Level**	**Age**	**Marital Status**
		Penny	Full-time	Above $100,000	Master's Degree	51	Never Married
		Angela	Full-time	Above $100,000	Master's Degree	40	Married
		Jim	Full-time	$81,000-100,000	Doctoral degree	67	Married
		Rick	Full-time	Above $100,000	Master's Degree	53	Married
		Matthew	Full-time	$41,000-60,000	Bachelor's Degree	39	Married
		Jon	Full-time	Above $100,000	Master's Degree	51	Married
		David	Full-time	Above $100,000	Master's Degree	54	Married
Session	**Moderator**						
B	T. Langley	**Respondent Name**	**Occupation**	**Income Range**	**Education Level**	**Age**	**Marital Status**
		Ryan	Part-time	$21,000-40,000	High School	21	Never Married
		Tom	Full-time	$41,000-60,000	Bachelor's Degree	43	Divorced
		Tiffany	Part-time	$61,000-80,000	Master's Degree	33	Married
		Meghan	Full-time	Below $20,000	High School	20	Never Married
		Heather	Full-time	$81,000-100,000	Bachelor's Degree	35	Married
		David	Full-time	$61,000-80,000	High School	59	Married
Session	**Moderator**						
C	E. Deatrick	**Respondent Name**	**Occupation**	**Income Range**	**Education Level**	**Age**	**Marital Status**
		Lucas	Part-time	Below $20,000	High School	22	Never Married
		Andrew	Full-time	Below $20,000	High School	24	Never Married
		Brook	Part-time	$41,000-60,000	High School	32	Married
		Curt	Full-time	$41,000-60,000	Associate Degree	35	Married
		Jake	Unemployed	Below $20,000	High School	22	Never Married
		Katie	Full-time	$61,000-80,000	Bachelor's Degree	35	Never Married
Session	**Moderator**						
D	K. Miller	**Respondent Name**	**Occupation**	**Income Range**	**Education Level**	**Age**	**Marital Status**
		Mike	Unemployed	Below $20,000	High School	48	Married
		Kari	Full-time	$21,000-40,000	Associate Degree	25	Never Married
		Tammy	Full-time	$21,000-40,000	High School	53	Married
		Jesse	Full-time	$21,000-40,000	Bachelor's Degree	27	Never Married

rather than just a bird's eye view. Hence, addition of 3-D functionality to in-store maps was advised. Overall, on all sessions, being up to date with stores that change frequently was most important. Being easy to use and simple, with the opportunity to get more advanced by user choice was also recommended. Voice to text functionality was a final suggestion for improvement.

Consumers highlighted several points about how in-store maps could affect consumer behavior. In Session B, Heather suggested that using in-store map applications would reduce the number of impulse purchases. This issue was also brought up in Session C by Brook. Katie in Session C disagreed and stated that businesses would still benefit from it because they are giving their customers a more efficient shopping experience which would attract more customers and businesses can also save from staffing costs.

The typical user of in-store map applications was listed as; people who are busy with a time schedule (G1p2), people looking for discounts and good prices, people new to a store, tech savvy youngsters aged 18 to 25, introverts, males who don't like to ask directions, moms with children, and other general shoppers (G1). The respondents on Sessions A, B and C had a consensus that people who shop with shopping lists would not be more likely to use in-store map applications because they would typically know where the items they are looking for are and prepare their shopping lists with that information in mind. However, it was stated that whenever in-store map applications allow uploading shopping lists with the ability to locate products in the store, then people using shopping lists would also use in-store map applications (G1p1).

The respondents had an agreement that in-store map applications fit into American culture very well. Andrew stated that "everyone in America wants it now, they want it better, faster and more. I think it (in-store maps) helps to streamline everything, helps them to get what they want quicker." Heather concurred that American culture is essentially in a speed race and people are always in a hurry, so it's going to help them get in and out of a store quickly. Curt stated that most people have a smart phone and they have an application for everything, so it makes sense that they have in-store map applications. On Session D, Jesse said, "Everything is getting more automated, so now you wouldn't have to ask a service desk..." Also on Session D, it was argued that people are more accepting of being lead around by an electronic map rather than talking to people and finding directions. On a final note on culture, Kari on Session D brought up the issue of diversity and mentioned that "you can switch it to different settings, to (Spanish) if you speak Spanish."

The respondents indicated that if they were to create their own in-store map application, it would be for shopping centers and malls, home improvement/hardware stores such as Lowes, Menards, Home Depot, and IKEA, sporting goods stores such as Dick's, grocery stores such as Hy-Vee and Price Chopper, furniture stores such as Nebraska Furniture Mart, drug stores and pharmacies such as CVS, large stores such as Target and Sam's Club, and arts and crafts stores. Respondents also indicated that the stores currently available for in-store map applications are worth zooming into because they offer a diverse selection of goods (full consensus on CA4). Finally, respondents stated that they would use in-store map applications for both business and personal use (BA2).

Overall, the attributes that are most important to the consumers about in-store map application were: current inventory reflected well, price comparisons, easy to use store lay-outs tied to grocery lists, sales promotions (but no pop-up ads or sign-up requirement) with entertaining elements such as games or sweepstakes (CA7; SFI2). There was a consensus on Sessions A, B and D and a near consensus on Session C that in-store map applications will

become more popular. The respondents also stated that they will use them in the future (BA6; SFI3p).

DISCUSSION

Our qualitative analysis of American consumers' attitudes towards in-store map applications yielded important findings. It is important for qualitative researchers to capture the richness of data by avoiding over-simplification or subjective selection. As qualitative researchers, we attempted to ascribe to the principles proffered by Leedy and Ormrod (2013): recording and evaluating multiple dimensions and layers of data to provide a multifaceted depiction of conclusions. We found that convenience of in-store map applications was a ubiquitous attribution across all of the focus group participants. The majority of participants liked the detailed real-time information provided by these applications. They also mentioned that increased access to entertaining promotions are especially desirable. Finally, there was widespread consensus that these in-store map applications fit well into American culture and lifestyle.

The findings of this study lay the foundation for the development of empirical measures that may investigate these consumers' attribution toward mapping applications with retail patronage intentions. As this study revealed, the environmental and neuro psychology theories provide suitable grounding for further research. Greater attention should be afforded to many of the factors identified in this study, including consumer motivations, promotional engagement, attitudes toward information security relative to adoption of in-store and retail mapping applications.

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