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Recommended Citation

Cake, Dale; Agrawal, Vikas; and Johansen, Douglas, "A New In-Store Digital Landscape: Effect on Engagement, Innovativeness, and Unplanned Grocery Shopping Outcomes" (2018). *Association of Marketing Theory and Practice Proceedings 2018*. 43.

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A New In-Store Digital Landscape: Effect on Engagement, Innovativeness, and Unplanned Grocery Shopping Outcomes

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ABSTRACT

Digital technologies are having a profound effect on the path to purchase in a grocery retail environment. Secondary research data on shopping habits is used to analyze the relationship of consumer digital technology use, a consumer's innovativeness, and consumer engagement with unplanned grocery shopping behavior within a grocery store environment. Findings indicate that all of three variables have a direct, significant effect on unplanned grocery shopping outcomes and that innovativeness has a direct effect on engagement. Future study will consider the impact of key market segments, shopping situations and digital technology types.

INTRODUCTION

More information is available and sought today than ever before, more brand alternatives are available and consumers are gaining more experience in the use of new digital technologies before and during shopping (Labrecque et al. 2013). Digital use or stimuli before and during traditional in store grocery shopping, whether it be looking up product information or reviews, downloading a coupon, looking at emails or texts from retailers, friends or family, checking out recipes, or making a shopping list etc. is widely being done by consumers.

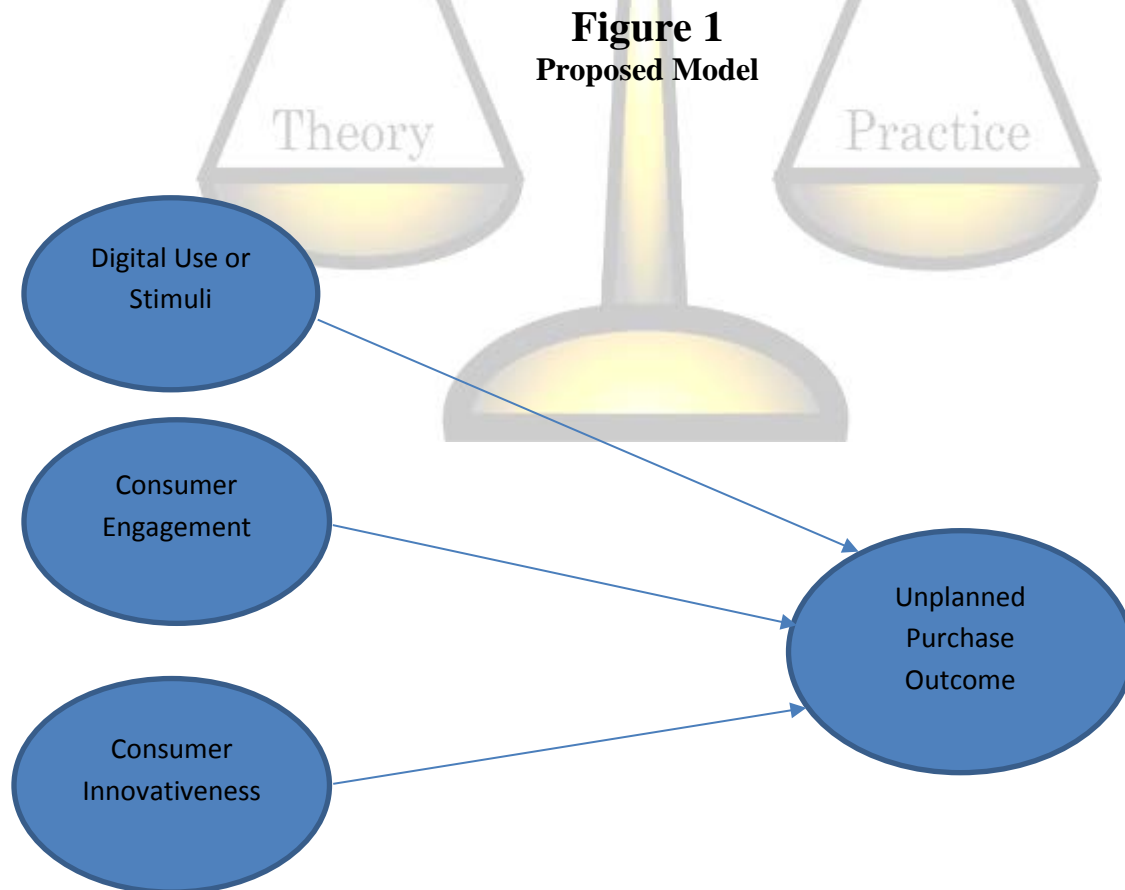
According to Pew Research (2015), over two thirds of people have smart phones with a higher incidence among those who are younger (84%), have higher incomes (87%) and are more educated. Consumers frequently use their mobile devices in retail environments, with 84% of smartphone owners reporting using their device in stores (Google 2013).

This new digital technology may be influencing the path to purchase and in particular, in-store purchasing behavior and unplanned shopping (Baik, Venkatesan, and Farris 2014; Dennis, Brakus, Gupta, and Alamanos 2014). While many shoppers may have a preferred brand or set of brands embedded mentally when starting to shop, according to Powers et al. (2012), one quarter of shoppers change their minds once more input is gathered in an active shopping mode. Bell, Corsten and Knox (2009) found that unplanned shopping behavior was very frequent, with up to 70% of all product decisions made in the store. Because of digital technology, consumers may be

more engaged with their favorite brands, products and categories. Engagement, which is still being refined by key scholars as a construct (Hollebeek, Glynn, and Brodie 2014; Vivek, Beatty, and Morgan 2014), is very important to understand better, as it may be the new, best way to gain better retention, loyalty, sales, and profitability among consumers (Bowden 2009; Kumar et al. 2010; Tripathi 2014).

Unplanned purchase behavior and the effect of in store stimuli has been studied for some time, with the most recent, related works by Beatty and Ferrell (1998), Bell, Corsten, and Knox (2009), Chandon et al. (2009), and Inman, Winer and Ferraro (2009). Some research suggests that the new digital stimuli or use are affecting in-store purchase behavior and unplanned purchases (Hui et al. 2013; Johnson and Pontes 2015; Sciandra and Inman 2015). Other research has shown that those who are engaged may be more impulsive or a wanderer, seeking more excitement, having a more innovative personality (Goldsmith, Flynn, and Korzenny 2015). This all may be leading to more unplanned shopping or purchases.

Thus, this research will be the first step towards understanding the relationship of digital stimuli, consumer engagement and innovativeness with unplanned behavior, as very little has been done before. Since in store digital and engagement are still very new phenomenon or constructs, this research fills a vital gap in the research of these variables together and their effect on unplanned shopping- which is very important to both academics and manufacturers, and retailers. The proposed model is shown in Figure 1.



What follows is a literature review, methodology, analysis and discussion of data and implications for retail and manufacturing management of grocery products.

Secondary data from a shopping habit study of over 1800 shoppers conducted by a marketing and services research company was utilized to help answer these research questions and to formulate hypotheses and models for future research testing. Factor analysis and multiple regression are used for the analysis.

LITERATURE REVIEW

As stated, little research has been done on the effect of digital stimuli, consumer engagement and innovativeness on subsequent unplanned grocery purchases, as both digital stimuli and customer engagement are relatively new academic research topics.

Unplanned Shopping Behaviour

Powers et al. (2012) discovered that while many shoppers have a preferred brand or set of brands embedded mentally when starting to shop, one quarter of shoppers changed their minds once more input was gathered in active shopping mode. In fact, Bell et al. (2009) found unplanned shopping behaviour very high, with up to 70% of all product decisions made in the store.

Unplanned purchases have been defined as those that “are not specifically planned before the shopping event or as an unplanned purchase in a category (deciding at the point of purchase) where the consumer may process in-store information and be strongly influenced by promotions” (Bucklin and Lattin 1990). Shopping lists, often prepared by consumers prior to shopping, are clearly associated with their future planned shopping activity (Spiggle 1987). Those who buy “off” their list are conducting unplanned buying activity. Block and Morwitz (1999) reported shopping lists are useful tools for helping consumers make planned purchases, but do not help them to totally avoid unplanned purchases. This could mean that without a shopping list, more unplanned purchases could take place. In 2004, Thomas and Garland found that people with shopping lists bought fewer items and spent less than those without.

Unplanned purchases are distinguished from impulse purchases or intentionally buying items without prior planning to satisfy an excited, hedonic state of behaviour (Gültekin and Özer 2012; Wood 1998; Wood 2005). In 1998, Beatty and Farrell operationalized impulse buying as part of unplanned purchases. They found that time and money availability, shopping enjoyment and an urge to browse, does lead to more unplanned buying.

In-store stimuli and other distractions divert consumers from their planned purchasing path, possibly adding time to their shopping experience and resulting in unplanned purchases, and in some cases, a total basket purchase increase. Past research has shown how in store stimuli such as store atmosphere, displays, pricing, and signage have at times increased shopping time, positively affected unplanned shopping and potentially basket size (Abratt and Goodey 1990; Donovan et al. 1994).

However, little research has been done on in store digital stimuli and unplanned purchases. Many in-store shoppers are using their mobile phones to send text messages, look up product or promotional information, scan QR codes, download coupons, or gather and evaluate other information. As a result, consumers may be more engaged with multiple brands at the store level and the dynamics of planned and unplanned purchase behaviour may be changing.

Research on digital and mobile use and its effect on unplanned shopping is mixed. Some research suggests that mobile promotional strategies may affect path to purchase, in-store purchase behaviour, time spent in-store, and unplanned purchases (Johnson and Pontes, 2015). In 2013, Hui et al. found that a digital promotional stimulus increased a consumer's shopping distance travelled and unplanned purchases by as much as 16%. They concluded that the shopping experience would take more time because of the stimulus, thus confirming that more time shopping meant potentially more unplanned purchases. Further, Sciandra and Inman (2013) discovered that when consumers got "off task" because of mobile technology (unfocused on buying planned items) and spent more time shopping, unplanned purchases increased, while purchases that were planned decreased. Yet, Bellini and Aiolfi (2017) found that mobile use in store decreased unplanned purchases. Nevertheless, digital stimuli are affecting purchasing patterns in one way or another and most likely it affects unplanned purchases.

Hypothesis 1: The influence of digital use in a retail store will positively affect unplanned purchase behaviour.

Hypothesis 2: The greater use of digital technology before shopping will negatively affect unplanned shopping.

Consumer Engagement

There have been numerous attempted definitions of the consumer engagement construct over the past ten years. Recently, Masalowska, Malthouse and Collinger (2016) viewed it as an ecosystem encompassing brand actions and experiences, shopping behaviors, brand consumption and dialogue. Others have looked at it as a multi-dimensional psychological state and behavioral process or self-concept (Bowden 2009; Hollebeek 2011; Mollen and Wilson 2010; Sprott, Czeller, and Spangenburg 2009; Vivek, Beatty, and Morgan 2012). Engagement, unlike involvement, which includes personal, stimulus and situational characteristics (Zaichkowsky 1985), requires experiential and instrumental value satisfaction (Mollen and Wilson 2010). Higgins and Scholer (2009) describe engagement as "a state of being involved, occupied, fully absorbed, or engrossed in something."

In 2009, Vivek identified and defined five conceptual consumer engagement dimensions- awareness, enthusiasm, interaction, activity, and extraordinary experience, perhaps creating high levels of interest and caring about a brand. Three multi-dimensions (cognitive, affective and behavioral) now are thought to play a key role in the relationship exchange of engagement (Hollebeek 2011; Mollen and Wilson 2010; Vivek, Beatty, and Morgan 2010). Vivek, Beatty, and Morgan (2012) explained consumer engagement as cognitive or the focus and interest in a brand (thinking); affective or the feelings (emotion) of inspiration or pride caused by the brand;

and behavioral or the effort and energy necessary for interaction with the brand or object. Hollebeek (2011) defined brand engagement as “the level of an individual customer’s motivational, brand-related and context-dependent state of mind characterized by specific levels of cognitive, emotional and behavioral activity in direct brand interactions.” It encompasses a proactive, interactive customer relationship with a specific engagement object (the brand or a company), “putting the brand into action” (Kumar et al. 2010). Brodie et al. (2011) went on to say that it was “a psychological state that occurs by virtue of interactive, co-creative customer experiences with a focal agent/object (e.g. brand).” This appears to follow Fishbein’s and Azjen’s (1975) original behavioral intention model that postulated that attitudes, both positive and negative, influence the amount of affect or feeling for performing an action towards an object or brand. Sprott, Czellar and Spangenburg (2009) proposed that engagement is based on how people use a brand as an extension of themselves. Brands become part of their self-concept and life, taking on a whole new meaning and importance, while creating a potential long-term relationship.

Innovativeness

Using engagement theory, research by Goldsmith, Flynn and Korzenny (2015) suggested that there may be a strong positive relationship between brand engagement and a consumer’s “innovativeness” or willing to try new products.

Tellis, Yin, and Bell (2009) and others have concluded that there is a relationship between innovativeness and new product trial and adoption (Foxall 1988; Hirschman 1980; Im, Bayus, and Mason 2003; Manning, Bearden, and Madden 1995; Venkatraman 1991). Consumer innovativeness is a predisposition to buy new products in a specific category, toward the market and across product categories or to purchase new products and brands rather than to remain with previous choices and consumption patterns (Steenkamp, Hofstede, and Wedel 1999). Innovative consumers may have a greater, optimum stimulation level, a more open personality, are more risk taking and venturesome, and a higher ambiguity tolerance (Foxall 1988; Raju 1980; Roehrich 2004; Steenkamp, Hofstede, and Wedel 1999).

Innovators may also be very involved or engaged with a particular category of products and have great knowledge about brands in that category. Goldsmith, Flynn, and Korzenny (2015) showed that there is a strong relationship between brand engagement and innovativeness. They discovered that those shoppers who described themselves as “impulsive” and “wandering” (unplanned buyers) appeared to be very engaged. This willingness to buy or try new products may lead to unplanned buying among those more engaged. A consumer’s willingness to try new ideas/other products and have brand engagement may be affected by in store digital stimuli (Johnson Pontes 2015).

Hypothesis 3: Higher levels of engagement will have a positive effect unplanned shopping.

Hypothesis 4: Higher levels of innovativeness will have a positive effect on unplanned shopping.

Hypothesis 5: Higher levels of innovativeness will have a positive effect on engagement.

RESEARCH DESIGN/METHODOLOGY

We utilized secondary data from a 2017 national, demographically representative sample of over 1800 adults from a U.S. panel of 1,000,000 shoppers 18 plus who completed a 35 minute online survey. The data was collected by a major marketing company in the Southeastern United States to communicate shopping pattern and behavioral trends in the consumer product marketing industry. As such, the data that was not collected to meet our research needs per se, but is being used by us in an exploratory context.

Data for the unplanned shopping, innovativeness, and engagement variables studied was gathered using a 5 point Likert scale with 1 – Agree Strongly, 2 – Agree, 3 – Neither Agree nor Disagree, 4 – Disagree and 5 – Disagree Strongly as the points on the scales. Questions for the innovativeness scale were derived by applying the Goldsmith and Hofacker consumer innovativeness scale developed in 1991. The engagement scale was developed by Vivek et al. in 2014. Unplanned purchase was based on whether a person “often bought items that weren’t planned on.” Pre-store and in-store digital use data was gathered using a 6-point Likert Scale- 1 – Extremely important, 2 – Very important, 3 – Somewhat important, 4 – Not very important, 5 – not at all important, and 6 – Don’t do this.

A factor analyses, regression, and correlation analyses were used to analyze and study the data. Innovativeness, engagement, pre-store digital use, in-store digital use and pre-store digital use will be the independent variables, while unplanned purchases will be the dependent variable. Innovation as an independent variable will be regressed on engagement, the dependent variable. A factor analysis will be used to reduce all independent variables; once complete, it will be determined what factors may be used to explain pre store digital use, in store digital use, consumer brand engagement, innovativeness and unplanned purchases.

ANALYSIS/FINDINGS

Measure of Sampling Adequacy

The KMO measure of sampling adequacy was excellent at 0.979. Also, Bartlett’s Test of Sphericity was significant at $p < 0.000$ level (Here H_0 : Variables are orthogonal or uncorrelated, so if this hypothesis is rejected that would indicate that variables in the correlation matrix are somewhat correlated). Also all communalities were greater than 0.4. All these statistics indicate that the data had enough significant correlation among variables and shared variances to conduct a factor analysis.

A principal components analysis was conducted utilizing a PROMAX rotation. The analysis produced a five–component solution, which was evaluated with the following criteria: eigenvalues, variance, scree plot, and residuals. The criteria indicated a six-component solution was appropriate. Together this five-factor model explained 73.53% of the variance. We started with fifty-five items. Twenty-one items were dropped because of cross-loading issues.

The following table presents the loadings along with corresponding items for each component with component names. As evidence of convergent validity, all loadings were greater than 0.6. In terms of validating discriminant validity, we saw no strong cross-loadings, thus satisfying this criteria. As can be seen from the component correlation matrix in table 2, other than one, none of the correlations was greater than 0.43. The correlation of factor 1, which is in-store digital use with factor 2, which is pre-store digital use was 0.714. This was expected, as both factors are related to digital use.

Table 1
Component loadings

Component Name with Items	Loadings
1. In-store Digital Use (Cronbach's Alpha = 0.981)	
q872 Locate products in the store via your mobile device	0.956
q873 Pay for your groceries with your cell phone/make a mobile payment	0.942
q875 Post product reviews from your mobile device while in store	0.928
q864 (DQ2) Send text message to get more product information from the manufacturer or your store	0.924
q874 Use a shopping list on your mobile device	0.923
q870 Use your smartphone or tablet in store to look up products' health/nutrition information	0.902
q866 Use a hand-held scanner to scan your items before you check out	0.898
q868 Check-in on a social media site (like Facebook, Foursquare, etc.) after arriving at the store	0.896
q871 Scan a bar code or QR code in the grocery store to get more information about a product or deal	0.879
q867 Look up product information on your mobile phone (like reviews, prices)	0.876
q865 Use a touch screen kiosk in store	0.861
q869 Send or receive a text or voice message to a family member asking about a product after arriving at the store	0.855
q860 Download meal plans to a mobile device	0.796
q876 Scan/download electronic coupons found at the shelf or in the store	0.786
q859 Download recipes to a mobile device	0.769
q849 Use a mobile application to make your shopping list	0.767
q879 Use a product coupon on your mobile phone at checkout	0.749
2. Pre-store digital use (Cronbach's Alpha = 0.932)	
q837 (DQ1) Print online coupons	0.865
q851 Visit a store's website to learn about deals	0.821
q856 Read/review a store's digital flyer/circular	0.807
q854 Use a Search Engine (Google, Bing, Yahoo) to find retailer coupons online	0.746
q855 Use a Search Engine (Google, Bing, Yahoo) to find brand/manufacturer coupons online	0.743
q840 Open/read an email from a retailer/store	0.706

q839 Open/read an email from a brand	0.663
3. Engagement (Cronbach's Alpha = 0.707)	
q10701_eng (I am passionate about my favorite grocery brands) images/card_57	0.804
q10711_eng (My days would not be the same without my best-liked grocery brands) images/card_58	0.783
q10721_eng (I expect to buy one of my favorite grocery brands over another similar brand during my next shopping trip) images/card_59	0.687
q106911_eng (I enjoy shopping because I typically buy at least one of my preferred grocery brands) images/card_56	0.601
4. Innovation (Cronbach's Alpha = 0.734)	
q1022_inno (I often try new flavors/products) images/card_5	0.912
q1058_inno (I often check out new items in the grocery store) images/card_45	0.826
q10671_inno (I am usually among the first of my friends and family to try new products) images/card_54	0.643
5. Loyalty Card (Cronbach's Alpha = 0.826)	
q878 Use your retailer loyalty card when you checkout for purchase discounts/purchase tracking	0.877
q880 Redeem coupons/offers on your loyalty card at checkout	0.780

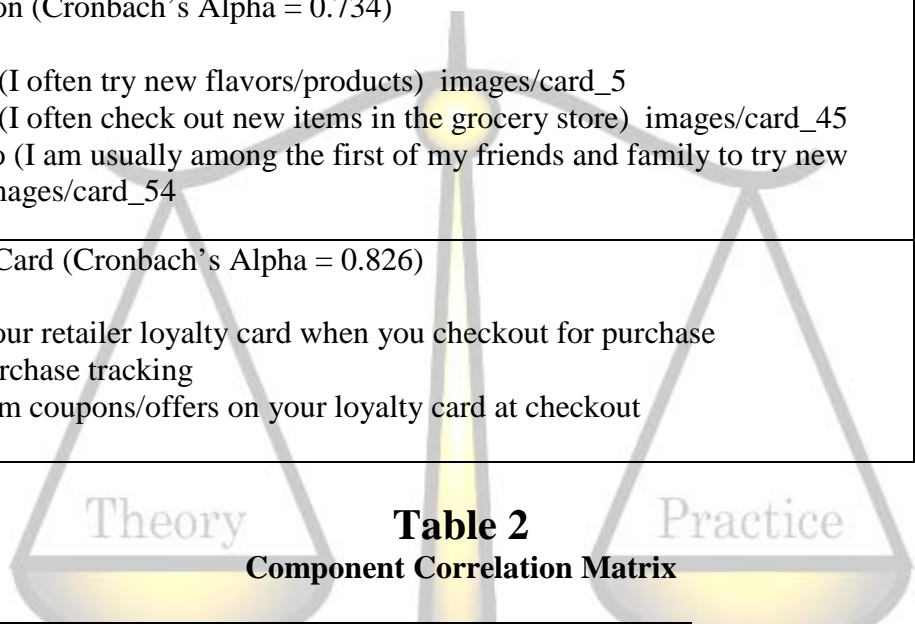


Table 2
Component Correlation Matrix

Component	1	2	3	4	5
1	1.000	.714	.316	.374	.313
2	.714	1.000	.330	.386	.406
3	.316	.330	1.000	.431	.141
4	.374	.386	.431	1.000	.154
5	.313	.406	.141	.154	1.000

Extraction Method: Principal Component Analysis.
Rotation Method: Promax with Kaiser Normalization.

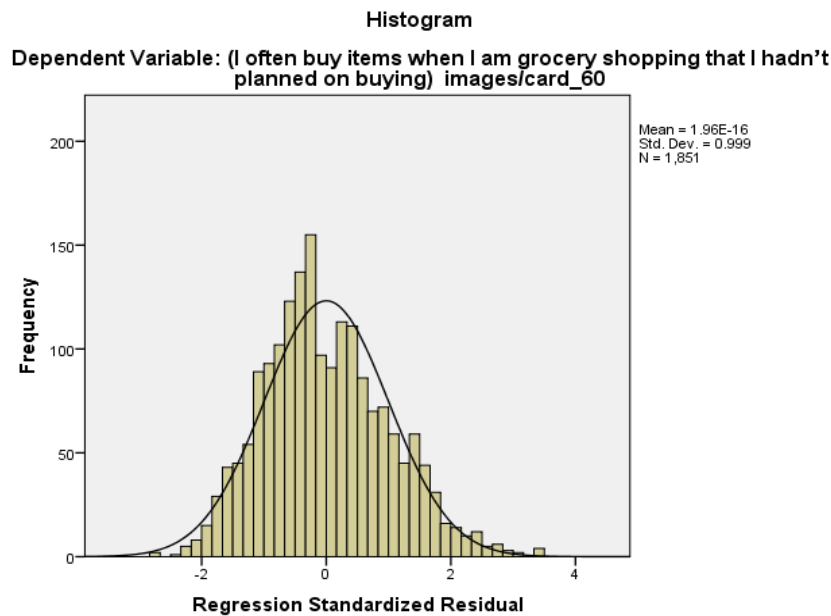
Reliability Analysis

A reliability analysis was conducted using Cronbach's (1951) alpha- values are shown in table 1. As can be seen, all the values are greater than or equal to 0.70, suggesting that the items have relatively high internal consistency, or that the set of items are closely related as a group for each corresponding component.

Multiple Regression

We conducted a multiple regression to determine which component is most significant in explaining the variation in unplanned purchases. Independent variables (components) include in-store digital use, pre-store digital use, innovation, and engagement. The dependent variable was unplanned purchases, which was a single item measurement measured on a 5-point Likert scale. We used stepwise regression with entry alpha = 0.05 and removal alpha = 0.1. One of the assumptions of multiple regression was that the residuals should be normally distributed. As can be seen from the following histogram of standardized residuals, residuals appear normally distributed.

Figure 2
Histogram of Residuals



No multi-collinearity issues were observed. The highest VIF value observed was 2.03, which was well below the cut-off value of 10 (Hair et al. 2009). The overall regression model was found to be significant at p-value = 0.000. Adjusted R-square was 16.1%. This means that the regression model is explaining around 16.1% of the variations in the dependent variable “unplanned purchases.”

As can be seen from the following table, all of the four factors came out to be significant in explaining the unplanned purchases by consumers. Hypotheses 1-4 are satisfied. Innovative customers who often are willing to try out different products has the most significant impact on the unplanned purchases (since standardized its Beta coefficient at .34 is largest). This is followed by customers who engaged more with the brand. Lastly in-store and pre-store digital usage have a significant impact on unplanned purchases. Note that the pre-store coefficient came out to be $-.094$. This could be because of high correlation with the in-store digital use

component. (Correlation between these two factors = 0.714) in addition to pre store planning. A summary of the regression model is presented in table 3. In addition, standardized beta coefficients, bivariate and partial correlations and VIF collinearity statistics are presented in table 4.

Table 3
Model summary

Model Summary			
R	R Square	Adjusted R Square	Std. Error of the Estimate
.404d	0.163	0.161	0.965

ANOVA					
	Sum of Squares	Df	Mean Square	F	Sig.
Regression	334.66	4	83.665	89.764	0.000
Residual	1720.568	1846	0.932		
Total	2055.229	1850			

Table 4
Coefficients for Final Model

Coefficients ^a										
Model	Unstandardized Coefficients		Standardized Coefficients	t-statistic	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
(Constant)	2.592	0.022		115.491	0					
Innovation	0.336	0.026	0.318	12.838	0	0.379	0.286	0.273	0.737	1.357
Engagement	0.126	0.025	0.119	4.946	0	0.264	0.114	0.105	0.779	1.284
Instore Digital Use	0.123	0.033	0.117	3.787	0	0.21	0.088	0.081	0.476	2.099
Prestore Digital Use	-0.094	0.033	-0.089	-2.861	0.004	0.157	-0.066	-0.061	0.469	2.132

a. Dependent Variable: Unplanned purchase

Additionally, a regression was run with innovation as the independent variable and engagement as the dependent variable. The results are in Table 5. Hypotheses 5 is satisfied as innovation was positively related to engagement. As you can see, innovation is a significant predictor of engagement with a p-value = 0.000 and an adjusted R-square of 18.5%. This means that the regression is explaining 18.5 % of the variation in engagement.

Table 5
Innovation and Engagement
Model and Coefficients

Model Summary			
R	R Square	Adjusted R Square	Std. Error of the Estimate
.431	0.186	0.185	0.9026

ANOVA					
	Sum of Squares	Df	Mean Square	F	Sig.
Regression	343.5	1	343.5	421.60	0.000
Residual	1506.5	1849	0.815		
Total	1850.0	1850			

Coefficients ^a										
Model	Unstandardized Coefficients		Standardized Coefficients	t-statistic	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
(Constant)	-3.498E-17	0.021		0	0					
Innovation	0.431	0.021	0.431	20.53	0	0.431	0.431	0.431	1.000	1.000

a. Dependent Variable: Engagement

DISCUSSION

Unplanned in-store buying has been studied extensively for years, however with the advent of various new digital technologies, a new “engagement” construct, and other variables, it needs further study. Our research has preliminarily analyzed data that captured unplanned shopping behavior, digital technology use, engagement and innovativeness.

The results indicate that all independent variables have a significant direct effect or impact on unplanned shopping outcomes, with innovativeness having the most effect with a positive .34 coefficient. This makes sense, as consumers who have a more innovative personality may have the need for additional stimulation, more arousal and may be more sensation seeking than others. Therefore, they may be more motivated to seek items to buy that were not planned on. Both in-

store and pre-store digital technologies had a significant effect on unplanned shopping outcomes, however, pre-store digital use had a negative effect. It could be that those who do a lot of pre store planning such as looking at coupons, downloading them, looking at a retailers web site or making an electronic list, do not engage in much unplanned purchasing- this confirms prior research as far as list making. If consumers are distracted (as previous studies showed) by stimuli and increase their travel distance in a store or as we have discovered, are more innovative or engaged, they will have more unplanned purchases and most likely more spending.

Consumers who are very engaged may be engaged with an entire category, while still having a particular brand that they may prefer. This may lead to a change in a planned purchase or a pure unplanned purchase, particularly if some stimuli affects them, or they are more innovative to start with. As was shown in the analysis, there is a strong relationship between innovativeness and engagement. Consumers who are more open and sensation seeking may be more engaged and thus may do more unplanned shopping.

MANAGEMENT IMPLICATIONS

Managements of both grocery manufacturers and grocery retailers are both very concerned about consumer behavior, the effect of new digital technology on that behavior and new competition. They know that the path to final purchase is very important to understand. This deep understanding of what motivates the consumer to come to their retail establishment, as well as selecting particular brands and maximizing shopping basket dollars is paramount.

Understanding how a consumer's innovativeness and engagement traits and digital use affect purchase behavior and choice will help the manufacturer and retailer plan and strategize better. These results dictate that management should understand who responds to digital by category, who is more engaging and how that may lead to additional unplanned purchases and a growth in the grocery basket or revenue. In addition, knowing the path of decision-making will help manufacturers understand how to motivate consumers to switch to their brands better or to have key segments maintain their loyalty. Key digital promotional strategies to attract customers, and once in store, to capture their trial and/or loyalty will be necessary.

LIMITATIONS

This research was conducted using secondary data. While a large sample was done and the data is robust, because the data was not gathered for our specific purpose, a better data set may have been possible if we had conducted our own proprietary research. In addition, the data, while possibly projectable to other retail segments, was only collected from the grocery segment. Future research could be conducted with specific research questions in mind within a grocery store setting or in a more controlled setting where variables can be manipulated and asked within the framework of accepted academic constructs.

Research on how and which particular digital strategies are most influential and optimally increase a shopping basket is limited at best and should be done. Inman and Nikolova (2017) suggested additional research using quasi-experiments and control test methodologies to

determine acceptance and effect on revenue from different technologies and strategies. Most likely, changing technologies will continue to affect unplanned purchases and basket size. From this current data set, additional research and analyzation will be conducted looking at the moderation of demographic and specific shopping situational variables, as well as spending.

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APPENDIX

Unplanned Shopping Question:

I often buy items when I am grocery shopping that I hadn't planned on buying

Innovativeness Construct Questions:

I often check out new items in the grocery store

I am usually among the first of my friends and family to try new products

When I shop, I often try new flavors/products

Engagement Construct Questions:

When I shop I look for promotions for my most liked grocery brands

I enjoy shopping because I typically buy at least one of my preferred grocery brands

I am passionate about my favorite grocery brands

My days would not be the same without my best-liked grocery brands

I expect to buy one of my favorite grocery brands over another similar brand during my next shopping trip.

When I'm with family or friends, I like sharing my experiences with my favorite grocery brands.

