ASSOCIATION FOR CONSUMER RESEARCH

Smart Phones, Bad Decisions? the Impact of In-Store Mobile Technology Use on Consumer Decisions

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We investigate lay beliefs of in-store mobile technology use and examine how mobile devices alter decisions. While consumers understand the positive implications of these devices, it appears they are unaware of the negatives. Specifically, mobile use leads to more unplanned purchases, more forgotten items, longer shopping times, and additional trips.

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The Techno Shopper: Consumer Interactions with Mobile and Digital Technologies

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Paper #1: Smart Phones, Bad Decisions? The Impact of In-store Mobile Technology Use on Consumer Decisions

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Paper #2: Close, Yet So Far Away: The Influence of Temporal Distance on Mobile Promotion Redemption during a Shopping Experience

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Paper #3: The Wireless Good Samaritan: Pro-social Behavior in Mobile Networks

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Paper #4: Digital Shopping: What You Need to Consider

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SESSION OVERVIEW

Digital technologies are becoming a pervasive component of consumers' purchase experience. For example, U.S. e-commerce sales accounted for 5.4% of total sales in 2012 (Thomas, Davie, and Weidenhamer 2012) while mobile technologies influenced 5.1% of all U.S. retail sales in 2012 (Brinker et al. 2012). As we progress into the digital age, marketers have the opportunity to use advanced technologies, such as computers, smartphones and location-based services, to gather consumer insights, influence consumer decisions at the point-of-purchase, and engage consumers in a truly unique manner. However, in order to tap into the wealth of opportunity offered by digital advancements, marketers must first understand how consumers utilize, interact, and react to these technologies. Therefore, the four papers in this session explore how new technologies impact consumers decisions and behaviors.

In the first paper, Sciandra and Inman investigate consumers' lay beliefs associated with in-store mobile technology use and assess how mobile technologies alter purchases. In particular, the authors explore the influence of shopping-related and shopping-unrelated mobile device use on consumer outcomes. Depending on use, Sciandra and Inman find that, counterintuitively, mobile technologies can lead to more unplanned purchases, more forgotten items, longer time spent shopping, and additional shopping trips. The second paper by Sheehan and Van Ittersum examines the influence of temporal distance on consumers' mobile promotion redemption. They demonstrate that the perceived temporal distance between a promotional offer and the promoted product influences redemption and evaluation of the promoted product. While smartphones and smart carts provide flexibility in interacting with consumers, the results suggest that the timing of mobile marketing interventions during a shopping trip significantly impacts consumer decisions. In the third paper, Jia, Dai, and Jia explore the impact of mobile technologies on pro-social behaviors such as donation activities, recycling habits, and aiding strangers. The authors find that consumers' wireless social network characteristics predict behavior in pro-social contexts. In particular Jia et al. show that greater social status (as measured by iPhone usage

and connectivity asymmetry) negatively impacts voluntary behaviors intended to help others. Finally, Sharma assesses the impact of digital technology on the consumer package goods (CPG) industry and outlines key principles for marketing success. The author identifies two barriers and accelerants to success of CPG in digital channels and finds that consumers' preference for digital outlets depends upon the characteristics of the shopper and product category.

This proposed session brings together a combination of leading scholars and practitioners to examine consumers' use of and response to digital technologies in general and mobile in particular. As a cohesive unit, the four papers illuminate the role of technology in the consumption environment and provide guidance for managers as they interact with the new "digital consumer." These papers address a broad range of digital issues; further, each paper focuses on real-world problems facing marketers and consumers and maintains a cogent session theme. Importantly, because these papers also make conceptual contributions to multiple streams of literature (e.g., construal-level theory, social influence, in-store decision making), this session should appeal to a broad audience.

Smart Phones, Bad Decisions? The Impact of In-store Mobile Technology Use on Consumer Decisions

EXTENDED ABSTRACT

A critical topic of interest to marketers, in-store decision making is common for many consumers (Inman and Winer 1998). One understudied factor impacting consumer decisions are mobile technologies such as cellphones and smartphones. As mobile devices continue to grow in popularity, it is critical that marketers understand how these devices are used in retail environments.

Recently, mobile technologies have been praised for helping consumers make better decisions (Shapiro 2012). However, research acknowledges unintended visual and cognitive impairments associated with these devices (e.g., Strayer, Drews, and Johnston 2003; Strayer and Johnston 2001). Consequently, the use of mobile technologies in shopping environments may act as a double-edged sword with both positive and negative implications for shoppers.

We argue that the nature of mobile use (shopping-related vs. shopping-unrelated) will differentially impact consumer outcomes. When used in an unrelated manner (e.g., talking, texting, surfing the web), we predict that multi-tasking exhausts attentional resources and results in negative outcomes such as purchasing more unwanted products or more time spent shopping. When used in a related manner (e.g., checking prices, using shopping applications), we predict that mobile technologies may have both positive and negative outcomes. For example, consumers should be better equipped to track spending and be more likely to purchase forgotten needs items. However, we also argue that relevant technology use may still prove distracting and result in more impulse purchases and longer shopping times.

To gain a richer understanding of consumer in-store mobile use we completed two exploratory studies. In Study 1a, 30 consumers were asked to describe a time they used their mobile device in a retail setting. Seventy percent of respondents indicated they used their phones to perform at least one shopping related and one shopping unrelated function during the trip. Despite using phones in both related and unrelated manners, 80% of respondents indicated that their

phone enhanced their decision making while only 13% of respondents indicated that their phone acted as a significant distraction.

In Study 1b consumers again described a time they used their mobile device in a retail setting. However, half of the participants were prompted to discuss a time they used their phone in a related manner, while the remaining half were prompted to discuss a time they used their phone in an unrelated manner. The purpose of this study was to reveal lay beliefs of in-store mobile technology use. As anticipated, participants in the related condition believed their phone use helped with shopping ($p < .001$) and enhanced decision making ($p < .001$) more than participants in the unrelated condition.

In addition, we asked participants to evaluate shopping outcomes in direct comparison to situations in which they were not using their phone. In comparison to not using a mobile device, participants in both groups disagreed that they had bought more; disagreed that they forgot to purchase more products that they intended to purchase; and disagreed that they spent more money (all p's $< .001$). This implies that consumers do not believe mobile technology use to greatly impact the nature, number, or cost of products purchased.

Study 2 used data from the 2012 POPAI Shopper Engagement Study to investigate the influence of in-store phone use on consumer purchases. In the study, shoppers across the U.S. were interviewed before and after grocery shopping. We included a survey question asking about mobile technology use during the trip. This information allowed us to partition consumers into four mobile usage categories: 1) no phone use, 2) related use (Related), 3) unrelated use (Unrelated), and 4) related *and* unrelated use (Both).

We find that in-store mobile technology significantly altered consumers' behaviors. First, looking at unplanned purchases, we find that consumers in the Unrelated usage condition made more unplanned purchases when compared to consumers not using phones ($\beta = .12$, $p < .01$). However, shoppers in the Related or Both conditions did not show any difference in unplanned purchases compared to shoppers not using phones. Therefore, under certain conditions in-store mobile phone use stimulates additional consumer purchases.

Second, looking at number of items planned but not purchased, we found that participants in the Unrelated condition missed more planned items than consumers not using mobile technologies ($\beta = .26$, $p < .05$) Further, consumers in the Related condition missed marginally more planned items than individuals not using mobile technology ($\beta = .19$, $p < .10$). This result is consistent with our contention that mobile technology use distracts consumers from the shopping task.

Third, assessing trip length, we found that Unrelated phone use enhances the positive effect of number of items purchased on shopping time ($\beta = .01$, $p < .05$). Therefore, it appears that Unrelated phone use can substantially increase the amount of time spent in-store for shoppers planning to purchase many items.

Finally, we found an interesting relationship between phone use and deviations from expected spending. Overall, shoppers in the Unrelated condition spent less than they expected compared to shoppers not using a phone ($p < .05$). However, Unrelated technology use strengthened the positive impact of number of items purchased on deviations from expected spending ($\beta = .02$, $p < .01$). Essentially, as consumers in the Unrelated condition made more purchases they exceed expected spending more rapidly. Further, Unrelated use strengthens the negative relationship between planned items not purchased and deviations from expected spending ($\beta = -.05$, $p < .05$). This result is consistent with our prior finding that consumers using phones in an Unrelated manner miss more planned items and suggests that these consumers may need to make additional shopping trips to purchase forgotten items.

In summary, we find that mobile phone use can exert a distracting influence on shoppers and interfere with shopping goals. Further, it appears that consumers do not anticipate these effects. While consumers understand the positive implications of in-store mobile technology use, it appears they are unaware of the negative impact these devices can have, especially when used in a distracting manner. Depending on use, mobile technology may lead to more unplanned purchases, more planned but not purchased items, longer shopping times, and additional shopping trips.

So Close, Yet So Far Away: The Influence of Temporal Distance on Mobile Promotion Redemption during a Shopping Experience

EXTENDED ABSTRACT

Consumers have traditionally been exposed to price promotions either before entering a store or at the moment of choice (Blattberg, Briesch, and Fox 1995). Yet, with the proliferation of consumer facing technology, such as smartphones or smart shopping carts, retailers and manufacturers have a greater level of flexibility as to when to present shoppers with promotions during a shopping experience. This research contributes by examining the role of the temporal distance between the promotional offer and the promoted product and its influence on redemption likelihood, product perceptions, and spending behavior.

Priming literature states that promotional offers should be transient, which suggests that shoppers are more likely to redeem a promotion when it is encountered closer to the purchase decision for the promoted product (Crowder 1976). However, temporal construal theory suggests that the temporal distance between the promotion and the promoted product positively influences consumer perceptions about the product (Liberman, Sagristano, and Trope 2002). Specifically, when decisions are perceived to be temporally distant, individuals construe these decisions in terms of abstract, high-level terms, while more temporally proximal decisions are based in concrete, low-level considerations (Liberman and Trope 1998). Temporal distance increases the influence of the value of high-level construals, while reducing the value of low-level construals, in consumer purchase decisions and evaluations.

An important distinction between high- and low-level construals of goal-directed behavior is the focus on desirability versus feasibility considerations (Liberman, Trope, and Wakslak 2007; Vallacher and Wegner 1987). Desirability considerations refer to the value of the decision outcome (the "why" of the behavior), whereas feasibility considerations refer to the ease or difficulty of reaching the decision outcome (the "how" of the behavior; Trope, Liberman, and Wakslak 2007). This implies that when the temporal distance between the promotional offer and the promoted product is close (e.g., the promotion is offered immediately prior to the purchase decision), shoppers would be relatively more influenced by feasibility considerations, such as the costs and uncertainties associated with acquiring the promoted product (Castaño et al. 2008). When the temporal distance between the promotional offer and the promoted product is longer (e.g., the promotion is offered in advance of the purchase decision), shoppers are relatively more influenced by desirability considerations, such as the brand or taste (Alexander, Lynch, and Wang 2008).

In order to examine the influence of temporal distance between the promotional offer and the promoted product on redemption likelihood and spending behavior, we conducted a number of simulated shopping tasks. In Study 1, participants were presented with a shopping list consisting of 8 different product categories and told that

their decisions would occur in the order of the shopping list. After every purchase, the shopping list indicated what purchases have been made with a strikethrough (ex: ~~bread~~) to draw attention to the temporally sequence of purchase decisions (Hornik 1984). Participants were randomly assigned to one of three conditions: a temporally distant promotional offer (received prior to the 2nd purchase decision), a temporally proximal promotional offer (received prior to the 5th purchase decision that was for the promoted product), or a control condition with no promotions. The promotional offer was "$2 off Starbucks ground coffee." The results indicate the promotions were effective: participants in both promotion conditions were more likely than the control condition to purchase Starbucks (21% vs. 6%; χ^2=9.129, p<0.01)]. More importantly, and consistent with temporal construal level theory, participants were more likely to redeem temporally distant promotions than proximal promotions (34% vs. 17%; χ^2= 4.78, p<0.05),

Study 2 replicated Study 1 with the three exceptions. First, to mitigate concerns of primacy, participants shopped for 12 items with the promoted product as the 11th purchase decision. The temporally distant promotion occurred before the 5th purchase decisions, while the proximal promotion occurs before the 11th purchase decision. Second, the promotional offer was reduced from $2 to $1. Third, perceptions of the promoted product were collected to examine the salience of desirability considerations. As in Study 1, the promotions were effective (37% vs. 8%; χ^2=7.05, p<0.01), and participants were more likely to redeem temporally distant promotions than proximal promotions (50% vs. 26%; χ^2=2.84, p<0.1). Furthermore, participants who received the temporally distant promotional offer evaluated the taste and quality of the coffee more favorably than those who received the temporally proximal promotion (F(1,87)= 5.57, p<0.05). This suggests a temporally distance promotion may actually enhance a shopper's evaluation the desirability characteristics of the promoted product.

In order to examine the robustness of the effect of promotional temporal distance and the proposed mechanism in more detail, Study 3 promoted a product in a different category: $1 off for Freschetta frozen pizza. Furthermore, additional perceptual measures were collected to examine the effect of the temporal distance on both desirability and feasibility considerations. The results again show that the promotional temporal distance increases the likelihood that participants redeem the promotion and purchase the promoted product (50.0% vs. 39.5%; χ^2=1.85, p<0.10). Furthermore, the promotional temporal distance is shown to positively relate to a consumer's perceptions of the promoted product's taste (5.66 vs. 5.18, F(1,96)=4.15, p<.05). An examination of the purchases of those participants that did not purchase the promoted product revealed some interesting results. The temporally proximal promotion leads to a lower spending on pizza ($6.39 vs. $6.19; t(1,94)=1.63; p=0.10), resulting in higher share for the least expensive brand (39% vs. 20%; χ^2=4.14, p<0.05). Thus, temporally distant promotions appear to enhance the desirability considerations (e.g., taste) of the promoted product, while the temporally proximal promotion enhances the influence of feasibility considerations (e.g., price).

This research makes two important contributions. First, we are among the first to examine how consumer make distinct inferences about products by increasing the temporal distance between the promotion and product within a single shopping trip. Second, we significantly extend the literature on Construal Level Theory (Thomas, Chandran, and Trope 2006) by demonstrating how the level of a construal about a promoted product changes within a shopping trip as a function of only a few purchases.

The Wireless Good Samaritan: Pro-social Behavior in Mobile Networks

EXTENDED ABSTRACT

A growing body of research on individual and group behavior in digital social networks (Borgatti et al. 2009; Eagle, Pentland, and Lazer 2009; Kossinets and Watts 2006; Lazer et al. 2009; Onnela et al. 2007) suggests that network and telecommunications patterns can predict social relationships and other behavioral constructs (Eagle et al. 2009; Onnela et al. 2007). Population-scale telecommunications databases of prior behavioral histories thus open new avenues for investigating pro-sociality, especially given how the ubiquity of mobile telecommunications in modern life has irrevocably altered the basic parameters of social interactions. In a world where most human beings are constantly interconnected through wireless networks, mobile telecommunications (e.g. voice call, text message, internet) have not only expanded the boundaries of traditional social interactions, but have also began to substitute for face-to-face interactions (Eagle et al. 2009; Onnela et al. 2007). How pro-social behaviors function within humanity's unprecedented state of networked interconnectivity remains an open question, especially given the known basis of pro-sociality in face-to-face environments.

Pro-social norms are evolutionarily adaptive social characteristics displayed not only by humans (Axelrod and Hamilton 1981; Danielson 2002; Fehr and Fischbacher 2003; Fehr and Gächter 2000; Nowak and Sigmund 2005; Trivers 1971) but also by species ranging from chimpanzees to rats (de Waal 2008; de Waal, Leimgruber, and Greenberg 2008; Rutte and Taborsky 2007). For many species, including our *homininae* relatives, pro-social acts are strongly biased in favor of kin and reciprocating partners, and are never extended to strangers (Rutte and Taborsky 2007). Even amongst humans, adherence to pro-social norms is often determined by un-altruistic factors such as personal identification, relatedness, immediacy, peer pressure, and potential future interactions (Axelrod and Hamilton 1981; Danielson 2002; Fehr and Fischbacher 2003; Fehr and Gächter 2000; Nowak and Sigmund 2005; Trivers 1971). However, these conventional theoretical preconditions for pro-social behavior are much weaker, if not completely non-existent, during interactions between strangers in non-traditional wireless network contexts. Vastly different from our evolutionary environments (Axelrod and Hamilton 1981; Danielson 2002; Fehr and Fischbacher 2003; Fehr and Gächter 2000; Nowak and Sigmund 2005; Trivers 1971), wireless or virtual social contexts are often anonymous, distant, one-to-one, and single-shot. Exploring pro-social behavior within such contexts not only allows us to explore how social network characteristics can predict pro-sociality in the modern social landscape, but also tests the durability of the social norm in a 'vacuum' environment.

In a large-scale exploratory phone survey and two randomized field experiments, we successfully use people's social network characteristics to predict the strength of objective and verifiable pro-social behavior in a large wireless network. Besides demonstrating what specific network characteristics predict actual pro-social behavior in multiple domains (Studies 1 and 2), we also test the causality of our predictors in between-condition field experiments within the network (Study 3).

Across three studies that involved 10,000 mobile phone users (who were connected to 330,000 other users on a mobile network), we used field experiments that combine measures of verifiable behavior, population-scale databases of network behavior, and between-condition manipulations to study the basis of pro-social behavior. We found that individuals' social status (e.g., iPhone ownership) and network structure (e.g. network centrality) could predict

their pro-social behavioral intentions (Study 1) and actual pro-social behavior in a range of contexts (Study 2). Specifically, in Study 2, we sent text messages, ostensibly messages from a stranger, to 5,000 randomly selected mobile phone numbers (directly connected with 137,710 other subscribers) that requested a response, e.g. "I'm feeling depressed with the holidays, can you send me some cheerful message?" Higher status predicted less altruistic helping behavior, more response latencies, less detailed responses, etc.

Critically, we are able to causally test this relationship with between-condition experimental manipulations. In Study 3, research assistants called 2,000 randomly selected numbers (with 76,783 other direct connections) and masqueraded as a visitor who just arrived in a city, who ostensibly misdialed while trying to call a friend, and attempted to ask for directions "since you're already on the line". Number of questions answered and time spent were used as dependent variables. We manipulated the accent of the caller as a novel proxy for social status, and found that individuals with higher status within their wireless network discriminated against lower-class accents in terms of amount of help rendered. That an interaction between social status network-variables and an exogenous manipulation of social status moderated previous effects showed that the network variables in Studies 1 and 2 did not reflect some factor unrelated to social status, such as dispositional curiosity or information overload

Whereas previous network research has often been limited by correlational results and lack of hypothesis testing, our research strategy bridges the gap between network research and traditional scientific research by allying the predictive power of network data with classic experimental design and hypothesis testing. Our methodology is the first to combine measurements of verifiable behavior, exogenous between-condition experimental manipulations, and large-scale network data analysis, and uses a previously untapped wealth of individual behavioral histories from wireless devices to identify and confirm the drivers of pro-social behavior.

We advance the understanding of theoretical constructs of social network connections by linking them to real behavior. We show that it was not the number and strength of connections between people in a network, but the relative structure of those connections that best predicted actual behavior. In particular, we identified connectivity asymmetry as a network variable that proxies for social status and can predict a wide range of behaviors. We show that greater social status predicted less pro-social behavior in several domains, contrary to traditional notions of social responsibility and social welfare.

Furthermore, we introduce several new measurement techniques to capture real and verifiable pro-social behavior; our use of binary response rate and strength of response (measured both explicitly by task completion, and implicitly by time spent) represents an ecologically valid measurement that can be used in numerous communication contexts for any research question that looks at response strength (e.g. advertising response, falling for phishing).

Most importantly, our results showcase the possibilities of using large network based field experiments in experimental social sciences, which has recently come under criticism for small sample sizes, biased selection and self-reported information, and other methodology flaws. A network based approach can potentially facilitate experiments with sample sizes in the millions and capture real behaviors that were previously inaccessible before detailed and objective histories of individual behavior from large consumer-technology databases became widely available.

Digital Shopping: What You Need to Consider

EXTENDED ABSTRACT

Success in the digital shopping environment requires a deep understanding of shopper needs and the ability to effectively deliver products to consumers. The digital revolution has transformed industries like music, books and travel almost entirely because e-commerce solutions delivered shopper needs in ways that traditional channels couldn't match. Are consumer packaged goods (CPG) next in line? Further, is technology a friend or a foe to retailing in CPG? This paper provides a thorough assessment of the impact of digital on the CPG industry, and outlines key principles for marketing success in a world where digital is the new normal. While we acknowledge that both shopper understanding and economic considerations dictate success in the digital world, this paper focuses primarily on the former: the shopper, their category needs, and the digital touchpoints that influence their behavior.

Digital technology is widely pervasive today and will only continue to grow at a rapid pace into the future. For example, over 117 million people own smartphones, and approximately 80 percent of them use these devices for shopping activities like finding stores, making lists, checking prices, researching products, sharing content, and purchasing (Nielsen Mobile Shopping Report, Q1 2012; Nielsen Mobile Panel, 2012). Amidst these activities, people seek to satisfy three fundamental needs when they shop: convenience, choice, and value. We believe that product category characteristics will interact with these fundamental needs and influence digital sales of CPG products.

To examine this contention, we conducted extensive research across 36,000 shoppers of CPG products spanning 18 categories, including both food and non-food items. Based on our research and analysis of online purchase data, we identified two barriers and two enablers that collectively determine how successful a CPG category can be in e-commerce. The two category characteristics identified as barriers to digital success are urgency and inspection. The urgency barrier refers to shoppers' desires to buy and use immediately, without waiting to have the product delivered. The second barrier is the inspection barrier or the need to inspect certain products. Concerns about spoilage can discourage online purchasing because they negatively affect the product value proposition if items get discarded. Moreover, since consumers are more likely to buy other products that they need while examining spoilable goods, the inspection barrier has a secondary effect on the entire basket.

In addition, our research uncovered two category characteristics which enable the success of CPG in e-commerce: the stock-up enabler and the price enabler. Storable goods, such as products with predictable consumption rates and a long shelf life (e.g., diapers and dog food) lend themselves to online purchasing. As for price factors, online retailers enjoy several cost advantages over traditional operations, particularly related to overhead. Lower costs of doing business online often translate directly to lower consumer prices or steeper discounts for digital shoppers. This allows marketers to retain price sensitive shoppers in a more profitable way.

Along with CPG product categories, our research also investigates consumer usage of digital touchpoints (e.g., websites, social media sites, blogs, and coupon sites) and how these touchpoints influence shoppers' purchase decisions for various CPG categories. Based upon our analysis, three key findings emerged. First, preference for digital touchpoints varies across shoppers. In particular, consumer demographics influence the type of digital media consulted. For example, African-American shoppers use store websites more than other consumers while Hispanic shoppers tend to rely more

on blogs. Second, shoppers prefer different digital touchpoints for different CPG categories. For example, consumers use coupon sites most often when purchasing diapers; brand emails most often when purchasing baby food or diet aids; and store websites most often when purchasing small appliances. Finally, an integrated approach, leveraging traditional and digital touchpoints, is most effective. Focusing solely on a social or mobile strategy is not prudent. Marketers must recognize which digital touchpoints are effective and use them judiciously in concert with traditional marketing efforts.

For the CPG industry, digital shopping represents an evolutionary development bringing manufacturers and retailers closer to the consumer. Effective digital shopper marketing requires that marketers identify the decisions shoppers make along the path to purchase, when they intend to buy specific products, and then determine the right mix of digital touchpoints to influence those decisions. In conclusion, our research investigates how category characteristics of CPG alter digital sales and identifies how consumers' preferences for digital outlets vary across categories. We contend that by leveraging digital and its distinct characteristics, retailers can complement brick-and-mortar operations rather than replace them, building sales on both fronts. For manufacturers, we conclude that digital is no longer optional. It is paramount that manufacturers engage shoppers using digital touchpoints, particularly mobile, to influence relevant decisions on their path to purchase.

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