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When do online consumers need an offline store: the moderating effects of product characteristics

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When do online consumers need an offline store: the moderating effects of product characteristics

Abstract
This study serves as an initial attempt to empirically demonstrate how online consumers react to e-retailers’ offline channel extensions. Specifically, we examine how offline channel capabilities influence online consumers’ offline channel switching intentions and their incremental demands in online channels. We investigate how these effects vary across utilitarian and hedonic products with high complexity. The results of the study indicate that while the openings of stores induce online consumers to shop there when purchasing utilitarian products with high complexity, counter-intuitively, the adding of stores results in incremental patronage in the online channels when consumers shop for hedonic products with high complexity. This study validates the guiding role of product characteristics in designing e-retailer offline channels and suggests that incorporating product type and complexity into design likely contributes to the development of stores tailored to specific consumer segments.

Key words: multichannel retailing, channel capabilities, shopping intention, product characteristics
With the maturity of online shoppers and recent intensified competition among e-retailers, a variety of firms born on the Internet are expanding their businesses offline, expecting to improve sales, consumer acquisition, consumer satisfaction, and efficiency in delivery and service (Avery, Steenburgh, Deighton, & Caravella, 2012; Pauwels & Neslin, 2009). Despite its surging popularity in practice, multichannel research considering the “adding bricks to clicks” sequence of channel introduction remains limited (Avery, et al., 2012; Cortinas, Chocarro, & Villanueva, 2010).

Recent studies have confirmed that the sequence of channel expansion matters and that the effects of adding a physical store to an online channel differ from the effects of adding an online channel to a retail store (Avery, et al., 2012; Pauwels & Neslin, 2009). While introducing an online channel on the part of physical retailers might be something innovative or challenging for consumers who have gotten used to offline channels, adding offline channels brings online consumers back into a familiar shopping environment. Given the current theories that consumers’ prior experience with existing channels should influence their evaluation of new channels (Burnham, Frels, & Mahajan, 2003; Wang, Beatty, & Mothersbaugh, 2009), consumers who have become accustomed to using online channels to purchase a variety of products are likely to develop different expectations of newly added offline channels. This implies that existing research on adding clicks to bricks, although insightful, may not be fully applicable in explaining the opposite sequence of channel expansion.

The main purpose of this study is to examine online consumers’ reactions to the introduction of a physical outlet to a preexisting online channel. Specifically, building
on existing research on customer channel selection, we will identify underlying offline channel capabilities desired by online consumers. We will investigate how these offline channel capabilities interact with product characteristics to influence consumers’ channel selection between online and offline stores.

Conceptual Definitions

Channel Capabilities

In this study, we build upon the conceptualization of channel capabilities (Avery, et al., 2012) to examine the effects of such capabilities on shopping intention in both new (offline) and existing (online) channels. A channel capability refers to “an enabling characteristic of a channel that allows customers to accomplish their shopping goals” (Avery, et al., 2012, p. 96). As prior research suggests that consumers may not equally value all channel capabilities (Balasubramanian, Raghunathan, & Mahajan, 2005; Kushwaha & Shankar, 2012), in this study we focus on three channel capabilities that are perceived to make offline channels outperform or complement the transactional performance of existing online channels. Among these capabilities, cognitive capabilities refer to functional characteristics of the offline channel that allow consumers to effectively accomplish their shopping goals. Affective capabilities refer to experiential and/or emotional characteristics of the offline channel that facilitate consumers in accomplishing their shopping goals; these are characterized by the pleasantness of the shopping experience (Hopkins & Alford, 2001). Finally,
relational capabilities refer to communicated characteristics of the offline channel that allow consumers to establish a personal relationship with salespersons.

**Utilitarian vs. Hedonic Products**

Consistent with prior studies (Khan & Dhar, 2010), we define hedonic products as those whose consumption is primarily characterized by an affective and sensory experience of aesthetic or sensual pleasure, fantasy, and fun (Hirschman & Holbrook, 1982). Some examples of hedonic products are soda pop, potato chips, and beer. Utilitarian products are those whose consumption is more instrumental, goal oriented, and cognitively driven and accomplishes a functional or practical task (Strahilevitz & Myers, 1998), such as milk, eggs, and detergent.

**Product Complexity**

Product complexity is defined as the degree to which specific expertise is necessary for evaluating products (McQuiston, 1989). Buying complex products requires more explanation and specific expertise, which calls for a greater amount of a consumers’ cognitive resources than does buying simple products (McQuiston, 1989; Thompson, Hamilton, & Rust, 2005). Shopping offline enables consumers to reduce difficulties in buying complex products to a greater extent than does shopping online, as it allows physical inspection of products and face-to-face assistance from salespeople (J. Alba et al., 1997). Therefore, the introduction of physical outlets by e-retailers should be favored by consumers when purchasing complex products.
**Theoretical Framework & Hypothesis Development**

To fill research gaps, this research aims to examine the effects of offline channel capabilities on online consumer channel selection. Although existing research on consumer channel selection has identified various channel capabilities, such studies rarely consider the sequence of channel addition. In this study, we examine the effects of additional offline channel capabilities, cognitive, affective, and relational, on shopping intention in both new (offline) and old (online) channels. We use the preferred channel capabilities rather than objective channel capabilities. Finally, drawing upon prior research on multichannel consumer behavior (J. Alba, et al., 1997), we expect that the effects of offline channel capabilities on consumer channel selection may vary by product characteristics such as utilitarian vs. hedonic products and product complexity. Figure 1 illustrates the research model.

<Figure 1 here>

*When Will Online Consumers Switch to Offline Channels?*

Existing research shows that switching costs have a great impact on consumers’ channel switching (Burnham, et al., 2003). The additional channel needs to outperform or complement existing ones in order to affect consumers’ channel selection. Given a context where target consumers are well adapted to online shopping, we argue that they are more likely to develop intentions to shop offline when they buy utilitarian products with high complexity.
Buying utilitarian products calls for a focus on functionality and usability. Consumers are found to spend more time on scrutinizing utilitarian products than hedonic products (Chiou & Ting, 2011), suggesting that more cognitive efforts are required when purchasing utilitarian products than hedonic products. When product complexity increases, there is an incremental demand for cognitive resources (Thompson, et al., 2005) for extra information processing and assessment. Newly opened offline stores are expected to provide online consumers with additional yet less risky alternatives for purchasing (Bhatnagar, Misra, & Rao, 2000; Liebermann & Stashevsky, 2002). A number of studies have found a positive relationship between cognitive capabilities and consumers’ patronage intentions in conventional stores (Grewal, Krishnan, Baker, & Borin, 1998; Smith & Sherman, 1993). The cognitive capabilities of offline channels can effectively deal with the information overload involved in shopping for utilitarian products with high complexity. Therefore, we hypothesize that:

**H1: the effect of cognitive capabilities of additional offline channels on intentions to shop offline will be strengthened when consumers buy utilitarian products with high complexity.**

The important role that affective capabilities play in influencing consumer behavior is well established (Donovan, Rossiter, Marcoolyn, & Nesdale, 1994; Sherman, Mathur, & Smith, 1997). Although affective capabilities are available both online and offline, some affective attributes (e.g., sensory experience with shopping environment) are more difficult to access online than offline (J. Alba, et al., 1997;
Browne, Durrett, & Wetherbe, 2004), which prevents consumers from adopting online channels (Mathwick, Naresh, & Edward, 2002; Wikstrom, 2005). Thus we predict that when these affective benefits are accessible offline, they may be preferred by online consumers.

But such an effect may be weakened when consumers buy utilitarian products with high complexity. After consumers allocate a greater amount of cognitive resources to assess complicated product functionality and usability, the resources for coping with affective capabilities, such as store atmospheric stimuli, decrease (J. W. Alba & Hutchinson, 1987). Previous research finds that when the rate and amount of environmental stimuli exceed customers’ capacity to cope with them, the customers may suffer overload (Milgram, 1970), which in turn leads to environmental stress (Mehrabian & Russell, 1974; Wohlwill, 1974). Therefore, we hypothesize that:

\[ H2: \text{the effect of affective capabilities of additional offline channels on intentions to shop offline will be weakened when consumers buy utilitarian products with high complexity.} \]

**When Will Offline Channels Create Incremental Demand in Online Channels?**

Introduction of new channels may also have positive effects on existing online channels when the information derived from the offline channel capabilities strengthens and complements advantages associated with online channels. It is more difficult to justify the choice of hedonic indulgences than of utilitarian necessities (Kivetz & Simonson, 2002; Okada, 2005), making this choice more likely to evoke guilt and possibly regret (Kivetz & Simonson, 2002; Okada, 2005). So online
shopping, which provides a shopping environment with high privacy and credit card usage to reduce guilt created when spending in the public with cash (Kukar-Kinney, Ridgway, & Monroea, 2009; Rook & Fisher, 1995), should be favored by consumers of hedonic products. Yet when product complexity increases, not only does more information need to be processed but more risks also derive from uncertainty, all of this making it more risky to shop online. The cognitive capabilities of the offline channel should make that channel a better venue to process complicated information, while building personal relationships with salespeople allows consumers to access a perceived reliable information source with sufficient expertise to help them make decisions with stronger confidence. Both capabilities will mitigate the perceived risks associated with shopping online. In short, online consumers are likely to use offline channels for information processing while turning to online channels for the ultimate purchase. Thus, we hypothesize that:

**H3:** the effect of cognitive capabilities of additional offline channels on intentions to shop online will be strengthened when consumers buy hedonic products with high complexity.

**H4:** the effect of relational capabilities of additional offline channels on intentions to shop online will be strengthened when consumers buy hedonic products with high complexity.
Methodology

Data Collection and Sample Characteristics

Since our target population was customers of e-retailers who sell merchandise, we conducted an online survey to collect the data. We used a national representative consumer research panel of a large research agency in China, consisting of 2.6 million members, as the sampling frame. We randomly selected a sample of 2,205 panelists with recent online shopping experience (i.e., within the past four weeks), believing they were better able to provide meaningful channel evaluations. A total of 441 qualified panel members responded (response rate 20%). The low response rate is likely due to our screening criteria, which excluded respondents with online shopping experience longer than four weeks ago. Of these 441 responses, 335 were deemed usable after the data editing and cleaning up processes (usable response rate 15.2%).

There were more female than male respondents. A majority of the respondents were relatively young (aged 21–39) with a high educational background (bachelor degree or above) and a middle level of monthly income (2000–6000 Yuan). The profile of the respondents was consistent with those reported in previous studies, which represents general online shoppers (e.g. Rohm & Swaminathan, 2004). In addition, around half of the respondents were regular shoppers and familiar with the online shopping environment. Utilitarian and hedonic product categories were coded by two coders. Disagreements were resolved through discussion. Finally, 157 products were categorized into the hedonic group, and 178 products were categorized
into the utilitarian group, with good inter-rater reliability (Kappa=.78). Comparisons of gender, age, education, income, online shopping frequency, and money spent per month for online shopping revealed no significant difference between the two groups.

**Measures**

We adapted most of the scales used in this study from previous research. With few exceptions, item reliabilities were above the cutoff value of .70 (Hair, Black, Anderson, & Tatham, 2006). We conducted a structured interview with five participants to elicit the salient items used to measure cognitive, affective, and relational capabilities. We compared the results with the work by Paul, Hennig-Thurnan, Gremler, Gwinner and Wiertz (2009) for completeness and appropriateness. Finally, cognitive, affective, and relational capabilities were measured by thirteen, five, and five items, respectively, adapted from the work of (Paul, et al., 2009). All items were measured on a seven-point Likert scale, ranging from “not at all important” (1) to “very important” (7). A principal component factor analysis using varimax rotation was conducted to identify possible sub-dimensions for each capability. Based on the results, we identified four factors under cognitive capabilities: shopping environment, value for money, value-added services, and personalized services. The results confirmed the unidimensionality of affective and relational capabilities. Product complexity was measured by four items adapted from the work of McQuiston (1989). Intention to shop online and offline was measured by two items adapted from the work of Limayem, Khalifa, & Frini (2000). We measured all items on a seven-point Likert scale, ranging from “strongly
disagree” (1) to “strongly agree” (7).

Given the well-established link between attitude and behavioral intention (Limayem, et al., 2000), we included attitude toward shopping online as a control variable in statistical analysis. We measured attitude by three items adapted from the work of Limayem and colleagues (2000). We used a seven-point Likert scale to measure the item, anchored by “bad” at 1 and “good” at 7. In addition, we created two dummy variables for type of webstore and included them as control variables in data analysis.

Data Analysis

After data collection, we used Harman’s single-factor method to assess the common method variance and found that common method variance was not a serious problem in this study. We then performed confirmatory factor analysis to validate the measurement (Hair, et al., 2006). Based on the results, the shopping environment dimension under cognitive capabilities was removed due to its high correlation with affective capabilities, and one item each was removed from affective and relational capabilities, due to low loading. As shown in Table 1, all factor loadings are above 0.5, and all t-tests are significant, indicating convergent validity. Further, the values for composite reliability of all variables are acceptable (i.e., >.60) (Bagozzi & Yi, 1998). Although the average variance extracted for cognitive attributes 4 is lower than the cutoff value .50, Hatcher notes that “very often variance extracted estimates
will be below .50” (1994, p. 331). Given their marginally acceptable composite reliability values (≈.60) (Bagozzi & Yi, 1998) and item loadings (> .50), the convergent validity of the scales was established. Moreover, all constructs achieved acceptable levels of discriminant validity, where the squared correlations to other constructs were less than the construct’s own extracted variance (Hair, et al., 2006).

<Table 1 here>

We then used a hierarchical regression analysis to test the hypotheses. In order to reduce the multicolinearity between the predictors and their product terms, we centered all constructs on their grand mean (Aiken & West, 1991).

Results

When will online consumers switch to offline channels?

We found that online consumers were likely to patronize an offline store when purchasing both utilitarian and hedonic products. However, as product complexity increased, consumers’ intentions to shop offline varied. Our results (tables for the results of hierarchical regression analyses are available upon request) showed that the interaction between cognitive capabilities 3 (value-added services) and product complexity (β = .18, p < .01) and the interaction between affective capabilities and product complexity (β = -.18, p < .10) were significant, accounting for an additional 5 percent of the variance in intention to shop offline beyond that accounted for by controls and main effects. The results partially supported H1 and fully supported H2.
While these results indicated that online consumers were likely to shop offline when purchasing utilitarian products with high complexity, other results based on hedonic product samples revealed that although online consumers were also likely to purchase hedonic products in the offline store, they showed no intention to shop offline when product complexity increased.

**When will offline channels create incremental demand in online channels?**

Consistent with our prediction, offline channel capabilities will drive online consumers to shop online continuously when purchasing hedonic products with high complexity. As shown in our results (tables for the results of hierarchical regression analyses are available upon request), there was a significant interaction effect between cognitive capabilities 3 (value-added services) and product complexity ($\beta = .10$, $p<.10$). Unexpectedly, there was a negative interaction effect between cognitive capabilities 4 (personalized services) and product complexity ($\beta = -.14$, $p<.05$).

Hence, the results offer partial support for H3. Fully supporting H4, the results indicated a positive interaction effect between relational capabilities and consumers’ intentions to shop online ($\beta = .11$, $p<.05$). Additional results based on utilitarian product samples showed that online consumers were not likely to remain online when purchasing utilitarian products, regardless of product complexity.

**Discussion & Conclusions**

The results of this study indicate that the store openings are likely to induce
consumers of both utilitarian and hedonic products to move away from existing online stores. When consumers shop for utilitarian products, the newly added offline channels are likely to substitute for online channels by offering them more effective ways to process product information. When consumers shop for hedonic products, the additional offline channels are likely to complement online channels by offering supports in processing product information and making decisions; this is especially true when product complexity increases.

The value-added services appear to be a critical offline channel capability that retailers should focus on, as they drive consumers to shop for complex utilitarian products offline while helping retain consumers when shopping for complex hedonic products online. However, the appeal of the offline channel appeared to be reduced for these consumers when affective capabilities were demonstrated, suggesting that a shopping environment with low or no distraction was desired.

Interestingly, when consumers shop for hedonic products with high complexity, while the availability of value-added services motivates these consumers to return back to the online store, the offering of personalized services prevents these consumers from doing so. When they do continue with online channels, that may be explained by the phenomenon of “lay rationalism” (Hsee, Zhang, Yu, & Xi, 2003), which suggests that decision-makers tend to make decisions that appear justifiable (shopping online) rather than being enjoyed the most (shopping offline) (Shafir, Simonson, & Tversky, 1993; Simonson & Nowlis, 2000). These consumers’ tendency to avoid the online channel may be due to the fact that personalized service
provides a closer fit between consumer preference and product attributes (Simonson, 2005), which may optimize shopping experiences that go beyond consumers’ expectations based on value-added services. This is especially so when product complexity is high, as consumers are reported to obtain incremental shopping enjoyment through mastering hedonic products with high complexity (Murray & Bellman, 2011). In short, in this situation, consumers may perceive shopping offline as a good value for money and hence feel it more psychologically valid to purchase complex hedonic products offline, resulting in more reluctance to shop online. Additionally, we find that through building personal relationships with salespeople in the store, consumers of complex hedonic products increase repurchases online. A possible explanation is that building relationships with salespeople enhances consumer trust. The trust may be transferred online, in turn making consumers more confident to shop.

Our study shows that the significance of adding physical outlets to existing online stores in Chinese contexts, on an individual level, lends empirical support to seminal research conducted at the firm level (Avery, et al., 2012; Pauwels & Neslin, 2009). This study also validates the guiding role of product characteristics in designing offline channels of e-retailers. Understanding the joint effect of product type and complexity provides researchers with comprehensive information about when online consumers are motivated to shop in specific channels in addition to what motivates them to do so. This study provides a feasible framework for managers in evaluating channel design strategies. By identifying underlying offline channel
capabilities that drive online consumers to shop offline for specific products, managers can gain further insights to decide whether and when to develop a channel capability. They can prioritize capital and efforts to avoid inadequate investment decision-making. Future studies can explore other contingencies that may also influence consumers’ behavior in a multichannel setting and investigate how their behavior may vary depending on the different purposes of introducing physical outlets to pre-existing e-retailers.
Figure 1. Theoretical Framework
Table 1. Factor Loadings and Related Information for CFA

<table>
<thead>
<tr>
<th>Construct</th>
<th>Measurement Item</th>
<th>Loading</th>
<th>Stand. Error</th>
<th>t Statistics (a)</th>
<th>Composite Reliability</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive capabilities2</td>
<td>C2a</td>
<td>0.658(^b)</td>
<td></td>
<td></td>
<td>0.73</td>
<td>0.58</td>
</tr>
<tr>
<td></td>
<td>C2b</td>
<td>0.857</td>
<td>0.165</td>
<td>7.595</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognitive capabilities3</td>
<td>C3a</td>
<td>0.748(^b)</td>
<td></td>
<td></td>
<td>0.75</td>
<td>0.60</td>
</tr>
<tr>
<td></td>
<td>C3b</td>
<td>0.797</td>
<td>0.107</td>
<td>10.509</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognitive capabilities4</td>
<td>C4a</td>
<td>0.591(^b)</td>
<td></td>
<td></td>
<td>0.57</td>
<td>0.40</td>
</tr>
<tr>
<td></td>
<td>C4b</td>
<td>0.677</td>
<td>0.163</td>
<td>6.667</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affective capabilities</td>
<td>Aff1</td>
<td>0.845(^b)</td>
<td></td>
<td></td>
<td>0.85</td>
<td>0.60</td>
</tr>
<tr>
<td></td>
<td>Aff2</td>
<td>0.873</td>
<td>0.058</td>
<td>18.124</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aff3</td>
<td>0.689</td>
<td>0.058</td>
<td>13.59</td>
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<td></td>
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<tr>
<td></td>
<td>Aff4</td>
<td>0.658</td>
<td>0.063</td>
<td>12.803</td>
<td></td>
<td></td>
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<tr>
<td>Relational capabilities</td>
<td>Relat1</td>
<td>0.682(^b)</td>
<td></td>
<td></td>
<td>0.82</td>
<td>0.53</td>
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<tr>
<td></td>
<td>Relat2</td>
<td>0.679</td>
<td>0.094</td>
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<td></td>
<td>Relat3</td>
<td>0.728</td>
<td>0.097</td>
<td>11.261</td>
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<td></td>
<td>Relat4</td>
<td>0.825</td>
<td>0.094</td>
<td>12.19</td>
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<td>Product complexity</td>
<td>Complex1</td>
<td>0.896(^b)</td>
<td></td>
<td></td>
<td>0.75</td>
<td>0.61</td>
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<tr>
<td></td>
<td>Complex2</td>
<td>0.642</td>
<td>0.117</td>
<td>6.157</td>
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<tr>
<td>Intention to shop offline</td>
<td>Off1</td>
<td>0.895(^b)</td>
<td></td>
<td></td>
<td>0.84</td>
<td>0.72</td>
</tr>
<tr>
<td></td>
<td>Off2</td>
<td>0.779</td>
<td>0.113</td>
<td>8.337</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intention to shop online</td>
<td>On1</td>
<td>0.779(^b)</td>
<td></td>
<td></td>
<td>0.83</td>
<td>0.71</td>
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<tr>
<td></td>
<td>On2</td>
<td>0.905</td>
<td>0.157</td>
<td>8.206</td>
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<td></td>
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<tr>
<td>Attitude towards shopping online</td>
<td>Att1</td>
<td>0.852(^b)</td>
<td></td>
<td></td>
<td>0.83</td>
<td>0.62</td>
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<tr>
<td></td>
<td>Att2</td>
<td>0.786</td>
<td>0.072</td>
<td>13.318</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Att3</td>
<td>0.711</td>
<td>0.068</td>
<td>12.506</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) All t-tests were significant at \(p<.001\)

\(^b\) The first \(\lambda\) path for each construct was set to 1, therefore, no SEs or \(t\)-values are given.

Mode fit indices: \(\chi^2 =341.39, df=194, \chi^2/df=1.76, p=.00, GFI=.92, CFI=.95, RMSEA=.05\)
Reference:


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