An Examination of In-Store Locations and the likelihood for Complementary Purchases in Grocery Shopping

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Consumers are affected by environmental cues during grocery shopping. This study focuses on what effect in-store product locations have on the likelihood for cross-category purchases. The purpose is to extend previous research and give insight for both consumers and practitioners regarding effects dependent on product placements in stores.

Research reveals that many purchase decisions are made in the store. In a study by Block and Morwitz (1999) had only 42,8 % of the items purchased become predefined in a shopping list. It means that in-store stimuli such as product exposures and special displays have strong influence on consumers and increase the likelihood for a purchase. They remind consumers about forgotten needs and triggers unplanned purchases. (Inman and Ferrano, 2009)

Research does also show that product acquisitions increase the likelihood for purchases in complementary categories (Walters, 1991; Kamakura and Kang, 2007; Bezawada et al., 2009; Leeflang and Parreno, 2010). It means that an in-store stimuli, except from generating purchases of exposed products, has effect on consumers' further behavior. An important aspect regarding this is that products have different abilities to generate purchases toward each other. Research shows that asymmetrical relations exist between products. Spaghetti creates a higher sales effect on Spaghetti Sauce compared to what Spaghetti Sauce do on Spaghetti. The same relation occurs between Cake Mix and Cake Frosting. (Walters, 1991) Discounts on a specific brand for Toothpaste do increase sales for

the same brand in Toothbrushes, but not in the opposite direction (Kamakura and Kang, 2007), and Potato Chips has a higher sales affinity on Regular Coke than Regular Coke on Potato Chips (Bezawada et al., 2009). These results indicate that asymmetrical relations can affect the likelihood for complementary purchases dependent on which product in a complementary constellation consumers first interact with.

The reason for asymmetrical relations is spreading activation, a model in cognitive psychology describing structure and processing of human semantic memory. Associations are linked together in a complex network, and priming of one association can evoke others dependent on the strength of the relationship (Collins and Loftus, 1975). The relation is often asymmetrical, meaning that associations have different abilities to connect toward each other. Directions processed more frequent becomes stronger. (Barsalou and Sewell, 1985)

With Spaghetti does this mean that promotions on Spaghetti to a higher degree creates a connection toward the association Spaghetti Sauce compared to what Spaghetti Sauce does on Spaghetti, which in turn increases sales. In more general terms does this mean that if the purchase behavior is affected by in-store stimuli, and asymmetrical relations exist, then the likelihood for a complementary purchase will be dependent on which product in a complementary constellation consumers first interact with. This conclusion is certainly important in connection to research demonstrating that consumers tend to purchase products in a logical order following the main aisle of the store (Hoyer, 1984; Hui et al., 2009). It means that the geographical location of products in stores affect the general interaction sequence, which in turn influence the likelihood for complementary purchases. This is the basis for the first hypothesis in this study:

> *H_1: The sequence of in-store product locations has impact on the likelihood for a complementary purchase*

The distance between complementary products can also affect the likelihood for complementary purchases. Bezawada et al. (2009) show that

sales increase for Potato Chips and Regular Coke with fewer aisles between the products. Highest sales are generated when located in the opposite side of the same aisle. An examination of in-store distances for Aperitifs and Breakfast products indicate higher within-category sales with a closer location measured in meter (Leeflang and Parreno, 2010), and consumers receiving an unexpected coupon during shopping do more unplanned purchases of products related to the one primed by the coupon if located in the close proximity (Heilam et al., 2002).

One reason is that activation of associations in the semantic memory decreases over time (Collins and Loftus, 1975). If an association toward a complementary product is generated, and that product can't be recognized in the near future (i.e. isn't located nearby), the association fades out, and decreases the likelihood for a complementary purchase. It means that the likelihood for cross-category purchases becomes lower with longer distances between complementary products. Other elements that can have impact are that longer distances make consumers less interested to realize a movement in order to make a complementary purchase, and it increases the likelihood for finding substitutes on the way. These factors are the basis for the second hypothesis in this study:

> *H_2: The distance between in-store product locations has impact on the likelihood for a complementary purchase*

An extension of this is research indicating that the geographical location for products in stores also can have impact. A study based on Soft Drinks show that more consumers pass the category when it is located in the beginning of the store, but that a higher share of the consumers stop and make purchases if it is located closer to the end. The conclusion is that consumers might not be in the right shopping mood for purchasing products such as Soft Drinks in the beginning of a shopping trip. (Suher & Sorensen, 2010) This result is in line with findings generated by Stiley et al. (2010) who show that planned products, in some cases defined as more frequent bought, tends to be purchased first. It means that an early location in the store is more suitable for them and that the likelihood for purchases

of more unplanned products, such as Soft Drinks, increase with a later location. This in turn have effect on the likelihood for complementary purchases, which is the basis for the third hypothesis in this study:

> *H_3: The location for the first product in a complementary constellation has impact on the likelihood for a complementary purchase*

An analysis is performed based on a transaction data generated from consumers using self-scanner devices during shopping. Observations from 56 stores during 10 weeks are collected. Conversion rate is used as a measure for the likelihood of complementary purchases, and average purchase time is used as a proxy in order to identify in-store locations for products. Sequence and distance is calculated from that. A multiple regression is made with Conversion Rate as the dependent variable and Sequence, Distance, and Location as main independent variables. Covariates are included in order adjust for other factors having impact. Results will be presented during the conference.

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