

Shopper Movement Patterns: The effects of product demonstrations on end-of-aisle displays within supermarket retailing.

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## **Attestation of Authorship**

“I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.”

Megan Phillips

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## **Abstract**

With the lack of research focusing on in-store demonstration and end-of-aisle displays the current study strives to generate a greater level of understanding whilst seeking to demonstrate shopper's behaviour in the vicinity of a demonstration positioned near an end-of-aisle display. One thousand eight hundred and seven shopper movement patterns were manually recorded via security footage from a supermarket in Auckland, New Zealand. Logistic regression was used to analyse shopper movement patterns where an overall negative effect was produced. Shoppers were found to be less likely to pay attention to an end-of-aisle display and a demonstration (two attention-generating devices) when positioned near one another, compared to when there was no demonstration present. On the odd occasion that attention was given, a detraction effect occurred where shoppers were distracted from the end-of-aisle displays efforts to focus on the in-store demonstration. The shopping party type, shopping device utilised, shoppers' direction of movement and travel, and shoppers' gender were also found to influence shoppers' attention toward the end-of-aisle display and demonstration. To maximise the attention-generating abilities and sales for both the in-store demonstration and the end-of-aisle display, it was recommended that the demonstration be positioned in a less-frequently-visited area that was not so heavily trafficked, had larger amounts of space, and was not directly opposite or near to the end-of-aisle display. If retailers had no other option but to position the demonstration near the end-of-aisle display, it was recommended that a promotional product (different to that of the demonstration product) be positioned on the end-of-aisle display, as this was the only time attention and purchasing from the end-of-aisle display was achieved. Overall, a greater emphasis on positioning demonstrations away from the end-of-aisle display was recommended.

## Chapter One: Introduction

As a shopper travels around the supermarket, there are multiple stimuli at play (Hoyer & MacInnis, 2007; Bava, Jaeger & Dawson, 2009), continuously interacting with one another, seeking to gain the attention of the shopper. Generally, these stimuli gain attention when greater interest from the shopper is given (Hoyer & MacInnis, 2007). On the occasional shopping trip, the shopper may encounter an in-store demonstration located near an end-of-aisle<sup>1</sup> display. At this point, the shopper has the choice to approach the in-store demonstration and/or end-of-aisle display, or continue on as if neither were of particular interest. During this moment, it is of interest to understand the attention given by the shopper to the demonstration and/or end-of-aisle display, how the shopper's movement patterns are affected and whether the product demonstration detracts from the end-of-aisle display's efforts or helps to stimulate and enhance them.

Around the world today, billions of dollars are being spent each year by manufacturers and retailers, in the supermarket industry, as they vigorously promote their products to consumers (Zhou & Wong, 2003; Heilman, Lakishyk & Radas, 2011). With the intensified competition both locally and internationally, retailers and manufacturers need to better understand shoppers in order to survive and grow (Zhou & Wong, 2003; Huddleston, Whipple, Mattick & Lee, 2009). With the heavy investment on sales promotions in-store, more attention and information is needed to help provide academic researchers and industry practitioners with reputable knowledge and reason, for expenditure (Applebaum, 1951; Ailawadi, Harlam, Cesar & Trounce, 2006). As Abratt and Goodey (1990) and Zhou and Wong (2003) indicate, information such as this can help determine the efficiency of resources designed to stimulate additional sales, can help with differentiation from competitors and can assist with ensuring successful marketing plans are created and executed in-store (Breugelmans & Campo, 2011).

Through investigating shopper movement patterns within a grocery store, insights into sales promotions, specifically in-store demonstrations and end-of-aisle displays, will be explored. The movement patterns of shoppers are very important to the success of supermarket retailing as they help in understanding shopper behaviour, which ultimately leads to improvements in the shopping experience (Kirkup & Carrigan, 2000). There is a suggestion that, shoppers move in extraordinarily complex manners when shopping

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<sup>1</sup> Colloquially North America refers to end-of-aisle displays as end-cap displays. New Zealand and Australia refer to end-cap displays as end-of-aisle displays.

(Yada, 2011). These movement patterns need to be explored in more detail and in different environments, to help gain a more insightful understanding of shopper behaviour and to help make improvements to the shopping environment. By understanding shopper movements, the retailer will be better placed to enhance the shopping experience, utilise in-store stimuli more efficiently and effectively, and improve the ability of the shopper to complete their shopping task successfully.

The focus of my research is on shopper movement patterns near in-store product demonstrations and the effect they have on end-of-aisle displays within a supermarket. In-store product demonstrations and end-of-aisle displays are two forms of sales promotions currently used and are considered by some as short-term supermarket strategies (Wilkinson, Mason, & Paksoy, 1982; Rajagopal, 2008). As believed by several authors, in-store promotional activities are used to generate attention (Bava et al., 2009) and stimulate purchasing (Wilkinson et al., 1982; Grewal & Levy, 2007; Rajagopal, 2008) through enhanced impulse buying (Abratt & Goodey, 1990; Levy & Weitz, 2007; Dunne & Lusch, 2008), traffic generation and advertisement (Levy & Weitz, 2007; Dunne & Lusch, 2008). In-store product demonstrations and end-of-aisle displays are only two of the many in-store promotional activities currently used in food retailing today.

Firstly, in-store product demonstrations are usually conducted in a public place (such as the supermarket) at the point-of-purchase, so shoppers are able to purchase the products immediately (Heilman et al., 2011). Some authors refer to demonstrations as strictly the presentation of a product (Levy & Weitz, 2007; Dunne & Lusch, 2008), but within this study, an in-store product demonstration consists of both the presentation of a product and a free offering of the product for shoppers to sample (Levy & Weitz, 2007; Dunne & Lusch, 2008). Pre-prepared packets are generally created for the demonstration, or the demonstrator prepares the free samples in-store to give to shoppers. Preparing samples in-store could require the demonstrator to bring and/or use a cooking device, demonstration table/preparation area and/or specific equipment such as gloves, plastic cups, spoons, or forks, among other items. During the demonstration, shoppers are able to engage with the activity, taste a free sample and also gain knowledge of the uses and benefits of the product (Applebaum, 1951). Product demonstrations usually consist of a food product “because they can be consumed immediately and provide customers [with] instant gratification. However, virtually any product that involves a sensory experience, whether it’s a new scented air freshener or a more effective household cleaner, is



suitable for product demonstrations” (Troy, 2005, p. 54). Generally, product demonstration companies and/or suppliers will undertake the demonstration, with the occasional retailer taking on the responsibility. As in-store product demonstrations are unique in comparison to other promotional methods, it is mentioned that they require studies of their own (Heilman et al., 2011).

End-of-aisle displays are promotional displays located at the end of an aisle (Levy & Weitz, 2007). These displays are continually changing (usually every week) and are often used to display promotional inventory (Suher & Sorenson, 2010). As Fiore, Yah and Yoh (2000) point out, “a product display involves a consciously designed presentation of selected merchandise in a defined area (e.g., storefront window or end of aisle), highlighting the product(s) and creating a mood and/or message with the intent to positively affect consumers’ approach responses” (p. 29). In this study, the defined area is the end of an aisle. The general claim is that in-store displays are influential (Applebaum, 1951) and highly visible (Levy & Weitz, 2007). They expose shoppers to goods (Underhill, 1999), attract shoppers’ attention and help to increase sales (Chevalier, 1975; Fiore et al., 2000). Seeing as a large proportion of total sales are generated through the use of displays within supermarkets (Chevalier, 1975), it is of great importance to understand the effectiveness of end-of-aisle displays when partnered with another in-store promotional activity such as in-store product demonstrations.

## **Chapter Two: Literature Review**

### **2.1 Background**

In-store sales promotions and shopper movement patterns are very important to food manufactures/suppliers and retailers yet very few academic studies have been completed (Peattie, 1998; Heilman et al., 2011). The majority of academic in-store sales promotion research has been focused on the impact of coupons and price promotions (Peattie, 1998), with in-store product demonstrations (Peattie, 1998; Heiman, McWilliams, Shen & Zilberman, 2001; Heilman et al., 2011) and in-store displays being largely under-researched (Breugelmans & Campo, 2011). Currently there are only a handful of studies focusing specifically on sampling in the retail environment (e.g. Steinberg & Yalch, 1978; Lammers, 1991; Heilman et al., 2011). Other studies generally only included sampling as part of the wider study of in-store sales promotions (e.g. Gadenk & Neslin, 1999; Shi, Cheung & Prendergast, 2005) or were undertaken outside of the store environment (e.g. Scott, 1976). It is not unusual to find the bulk of research within trade publications and magazines (e.g. Major, 2005; Moses, 2005). This demonstrates a need for more research within the academic field. With regards to in-store displays, the first academic research obtained, focused on shelf space allocation and sales within supermarkets, in the 1960s and early 1970s (e.g. Cox, 1964, 1970; Curhan 1972, 1974; Frank & Massy, 1970). Again most of the research focuses on in-store displays as part of the wider study of in-store sales promotions (e.g. Curhan, 1974; Wilkinson et al., 1982; Fader & Lodish, 1990; Lemon & Nowlis, 2002; Haans & Gijbrecchts, 2011), and very few looked at the effects of different display types (Breugelmans & Campo, 2011). Therefore, further research centered on the effectiveness of in-store display types is needed.

Furthermore, minimal research has been undertaken in relation to shopper movement patterns within grocery stores to date (Larson, Bradlow & Fader, 2005; Skogster, Uotila & Ojala, 2008). The earliest piece of literature is still very new, dating back to 1966 by Farley and Ring who constructed a model which focused on zone transitions within a store (as cited in Larson et al., 2005; Hui, Fader & Bradlow, 2009). It is clearly identified that each subject area has been researched in isolation, with none specifically focusing on shopper movement patterns and the effects of in-store product demonstrations on end-of-aisle displays in supermarket retailing. So it seems

appropriate, moving forward, to conduct research combining all three areas. This will help in developing an understanding for the interaction between each, and further the information currently available in this area of research. The variables under study in this thesis are shoppers, shoppers' attention, shopping party type, store layout, shoppers' direction of movement and travel, in-store product demonstrations, end-of-aisle displays, products taken from the demonstrations and end-of-aisle displays for purchase, the shoppers' gender and the shopping device utilised by the shoppers.

Historically, it has been difficult for retailers and academics to measure the effectiveness of promotional activities (Lam, Vandenbosch, Hulland & Pearce, 2001) and shopper movement patterns in-store (Yada, 2011). To help understand consumer behaviour in-store, researchers utilised point-of-sale (POS) data (Guadagni & Little, 1983, as cited in Hui et al., 2009), manually recorded observed behaviours (Kirkup & Carrigan, 2000), conducted interviews (Underhill, 1999) and physically tracked customers around the store, drawing each movement onto a store plan (Phillips & Bradshaw, 1991). However, with the technological advancements of today, researchers have been able to utilise transaction-specific databases/customer databases more efficiently (Lam et al., 2001) and have been able to employ data collection methods such as radio frequency identification (RFID) (Sorenson, 2003; Yada 2011), wireless local area network (WLAN) (Uotila & Skogster, 2007) and camera observation (e.g. Newman, Yu & Oulton, 2002). Utilising these methods has enabled collection of larger data sets (Skogster et al., 2008), which some researchers believe has facilitated better data to explore in-store shopping behaviour (Guadagni & Little, 1983 as cited in Hui et al., 2009) and has allowed for more accurate, objective and unobtrusive observation of the behaviour of shoppers (Dodd, Clarke & Kirkup, 1998) in the store environment. Therefore, the utilisation of some of these methods will be undertaken to achieve more accurate, objective and unobtrusive observation of shoppers' behaviour within the store environment.

## **2.2 Store Environment**

An understanding of the store environment is critical due to its influential status within supermarket retailing. Store layout, design and merchandising are elements within the store environment (Dunne & Lusch, 2009). When manipulated, these elements can enhance the store atmosphere, ultimately leading to shoppers browsing and buying (Dunne & Lusch, 2008). Initially originating from environmental psychology, the

importance of the store environment and its abilities to entice shoppers to browse and buy have been recognised by many (e.g. Kotler, 1973-1974; Fiore et al., 2000; Levy & Weitz, 2007; Dunne & Lusch, 2008; Nath, 2009; Ballantine, Jack & Parsons, 2010). For a long time, environmental psychologists have examined the relationship between the physical environment and human behaviour (Zhou & Wong, 2003). This knowledge has since been applied to retailing, offering numerous explanations for the interaction between the store environment and shopper behaviour (Backstrom & Johansson, 2006). The beginnings of this notion in retailing were first conceptualised by Kotler (1973) (as cited by Zhou & Wong, 2003), who established store atmospherics: the design of a particular environment to elicit emotions in shoppers to influence purchasing through cuing or reinforcement (Kotler, 1973-1974). This cuing and reinforcement spoken of by Kotler (1973-1974) can be seen through exposure of particular visual stimuli to shoppers in the store environment (Park, Iyer & Smith, 1989; Clement, 2007; Bava et al., 2009).

### **2.3 Shopper Exposure and Attention**

Exposure of goods within the shopping environment is the first step to influencing shopper's attention toward particular visual stimuli (Hoyer & MacInnis, 2007). Exposure is said to occur when a stimulus comes within range of a shopper's sensory receptors (Hoyer & MacInnis, 2007; Solomon, 2009). Concentration toward this stimulus can be given but other times it may go unnoticed or can be purposefully ignored (Solomon, 2009). When a shopper is exposed to multiple stimuli at once, they are unable to examine all of the stimuli simultaneously, at a high level state, so processing is usually undertaken in a low level, unselective, pre-attentive state (Soar, 2003; Clement, 2007; Hoyer & MacInnis, 2007). Shoppers determine which stimuli are worthy of further processing hence why it was found that shoppers deselect 80-90 percent of the store environment in order to cope with the overwhelming levels of information (Soar, 2003). When a shopper has to deal with overwhelming levels of information, Solomon (2009) refers to this as sensory overload. This sensory overload and de-selection of 80-90 percent of the store environment demonstrates that, the shopper ultimately controls whether they are going to be exposed to goods or not (Hoyer & MacInnis, 2007); the retailer can only create situations or place products in locations which are going to have a higher chance of exposure. By positioning an in-

store demonstrator near an end-of-aisle display, the retailer has placed a product in a location where the chance of exposure may be heightened.

Once the stimulus is exposed, attention from the shopper may develop. Attention is said to be the process of devoting mental activity to a stimulus (Hoyer & MacInnis, 2007; Solomon, 2009; Bialkova & Trijp, 2010). A shopper moving through the store can allocate attention flexibly but can become easily distracted when one stimulus pulls their attention from another (Hoyer & MacInnis, 2007). Attention may be generated when shoppers find something new and of interest to them (Clement, 2007). Due to the fact that attention is limited (Hoyer & MacInnis, 2007), a shopper rounding a corner or passing through an area where an end-of-aisle display and/or a product demonstration is located, the shopper's attention could easily become distracted from the end-of-aisle display's attention-generating abilities and be focused toward the in-store demonstrator, potentially imposing a detracting effect. To my knowledge, there have been no studies to prove this detraction effect would or could occur, but further investigation into this situation could produce some significant results.

#### **2.4 Store Layout, Design and Merchandising**

A good store layout, design and merchandising are essential to the enhancement of good shopper flow, attention generation and in-store purchasing. A comfortable store environment can be created through effective store layout, design and merchandising, highlighting the products (Schroeder, 2007) and enticing shoppers to browse and buy (Dunne & Lusch, 2008; Buttle, 1993). Through careful and insightful execution, the store environment can be planned to encourage shoppers to flow around the entire store or to more areas within the store, enabling sight of a more extensive range of products (Dunne & Lusch, 2008). Underhill (1999) and Schroeder (2007) both support this idea but Schroeder (2007) goes further, mentioning that if exciting in-store displays are exhibited along the way, shoppers have an extended chance of traveling throughout the entire store. Agreement is seen by Farley and Ring (1966) who mention that good store layout forces shoppers to travel past as many displays as possible sometimes leading shoppers to in-store purchasing. Similar interpretations are evident from Barbin and Darden (1995), who mention that elaborate store designs and in-store promotions, such as in-store displays and product demonstrations, can be effective tools to stimulate purchase intentions. From this array of books, studies and articles, it is obvious that good store layout, design and merchandising could influence shoppers to flow around

the store correctly, manipulating attention toward in-store promotions and larger amounts of merchandise, in an act to stimulate purchasing.

Shoppers are further influenced by store layout through its facilitation of a specific traffic pattern (Levy & Weitz, 2009). There are currently four traditional text book layouts, free flow, grid, loop and spine, that all assist with different movement patterns around a store (Vrechopoulos, O'Keefe, Doukidis & Siomkos, 2004; Dunne & Lusch, 2008; Dunne, Lusch & Carver, 2011; Levy & Weitz, 2009). The grid layout, one of the four traditional text book layouts, helps to facilitate a specific traffic pattern (Dunne & Lusch, 2008; Levy & Weitz, 2009). Through the construction of counters and fixtures positioned in long rows, usually at right angles, this encourages shoppers to circulate in an up and down pattern throughout the store (Dunne & Lusch, 2008; Dunne et al., 2011). This layout "not only ensures efficient movement of large numbers of shoppers through the store, exposing them to more merchandise, but also determines the character of the store" (Dunne & Lusch, 2008, p. 446). It is said that this type of layout is suitable for supermarket retailing but poses sufficient problems for other types of retailers (Schroeder, 2007; Dunne & Lusch, 2008; Levy & Weitz, 2009; Nath, 2009), often giving off a boring persona (Schroeder, 2007). Supermarkets need to move large numbers of shoppers throughout the store, hence why the grid layout is so prominent. As the current study is undertaken in a supermarket where the grid layout is employed, one must gain an understanding of the terminology and how this specific layout can influence shoppers' travel around the store, so as to gain further insights into shopper movement patterns.

Shopper movement patterns are very important to observe in the store environment, as many factors can affect these, as shoppers travel around the supermarket. Upon entry to a store, Farley and Ring (1966) and Schroeder (2007) believe that the placement of aisles, checkouts, fixtures and displays influence the path the shopper is going to take. Farley and Ring (1966) put forward, that the "entry is generally confined to one point in the store and the configuration of aisles and check-out counters tends to funnel shoppers into the store homogeneously and to start their movement in one general direction" (p. 559). Larson et al. (2005) shares this opinion, in that, "the store is laid out in such a way that most shoppers choose the "default" start path" (p. 401). In contrast, Zacharias, Bernhardt and Montigny (2005) study of pedestrian movement in a shopping mall demonstrates that, pedestrians who are already familiar with the environment usually have a pre-planned execution of their path, but still remain flexible and make

adjustments where necessary. Zacharias et al. (2005) further mention that “moments of indecision coupled with imperfect knowledge of the local environment may allow other local and environmental factors to have an important or preponderant role in decision making” (p. 195). This implies, in an in-store retailing context, that factors in the store environment could influence the shopper to modify their intended path at any time. In-store retailing research by Nath (2009) strongly agrees with and gives support to Zacharias et al. (2005) pedestrian literature. Nath’s (2009) research was conducted in three large retail stores, where behaviours of 2,098 shoppers were monitored, and findings for shoppers’ intended paths stemmed from their goals and motivations as a shopper. As stated, “the consumer chooses the shopping pattern in the active search, but is driven by the store environment in the passive search” (Nath, 2009, p. 67). Newman’s and Foxall’s (2003) review of in-store customer behaviour in the fashion sector displayed comparable findings, as they point out that, situations within the store environment can directly affect the shopper’s behaviour. From these remarks, it is clear that shoppers’ movement patterns are modified due to factors in the store environment. Factors could include those of in-store demonstrations positioned near end-of-aisle displays, the shoppers’ direction of movement and travel, the shoppers’ gender, the shopping party type or the shopping device utilised, but investigation is required to see if these influencing factors are true.

## **2.5 Travel**

Supermarket travel is extremely complex and not as straightforward as is believed. Larson et al. (2005) firstly points out that “the typical customer is assumed to travel up and down the aisles of the store, stopping at various category locations, deliberating about her consideration set, choosing the best (utility maximizing) option, and then continuing in a similar manner until the path is complete” (p. 395). The key word in this statement is ‘assumed’, as only two authors Dunne and Lusch (2008) support this finding, by indicating that “in supermarkets, for instance, many shoppers flow methodically up and down all the fixture runs, looking for everything they might need along the way” (p. 447). Other authors have conflicting views. For example, a novel study conducted by Larson et al. (2005), using data from 8,751 shopping paths in a supermarket, found that “most shoppers tend only to travel select aisles, and rarely in the systematic up and down pattern most tend to consider the dominant travel pattern. Those trips that do display extensive aisle travel tend to travel by short excursions into

and out of the aisle rather than traversing the entire length of it” (p. 412). Hui’s et al. (2009) study in a supermarket environment supported these findings by indicating that, “there is a general tendency to “back track” once a shopper enters an aisle” (p. 485). Underhill (1999) goes further, mentioning that shoppers typically go down the aisle in search of one or two things, find it and then head back without even looking around (or if they look, they do not see anything worth stopping for). These results were also evident within another study conducted in a grocery store, where shoppers parked their trolleys<sup>2</sup> at the end of an aisle, walked down the aisle, picked up a few items and carried them back to their trolleys (Kahn & McAlister, 1997). From these studies it is illustrated that the majority of customers do not travel up and down whole aisles (Phillips & Bradshaw, 1991; Underhill, 1999; Larson et al., 2005; Hui et al., 2009) - they enter the aisle, grab what they want and back track instead of continuing straight through (Phillips & Bradshaw, 1991; Underhill, 1999; Larson et al., 2005; Hui et al., 2009), thus displaying extremely complex movement patterns in-store.

Moreover, from the studies explored it has been proven that customers spend more time travelling the perimeter of the store than they do the aisles (Larson et al., 2005; Sorenson, 2009). Larson et al. (2005) found, from the Sorenson Associates data set of a supermarket in western U.S.A, that the main thoroughfare on the outside edge of the aisles experienced the highest amount of travel (but not necessarily shopping) in comparison to other areas within the store. These findings were fully supported by a study conducted in another grocery store where “researchers who studied 1,600 shoppers found that, consumers travelled heavily through the periphery of the store, which accounted for 80 percent of the traffic but were much less likely to travel down the stores inner aisles, which drew only 13 to 30 percent of the traffic” (as cited in Kahn & McAlister, 1997, p. 127). Further support was given from the pixel model figures two, four and six in Skogster’s et al. (2008) study, which exemplify perimeter travel extensively by shoppers in the do-it-yourself store in Scandinavia. Similar beliefs were advocated by Sorenson (2009) who proposes that “a band of high density of shopper seconds [is seen] most of the way around the perimeter of the store, with two bands of heavy concentration linking the back of the store with the front of the store” (p. 75). From these studies, it is apparent that shoppers spend most of their time travelling the perimeter of the store. Through positioning an in-store product demonstration in this

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<sup>2</sup> The United Kingdom, Australia and New Zealand commonly use the word trolleys or shopping trolley whereas the United States and Canada refer to trolleys as shopping carts



high-traffic-generating area, next to an end-of-aisle display, large amounts of shopper movement should be observed.

## **2.6 Direction of Movement**

There are two rotational patterns of shopper movement within a store (anti-clockwise and clockwise) in the literature (Sorenson 2003; 2009). Anti-clockwise is said to be the dominant direction of movement (Sorenson 2003; 2009) as the majority of shoppers are right-handed “and a right-handed person, pushing a shopping cart, is going to tend to push with their right hand, giving the cart a natural tendency to turn left; that is, in a [anti-clockwise] direction” (Sorenson, 2009, p. 76). Anti-clockwise direction of movement is the consequence of the entrance to the store being located on the right-side (Sorenson, 2003). An audit of 100 stores helped to verify that “right-side entries favour [anti-clockwise] patterns while left-side entries favour clockwise patterns” (Sorenson, 2003, p. 32). So, if this information is correct, shoppers should travel predominantly in an anti-clockwise direction around the current supermarket under investigation, as the entry is to the right side of the store.

## **2.7 Congestion Points/Barriers**

Clutter, congestion, crowding and narrowing are all but a few of the barriers and congestions points evident in the literature that can develop within a supermarket. A study from the transport literature (Papinski, 2009) found that, respondents presented with a cluttered or congested area would ignore it, travel through quickly or change their planned route. Even though this is from the transport literature similar behaviour patterns have been observed within the retailing environment. For example, Levy and Weitz (2009) state that, “cluttering the entrance with a lot of products and signage can create confusion and an uncomfortable feeling for customers” (Levy & Weitz, 2009, p. 507). Phillips and Bradshaw (1993) indicate that if a display is too complex (too much visual clutter) “then there is a great danger that viewers will adopt a narrower field of view and may miss some of the items on display” (p. 56). Mitchell and MacGregor Smith (2001) express that, “congestion and queuing can result in selecting an alternative pathway” (as cited in Zacharias et al., 2005, p. 195). Moreover, if a shopper becomes confused at any point in time about where certain products are, how to reach them or certain destinations, or what the correct retail price is, frustration kicks in and shoppers may leave due to the store being too difficult to shop (Dunne & Lusch, 2008). From

these insights, the types of barriers and congestions points which can disrupt and hinder shopper movement patterns within a store are evident. Retailers need to be aware of these when designing and managing their stores, to ensure that these situations are avoided.

Furthermore, when designing a store, setting up displays or positioning in-store demonstrators, retailers need to be aware of the effects of their decisions, as creating a narrow area can cause congestion problems for the store. Most customers like to have their own space when shopping (Levy & Weitz, 2009). If shoppers venture too close to or intrude upon another shopper's space, which can be anywhere from one-and-a-half to more than two-and-a-half feet, shoppers generate feelings of crowdedness within the shopping environment (Markin, Lillis & Narayana, 1976). This crowdedness can reduce shopper's tendencies to shop within that area (Hui et al., 2009) and also constructs narrower areas in which to shop. When extensive examination is required products should not be placed in locations where narrowing can occur (Dunne & Lusch, 2008). Supporting evidence is demonstrated when "Paco Underhill relates his theory of the "butt-brush effect" in *Why We Buy*, claiming that evidence proves shoppers will not linger in any aisle so narrow that someone might bump or brush into them when they lean over to examine merchandise" (as cited in Schroeder, 2007, p. 62). So when retailers are constructing displays, positioning demonstrations and designing stores, they need to ensure that areas are wide enough so the butt-brush effect does not occur. For example, if the area is not wide enough, multiple individuals crowding around an in-store demonstration and opposite end-of-aisle display whilst other shoppers are trying to navigate their way through could, in theory, result in shopper movement becoming hindered, and shoppers could adopt a narrower field of vision, causing less attention to be given to the surrounding environment. Further investigation into this is required.

## **2.8 In-Store Sales Promotions**

In-store sales promotions are marketing activities used to encourage visitation, shopper spending and product trials for a specific period of time (Levy & Weitz, 2007; Dunne & Lusch, 2008; Chunawalla, 2010). A definition given by Haugh (1983) states that sales promotions are "a direct inducement that offers an extra value or incentive for the product to the sales force, distributors, or the ultimate consumer with the primary objective of creating an immediate sale" (as cited in Belch & Belch, 2001, p. 524). There are two types of sales promotions consumer-oriented promotions and trade-

oriented sales promotions (Belch & Belch, 2001). Consumer-oriented promotions include sampling, couponing, premium, contests and sweepstakes, refunds and rebates, bonus packs, price-offs, and event marketing. These types of promotions are focused on shoppers and the end consumer. Trade-oriented promotions include dealer contests and incentives, trade allowances, point-of-purchase displays, sales training programs, trade shows, cooperative advertising, and other initiatives designed to motivate retailers to stock a product and to provide additional push to the shopper (Belch & Belch, 2001; 2007). Both consumer-oriented and trade-oriented promotions are going to be investigated within this study. Sampling (product demonstration) is the consumer-oriented promotion and point-of-purchase display (also known as in-store display - specifically the end-of-aisle display) is the trade-oriented promotion which is going to be under examination.

### **2.8.1 Product Demonstrations**

In-store product demonstrations have been utilised in supermarkets since the early days (Major, 2005). Today, they are still a valuable and sophisticated tactic used by both manufacturers and retailers in the food retailing industry. It is mentioned that, in-store demonstrations invite shoppers to slow down, taste the product and interact with the demonstrator (Major, 2002). It is clearly evident through trade and academic research that, in-store product demonstrations have an impact upon sales (Lawson, McGuinness & Esslemont, 1990; Lammers, 1991; Troy, 2005; Moses, 2005; Zwiebach, 2005; Levy & Weitz, 2007; Dunne & Lusch, 2008). Heiman et al. (2001) stipulates that this is because the samplings of products are completed in-store by a demonstrator, and the products are there for the shoppers to purchase. There is a general consensus that in-store product demonstrations induce product trial (Major, 2002; Moses, 2005; Lawson et al., 1990; Heilman et al., 2011), increase sales of the sampled product (Lawson et al., 1990; Lammers, 1991; Heiman et al. 2001; Major, 2002; Laposky, 2007; Rajagopal, 2008; Hoback, 2011; Moses, 2005; Heilman et al., 2011), and affect sales of other products within the store (Steinberg & Yalch, 1978; Lawson et al., 1990; Lammers, 1991). Even with this general consensus, a deeper level of understanding is required into the effects of in-store product demonstrations.

While there is a common understanding that product demonstrations increase sales, there is no standard conformity as to the exact increase in sales. The following trade publications detail some of the increases prevalent. Moses (2005) indicates that

conducting an in-store product demonstration within an afternoon increases sales of the sampled product by at least 300% on the day of sampling. Zwiebach (2005) reported an even larger increase in the Marsh supermarkets sampling feedback of an increase in sales between 600 to 2,000 percent. Major (2002) detailed similar figures with an increase in bacon sales by 836 percent. Hoback (2011) also had similar results, with a 475 percent sales increase on the day of promotion. Lawson et al. (1990) found that sales increased up to nearly six times more than before the promotional period, with a minimum of a 70 percent increase. “A recent review of the published literature (McGuinness, 1988) found claims, that in-store sampling in the USA frequently resulted in sales five to 10 times higher than before promotion” (as cited in Lawson et al., 1990). As previously mentioned, and evidenced by these examples, it is noticed that an increase in sales protrudes, but academic insights are needed to gain a more in-depth understanding in this area of research. With more detailed knowledge, more informed promotional decisions can be adhered to.

## **2.9 In-Store Displays**

There are multiple types of in-store displays prevalent within food retailing, yet a clear academic definition is largely lacking. Of the explored studies, one vaguely outlines the different display type categories (e.g. Wilkinson et al., 1982) and another distinguishes by construction type and location (e.g. Tellis, 1998). Wilkinson et al. (1982) illustrates display types by category: normal display (shelf), expanded display (expanded shelf) and special display (off-location). Tellis (1998), on the other hand, classifies each under physical display, electronic and interactive display, center display or front-of-store, in-aisle, end-of-aisle and shelf display. One problem with Tellis’ (1998) location classifications is off-location displays located in other areas are unable to be categorised into the segments identified. Subsequently, the conclusion is that Wilkinson’s et al. (1982) categories are the most appropriate as they accommodate all types of in-store displays.

Further expansion of the categories is needed to gain a better understanding of where end-of-aisle displays are situated in contrast to other in-store displays. Multiple display types congregate under each category. A specific example is observed through special (off-location) displays, which include end-of-aisle (Wilkinson et al., 1982; Fader & Lodish, 1990; Buttle, 1993; Lucas, 1996; East, Eftichiadou & Williamson 2003), freestanding (East et al., 2003), island gondola (Buttle, 1993), wall gondola (Buttle,

1993), window (East et al., 2003), related-item (Buttle, 1993), in-aisle (Wilkinson et al., 1982), case stack (Buttle, 1993), dump bin (Buttle, 1993), self-selection racks (Buttle, 1993) counter, hangsell/clipstrip, floor palette, wing, island, floor, stand, rack, pillar and case display. Due to the extensiveness of different types of off-location displays, only a few could possibly be mentioned. Due to the large variances, it is little wonder that no author has attempted to classify and clearly define all of the different display types. With the focal point being end-of-aisle displays, a clear position in conjunction to other displays, especially off-location displays, has been fashioned.

In addition, in-store displays are either permanent or semi-permanent (Pegler, 2012). The permanent displays are more easily adaptable to merchandise changes whereas semi-permanent are not usually as flexible, as the display is generally constructed for later disposal (Pegler, 2012). Displays are generally found on ledges, counters, shelves, the selling floor or suspended from the ceiling; constructed from cardboard, paper, wood, plastic or metal, or any combinations of these materials (Pegler, 2012). The appearance of the display in the retail environment attracts shoppers' attention, brings the shopper to the product, creates a desire for the merchandise displayed, encourages on-the-spot decisions, and increases sales substantially (Curhan, 1972; Chevalier, 1975; Wilkinson et al., 1982; Cahan & Robinson, 1984, as cited in Fiore et al., 2000; East et al., 2003; Pegler, 2012). Through these insights, in-store displays are more clearly identified and defined, enabling more specific focus to be given to end-of-aisle displays.

### **2.9.1 End-of-aisle Displays**

End-of-aisle displays are hugely prominent in supermarkets all around the world. Take for instance the local supermarket: usually a stack of drinks, a mountain of biscuits or an arrangement of chips is evident on at least one of the end-of-aisle displays during any particular week. These end-of-aisle displays act as a billboard, a reminder and a prompt for immediate purchase (Underhill, 1999). As mentioned, shoppers generally expect them to offer special prices on the products within the display (Chevalier, 1975) and shoppers do not appear to undertake price comparisons when shopping from these displays (Chevalier, 1975). As previously revealed, end-of-aisle displays are supposedly very effective attention generators (Schindler, Berbaum & Weinzimer, 1987; Dulsrud & Jacobsen, 2009). They expose goods to shoppers (Underhill, 1999), enable ease of location of goods (Backstrom & Johansson, 2006), and have an impact upon sales (Chevalier, 1975; Wilkinson et al., 1982).

As shoppers wheel their trolleys around the supermarket, it is obvious and largely supported by most, that end-of-aisle displays generate attention and expose goods to the shopper (Underhill, 1999; Dunne & Lusch, 2008; Dulsrud & Jacobsen, 2009; Breugelmans & Campo, 2011). However, there is speculation about the direction shoppers approach these ends, as to why this attention generation and exposure is created. Dulsrud and Jacobsen (2009) indicated that end-of-aisle displays were introduced to slow shoppers' travel throughout the store: as shoppers naturally slow down to get round corners, enabling particular attention to be directed towards the end-of-aisle display. Underhill (1999) seems to display a different point of view, stating that shoppers approach end-of-aisle displays head-on, enabling complete and full view of the merchandise. From these examples it is apparent that shoppers are exposed to highly visible ends where attention is generated, but the direction from which shoppers approach these is unknown.

Highly visible end-of-aisle displays enable ease of location of products for shoppers which essentially leads to increased product purchasing. As Backstrom and Johansson (2006) indicate - by increasing the availability of the products offered, through the use of product displays, the consumer's visit becomes easier. Stern (1962) established similar thoughts, in that displaying products in highly visible places, makes the shopping journey much easier and allows shoppers to defer purchasing decisions until in-store (as cited in Zhou & Wong, 2003). Seeing as grocery shopping is usually considered a chore by most, it is fair to say that the shopping environment is familiar to those who undertake the shopping (Bava et al., 2009). Being a low involvement, repeat-purchasing situation (Breugelmans & Campo, 2011) in a familiar environment, end-of-aisle displays tend to "increase a displayed product's purchase probability, because customers do not want to go through a complete search and evaluation procedure but instead prefer to settle for satisfying outcomes obtained with minimum effort (Hoyer and MacInnis, 2010)" (as cited in Breugelmans & Campo, 2011, p. 76). A particular example, evident within an in-depth qualitative study conducted by Bava et al. (2009) in New Zealand supermarkets, found that participants selected products off the end-of-aisle displays as a result of their eye-catching tendencies and with minimal consideration induced. It is evident, through these examples that highly visible end-of-aisle displays exposes shoppers to products in a way that makes the purchasing decision-making easier, thereby increasing the products' purchasing probability and ease of shop.

Further support is given to the increased product purchasing probability from those studies specifically focused around end-of-aisle displays. A few studies indicate that sales increase significantly for the product when on the end-of-aisle display (Chevalier, 1975; Wilkinson et al., 1982; Lucas, 1996). A study conducted by Chevalier (1975) focused on end-of-aisle displays in supermarkets and their impact upon sales. Chevalier (1975) found that, on average, displays with a price reduction increased sales by 572% of their normal weekly sales. There was a wide range of increases, from 140% to 2,345%, but very few achieved above 1,000% (Chevalier, 1975). Similar findings were displayed by Wilkinson et al. (1982), who found that unit sales for end-of-aisle displays (at cost) increased from 175% up to 577% on the supermarket products studied. Also Lucas (1996) indicated that end-of-aisle displays tend to generate over seven times the incremental sales of normal shelf displays. Further support is given from a recent article which focused on in-store displays online. Breugelmans and Campo (2011) found that in-store displays “[increased] brand sales of up to 106 percent” with first screen displays (the equivalent of end-of-aisle displays in brick and mortar stores) which outperformed the other displays (Breugelmans & Campo, 2011, p. 85). Even though this study was conducted online, it is still a good indication of the similarities in displays between brick and mortar and online retailers, and indicates that the same increases in sales remain evident within other forms of retailing.

Some studies that are not as specifically focused on end-of-aisle displays provide some differing views. A study conducted by Curhan (1974) focused on the effect of merchandising and promotional activities in the produce sections of supermarkets. Highly visible display areas that received high quantities of traffic were utilised for the study, such as “floor tables, ends of large tables, and high-traffic positions on wall counters” (Curhan, 1974, p. 287), to help with the examination of location quality. The results concluded that certain types of fruit and vegetables benefited from the utilisation of these display locations but other types displayed negative effects and were not required for the encouragement of shopping. Another study showed comparable effects. This study was undertaken by Fiore et al. (2000) in a room on a university campus where a clothing display was set up. Participants were expected to examine the display and complete a questionnaire. Fiore et al. (2000) found only a small increasing effect on the sales of the products displayed. This effect was insignificant and could have been due to the fact that the study was not undertaken in an actual retail setting, meaning it was based on the participant’s attitude toward the clothing not based on their behaviour.

In the research that did not focus on end-of-aisle displays specifically, these displays were still highly visible and positioned in high traffic areas, but for reasons such as being located online (Breugelmans & Campo, 2011), located in the produce department (Curhan, 1974), or not located in an actual retail setting (Fiore et al., 2000), this deems them inappropriate for categorisation under end-of-aisle display as stated by definition. It is still necessary to include the literature around these types of in-store displays as they are relevant to the effects of end-of-aisle displays in-store and help to provide a more informed understanding of the effects of in-store displays like end-of-aisle displays, and their effects on sales.

## **2.10 Shopper Orientation**

Shoppers can be classified by shopping orientation depending on what motivates them to shop. Some shoppers choose to go shopping for pleasure while others choose to go because they have to. These two types of shoppers are defined as hedonic (pleasure-oriented) and utilitarian (task-oriented) (Kaltcheva & Weitz, 2006). Utilitarian shoppers are usually goal-oriented, shop out of necessity and require little or no satisfaction to be derived from the shopping task (Kaltcheva & Weitz, 2006; Ryu, Han & Jang, 2010). On the other hand, hedonic shoppers are motivated by sensual pleasure, fantasy and fun (Ryu et al., 2010), they derive satisfaction from the shopping activity, and they are more likely to make impulse purchases (Kaltcheva & Weitz, 2006; Breugelmans & Campo, 2011). It is important to define and classify shoppers when undertaking research of this nature, as it helps to provide insights into the variations between observed behaviours (Granbois, 1968).

As research has found, utilitarian shoppers are less likely to pay attention to in-store displays in comparison to hedonic shoppers (Breugelmans & Campo, 2011). As detailed by Breugelmans and Campo (2011), utilitarian shoppers “pay less attention to environmental cues and are reluctant to change their purchase plans in response to in-store incentives” (p. 77), whereas hedonic shoppers “are more susceptible to influences from the store environment and [are] more willing to engage in exploratory behaviour and adjust their purchase plans” (p. 78). Utilitarian shoppers like to make comparisons between products before purchasing and being presented with the product before the product category can cause drawbacks, as attention is not ready to be focused on that product category yet (Breugelmans & Campo, 2011). Hedonic shoppers display more attention to these in-store incentives and immediate reactions can transpire without the



need for further comparisons (Breugelman & Campo, 2011). From these insights, hedonic shoppers may be more likely to pay attention to the end-of-aisle display and utilitarian shoppers may be less likely. Further investigation into these insights will be undertaken in the current study.

Male shoppers tend to engage in more utilitarian behaviour when undertaking their shopping, in comparison to females, who seem to participate in more hedonic behaviour. A study conducted by Tifferet and Herstein (2012) found that, females had higher levels of hedonic consumption and impulse buying than did males. Support was revealed by Kotze's, North's, Stols' and Venter's (2012) findings that females enjoy shopping more than males. Further support was established by Ezell and Motes (1985) where, in comparison to females, male shoppers were found to have a greater dislike for the grocery shopping, impulse buying was less frequently engaged with, specials had less of an influence, and it was important that store characteristics enabled them to carry out their shopping task in minimal time. Similar findings were evident within Mortimer and Clarke (2011) study, where speed and efficiency were more important to males than weekly specials, regular discounts and promotional pricing were to females. Mortimer's (2012) findings also support these results, in that male shoppers who approached the shopping task demonstrated a sense of disinterest, indifference and apathy, nearly half sought convenience and most rarely checked prices or considered complex product evaluation criteria. These studies help to prove that characteristics are prevalent in both male and female shoppers which demonstrate their tendency toward a utilitarian shopper type or a hedonic shopper type.

## **2.11 Shopping Party**

Interaction between shoppers and the people who accompany them takes place on a regular basis in supermarkets (Ebster, Wagner & Neumueller, 2009). Those people accompanying a shopper during their shopping trip are referred to as shopping companions (Borges, Chebat & Babin, 2010). These companions can be friends, family, peers, work colleagues, acquaintances or any person whom one chooses or has to shop with. Shopping companions influence the shopping experience, interfere with the shopping environment (Borges et al., 2010) and influence behaviour (Luo, 2005). Research indicates that when shopping with companions, planned purchases change (Granbois, 1968), more time is spent in-store (Sommer, Wynes & Brinkly, 1992) and additional purchases are made (Woodside & Sims, 1976) in comparison to lone

shopping. There are a couple of studies which go more in-depth, focusing on the different types of companions (friends, family and co-workers) and their influence on shoppers (e.g. Luo, 2005; Ebster et al., 2009; Borges et al., 2010). These studies establish that a hedonic shopping experience is more likely to evolve when shopping with friends in comparison to a utilitarian orientation when shopping with family (Borges et al., 2010). Shopping with friends was found to influence more spontaneous shopping/purchasing behaviour whereas shopping with family tended to activate normative values and decrease urges to purchase (Luo, 2005; Borges et al., 2010). During parent-young child shopping, parents were shown to be continually bombarded with requests to purchase certain products from their children (Ebster et al., 2009). Parents generally agreed to the child's request when the product could be consumed within the store (Ebster et al., 2009). Pettersson, Olsson and Fjellstrom (2004) study provides a good example, where free bananas samples were given out in-store. A young boy shouts at his dad (from where the free bananas are being given out) to ask if he can have one. The father says he can take one. This example demonstrates not only the yielding of the child's request of consumable items in-store but also the interaction between the shopper and companion in the store environment.

When shopping, a companion can interfere with the shopping environment more than other shoppers. Other shoppers within the store environment can easily be ignored by the shopper whereas a friend, family member or co-worker cannot; some attention is required to be given (Borges et al., 2010). When a shopper's attention is focused on a task, the mere presence of another shopper can reduce this attention (Borges et al., 2010). As Baron, Moore and Sanders (1978) indicate, "people are more distracted in the presence of an audience than when alone" (p. 821). A distraction can occur when an external stimulus, imposed by a second party, attempts to divert the subject's attention from the task at hand (Sanders, Baron & Moore, 1978). If the distraction is far more interesting than the task at hand, total attention diversion could occur (Baron, Baron & Miller, 1973). How this relates to the shopper and their companion in the shopping environment is that the shopper may be focusing on a task (observing the end-of-aisle display) and the companion may distract the shopper by indicating their interest in an in-store demonstration. At this point, the shopper must choose to respond to the companion or continue on with the task at hand. If the end-of-aisle display was dull or non-involving, the shopper may divert their total attention to the companion and in-store demonstration. To date there is no known research demonstrating this distracting effect

by the shopper toward the demonstration from the end-of-aisle display, so further investigation into this area is required.

## **2.12 Shopping Device**

A shopping device within the store environment can be anything from a trolley to a basket to a trundler to a shopper's arms/hands, basically anything that acts as a storage zone for transporting goods around the supermarket. Due to the minimal research available on shopping devices (e.g. Cochoy, 2008), research focusing on shopping trip type and the effects on sales promotions in-store had to be utilised (e.g. Kahn & Schmittlein, 1992; Mazumdar & Paptla, 1995). Shopping trip types consist of fill-in trips, intermediate trips and major trips (Mazumdar & Paptal, 1995). Fill-in trips are said to involve purchases of five or fewer items (Mazumdar & Paptal, 1995) generally satisfying more urgent needs, involve smaller effort and comprise of time constraints (Kollat & Willett, 1967, as cited in Kahn & Schmittlein, 1992). Intermediate trips are said to be between fill-in and major trips, they usually purchase between five and twenty items and time in-store is generally not as restricted as it is during fill-in trips (Mazumdar & Paptal, 1995). Major trip shoppers are generally those shoppers undertaking their weekly or regular shops (Kahn & Schmittlein, 1992), purchase twenty five items or more, and are thought to travel around the store purchasing all the necessary items in a pre-planned manner (Mazumdar & Paptal, 1995).

Therefore, the shopping devices chosen by shoppers can be a good indicator of the type of shopping trip undertaken. Shoppers with no shopping device are clearly participating in fill-in trips, as their capability to transport more than a few items around the store with their bare hands/arms would be very difficult and in some cases impossible. Shoppers with a basket are clearly participating in an intermediate trip, as a basket allows them to purchase between five and twenty items (give or take), whereas shoppers with trolleys are clearly undertaking a major trip, as a large amount of goods can be transported around the store. Cochoy (2008) indicates that shoppers plan their volumetric constraints through the shopping device chosen. Depending on the device chosen, the shopper is faced with a volume limit, meaning only a specific number of items can be purchased depending on the choice of the device. Therefore, the device chosen is an indication of the shopping trip the shopper intends to undertake.

The studies that focused on the type of shopping trip were found to have different effects on sales promotions in-store. A study undertaken by Mazumdar and Papatla (1995) found that during both fill-in and major trips shoppers displayed lower responses to in-store displays than intermediate trip shoppers. The low response to displays during fill-in trips was said to be expected due to time spent in store, as it may have been very short (Mazumdar & Papatla, 1995). The low response to displays during major trips may have been due to major trip shoppers focusing on purchasing all the necessary items in a pre-planned manner from one aisle to the next, rather than from the displays within the store (Mazumdar & Papatla, 1995). Kahn and Schmittlein (1992) found that shoppers who completed a major/favourite and fill-in/non-favourite shopping trip, were less prone to purchasing from displays, whereas shoppers completing fill-in trips at their favourite stores and major trips at their non-favourite stores had a tendency to purchase from the displays. The mixture of results indicates that further investigation into the different effects of fill-in (shoppers with no device), intermediate (shoppers with baskets) and major (shoppers with trolleys) shopping trips is needed to help develop a greater level of understanding for the effects on sales promotions in-store.

### **2.13 Research Question and Development of Hypothesis**

The literature review revealed that shopper movement patterns, in-store product demonstrations and end-of-aisle displays are largely under-researched. It is established that further academic insights and more detailed knowledge around in-store product demonstrations and end-of-aisle displays are required. No research to-date has observed shopper movement patterns and the effects of positioning an in-store product demonstration near an end-of-aisle display within supermarket retailing. So, to help find answers to some of the prevalent issues in the literature review and to provide some meaningful information about shopper movement patterns, in-store demonstrations and end-of-aisle displays, two research questions and several hypotheses were developed.

The first proposed research question is:

- (1) Does having an in-store product demonstration situated near an end-of-aisle affect shopper's attention to the end-of-aisle display?

This will also help to understand where the most effective place to locate a product demonstration and will help to determine whether two promotional activities next to each other are beneficial or not.

The second research question is:

(2) Does having an in-store product demonstration situated near an end-of-aisle display affect the amount of product taken from the end-of-aisle displays for purchasing?

A series of sub questions under this question will be addressed, such as (1a) when the product on the end-of-aisle display is the same as the product being demonstrated, what effect does this have on the amount of product taken for purchasing? And (1b) when the product on the end-of-aisle display is a promotional product which is not related to the product demonstration, what effect does this have on purchasing from both the end-of-aisle display and demonstration? This will help to understand where the most effective place to locate a product demonstration is and what product to situate near the product demonstration on the end-of-aisle display, if the demonstration is in fact located by an end-of-aisle display.

Several hypotheses will be tested:

H1: When the product on the end-of-aisle display is the same as the product being demonstrated:

- a) Shopper attention to the end-of-aisle display will increase
- b) Shopper purchasing from the end-of-aisle display will increase

H2: When the product on the end-of-aisle display is different from the product being demonstrated:

- a) Shoppers attention to the end-of-aisle display will decrease
- b) Shopper purchasing from the end-of-aisle display will decrease

## **Chapter Three: Research Design**

### **3.1 Introduction**

The following chapter details the methods and procedures undertaken in order to gain answers to the research questions and test the predetermined hypotheses. A detailed discussion focusing on the experimental design and statistical procedures are given. The experimental design discussion specifically covers the after-only with control group design, field experiments and observational research. Each method is described in full with explanations given regarding choice and relevancies to the current research. The statistical procedures discussion focuses specifically on logistic regression where explanations of the analysis technique are detailed and procedures undertaken in SPSS are stated. The characteristics of the sample and ethical consideration were also included in this section to help build a more comprehensive picture of the research.

### **3.2 Experimental Design**

#### **3.2.1 After-only with control group design**

In order to answer the research questions and test the predetermined hypothesis, a true experimental design was chosen, in the form of an after-only with control group design. A “true experimental design is distinguished by the fact that the experimenter can randomly assign treatments to randomly selected test units” and can control the when and to whom of exposure and measurement (Churchill & Iacobucci, 2002, p. 150). The after-only with control group design was chosen due to its ability to produce the estimated impact of the experimental variable without the before measurement (Churchill & Iacobucci, 2002). Shopper’s level of attention to the demonstration and end-of-aisle display was not needed before they were allocated to the experimental or control groups, as the required effect was obtained in the after measurement. As Churchill & Iacobucci (2002) state, the before measurement is not critical to estimating the impact of the experimental variable because regardless of what the before measurement is, it cancels in the basic calculation of the effect of the experimental variable. Therefore, because no before measurement is made, the assumption of the groups being equal prior to exposure, demands that, the assignment

of test units to groups is random (McDaniel & Gates, 1998; Churchill & Iacobucci, 2002; Smith & Albaum, 2004).

Randomisation in the current study was ensured to help with validity of the results. Samples of shoppers were allocated to the experimental group and the control group in the natural environment of the supermarket. Three days of data collection were undertaken, with two of those days being allocated to the experimental group and one day to the control group. The experimental groups were exposed to a demonstration situated near an end-of-aisle display during their shopping trip. The control group were exposed to the same end-of-aisle displays, but where no demonstration was present. On the first day of data collection, a demonstration was positioned directly opposite the end-of-aisle display. The food demonstrator was demonstrating a product from the drink category and the end-of-aisle opposite displayed the same product being demonstrated. On the second day of data collection another demonstrator was positioned directly opposite the end-of-aisle display, except this time the end-of-aisle display had another promotional product displayed (biscuit category) which was not relevant to what the demonstrator was demonstrating (drink category). On the third day of data collection, no demonstration was present but both drinks and biscuits were displayed on the end-of-aisle displays.

None of the groups (experimental or control) were pre-measured, but after-measurements were taken, focusing on shopper's attention to the end-of-aisle displays and/or the demonstrations (experimental condition) or no demonstration (control condition) and whether they took the product for purchase from the end-of-aisle display and/or demonstration. Pre-measurements were unattainable as the randomly selected sample of shoppers were those shoppers undertaking their shopping at the time the experimental or control conditions were put into place. Through conducting no pre-test and ensuring the sample of shoppers was random, Churchill & Iacobucci (2002) indicate that no interactive testing effect occurs, meaning that the results can be generalized to the population. Having a randomly selected sample of shoppers, their behaviours should be much like that of the larger population of shoppers (Churchill & Iacobucci, 2002), with some paying attention to the demonstration and end-of-aisle display, some only paying attention to the demonstration or end-of-aisle display, others paying no attention at all, some taking product for purchase from the end-of-aisle display and/or demonstration and some not taking the product for

purchase at all. Therefore, because a range of behaviours will be exhibited, the results of the current study can be generalisable to shoppers across New Zealand.

Furthermore, individual cases of change are not of interest in the current study. Shopper movement patterns and attention to the end-of-aisle display and demonstration are more important as a whole than on an individual level. Churchill & Iacobucci (2002) detailed that the after-only with control group design is viable if the individual cases of change are not of interest. Individual cases would not give enough detailed information about the overall effects of shoppers in general. It would only give information specific to each individual case, which in turn, could not be generalised to the population. Therefore, collection of data was for the duration of the demonstration, and for a similar time period when there was no demonstration. One thousand eight hundred and seven shopper movement patterns and behaviours were recorded (as this was the amount of shoppers who visited the store during data collection) and measurement was undertaken collectively, not individually.

### **3.2.2 Field Experiment**

Before conducting the field experiment, a comprehensive literature review entailing research to-date was undertaken to find out what other academics and trade personnel had discovered regarding shopper movement patterns, shopper behaviour, end-of-aisle displays and product demonstrations in a range of different retailing contexts. The field experiment was then undertaken in a higher-end supermarket in Auckland, New Zealand, where multiple independent variables (day, gender, shopping device, shopping party, direction of movement and travel) were manipulated under carefully controlled conditions. Churchill and Iacobucci (2002) explain that field experiments are undertaken in realistic or natural situation, where one or more independent variables are manipulated under as careful conditions as possible. A natural situation in this case is the supermarket, as the environment is not artificial. The environment has not been created specifically for this experiment, the store is there permanently and real life shoppers undertake their shopping in the store. Careful control of conditions is needed within field experiments to ensure internal validity is improved (Churchill & Iacobucci, 2002). Internal validity “refers to our ability to attribute the effect that was observed to the experimental variable and not to other factors” (Churchill & Iacobucci, 2002, p. 140). Laboratory experiments are known for their internal validity whereas field experiments are not (Churchill & Iacobucci, 2002). In the current study control was



undertaken as carefully as possible, to help improve the internal validity of the study. Shopper observations were collected via security footage, the same area was used for the experimental conditions as for the control conditions, every shopper who entered the area during data gathering were included in the sample, the demonstration booths were the same, a female demonstrator was used for both demonstrations and nothing within the area was changed during data collection. All of these were developed to ensure the reliability of the results were unaffected. As mentioned, through putting these conditions in place the effect has a higher chance of being associated to the experimental variable and not to other factors within the store environment.

Even though internal validity is not a strong point for field experiments, external validity generally is (Churchill & Iacobucci, 2002). As stipulated by Churchill and Iacobucci (2002) “external validity focuses on the problems of collecting data that demonstrates that the changes in the criterion variable observed in the experiment as a result of changes in the predictor variables can be expected to occur in other situations” (p. 140). In the current field experiment, shoppers were unaware of the experimental conditions, meaning that they could not change their behaviour as they may have done in a laboratory setting. In a laboratory setting, when the researcher presents the respondents with a demonstration situated near an end-of-aisle display, it may encourage a heightened awareness of both promotional devices, as they are not in their natural environment, causing more attention to be paid than would normally occur within the supermarket environment. In addition, “those who agree to participate in the laboratory experiment may not be representative of the larger population of shoppers, either because the location of the study was atypical or because those who willingly participate in such a study may be systematically different from those who decline to participate; [therefore] jeopardize the external validity of the findings” (Churchill & Iacobucci, 2002, p. 140). Thus, undertaking a field experiment allows for the results to be more generalisable to the population of shoppers.

### **3.3 Observational Research**

Observational research is a tool of scientific inquiry that allows for specific phenomenon of interest to be investigated (Churchill & Iacobucci, 2002). It has the ability to provide highly detailed (Wells & Lo Scuito, 1966; Skogster et al., 2008) and accurate information about shopper behaviour in-store. Due to its ability to capture a nearly complete record of what shoppers actually do (Wells & Lo Scuito, 1966); it is

far superior to that of in-store shopper interviews. In-store shopper interviews rely on the reliability of self-reporting, which can be invariably inaccurate (what they say they did and what they actually did) (Uotila & Skogster, 2007), as ninety five percent of shopper behaviour is dominated by unconscious thinking (Min-Hoon, 2012). This unconscious thinking/behaviour can be captured on camera, interpreted by the researcher and a higher level of understanding regarding shopper behaviour can develop. Observational research, especially via security footage, captures the complete record of what shoppers actually do and not what they say they do.

There are four types of observation: structured, unstructured, disguised and undisguised (Churchill & Iacobucci, 2002). A semi-structured approach was undertaken where shoppers' actions and specific information was specified before the observations (structured) and additional information was added during the observations (unstructured). If pure unstructured observation was undertaken, every single action or movement carried out by the shopper would have been recorded (Churchill & Iacobucci, 2002). Recording at this level of detail was unnecessary for the current research questions and hypotheses. Subsequently, a semi-structured approach was accomplished, as prior experience with this method of research has been achieved. Also, the reason for structuring the observations was largely to reduce the potential for bias and increase the reliability of observations (Churchill & Iacobucci, 2002).

Furthermore, through the use of security footage, a disguised approach was enabled, allowing for more natural behaviour to be observed (Dodd et al., 1998). Disguised and undisguised observation refers to whether or not the shoppers know they are being observed (Churchill & Iacobucci, 2002). As Skogster et al. (2008) identified, shoppers can alter their behaviour if they know they are being followed. Through the use of security footage as an observation method, shoppers are unaware they are being followed (Skogster et al., 2008), meaning more natural behaviour can be observed (Dodd et al., 1998). Underhill (1991) supports this by stipulating that it is crucial to observational research that shoppers do not realise they are being observed, as it is difficult to know whether natural behaviour is being observed or not. Observation via security footage has proven to capture natural behaviour and reliable findings (e.g. Newman, Yu & Oulton, 2002). These reliable findings include effective data concerning shopper movement patterns (Phillips & Bradshaw, 1991; McCullagh & Thorton, 1995, as cited in Dodd et al., 1998, p. 314) and shopper responses to factors

within the store environment (Dodd et al., 1998). Through undertaking observation via security footage, more natural behaviour will be seen and responses to factors within the store environment, such as the positioning of a demonstration near an end-of-aisle display, will be established. Overall, the information provided here helps to demonstrate why observation through the use of surveillance is an appropriate method for helping to answer my research questions and hypotheses.

### **3.3.1 Observational Mapping**

To transform the footage into data, a detailed map of the area under observation was secured from the organisation before data collection (see appendix one). The map was used for the manual recording of shopper movement patterns to evaluate shopper activity. As Phillips and Bradshaw (1991) point out, manually recording shopper movement patterns from camera footage is “extremely labour intensive” (p.20) but gives very detailed information about customer behaviour (Skogster et al., 2008). Whilst manually recording shopper movement patterns from the footage, other information was recorded onto the store map such as, their gender, shopping party, shopping device, what direction they were traveling, where they had come from, where they were headed, where they focused their attention, where they glanced, whether they took a product from the end-of-aisle display or demonstration table, whether they took a sample or not, whether they spoke with a demonstrator or not and where they stopped. The reason for collecting such information is that the more information collected about what shoppers do in-store helps to give a better understanding of shopper behaviour (Granbois, 1968; Sorenson, 2009). Recording what shoppers pay attention to will help to operationalise and quantify the effect of having a demonstration positioned near an end-of-aisle display.

### **3.4 Statistical Analysis**

After observational mapping, the information recorded onto the maps was coded (see appendix two for coding), ready for the data to be entered into a data file in Microsoft Excel. Upon completion of entering the data into a data file, the data file was then transferred to SPSS 19 where the statistical analysis procedures began. Initially, the data was checked for any errors to ensure no scores were outside the possible range, as statistical analyses could have been distorted (Pallant, 2010). Frequencies for each variable were checked and only a few minor errors were found, which were corrected

immediately. Descriptive statistics were undertaken to help describe the characteristics of the sample (Pallant, 2010), followed by logistic regression, to help predict whether shoppers would be more or less likely to pay attention to the in-store demonstration or end-of-aisle display when a demonstration was positioned near an end-of-aisle display.

### **3.4.1 Logistic Regression**

Logistic regression is a multivariate statistical technique utilised for estimating the probability that an event will occur or will not occur (Norusis, 1993). Logistic regression was chosen for its ability to handle categorical (dichotomous) dependent variables (Pallant, 2010) and categorical independent variables (with two or more categories) (Hair, Anderson, Tatham & Black, 1998; Pallant, 2010). In the current study, both the dependent and independent variables were categorical. The dependent variables (shopper's attention to the end-of-aisle display or demonstration and shoppers removing a product for purchase from the end-of-aisle display or demonstration) required a yes or no answer and each independent variable (day, shopping party, shopping device, gender, direction of movement and travel) had three or more categories. Through utilising logistic regression "it [allowed for the assessment of] how well the set of predictor variables [also known as independent variables] predicts or explains the categorical dependent variable. It [gave] an indication of the adequacy of the model (set of predictor variables) by assessing 'goodness of fit' [and it provided] an indication of the relative importance of each predictor variable or the interaction among the predictor variables" (Pallant, 2010, p. 171). All of these factors were important for discovering which of the predictor variables had an effect on the dependent variable and whether any interaction effects were present.

When undertaking logistic regression in SPSS, binary logistics and a forced entry method were undertaken. Binary logistics was chosen over multinomial as there were only two possible outcomes, a yes or a no. The forced entry method was used to control for the effects of other predictors in the model (Pallant, 2010). This method was chosen over stepwise procedures, as they have been criticised (see Tabachnick & Fidell, 2007, for a discussion on stepwise procedures, as cited in Pallant, 2010). All of the variables utilised were declared as categorical and the coding scheme utilised was indicator-variable coding. Reference groups for each of the independent variables were determined, so that when the variables were recoded "the coefficients for the

new variables [represented] the effect of each category compared to a reference category” (Norusis, 1993). Each of the reference groups were chosen based on characteristics found within the sample (see characteristics of sample below for details).

### **3.5 Characteristics of Sample**

As mentioned, the sample consisted of 1,807 shopper movement patterns collected over three separate days. Of those 1,807 shopper movement patterns, 1,186 were females (65.6%), 494 (27.3%) were males and 127 (7%) were a combination of males and females. Traditionally females were largely found to undertake the shopping task but as of late, it is more common to observe male shoppers undertaking the task also (Ezell & Motes, 1985; Mazumdar & Papatla, 1995; Otnes & McGrath, 2001; Brosdahl & Carpenter, 2011; Mortimer & Clarke, 2011). From the statistics presented here, females are still the dominant shopper, but it is evident that a large proportion of males are undertaking the shopping also. Seeing as the differences in gender in the shopping environment are similar to those mentioned in other studies, this helps to demonstrate that the sample is representative of the population of shoppers, not just of the shoppers within this study. As female shoppers comprise the largest group of shoppers, they were chosen as the reference category for the variable gender, for logistic regression analysis.

Furthermore, of the three separate days utilised for data collection, the first day of data collection involved 1,102 shoppers (61.0%) who were exposed to a juice demonstration situated near an end-of-aisle display, where the demonstration product (juice) was on the end-of-aisle display (see appendix one). On day two, 347 shoppers (19.2%) were exposed to a juice demonstration situated near an end-of-aisle display, where another promotional product (biscuits) was on the end-of-aisle display (see appendix one). On day three, 358 shoppers (19.8%) were exposed to no demonstration but the same end-of-aisle displays were utilised (see appendix one for location of research area), where the juice and biscuit products were positioned on the end-of-aisle displays. As day three represents the usual shopping experience (no demonstration present but specials on the end-of-aisle displays), it was chosen as the reference category for the variable day, for logistic regression analysis.

There were fifteen shopping party types in which shoppers were a part of. Shopping parties consisted of individuals (n=1,463), a male and a female (n=119), two females

(n=88), a female and a child (n=66), a male and a child (n=11), a female with more than one child (n=17), two males (n=18), two females and a male (n=1), a male with more than one child (n=3), two females and a child (n=6), four females (n=1), three females (n=5), a male, a female and two children (n=3), a female, a male and one child (n=4), two females and two children (n=2). The group of shoppers who did their shopping individually were chosen for comparison to all of the other shopping parties. This was chosen because it was the largest group.

Moreover, six types of shopping devices were used during shopping trips around the supermarket (nothing, trolley, trundler, pram, wheelchair and basket). The largest group of shoppers, 633, utilised trolleys to carry their goods around the supermarket (35%). The second largest group of shoppers, 615, were those who did not use any device and chose to carry their products within their arms or hands (34%). The third largest was those shoppers (n=522) who used a basket (28.9%). The other shopping devices used demonstrated small amounts of shoppers utilising the devices. Only 14 shoppers used trundlers (0.8%), 21 shoppers used prams (1.2%) and 2 shoppers used wheelchairs (0.1%). Basket shoppers were chosen as the comparison group, as the supermarket generally targets basket shoppers, being located in a mall.

Lastly, direction of movement and direction of travel around the store were investigated. Shoppers had three ways in which they could travel around the store; around the perimeter, through the aisles or in both the perimeter and aisles. 990 shoppers travelled both the aisles and perimeter (54.8%), 662 travelled the perimeter (36.6%) and 155 travelled the aisles (8.6%). Perimeter travel was selected for the other two to be compared to, as basket shoppers would generally travel the perimeter to get a few things quickly instead of travelling up and down the aisles. Shoppers' direction of movement around the store was in an anti-clockwise direction, a clockwise direction or both an anti-clockwise and clockwise direction simultaneously. 1,457 shoppers travelled in an anti-clockwise direction (80.6%), 269 shoppers travelled in a clockwise direction (14.9%) and 81 travelled in both a clockwise and anti-clockwise direction (4.5%). Anti-clockwise direction of movement was chosen as the reference group for logistic regression analysis, as this was the pre-determined direction of movement for the store and the largest group of shoppers moved around the store in this direction.

### **3.5 Ethical Considerations**

The current study did not require ethics committee approval for the following reasons: the observation was unobtrusive of the mass movement of people through what is loosely termed a public place, the video images involved were bird's eye view and were at a distance that makes identification of individuals improbable, no video images were published within the findings, the video recordings were taken by the supermarket as part of their usual business practice, the appropriate signage was positioned around the store to ensure shoppers knew they were being recorded and the video footage was provided by the supermarket, meaning permission to utilise this data was granted. Therefore ethical approval was not needed.

### **3.6 Conclusion**

As concluded, each of the components of the research design was discussed and a more comprehensive picture of the research was constructed. Having reliable and generalisable results seemed to be the most prevalent reasons for selecting each of the components of research design. Other factors that were highly important to the construction of the research was having highly detailed and accurate information (observational research), reducing potential for bias (structured observations) and observing more natural behaviour (disguised observations). Logistic regression as an analysis technique was important for discovering which of the predictor variables had an effect on the dependent variable and whether any interaction effects occurred. To help aid with logistic regression, reference groups were chosen via characteristics of the sample and ethical aspects were taken into consideration. Through considering each of the components of the research design and undertaking the research in the manner mentioned, the findings can be presented in the following chapter.

## **Chapter Four: Findings**

### **4.1 Introduction**

This chapter provides the findings related to each of the research questions and hypotheses. It details how shoppers' attention to and purchasing from an end-of-aisle display and demonstration can be affected by the positioning of a demonstration near an end-of-aisle display. There are four main sections within this chapter: shopper attention toward the end-of-aisle display, shopper attention toward the demonstration, shopper purchasing via end-of-aisle display and shopper purchasing via demonstration. Each section is broken down further into main effects, two-way interaction effects, three-way interaction effects and four-way interaction effects. Through each of the findings being detailed in this chapter, a discussion in the following chapter can transpire.

### **4.2 Shopper Attention toward the End-of-aisle Display**

Shoppers' attention to the end-of-aisle display was affected by a number of factors (see figure one). Four main effects (shopping device, travel, day and direction of movement), five two-way interaction effects (day and travel; direction of movement and gender; shopping device and travel; day and direction of movement; day and shopping device), six three-way interaction effects (direction of movement, gender and shopping device; direction of movement, day and shopping device; day, shopping device and travel; gender, shopping device and travel; day, direction of movement and travel; direction of movement, gender and shopping device) and one four-way interaction effect (day, direction of movement, shopping device and travel) were discovered on shoppers likelihood of paying attention to the end-of-aisle display. As illustrated in figure one, all of the effects are colour coordinated to indicate what effect occurred. The main effects are blue, the two-way interactions are red, the three-way interactions are green and the four-way interactions are purple. This colour coordination carries throughout this chapter to help exemplify which effect is being discussed.





Figure 1 – Main and interaction effects on shopper’s attention to the end-of-aisle display

#### 4.2.1 Main Effects

Logistic regression was performed to assess the impact of a number of factors on the likelihood that shoppers would pay attention to the end-of-aisle display. Six independent variables were included in the model (day, gender, shopping party,

shopping device, direction of movement and travel). The full model containing all predictors was statistically significant,  $\chi^2 (26, N=1807) = 280.41, p < .001$ , indicating that the model was able to distinguish between shoppers' level of attention toward the end-of-aisle display. The model as a whole explained between 14.4% (Cox and Snell R square) and 19.4% (Nagelkerke R Square) of the variance in attention, and correctly classified 68.8% of cases. As shown in figure two, only four of the independent variables made a statistically significant contribution to the model (direction of movement, travel, shopping device and day) (see table one for statistical significance).

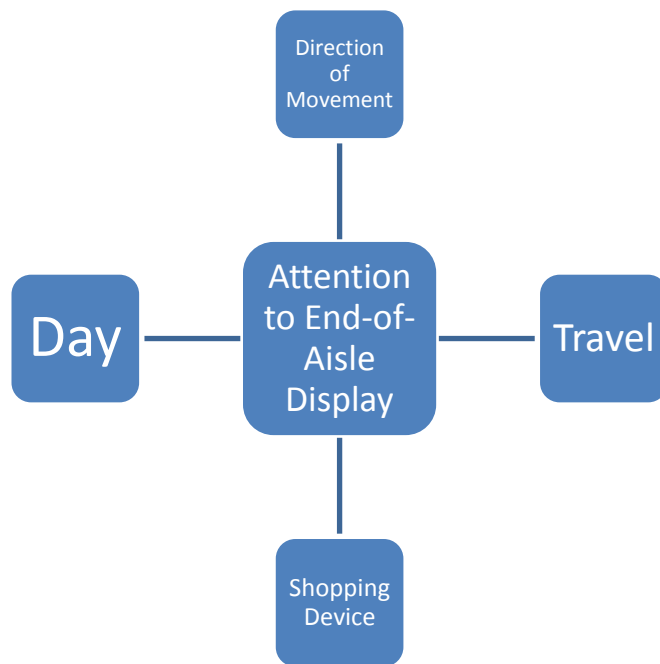


Figure 2 – Main effects on shopper's attention to the end-of-aisle display

The strongest predictor for shoppers paying attention to the end-of-aisle display was 'direction of movement', where shoppers who travelled in both directions (anti-clockwise and clockwise) recorded an odds ratio of 1.619 (see table one). This indicated that shoppers who travelled both in an anti-clockwise and clockwise direction were 61.9% more likely to pay attention to the end-of-aisle display than those who only travelled in an anti-clockwise direction. Another significant result was shoppers who travelled in a clockwise direction (see table one for statistical significance). They were found to be 61.5% less likely to pay attention to the end-of-aisle display than those who travelled in an anti-clockwise direction. These results demonstrate that the direction of movement the shopper undertakes can significantly influence their attention to the end-of-aisle display.

Further findings showed that when a demonstration was encountered, shoppers were less likely to pay attention to the end-of-aisle display than when there was no demonstration (day three). For example, when a juice demonstration was positioned near the end-of-aisle display and the end-of-aisle display held the demonstration product, 81.4% of shoppers were less likely to pay attention to the end-of-aisle display than when there was no demonstration present. Another example was when a juice demonstration was positioned near the end-of-aisle display and the end-of-aisle display held another promotional product: 79.7% of shoppers were less likely to pay attention to the end-of-aisle display than when there was no demonstration present (day three). Both of these examples demonstrate that having a demonstration positioned near an end-of-aisle display imposes negative effects on the end-of-aisle display's attention-generating abilities as shoppers are less likely to pay attention to the end-of-aisle display when a demonstration is present in comparison to when one is not.

In addition, when shoppers had no shopping device or travelled both the aisle and the perimeter of the store, they were found to be less likely to pay attention to the end-of-aisle display than when utilising a basket or undertaking perimeter travel only. For example, shoppers who commenced their shopping with no shopping device were 46.4% less likely to pay attention to the end-of-aisle display than those with shopping baskets and shoppers who travelled both the aisle and the perimeter were 23.4% less likely to pay attention to the end-of-aisle display than those who only travelled the perimeter. These findings helped to demonstrate that specific factors within the shopping environment such as the direction of travel or the type of shopping device utilised can impact upon whether or not shoppers pay attention to the end-of-aisle display.

Table 1 – Significant variables related to shoppers attention to the end-of-aisle display

	<b>B</b>	<b>S.E.</b>	<b>Wald</b>	<b>Df</b>	<b>Sig.</b>	<b>Exp (B)</b>
Day(No Demo)			147.555	2	.000	
Day(1)(Juice Juice)	-1.683	.141	142.276	1	.000	.186
Day(2)(Juice Biscuit)	-1.593	.172	85.428	1	.000	.203
SD(Basket)			37.196	5	.000	
SD(1)(Nothing)	-.623	.136	21.136	1	.000	.536
DOM(Anti-Clockwise)			37.651	2	.000	
DOM(1)(Clockwise)	-.955	.169	31.826	1	.000	.385
DOM(2)(Both)	.482	.246	3.823	1	.051	1.619
Travel(Perimeter)			12.235	2	.002	
Travel(2)(Both)	-.267	.113	5.629	1	.018	.766

#### 4.2.2 Two-Way Interactions

Several two-way interactions emerged through the performance of logistic regression on the likelihood that shoppers would pay attention to the end-of-aisle display. Six independent variables were included in the model (day, gender, shopping party, shopping device, direction of movement and travel) and fourteen two-way interactions were constructed from these independent variables to gain insights into the interactions between two independent variables and their effect on the dependent variable (see appendix three). The full model, containing all predictors, was statistically significant,  $\chi^2(116, N=1807) = 386.36, p < .001$ , indicating that the model was able to distinguish between shoppers attention to the end-of-aisle display. The model as a whole explained between 19.3% (Cox and Snell R Square) and 26% (Nagelkerke R Square) of the variance in attention, and correctly classified 70.2% of cases. As shown in figure three, only five of the fourteen two-way interactions made statistically significant contributions to the model (day and shopping device, day and direction of movement, day and travel, shopping device and travel and direction of movement and gender) (see table two for statistical significance).

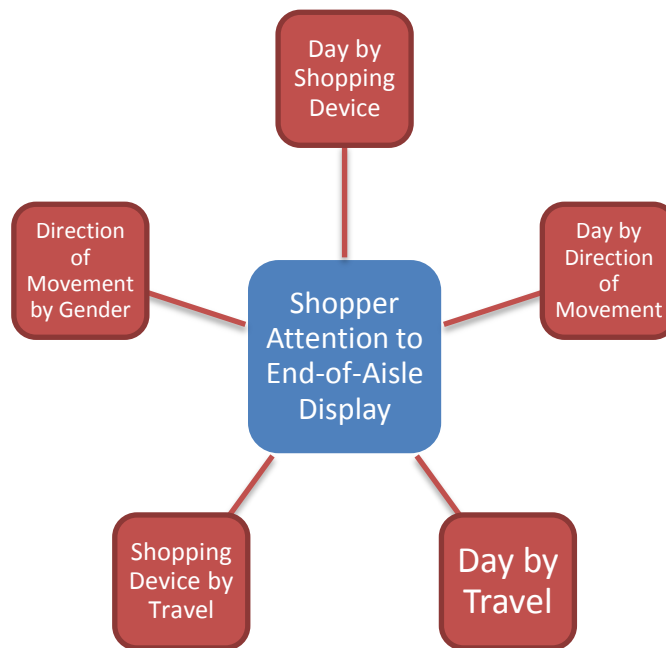


Figure 3 – Two-way interaction effects on shopper’s attention to the end-of-aisle display

The strongest two-way interaction for shoppers paying attention to the end-of-aisle display depended upon which shopping device and pathway the shopper selected during their shopping trip. An odds ratio of 4.634 was recorded when shoppers pushed trolleys and participated in aisle travel during their shopping trips (see table two). These shoppers were discovered to be 363.4% more likely to pay attention to the end-of-aisle display than those who choose to use a basket and travel around the perimeter of the store. Similar results were apparent when shoppers employed a trolley and both aisle and perimeter travel together. Shoppers were 184.9% more likely to pay attention to the end-of-aisle display when demonstrating the former behaviour in comparison to when a basket and perimeter travel was chosen to aid their journey. These findings indicate that when specific factors within the shopping environment are combined, such as the type of shopping device utilised and direction of travel undertaken by the shopper, that shoppers’ attention to the end-of-aisle display can be affected.

Mixed results were found for shoppers’ attention to the end-of-aisle display when direction of movement and day interacted. The mixed results were based around whether the demonstration product was on the end-of-aisle display or another product was on the end-of-aisle display. Shoppers who travelled in a clockwise direction, who were faced with a demonstration (where the demonstration product was on the end-of-

aisle display, day one), were 72.3% less likely to pay attention to the end-of-aisle display than shoppers who travelled in an anti-clockwise direction who were not faced with a demonstration (day three). Shoppers who travelled in a clockwise direction and were presented with a demonstration (where another product was on the end-of-aisle display, day two) were 183.6% more likely to pay attention to the end-of-aisle display than shoppers who travelled in an anti-clockwise direction who were not presented with a demonstration situated near the end-of-aisle display. These findings establish that, depending on the combination of having a demonstration present or not and the product on the end-of-aisle display, shoppers' attention to the end-of-aisle display can be affected.

Furthermore, depending on what situation the shopper is faced with, be it a juice demonstration with the juice from the demonstration on the end-of-aisle display (day one) or the juice demonstration with a biscuit on the end-of-aisle display (day two), shoppers are less likely to pay attention to the end-of-aisle display when combined with the direction of travel or the shopping device used. When both the aisle and perimeter were utilised (direction of travel), shoppers are 60% (day one) and 60.2% (day two) less likely to pay attention to the end-of-aisle display than when there is no demonstration and travel is strictly perimeter only. Also, on day one, shoppers who travelled the aisle were only 53.6% less likely to pay attention to the end-of-aisle display than those who faced no demonstration (day three) and travelled the perimeter only. When no shopping device was used, shoppers were 54.7% (day one) and 68.4% (day two) less likely to pay attention to the end-of-aisle display than when there was no demonstration and baskets utilised. Similar findings were prevalent when trolleys were used. Shoppers faced with a demonstration were 52.7% (day one) and 72.6% (day two) less likely to pay attention to the end-of-aisle display than when no demonstration and a basket were utilised. The findings presented here demonstrate that positioning a demonstration near an end-of-aisle display when the shoppers are travelling the aisle or both the aisle and the perimeter or utilising no device or a trolley, produces a negative effect on shoppers' attention to the end-of-aisle display. Furthermore, it is clear that depending upon the interaction between the presence of a demonstration and either the shoppers' direction of travel or shopping device utilised, shoppers' attention to the end-of-aisle display can be affected.

Lastly, even though gender was not found to have a main effect on shopper's attention to the end-of-aisle display, when analysed, in conjunction with direction of movement,

an interaction effect transpired. Male shoppers who travelled in a clockwise direction were found to be 68.3% less likely to pay attention to the end-of-aisle display than females who travelled in an anti-clockwise direction of movement. This demonstrates that females who travelled in the predetermined direction (anti-clockwise) are more likely to pay attention to the end-of-aisle display than males who travelled in the other direction. This finding helps to verify that when the shopper's gender is combined with their direction of movement, their attention to the end-of-aisle display can be affected.

Table 2 – Significant two-way interaction variables related to shoppers attention to the end-of-aisle display

	<b>B</b>	<b>S.E.</b>	<b>Wald</b>	<b>Df</b>	<b>Sig.</b>	<b>Exp (B)</b>
Day(NoDemo)*SD(Basket)			43.969	9	.000	
Day(1)(JuiceJuice)*SD(1)(None)	-.791	.207	14.638	1	.000	.453
Day(1)(JuiceJuice)*SD(2)(Trolley)	-.748	.192	15.232	1	.000	.473
Day(2)(JuiceBiscuit)*SD(1)(None)	-1.152	.287	16.102	1	.000	.316
Day(2)(JuiceBiscuit)*SD(2)(Trolley)	-1.293	.296	19.093	1	.000	.274
Day(NoDemo)*DOM(Anti-Clock)			34.574	4	.000	
Day(1)(JuiceJuice)*DOM(1)(Clock)	-1.285	.416	9.540	1	.002	.277
Day(2)(JuiceBiscuit)*DOM(1)(Clock)	1.042	.395	6.951	1	.008	2.836
Day(NoDemo)*Travel(Perimeter)			34.574	4	.000	
Day(1)(JuiceJuice)*Travel(1)(Aisle)	-.767	.387	3.928	1	.047	.464
Day(1)(JuiceJuice)*Travel(2)(Both)	-.917	.173	28.101	1	.000	.400
Day(2)(JuiceBiscuit)*Travel(2)(Both)	-.921	.264	12.202	1	.000	.398
SD(Basket)*Travel(Perimeter)			38.877	9	.000	
SD(2)(Trolley)*Travel(1)(Aisle)	1.553	.411	13.951	1	.000	4.634
SD(2)(Trolley)*Travel(2)(Both)	1.047	.212	24.333	1	.000	2.849
DOM(Anti-clock)*Gender(Female)			8.453	4	.076	
DOM(1)(Clock)*Gender(1)(Male)	-1.148	.403	8.125	1	.004	.317

#### 4.2.3 Three-Way Interaction

Several three-way interactions emerged through the performance of logistic regression on the likelihood that shoppers would pay attention to the end-of-aisle display. The model contained six independent variables (shopping party, shopping device, direction

of movement, gender, travel and day) which were combined into seventeen three-way interactions, to gain insights into the interactions between three independent variables and their effect on the dependent variable (see appendix four). The full model containing all interactions was statistically significant,  $\chi^2$  (176, N=1807) = 371.94,  $p < .001$ , indicating that the model was able to distinguish between shoppers who paid attention to the end-of-aisle display and those who did not. The model as a whole explained between 18.6% (Cox and Snell R Square) and 25.2% (Nagelkerke R Square) of the variance in shopper's attention, and correctly classified 65.4% of cases. As shown in figure four, only six of the seventeen interactions made a statistically significant contribution to the model (direction of movement, gender and shopping device; day, direction of movement and shopping device; day, shopping device and travel; day, gender and shopping device; gender, shopping device and travel; day, direction of movement and travel) (see table three for statistical significance).



Figure 4 – Three-way interaction effects on shopper's attention to the end-of-aisle display

The interaction between day, direction of movement and travel was found to have one of the strongest interaction effects for shoppers paying attention to the end-of-aisle display, recording an odds ratio of 4.300 (see table three). This effect appeared when shoppers travelled in a clockwise direction, moved between the aisle and the perimeter



of the store and were faced with a demonstration positioned near an end-of-aisle display, where another promotional product was on the end-of-aisle display (day two). These shoppers were found to be 330% more likely to pay attention to the end-of-aisle display than when there was no demonstration, direction of movement was anti-clockwise and travel was strictly within the perimeter. On the other hand, when travel was in a clockwise direction and movement was between the aisle and perimeter but a demonstration with the demonstration product on the end-of-aisle display (day one) was present, shoppers were 82.1% less likely to pay attention to the end-of-aisle display. This result is similar to the two-way interaction found in the previous section. The only difference is that another factor (travel: aisle, perimeter or both) has been incorporated into the interaction. Again these findings indicate that the combination of demonstration and product on the end-of-aisle display depends upon whether shoppers are more or less likely to pay attention to the end-of-aisle display.

The only other time shoppers were more likely to pay attention to the end-of-aisle display was found when gender, shopping device and travel interacted. Originally gender did not contribute to a significant effect on shopper's attention toward the end-of-aisle display but when interacting with other factors in the shopping environment, such as what shopping device the shopper had and where the shopper was travelling, this helped to produce an interaction effect. It was found that male shoppers who used trolleys and travelled in both the perimeter and aisle were 258.2% more likely to pay attention to the end-of-aisle display than female shoppers who had baskets and travelled the perimeter. This finding shows that when specific factors in the shopping environment are combined, such as the shoppers' gender, shopping device and direction of travel that, shoppers' attention toward the end-of-aisle display can be affected.

Gender was also found within two other interaction effects (day, gender and shopping device; direction of movement, gender and shopping device) but in these cases shoppers were less likely to pay attention to the end-of-aisle display. Male shoppers who happened to come across a demonstration during their shopping trip whilst carrying no shopping device were 55.8% (day one) or 65.2% (day two) less likely to pay attention to the end-of-aisle display than when female shoppers carried baskets and did not come across a demonstration during their shopping trip. Another example is when male shoppers travelled in both a clockwise and anti-clockwise direction with a trolley. They were found to be 99.4% less likely to pay attention to the end-of-aisle display than females who travelled in an anti-clockwise direction with a basket. Both of the prior

three-way interactions demonstrate that the end-of-aisle display are more likely to receive attention from females with baskets who either travel in an anti-clockwise direction or who are faced with the usual shopping experience (no demonstration present). The first finding indicates that when there was no demonstration present, attention to the end-of-aisle display was maximised, but as soon as a demonstration was present, the end-of-aisle display's attention-generating abilities were minimised. Again, this is a negative impact for the end-of-aisle display from positioning a demonstration near. Overall, these results help to demonstrate that when certain factors within the shopping environment interact with one another, shoppers' attention to the end-of-aisle display can be affected.

Lastly, significant interaction effects were found between day, shopping device and travel and day, direction of movement and shopping device. When shoppers pushed a trolley around the store, in a clockwise direction, they were 84.9% less likely to pay attention to the end-of-aisle display when a demonstration was present (where the demonstration product was on the end-of-aisle display), in comparison to when, shoppers carried baskets in an anti-clockwise direction around the store, where no demonstration were present. Also, shoppers with no device who travelled in both the aisle and the perimeter whilst a demonstration was present (day one) were 73.1% less likely to pay attention to the end-of-aisle display than shoppers who had a basket, travelled the perimeter and saw no demonstration. Furthermore, shoppers who moved between the aisle and the perimeter whilst pushing their trolleys were 66.4% less likely to pay attention to the end-of-aisle display when a demonstration with another product on the end-of-aisle display was present (day two) in comparison to when shoppers travelled the perimeter with a basket and saw no demonstration. From these results it is evident that the end-of-aisle display is a great attention generating device when another promotional device is not present, but when one is, negative effects on the end-of-aisle display can occur. Also, when factors within the shopping environment are combined with the presence of a demonstration or not, shopper's attention to the end-of-aisle display can be affected in a positive or negative way.

Table 3 – Significant three-way interaction variables related to shoppers attention to the end-of-aisle display

	<b>B</b>	<b>S.E.</b>	<b>Wald</b>	<b>Df</b>	<b>Sig.</b>	<b>Exp (B)</b>
Day(NoDemo)*DOM(Anti-Clockwise)*Travel(Perimeter)			13.537	7	.060	
Day(1)(JuiceJuice)*DOM(1)(Clockwise)*Travel(2)(Both)	-1.718	.657	6.832	1	.009	.179
Day(2)(JuiceBiscuit)*DOM(1)(Clockwise)*Travel(2)(Both)	1.459	.729	4.003	1	.045	4.300
Day(NoDemo)*Gender(Female)*SD(Basket)			13.080	5	.023	
Day(1)(JuiceJuice)*Gender(1)(Male)*SD(1)(NoDevice)	-.817	.352	5.400	1	.020	.442
Day(2)(JuiceBiscuit)*Gender(1)(Male)*SD(1)(NoDevice)	-1.055	.474	4.955	1	.026	.348
Day(NoDemo)*SD(Basket)*Travel(Perimeter)			43.856	12	.000	
Day(1)(JuiceJuice)*SD(1)(NoDevice)*Travel(2)(Both)	-1.312	.242	29.340	1	.000	.269
Day(2)(JuiceBiscuit)*SD(2)(Trolley)*Travel(2)(Both)	-1.092	.376	8.430	1	.004	.336
Day(NoDemo)*DOM(Anti-Clockwise)*SD(Basket)			9.747	10	.463	
Day(1)(JuiceJuice)*DOM(1)(Clockwise)*SD(2)(Trolley)	-1.891	.742	6.499	1	.011	.151
DOM(Anti-Clockwise)*Gender(Female)*SD(Basket)			5.573	7	.590	
DOM(2)(Both)*Gender(1)(Male)*SD(2)(Trolley)	-5.043	2.581	3.817	1	.051	.006
Gender(Female)*SD(Basket)*Travel(Perimeter)			11.381	8	.181	
Gender(1)(Male)*SD(2)(Trolley)*Travel(Both)	1.276	.473	7.290	1	.007	3.582

#### 4.2.4 Four-Way Interaction

One four-way interaction surfaced during logistic regression analysis on the likelihood that shoppers would pay attention to the end-of-aisle display. The model contained six independent variables (shopping party, shopping device, direction of movement, gender, travel and day) which were combined into twelve four-way interactions to gain insights into the interactions between four independent variables and their effect on the dependent variable (see appendix five for the twelve four-way interactions). The full model containing all interactions was statistically significant,  $\chi^2 (106, N=1807) = 178.38, p <.001$ , indicating that the model was able to distinguish between shoppers who paid attention to the end-of-aisle display and those who did not. The model as a whole explained between 9.4% (Cox and Snell R Square) and 12.7% (Nagelkerke R Square) of the variance in shopper's attention, and correctly classified 62.5% of cases. As shown in figure five, only one four-way interaction effect made a statistically significant contribution to the model (day, direction of movement, shopping device and travel)(see table four for statistical significance).



Figure 5 – Four-way interaction effect on shopper's attention to the end-of-aisle display

The only statistically significant four-way interaction where shoppers were less likely to pay attention to the end-of-aisle display consisted of those shoppers who travelled in a clockwise direction, moved via the aisle and the perimeter, had a trolley as a shopping device and came into contact with a demonstration positioned near an end-of-aisle (day one); an odds ratio of .087 was recorded (see table four). This indicates that these shoppers were 91.3% less likely to pay attention to the end-of-aisle display in comparison to shoppers who travelled in an anti-clockwise direction around the perimeter of the store with a basket whilst no demonstration was present (day three). This finding demonstrates that when multiple factors are interacting simultaneously, different effects toward the end-of-aisle display can materialise. Furthermore, negative effects toward the end-of-aisle display are demonstrated here through the positioning of a demonstration near the end-of-aisle display.

Table 4 – Significant four-way interaction variables related to shoppers attention to the end-of-aisle display

	<b>B</b>	<b>S.E.</b>	<b>Wald</b>	<b>Df</b>	<b>Sig.</b>	<b>Exp (B)</b>
Day(NoDemo)*DOM(Anti-Clockwise)*SD(Basket)*Travel(Perimeter)			6.891	14	.939	
Day(1)(JuiceJuice)byDOM(1)(Clockwise)bySD(2)(Trolley)byTravel(2)(Both)	-2.443	1.066	5.252	1	.022	.087

### 4.3 Shopper Attention toward the Demonstration

There were multiple factors within the shopping environment that, when assessed individually or in combination with one another, were found to have significant effects on shoppers' attention to the demonstration (see figure six). Of the effects found, there were four main effects (shopping party, shopping device, travel and direction of movement), four two-way interaction effects (shopping party and travel; day and direction of movement; day and travel; day and shopping device), four three-way interaction effects (direction of movement, gender and shopping device; direction of movement, shopping device and travel; day, direction of movement and gender; gender, shopping device and travel) and one four-way interaction effect (day, direction of

movement, shopping device and travel). Colour coordination for the different effects is also evident here, following the same colour coordination that was used in the previous section (shopper’s attention to the end-of-aisle display).



Figure 6 – Main and interaction effects on shopper’s attention to the demonstration

### 4.3.1 Main Effects

Logistic regression was executed to evaluate the effect of a number of predictors on the likelihood that shoppers would pay attention to the demonstration. Six independent variables were included in the model (day, gender, shopping party, shopping device, direction of movement and travel). The full model containing all predictors was statistically significant,  $\chi^2$  (26, N=1807) = 130.62,  $p < .001$ , indicating that the model was able to distinguish between shoppers level of attention toward the demonstration. The model as a whole explained between 7% (Cox and Snell R Square) and 9.4% (Nagelkerke R Square) of the variance in attention, and correctly classified 62.3% of cases. As presented in table five and figure seven, only four of the independent variables made a statistically significant contribution to the model (shopping party, shopping device, direction of movement and travel).



Figure 7 – Significant effects on shopper’s attention to the in-store demonstration.

The strongest predictor for shoppers paying attention to the demonstration was a ‘two female’ shopping party, in comparison to, individual shopping parties, scored an odds ratio of 1.986 (see table five). This demonstrates that ‘two female’ shopping parties are 98.6% more likely to pay attention to the demonstration than shopping parties with one individual. Another example of when shoppers were more likely to pay attention to the demonstration was when trolleys were utilised instead of baskets: an odds ratio of 1.292

was recorded (see table five). This indicates that shoppers who had trolleys were 29.2% more likely to pay attention to the demonstration than those who had baskets. Both of these findings indicate that the shopping party type and shopping device utilised can significantly influence shopper's attention to the demonstration.

The situations in which shoppers were less likely to pay attention to the demonstration were revealed via direction of movement and travel. Shoppers who travelled in a clockwise direction were 61% less likely to pay attention to the demonstration than shoppers who travelled in an anti-clockwise direction. Shoppers who travelled the aisle, or both the aisle and the perimeter, were 57.2% (aisle travel) and 31.4% (both aisle and perimeter) less likely to pay attention to the demonstration than shoppers travelling the perimeter. These results indicate that factors within the shopping environment such as travel and direction of movement can significantly affect shopper's attention to the demonstration.

Table 5 – Significant main effects on shopper's attention to the end-of-aisle display

	<b>B</b>	<b>S.E.</b>	<b>Wald</b>	<b>Df</b>	<b>Sig.</b>	<b>Exp (B)</b>
SP(Individual)			10.882	13	.621	
SP(2)(2xFemale)	.686	.232	8.715	1	.003	1.986
SD(Basket)			7.445	5	.190	
SD(2)(Trolley)	.256	.127	4.073	1	.044	1.292
DOM(Anti-Clockwise)			40.381	2	.000	
DOM(1)(Clockwise)	-.941	.160	34.682	1	.000	.390
Travel(Perimeter)			23.126	2	.000	
Travel(1)(Aisle)	-.848	.201	17.829	1	.000	.428
Travel(2)(Both)	-.376	.106	12.648	1	.000	.686

#### 4.3.2 Two-Way Interactions

Four two-way interactions arose whilst conducting logistic regression analysis on the likelihood that shoppers would pay attention to the demonstration. Six independent variables were included in the model (day, gender, shopping party, shopping device, direction of movement and travel) and fourteen two-way interactions were constructed from these independent variables to gain insights into the interactions between two independent variables and their effect on the dependent variable (see appendix three).



The full model containing all predictors was statistically significant,  $\chi^2 (120, N=1807) = 252.221, p < .001$ , indicating that the model was able to distinguish between shoppers attention to the demonstration. The model as a whole explained between 13% (Cox and Snell R Square) and 17.6% (Nagelkerke R Square) of the variance in attention, and correctly classified 64.7% of cases. As shown in figure eight, only four of the fourteen two-way interactions made statistically significant contributions to the model (day and shopping device, day and direction of movement, day and travel, shopping device and travel) (see table six for statistical significance).

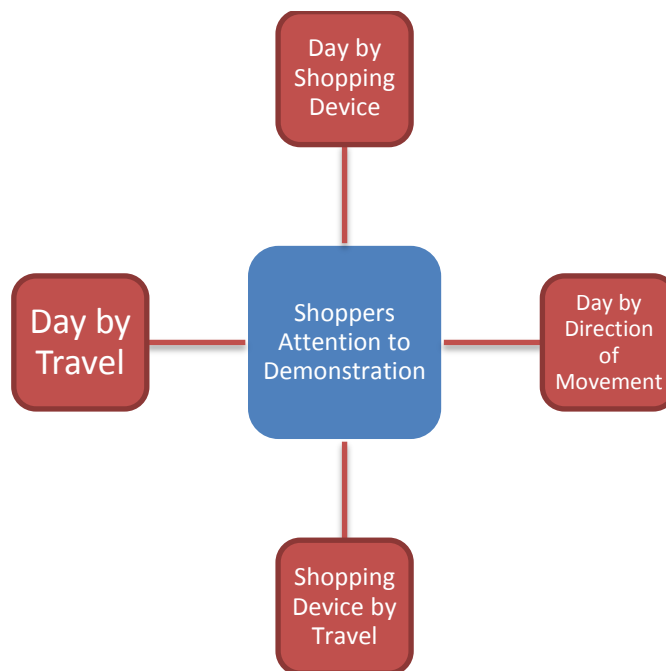


Figure 8 – Two-way interaction effect on shopper’s attention to the in-store demonstration

Only one of the four two-way interactions (day and shopping device) showed positive B values, signifying a positive relationship between the two independent variables and the dependent variable. This positive relationship was evident when a demonstration was present in comparison to when one was not, and it did not matter what product was on the end-of-aisle display. For example, when a demonstration was positioned near the end-of-aisle display and shoppers had no shopping device, they were 72.8% (day one, demonstration product on the end-of-aisle display) and 79.2% (day two, another promotional product on the end-of-aisle display) more likely to pay attention to the

demonstration than when shoppers carried baskets and no demonstration was situated near the end-of-aisle display (day three). Another example is when a demonstration was positioned near the end-of-aisle display, shoppers who pushed trolleys were 89.8% (day one, demonstration product on the end-of-aisle display) and 77.9% (day two, another promotional product on the end-of-aisle display) more likely to pay attention to the demonstration than when shoppers carried baskets and there was no demonstration situated near the end-of-aisle (day three). Even though the variable 'day' did not produce a significant main effect, it is evident here that, when combined with the shopper's shopping device, a significant interaction effect was produced. Through positioning a demonstration near an end-of-aisle display, a positive effect on shoppers' attention toward the demonstration was seen, but only when shoppers utilised either no shopping device or a trolley. Therefore, depending on the specific combination of factors interacting with one another in the shopping environment, it could have an impact on shopper's attention to the demonstration in significantly different ways.

In addition, as mentioned, 'day' did not demonstrate a significant main effect for shoppers paying attention to the demonstration even though it was found to be a part of three of the four two-way interaction effects. The other two in which it was prevalent was 'day' by 'direction of movement' and 'day' by 'travel'. Day one (when a juice demonstration was present and the demonstration product was on the end of the aisle) shoppers who travelled in a clockwise direction were 73.8% less likely to pay attention to the demonstration than when, no demonstration was situated near the end-of-aisle display and shoppers travelled in the anti-clockwise direction. When day and travel were combined, shoppers were less likely to pay attention to the demonstration. 58.5% of shoppers who travelled the aisle and were faced with a demonstration (where the demonstration product was on the end-of-aisle display) were less likely to pay attention to the demonstration than when no demonstration was present and shoppers travelled the perimeter. Lastly, shoppers who had no device and travelled both the aisle and the perimeter were 59.7% less likely to pay attention to the demonstration than those who carried a basket and travelled the perimeter.

These results demonstrate that when the shopper's direction of movement or direction of travel is taken into consideration, when a shopper is faced with a demonstration positioned near an end-of-aisle display, the shopper's attention to the in-store demonstration can be significantly lessened. This negative effect toward the demonstration is not present when there is no demonstration; meaning shoppers are

paying attention to the area where the demonstration would have been situated during the usual shopping experience. Therefore, this further exemplifies that, positioning a demonstration near an end-of-aisle display produces negative effects for the demonstration, when shoppers direction of travel or movement were taken into consideration. Lastly, when specific factors such as the shopping device and direction of travel interact simultaneously in the shopping environment, shopper's attention to the demonstration can be affected.

Table 6 – Significant two-way interaction variables related to shoppers attention to the demonstration

	<b>B</b>	<b>S.E.</b>	<b>Wald</b>	<b>Df</b>	<b>Sig.</b>	<b>Exp (B)</b>
Day(NoDemo)*SD(Basket)			19.546	9	.021	
Day(1)(JuiceJuice)*SD(1)(NoDevice)	.547	.201	7.386	1	.007	1.728
Day(1)(JuiceJuice)*SD(2)(Trolley)	.641	.183	12.273	1	.000	1.898
Day(2)(JuiceBiscuit)*SD(1)(NoDevice)	.583	.265	4.853	1	.028	1.792
Day(2)(JuiceBiscuit)*SD(2)(Trolley)	.576	.272	4.488	1	.034	1.779
Day(NoDemo)*DOM(Anti-Clockwise)			18.267	4	.001	
Day(1)(JuiceJuice)*DOM(1)(Clockwise)	-1.338	.370	13.093	1	.000	.262
Day(NoDemo)*Travel(Perimeter)			7.741	4	.102	
Day(1)(JuiceJuice)*Travel(1)(Aisle)	-.880	.412	4.567	1	.033	.415
SD(Basket)*Travel(Perimeter)			18.825	9	.027	
SD(1)(NoDevice)*Travel(2)(Both)	-.910	.221	16.931	1	.000	.403

### 4.3.3 Three-Way Interactions

Numerous predictors were chosen for logistic regression analysis to calculate the likelihood that shoppers would pay attention to the demonstration. Six independent variables were included in the model (day, gender, shopping party, shopping device, direction of movement and travel) and nineteen three-way interactions were inputted (see appendix four for details) (using the six independent variables) to find any statistically significant three-way interactions. The full model containing all predictors was statistically significant,  $\chi^2 (176, N=1807) = 321.254, p < .001$ , indicating that the model was able to distinguish between shoppers' level of attention toward the

demonstration. The model as a whole explained between 16.3% (Cox and Snell R Square) and 21.9% (Nagelkerke R Square) of the variance in attention, and correctly classified 66.1% of cases. As presented in figure nine, only four three-way interactions made a statistically significant contribution to the model (gender, shopping device and travel; day, direction of movement and gender; direction of movement, shopping device and travel; direction of movement, gender and shopping device). Table seven gives an overview of all of the statistically significant figures for each of the contributing three-way interactions.



Figure 9 – Three-way interaction effect on shopper’s attention to the in-store demonstration.

Collaboration between direction of movement, gender and shopping device created the most significant three-way interaction effect on shopper’s attention to the demonstration, recording an odds ratio of 4.136 (see table seven). This shows that male shoppers who travelled in a clockwise direction with no shopping device were 313.6% more likely to pay attention to the demonstration than when females travelled in an anti-clockwise direction with a basket. This finding demonstrates that females who travelled the predetermined direction of movement with a basket were less likely to pay attention to a demonstration than males who were not. These findings conclude that specific

combinations of factors within the shopping environment, such as the shopper's direction of movement, gender and shopping device utilised, when interacting simultaneously, can affect shopper's attention toward the demonstration.

An interesting finding regarding the day, direction of movement and gender on shopper's attention to the demonstration was found. Males who were confronted with a demonstration (day one), and whose movement was undertaken in both a clockwise and anti-clockwise direction during their shopping trip, were 99.9% less likely to pay attention to the demonstration than females who travelled in an anti-clockwise direction through an area where no demonstration was (day three)(see table seven for exp(b) value). In addition, males who travelled in a clockwise direction through an area where a demonstration was located (day two), were 91.7% less likely to pay attention to the demonstration than females who travelled through the same area in an anti-clockwise direction but no demonstration was present (day three)(see table seven for exp(b) value). This finding helps to establish that negative impacts on shopper's attention to the demonstration are produced when a demonstration was positioned near an end-of-aisle display. A question that might be asked is "how can the female shoppers pay more attention to a demonstration when no demonstration is present?" Attention was given to the area where the demonstration would have been positioned if it was present. In other words, shoppers usually pay attention to this area, but when a demonstration is positioned there, the shoppers do not paying attention. Therefore, when a demonstration is positioned near an end-of-aisle display and the shopper's direction of movement and gender are taken into consideration, attention to the demonstration is minimised. Furthermore, these findings demonstrate that the combination of factors such as day, direction of movement and gender can significantly affect shopper's attention to the demonstration.

Further findings demonstrate that when shopping device, travel and gender or shopping device, travel and direction of movement are incorporated, shoppers' attention to the demonstration is affected. An odds ratio of 0.482 was discovered (see table seven) when male shoppers had no shopping devices and travelled both the aisle and the perimeter. This demonstrates that they were 51.8% less likely to pay attention to the demonstration than females with shopping baskets who travelled the perimeter. Also, an odds ratio of 0.237 was discovered (see table seven) where shoppers who had no shopping device and who travelled in both the aisle and the perimeter in a clockwise direction were found to be 76.3% less likely to pay attention to the demonstration than shoppers who

had a basket and travelled the perimeter in an anti-clockwise direction. These findings reveal that when certain combinations of factors within the shopping environment, such as gender, shopping device and travel or direction of movement, shopping device and travel, interact with one another, shoppers' attention to the demonstration is affected. Therefore the conclusion is that, the type of actions undertaken by shoppers determines whether attention to the demonstration is successful or not.

Table 7 – Significant three-way interaction variables for shopper's attention to the demonstration

	<b>B</b>	<b>S.E.</b>	<b>Wald</b>	<b>df</b>	<b>Sig.</b>	<b>Exp (B)</b>
Day(NoDemo)*DOM(Anti-Clockwise)*Gender(Female)			13.554	8	.094	
Day(1)(Juice)*DOM(2)(Both)*Gender(1)(Male)	-7.005	3.200	4.793	1	.029	.001
Day(2)(JuiceBiscuit)*DOM(1)(Clockwise)*Gender(1)(Male)	-2.493	.886	7.923	1	.005	.083
DOM(Anti-Clockwise)*SD(Basket)*Travel(Perimeter)			7.876	10	.641	
DOM(1)(Clockwise)*SD(1)(NoDevice)*Travel(2)(Both)	-1.441	.575	6.277	1	.012	.237
DOM(Anti-Clockwise)*Gender(Female)*SD(Basket)			8.680	7	.276	
DOM(1)(Clockwise)*Gender(1)(Male)*SD(1)(NoDevice)	1.420	.683	4.317	1	.038	4.136
Gender(Female)*SD(Basket)*Travel(Perimeter)			8.517	8	.385	
Gender(1)(Male)*SD(1)(NoDevice)*Travel(2)(Both)	-.731	.350	4.367	1	.037	.482

#### 4.3.4 Four-Way Interactions

To calculate the likelihood that shoppers would pay attention to the demonstration logistic regression was executed on a number of predictors. Six predictor variables were included in the model (day, gender, shopping party, shopping device, direction of movement and travel) and twelve four-way combinations of the six predictors were entered to find the statistically significant four-way interactions. The full model containing all predictors was statistically significant,  $\chi^2 (106, N=1807) = 169.406, p < .001$ , indicating that the model was able to distinguish between shoppers' attention toward the demonstration. The model as a whole explained between 8.9% (Cox and Snell R Square) and 12.1% (Nagelkerke R Square) of the variance in attention, and correctly classified 62.3% of cases. As presented in figure ten, only one four-way interaction made a statistically significant contribution to the model (day, direction of movement, shopping device and travel).

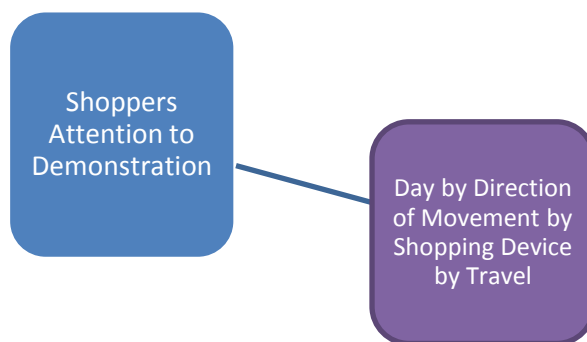


Figure 10 – Four-way interaction effect on shopper's attention to demonstration

The only four-way interaction found to be statistically significant (see table eight) was between the shoppers' direction of movement, direction of travel, day and the shopping device chosen to aid the shopping trip, recording an odds ratio of 0.136 (see table eight). This denotes that when shoppers had no shopping device, travelled in a clockwise direction via the aisle and perimeter, and came across the demonstration situated near

the end-of-aisle display (where the demonstration product was on the end-of-aisle display, day one), they were 86.4% less likely to pay attention to the demonstration than shoppers who travelled in an anti-clockwise direction around the perimeter with a basket, where there was no demonstration situated near an end-of-aisle display. This four-way interaction signifies that factors within the shopping environment can interact with one another to produce either positive or negative effects. It is evident that positioning a demonstration near an end-of-aisle display produces negative effects for the demonstration, in that shoppers are less likely to pay attention to it. When there is no demonstration, positive effects for the area where the demonstration would have been situated are evident. Therefore, positioning a demonstration near an end-of-aisle display is not the best utility maximising option in this scenario.

Table 8 – Statistically significant four-way interaction on shopper’s attention to the demonstration

	<b>B</b>	<b>S.E.</b>	<b>Wald</b>	<b>df</b>	<b>Sig.</b>	<b>Exp (B)</b>
Day(NoDemo)*DOM(Anti-Clockwise)*SD(Basket)*Travel(Perimeter)			13.109	14	.518	
Day(1)(JuiceJuice)*DOM(1)(Clockwise)*SD(1)(NoDevice)*Travel(2)(Both)	-1.994	.861	5.357	1	.021	.136

#### 4.4 Shopper Purchasing via End-of-aisle Display

Only 2.4% of shoppers (n=44) removed the product from the end-of-aisle display. These shoppers who removed the product off and away from the end-of-aisle display demonstrated intent to purchase that product. This intent to purchase was assessed via logistic regression. Six independent variables were included in the model (day, gender, shopping party, shopping device, direction of movement and travel). The full model containing all predictors was statistically significant,  $\chi^2 (26, N=1807) = 72.229, p < .001$ , indicating that the model was able to distinguish between shoppers who removed the product from the end-of-aisle display and those who did not. The model as a whole explained between 3.9% (Cox and Snell R Square) and 19.1% (Nagelkerke R Square) of the variance in product taken from the end-of-aisle display, and correctly classified 97.7% of cases. As presented in figure eleven, four of the predictors made a statistically



significant contribution to the model (day, shopping party, shopping device and direction of movement) (see table nine for statistical significance).



Figure 11 – Significant main effects on shoppers purchasing via end-of-aisle display

The strongest predictor for shopper purchasing via end-of-aisle display was determined by whether a demonstration was present or not and what promotional product was on the end-of-aisle display, recording an odds ratio of 2.973 (see table nine). This result indicates that when a demonstration was positioned near an end-of-aisle display and the product on the end-of-aisle display was a different promotional product to the one being demonstrated that, shoppers were 1855.6% more likely to remove the product from the end-of-aisle display for purchase than when there was no demonstration present at all. Overall, this indicates that having another promotional product on the end-of-aisle display whilst a demonstration is present will help to increase shopper's purchasing from the end-of-aisle display, in comparison to when no demonstration is present and another promotional product is on the end-of-aisle display.

The other significant factors found to have an effect on shoppers purchasing via the end-of-aisle display were the shopping device utilised, the direction of movement undertaken by the shopper and their shopping party type. Shoppers who utilised trolleys

during their shopping trip were 63.3% less likely to remove a product from the end-of-aisle display for purchase than shoppers carrying baskets. Shoppers who travelled in both a clockwise and anti-clockwise direction were 83.7% less likely to purchase from the end-of-aisle display than shoppers moving in an anti-clockwise direction around the store. Male shoppers who had more than one child with them whilst doing their shopping were 94.5% less likely to take a product for purchase from the end-of-aisle display than an individual. Three female shoppers were 94.77% less likely to take a product for purchase from an end-of-aisle display than an individual. A shopping party consisting of a male, female and two children were 98.3% less likely to take a product for purchase than an individual. From these findings, it is apparent that factors within the shopping environment can have a significant effect on whether shoppers will remove the product from the end-of-aisle display for purchase or not. Shoppers with trolleys, shoppers who travelled in both an anti-clockwise and clockwise direction or shoppers who are in a group are less likely to purchase a product from the end-of-aisle display, whereas shopper with baskets, shoppers who travelled in an anti-clockwise direction and shoppers who are shopping alone are more likely to take a product from the end-of-aisle display.

Table 9 – Significant main effect on shoppers purchasing from the end-of-aisle display

	<b>B</b>	<b>S.E.</b>	<b>Wald</b>	<b>df</b>	<b>Sig.</b>	<b>Exp (B)</b>
Day(NoDemo)			6.337	2	.042	
Day(2)(JuiceBiscuit)	2.973	1.181	6.336	1	.012	19.556
SD(Basket)			12.574	5	.028	
SD(2)(Trolley)	-1.002	.423	5.610	1	.018	.367
ShoppingParty(Individual)			20.775	14	.108	
ShoppingParty(8)(Male/morethan1child)	-2.904	1.354	4.600	1	.032	.055
ShoppingParty(11)(3xFemale)	-2.940	1.280	5.273	1	.022	.053
ShoppingParty(12)(Male/Female/2xChild)	-4.080	1.596	6.534	1	.011	.017
DOM(Anticlockwise)			18.503	2	.000	
DOM(Both)	-1.812	.450	16.191	1	.000	.163

#### 4.5 Shopper Purchasing via the Demonstration

Only main effects were found to be statistically significant when assessing shopper's intent to purchase the product via removing the product from the demonstration. No interactions effects were found to be statistically significant. 1.4% of shoppers (n=26) removed the product from the demonstration table for purchase. Logistic regression was undertaken to assess the effect of a number of predictors on the likelihood that shoppers would remove the product from the demonstration. Six independent variables were included in the model (day, gender, shopping party, shopping device, direction of movement and travel). The full model containing all predictors was statistically significant,  $\chi^2(26, N=1807) = 50.197, p < .005$ , indicating that the model was able to distinguish between shoppers who removed the product from the demonstration and those who did not. The model as a whole explained between 2.7% (Cox and Snell R Square) and 19.6% (Nagelkerke R Square) of the variance in product taken from the end-of-aisle display, and correctly classified 98.6% of cases. As presented in figure twelve, only two of the predictors made a statistically significant contribution to the model (shopping party and direction of movement) (see table ten for statistical significance).



Figure 12 – Significant main effects on shoppers purchasing via the demonstration

As mentioned, shopping party and direction of movement were found to have a significant effect on shoppers removing the product from the demonstration for purchasing. The results are very similar for both shopping party and direction of movement. Shopping party recorded an odds ratio of 1.710 and direction of movement recorded an odds ratio of 1.731 (see table ten). This indicates that, a shopping party of two females were 452.8% more likely to purchase from the demonstration than an individual and shoppers who moved in both an anti-clockwise and clockwise direction were 464.8% more likely to purchase from the demonstration table than shoppers who travelled in an anti-clockwise direction. These findings illustrate that, factors within the shopping environment (shopping party type and direction of movement) can have an effect on shoppers purchasing via the demonstration table. Shopping with someone else and travelling in more than one direction (clockwise and anti-clockwise) can help to influence purchasing from the demonstration table.

Table 10 – Significant main effect on shoppers’ intent to purchase from the demonstration

	<b>B</b>	<b>S.E.</b>	<b>Wald</b>	<b>df</b>	<b>Sig.</b>	<b>Exp (B)</b>
ShoppingParty(Individual)			11.396	14	.655	
ShoppingParty(2)(2xFemale)	1.710	.557	9.429	1	.002	5.528
Direction of Movement(Anti-Clockwise)			13.404	2	.001	
DirectionofMovement(2)(Both)	1.731	.503	11.833	1	.001	5.648

#### 4.6 Summary of Findings

In conclusion, having a demonstration situated near an end-of-aisle display caused an overall negative effect for the shopping environment. The majority of effects found shoppers to be less likely to pay attention to the end-of-aisle display and demonstration when a demonstration was present, in comparison to when one was not. Only two of the nine effects showed shoppers to be more likely to pay attention to the end-of-aisle display and only one of the five effects showed shoppers to be more likely to pay attention to the demonstration when a demonstration was present. Not only were negative effects for the demonstration and end-of-aisle display present but so too was

the lack of attention paid to the area behind where the demonstration was positioned when a demonstration was present.

In addition, on the rare occasion that shoppers decided to pay attention to the promotional devices, a detraction effect prevailed. It appears that when positioning two attention generating devices near one another and shoppers utilising either a basket, trolley or no device, that shopper's attention toward the end-of-aisle display was distracted toward the demonstration. Furthermore, on the odd occasion that shoppers decided to pay attention to the end-of-aisle display whilst a demonstration was present, a different product to that of the demonstration product was positioned on the end-of-aisle display and other factors within the shopping environment (shopper's direction of movement and area of travel) were incorporated. This effect was only seen during two of the nine main and interaction effects and only two out of the seven times the combination of demonstration and another promotional product was on the end-of-aisle display. Not only was attention given when the product on the end-of-aisle display was different to that of the demonstration product but so too was purchasing from the end-of-aisle display.

Furthermore, the shopping party type, the shoppers' direction of movement, the shoppers' direction of travel, the shopping device utilised and the shoppers' gender also had significant influences on shoppers' attention toward the end-of-aisle display and demonstration. Shopping parties consisting of two females were more likely to pay attention to and purchase from the demonstration than individual shoppers, whereas individual shoppers were more likely to purchase from the end-of-aisle display than accompanied shoppers (male, female and two children or three females or male with more than one child). The majority of shoppers who incorporated a clockwise direction of movement were found to be less likely to pay attention to the end-of-aisle display and demonstration, in comparison to those travelling in an anti-clockwise direction. When an anti-clockwise direction of movement was incorporated (anti-clockwise, end-of-aisle display and clockwise and anti-clockwise, demonstration), shoppers were found to be more likely to remove the product from the end-of-aisle display for purchase. The majority of shoppers with no shopping device were found to be less likely to pay attention to the end-of-aisle display, shoppers with baskets were more likely to pay attention to, and purchase from the end-of-aisle display, and shoppers with trolleys were more likely to pay attention to the demonstration. Shoppers undertaking aisle and perimeter travel were less likely to pay attention to the end-of-aisle display and

demonstration than shoppers who strictly travelled the perimeter and shoppers undertaking aisle travel were found to be less likely to pay attention to the demonstration. On the majority of occasions, male shoppers were found to be less likely to pay attention to the end-of-aisle display and demonstration in comparison to female shoppers. Insight into why these findings have occurred will be covered in the following chapter.

## **Chapter Five: Discussion**

### **5.1 Introduction**

The following chapter gives support to, and explains why, the current findings may have occurred. Each section is broken down to discuss the hypothesis and research questions. The first section (hypotheses testing) explains how the first hypothesis was not supported and only partial support was demonstrated toward the second hypothesis. The second section covers the effects of positioning a demonstration near an end-of-aisle display, predominately focusing on answering both research questions and helping to give explanations for the occurrences within the hypotheses. The third section covers the effects of additional factors within the shopping environment on shopper attention and purchasing toward the end-of-aisle display and demonstration. It helps to give supplementary support to the research questions, with explanations as to why these effects may have occurred. With each section discussed in full, conclusions, implications and future research can be compiled within the following chapter.

### **5.2 Hypotheses Testing**

Support for hypothesis one was not established. It was hypothesised that when the product on the end-of-aisle display was the same as the product being demonstrated, shoppers' attention to and purchases from the end-of-aisle display would increase, but the opposite occurred. Shoppers' attention to the end-of-aisle display decreased, as shoppers were found to be less likely to pay attention to the end-of-aisle display than when there was no demonstration present. With regards to purchasing from the end-of-aisle display, there was no statistically significant support to indicate an increase in purchasing when a demonstration was present. Therefore, shoppers' attention to the end-of-aisle display decreased when the product on the end-of-aisle display was the same as the product being demonstrated, and there was no significant support on shoppers purchasing via the end-of-aisle display, from the positioning of a demonstration near an end-of-aisle display.

Secondly, hypothesis two was only partially supported. Hypothesis two specified that when the product on the end-of-aisle display was different from the product being demonstrated, shoppers' attention to and purchases from, the end-of-aisle display would decrease. On the whole, partial support was given, as the majority of shoppers' attention

to the end-of-aisle display decreased. Shoppers were found to be less likely to pay attention to the end-of-aisle display when there was no demonstration present. There were two occasions where shoppers' attention increased, which was when the direction of movement or direction of movement and travel were involved. These effects are a minority, however, and shoppers' attention overall decreased toward the end-of-aisle display. The part where no support was given was due to shoppers purchasing from the end-of-aisle display. An increase was seen instead of a decrease, whereby shoppers were more likely to purchase the other promotional product from the end-of-aisle display when a demonstration was present, than when there was no demonstration. This demonstrates that no support is given, as the opposite effect to what was hypothesized occurred. Therefore, when the product on the end-of-aisle display is different to the product being demonstrated, shoppers' attention to the end-of-aisle display may decrease, whilst purchasing from the end-of-aisle display may increase.

Overall, the findings for both of these hypotheses demonstrate that when a demonstration is present, shoppers are less likely to pay attention to the end-of-aisle display no matter what product category is on the display. Even though there is a lack of attention given to the end-of-aisle display when a demonstration is present, those shoppers who do pay attention are more likely to purchase from the end-of-aisle display when the product is different to that of the demonstration product. Both of these results are explained and discussed in full in the following section.

### **5.3 Effects of Demonstrations on Shoppers Attention and Purchasing**

Overall, the positioning of an in-store demonstration near an end-of-aisle display produced negative effects for the shopping environment. Shoppers were less likely to pay attention to the end-of-aisle display and demonstration, when a demonstration was situated near an end-of-aisle display, compared to when there was no demonstration present. Through positioning a demonstration near an end-of-aisle display, not only was the shoppers' attention to both the demonstration and end-of-aisle display negatively affected, but so too was attention to the area behind the demonstration. Shoppers were found to be more likely to pay attention to this area when there were was no demonstration present than when there was a demonstration present. Also, on the rare occasion that shoppers decided to pay attention, shoppers generally favoured the demonstration over the end-of-aisle display. When the demonstration was not favoured, the end-of-aisle display received attention in some cases and purchasing generally only



occurred if the product on the end-of-aisle display was different to that of the product being demonstrated. Justifications for each will be addressed below.

Firstly, a demonstration encourages shoppers to slow down, taste a sample and interact with the demonstrator (Major, 2002). When positioned in the most heavily trafficked area of the store (the perimeter) (Larson et al., 2005; Sorenson, 2009), in front of freezers and near an end-of-aisle display, where multiple shoppers are utilising this space for travel, it can become narrow, cluttered and congested very quickly and easily. It only takes a couple of shoppers to slow down to participate in the demonstration, with their shopping devices (baskets, trolleys, prams, wheelchairs), before the gap between the end-of-aisle display and demonstration area becomes too narrow. When an area becomes too narrow and cluttered, it has been proven that people will ignore it and travel through quickly (Papinski, Scott & Doherty, 2009). Shoppers like to have their own space (Levy & Weitz, 2007), so when it becomes congested or narrow tendencies to shop within that area are reduced (Underhill, 1991; Schroeder, 2007; Hui et al., 2009). As Phillips and Bradshaw (1993) point out, when a display was too complex (too much visual clutter), there was a danger that viewers would adopt a narrower field of view and may miss some of the items on the display. Even though this example is not specific to the current situation, it still demonstrates how a shopper presented with too much visual clutter may adopt a narrower field of view. These could be some of the reasons why shoppers were less likely to pay attention to either the end-of-aisle display or demonstration when positioned near one another. Dunne & Lusch (2008) mentioned that when extensive examination is required, products should be placed in locations where narrowing cannot occur. The gap between the end-of-aisle display and demonstration obviously did not account for large volumes of shoppers. Therefore, the positioning of the demonstration needs to be in an area with lots of space, where a narrowing effect cannot occur, and maybe in an area that is not so heavily trafficked, so congestion cannot occur.

As mentioned, on the rare occasion that shoppers decided to pay attention to the promotional devices, the demonstration was favoured over the end-of-aisle display. It appears that when positioning two attention-generating devices near one another, shoppers were either unable or purposefully choosing not to allocate their attention to both, causing a detraction effect to transpire. For example, it was found that, shoppers with trolleys or no shopping devices who encountered a demonstration were less likely to pay attention to the end-of-aisle display and more likely to pay attention to the

demonstration, compared to when shoppers had baskets and there was no demonstration. This finding helps to illustrate that demonstrations had distracting tendencies on the shopper's attention toward the end-of-aisle display. This aligns with Hoyer & MacInnis (2007) philosophy that shoppers only have the ability to focus their attention on one device at a time and can become easily distracted when one stimulus pulls their attention from another; hence why shoppers were more likely to pay attention to the demonstration and less likely to pay attention to the end-of-aisle display when a demonstration was present. The uniqueness of the demonstration in the shopping environment, being something new and exciting, could be a reason for this effect. As demonstrations are not usually present during a regular shopping trip, while end-of-aisle displays are, they could be thought of as something new and exciting for the shoppers, when exhibited. This rationale was supported by Clement (2007) who explained that, people in general concentrate on new or interesting things as humans are curious and interested by nature. Thus why, shoppers were more likely to pay attention to the demonstration and less likely to pay attention to the end-of-aisle display when a demonstration was present. Therefore, the conclusion is that the positioning of a demonstration near an end-of-aisle display had positive benefits for the demonstration but not for the products on the end-of-aisle display.

On the odd occasion that shoppers decided to pay attention to the end-of-aisle display whilst a demonstration was present, a different product to that of the demonstration product was positioned on the end-of-aisle display, and other factors within the shopping environment (shopper's direction of movement and area of travel) were incorporated. Not only was attention given when the product on the end-of-aisle display was different to that of the demonstration product, but so too was there an increased chance of shoppers purchasing from the end-of-aisle display. The product on the end-of-aisle display seems to be the key reason why shoppers paid attention to and purchased from the end-of-aisle display. As the end-of-aisle display still acts as a billboard, a reminder and a prompt for immediate purchase (Underhill, 1999), when shoppers were exposed to the end-of-aisle display, they may have noticed that the product was different to that of the demonstration product and because they generally expect end-of-aisle displays to offer special prices (Chevalier, 1975), they probably decided to allocate some of their attention to the end-of-aisle display. If the product on the end-of-aisle display was the same as the product being demonstrated, it could have been pointless for shoppers to pay attention to the end-of-aisle display, as attention may have already

been given to the demonstration product. This effect did not occur every time a demonstration was present, where another promotional product was positioned on the end-of-aisle display, but it is worth noting because it did not occur when the demonstration product was on the end-of-aisle display. Therefore the conclusion is that if the demonstration must be situated near an end-of-aisle display, the product on the end-of-aisle display needs to be different to that of the product being demonstrated to help stimulate a positive effect on shoppers purchasing from the end-of-aisle display.

#### **5.4 The Effects of Additional Factors on Shoppers Attention and Purchasing**

Besides from the effects of a demonstration being positioned near an end-of-aisle display, other factors within the shopping environment were found to have a significant influence on shopper's attention to the end-of-aisle display and demonstration. These influences from the store environment affecting shoppers' behaviour are well-known in the retailing context (Kotler 1973-1974; Fiore et al., 2000; Levy & Weitz, 2007; Dunne & Lusch, 2008; Nath, 2009; Ballantine et al., 2010). The factors included in the current study were the shopping party type, the shopper's direction of movement, the shopping device utilised by the shopper, the shopper's direction of travel and the shopper's gender. When certain combinations of these factors interacted with one another, shoppers' attention to the end-of-aisle display and demonstration was also affected. The same effects present for the individual factors were, on the whole, present when combined with other environment factors. For example, shoppers with no device were found to be less likely to pay attention to the end-of-aisle display, and when combined with gender and day (a male shopper and a demonstration), shoppers were still found to be less likely to pay attention to the end-of-aisle display. From this example it is evident that, no matter what the combination of factors, the effects on shoppers' behaviour toward the end-of-aisle display and demonstration will be affected in the same way. It is evident within the findings that there was a few times where the opposite effect occurred, but overall it remained consistent. Therefore, the following paragraphs will detail why each of the effects may have developed for both the individual factors, with an overall applicability to the interaction effects.

### 5.4.1 Shopping Party

The shopping party type significantly affected shopper's behaviour toward the end-of-aisle display and demonstration. Shopping parties consisting of two females were more likely to pay attention to, and purchase from, the demonstration than individuals while individuals were more likely to purchase from the end-of-aisle display than accompanied shoppers (male, female and two children or three females or males with more than one child). Both of these findings could be due to the fact that, other shoppers can have distracting tendencies. Borges et al. (2010) and Baron et al. (1978) stipulated that when a shopper's attention is focused on a task, it can easily be reduced by the distraction of other shoppers, compared to lone shopping. If the distraction is by far more interesting than the task at hand, total attention diversion could occur (Baron et al., 1978). Individual shoppers may have been focusing on the task at hand, which may have involved purchasing from the end-of-aisle displays but not going out of their way to stop, taste a sample and interact with the demonstration. On the other hand, the accompanied shoppers may have been distracted from the task-at-hand and influenced by the other shopper to focus on the demonstration. As end-of-aisle displays are prevalent on most shopping trips, the demonstration was probably more interesting than the end-of-aisle display, thereby diverting the accompanied shopper's attention away from the end-of-aisle display and toward the demonstration.

Furthermore, Borges et al. (2010) and Luo (2005) indicated that shopping with friends influences more spontaneous shopping/purchasing behaviour. This could have been the reason why the accompanied shoppers were more likely to purchase from the demonstration table than the individual shoppers, as a demonstration is out of the ordinary whereas an end-of-aisle is not. The lack of attention to, and purchasing from, the demonstration by individuals and the lack of attention to, and purchasing from, the end-of-aisle display by accompanied shoppers, demonstrates a need for the demonstration table to be positioned away from the end-of-aisle display. This could help to capitalise on both the promotional devices' attention and purchase generating abilities, as individual shoppers will not have the end-of-aisle display to take their attention away from the demonstration and the demonstration will not be used as a tool to distract the accompanied shoppers away from the end-of-aisle display.

#### **5.4.2 Direction of Movement**

The shopper's direction of movement influenced their behaviour toward the end-of-aisle display and demonstration. The majority of shoppers whose travel incorporated the clockwise direction of movement (both main and interaction effects) were found to be less likely to pay attention to the end-of-aisle display and demonstration than those travelling in an anti-clockwise direction. As the pre-determined direction of movement for the store was in an anti-clockwise direction, shoppers who incorporated a clockwise direction of movement into their travel may have already been exposed to the end-of-aisle display and/or demonstration previously, as back-tracking may have occurred. As Solomon (2009) explains, when a stimulus receives multiple exposures shoppers may purposefully ignore them. As attention to the end-of-aisle display and/or demonstration may have already been given on the first exposure, shoppers may have been purposefully ignoring them on the second exposure; thus why less attention to the end-of-aisle display and/or demonstration was revealed when shoppers incorporated the clockwise direction of movement. Therefore, effort to influence those shoppers travelling in a clockwise direction should not be pursued as they do not seem interested in the end-of-aisle display or demonstration regardless.

On the other hand, the majority of shoppers who travelled in an anti-clockwise direction were probably experiencing the end-of-aisle display and/or demonstration for the first time. Due to the products on the end-of-aisle displays continually changing (usually every week) (Suher & Sorenson, 2010) and in-store demonstrations occurring on what could appear to be a random basis, the end-of-aisle display's product and the in-store demonstration itself could have been something new and/or exciting for the shoppers. As Clement (2007) and Baron et al. (1973) mentioned, when something is new or of interest, attention can be given to that stimulus. Therefore, shoppers may have given attention to the end-of-aisle display and demonstration because there was something new and of interest. This could be the reason why the majority of shoppers paid more attention to the end-of-aisle display and demonstration when an anti-clockwise direction of movement was incorporated than a clockwise direction of movement. Therefore, a greater level of focus should be given to those shoppers travelling in an anti-clockwise direction, as they are generally being exposed to the stimulus for the first time and their willingness to pay attention could be much more easily persuaded than that of a shopper who demonstrates no interest.

Furthermore, the same principles apply when it comes to shopper's direction of movement and purchasing. When an anti-clockwise direction of movement was incorporated (anti-clockwise, end-of-aisle display and clockwise and anti-clockwise, demonstration), shoppers were found to be more likely to remove the product from the end-of-aisle display for purchase. Purchasing from the end-of-aisle display and demonstration is not an unusual finding at all. Many have proven the sales impact of end-of-aisle displays and demonstration and how they significantly increase sales (Chevalier, 1975; Wilkinson et al., 1982; Lawson et al., 1990; Luca, 1996; Moses, 2005; Zwiebach, 2005; Major, 2002; Hoback, 2011). Even though the increases in sales were not established in the current study, purchasing from these devices was supported. So overall, when positioning a demonstration in-store, shopper's direction of movement should be taken into consideration, as it can affect shopper's behaviour in both positive and negative ways.

#### **5.4.3 Shopping Device**

The shopper's choice of shopping device had an influence on their behaviour toward the end-of-aisle display and demonstration. Overall, shoppers with no shopping device were found to be less likely to pay attention to the end-of-aisle display, shoppers with baskets were more likely to pay attention to, and purchase from the end-of-aisle display and shoppers with trolleys were more likely to pay attention to the demonstration (both main and interaction effects). These findings were supported by Mazumdar and Papatla (1995) who found that fill-in trips (no device) and major trips (trolleys) induced lower display responses than did trips with intermediate basket sizes (baskets). Their justification for this finding was that during fill-in trips, time spent in-store may have been very short, and shoppers on major-trips were probably more focused on completing the shopping trip and buying all the necessary items in a pre-planned manner (Mazumdar & Papatla, 1995). This notion could have been the very reason why shoppers with no device (fill-in) were less likely to pay attention to the end-of-aisle display than shoppers with baskets (intermediate), and why shoppers with baskets (intermediate) were more likely to purchase product from the end-of-aisle display than shoppers with trolleys (major). Therefore concluding that, the type of shopping device utilised has a bearing on attention paid to, and chance of purchasing from, the end-of-aisle display.

In addition, the majority of shoppers with trolleys were found to be more likely to pay attention to the in-store demonstration than shoppers with baskets. This could have been due to shoppers with trolleys having more time in-store to participate in the activity than shoppers with baskets. It is a widely known fact that shoppers on major trips (shoppers with trolleys) spend more time in-store (Kahn & Schmittlein, 1992; Mazumdar & Papatla, 1995; Nath, 2009), meaning allocation of time toward a demonstration would be more feasible for a shopper who spends more time in-store than a shopper who spends less. This reasoning contradicts Mazumdar and Papatla (1995) finding where shoppers on major-trips demonstrated low responses to displays. Seeing as in-store demonstrations and end-of-aisle displays are both in-store promotional devices that generate shopper's attention, following the former logic, the demonstration should have received a low response from major-trip shoppers (shoppers with trolleys) but this was not the case. Mazumdar and Papatla (1995) explained that the low response to displays from major trip shoppers was due to their focus being purely on purchasing all the necessary items in a pre-planned manner around the store; from one aisle to another. Zacharias et al. (2005) inferred that even though a pre-planned path is executed, one can still remain flexible and make adjustments where necessary. This could be the reason for the difference in findings. In-store demonstrations are not permanent or prevalent in the everyday shopping environment, while end-of-aisle displays are (as mentioned previously). So, shoppers on major shopping trips who have more time and who encounter a demonstration may make adjustments to pay attention to the demonstration, because they are able and it is something out of the ordinary. Therefore, concluding that not only are major trip shoppers (shoppers with trolleys) good shoppers to encourage toward the demonstration table, but they also have extra space for additional purchases to be made.

#### **5.4.4 Travel**

The areas travelled by shoppers influenced their attention toward the end-of-aisle display and demonstration. Shoppers undertaking aisle and perimeter travel were found to be less likely to pay attention to the end-of-aisle display and demonstration than shoppers who strictly travelled the perimeter. The motivations behind this behaviour may have been due to the actual positioning of the demonstration in conjunction to the end-of-aisle display, and/or the shoppers' ability to see the end-of-aisle display and demonstration easily and clearly. Support for this notion was given by Underhill (1999)

who detailed that shoppers approach end-of-aisle displays head-on enabling complete and full view of the merchandise. Seeing as the demonstration was positioned in the perimeter and the end-of-aisle display was on the border of the perimeter, shoppers traversing the perimeter may have had complete and full view of the end-of-aisle display and/or demonstration in comparison to shoppers who traversed both the aisle and the perimeter. This demonstrates that shoppers who travelled the perimeter were more likely to pay attention to the end-of-aisle display and demonstration than shoppers who travelled both the aisle and the perimeter.

Furthermore, the majority of shoppers undertaking aisle travel were found to be less likely to pay attention to the demonstration. The reason for this could have been due to Dulsrud and Jacobsen (2009) theory that end-of-aisle displays were introduced to slow shoppers travel throughout the store and that when shoppers round the corner (where the end-of-aisle display was), it enables particular attention to be directed toward the end-of-aisle display. As aisle travel in the current study required shoppers to traverse from one aisle to the next whilst rounding the end-of-aisle display (or corner) to proceed into the next aisle, this could have been the reason why shoppers undertaking aisle travel were found to pay less attention to the demonstration. As the demonstration was positioned directly opposite the end-of-aisle display, shoppers rounding the end-of-aisle could have been focused on the end-of-aisle display, explaining why attention to the demonstration was lessened.

#### **5.4.5 Gender**

The shoppers' gender significantly affected shoppers' behaviour towards the end-of-aisle display and demonstration but only when in combination with other factors within the shopping environment (direction of movement, day, travel and shopping device). On the majority of occasions, male shoppers were found to be less likely to pay attention to the end-of-aisle and demonstration in comparison to female shoppers. This affect could be due to male shoppers undertaking a more utilitarian approach to shopping and females taking a more hedonic approach to shopping. Otnes and McGrath (2001), Mortimer and Clarke (2011) and Mortimer (2012) detailed that male shoppers undertake a more utilitarian type of shopping, a grab and go, where speed and efficiency are more important (Ezell & Motes, 1985; Mortimer & Clarke, 2011), compared to female shoppers, who undertake a more hedonic approach (Kotz et al., 2012; Tifferet & Herstein, 2012), where enjoyment (Kotze et al., 2012) and weekly specials are more



important (Mortimer & Clarke, 2011). Breugelmans and Campo (2011) indicated that utilitarian shoppers are less likely to pay attention to environmental cues in comparison to hedonic shoppers who are more susceptible to their influences. This helps to explain why male shoppers who undertake a utilitarian approach to shopping were less likely to pay attention to the end-of-aisle display and demonstration, in comparison to female shoppers who undertake a hedonic approach and are more susceptible to environmental cues such as end-of-aisle display and demonstration. This concludes that these promotional devices should be predominately targeted toward female shoppers.

## **5.5 Conclusion**

In conclusion, a greater understanding of shopper behaviour near an in-store demonstration positioned near an end-of-aisle display has been concluded. Both hypotheses were explained with only partial support for hypothesis two dominating. The effects of positioning a demonstration near an end-of-aisle display were discussed, with explanations given as to why negative effects were produced. Other factors within the shopping environment that affected shopper's attention to the end-of-aisle display and demonstration were also discussed, with explanations given for their occurrences. The following chapter will help give insights into implications, limitations and future research for retailers, suppliers/manufacturers and academics.

## **Chapter Six: Conclusion**

### **6.1 Conclusion and Implications**

Due to the limited number of studies focusing on in-store demonstrations and end-of-aisle displays, and having undertaken the only known study that focuses on the effects of positioning a demonstration near an end-of-aisle display in a supermarket environment, a greater level of understanding for the subject area has developed. With the heavy investment on in-store sales promotions (Zhou & Wong, 2003), the research herein will be useful to both academia and industry through providing them with the knowledge and reasoning for in-store sales promotion expenditure (Applebaum, 1951; Ailawadi et al., 2006). Taking the current findings into consideration, retailers, suppliers and academics can utilise this information to ensure the promotional activities are performing at optimal capacity. Through correctly positioning an in-store demonstration and ensuring the right product categories are on the end-of-aisle display, successful marketing plans in-store can be created and executed (Breugelmans & Campo, 2011), additional sales can be generated, and an advantage over competitor stores can be achieved (Abratt & Goodey, 1990; Zhou & Wong, 2003).

Through positioning an in-store demonstration near an end-of-aisle display, negative effects on shoppers' attention toward both promotional devices occurred. Shoppers who approached the in-store demonstration and end-of-aisle display predominately continued on through as if neither were of particular interest. Occasionally, when attention was given, a detraction effect occurred, where shoppers were distracted from the end-of-aisle display to focus on the in-store demonstration. Retailers and suppliers need to be aware of the consequences of positioning an in-store demonstration near an end-of-aisle display, as the promotional devices' capabilities of generating attention and sales from shoppers can be minimised. Suppliers pay large sums of money to promote their products on end-of-aisle displays and via product demonstrations, so when these are undertaken simultaneously (directly opposite one another), sales may not be fully maximised, meaning return on investment for all involved becomes insufficient. Therefore, suppliers promoting their product via the end-of-aisle display need to ensure that a demonstration is not undertaken near the end-of-aisle display during the promotional period and, if undertaken, some sort of compensation should be agreed upon beforehand.

To maximise the attention generating abilities and sales of in-store demonstration and end-of-aisle displays, in-store demonstrations could be positioned in less frequently visited areas, that are not so heavily trafficked, have large amounts of space and are not directly opposite or near to another attention generating device. By strategically positioning a demonstration in a less frequently visited area, this could potentially persuade shoppers to less frequently visited areas, resulting in increased visitation levels, and could help to prevent congestion and narrowing due to the dense movement of shoppers throughout the periphery. An area that enables sufficient movement of the masses near a demonstration table, where trolleys, prams, baskets and wheelchairs are parked, and without the interference of others navigating their way around the store; this could potentially avert congestion and crowding, and may allow for shoppers to adopt a wider field of view. Through positioning a demonstration away from other attention-generating devices such as the end-of-aisle display, this may not only help to reinstate their attention generating abilities but it may also give each of the promotional devices a fair opportunity to gain sales from shoppers instead of competing against one another. If retailers have no other option but to position the demonstration near an end-of-aisle display, they need to ensure another promotional product is on the end-of-aisle display if they want to have any sort of chance of generating greater sales from the end-of-aisle display. Overall, a greater emphasis to position the demonstration away from the end-of-aisle display is advised.

Furthermore, the shopping party type, the shopper's gender, the shopping device utilised, the shopper's direction of movement and the shoppers travel have all demonstrated their usability to retailers, suppliers and academia in helping to understand and influence shoppers attention toward the end-of-aisle display and demonstration. Through developing an understanding for which factors significantly affect shoppers attention toward the end-of-aisle display and/or demonstration, retailers and suppliers/manufacturers are now better placed to make the appropriate adjustments to the in-store environment to ensure shoppers' attention toward the in-store demonstration and end-of-aisle display are enhanced, and to help with the encouragement of additional purchases. A demonstrator who knows how to approach different shoppers and a retailer who understands shopper movement patterns, in order to correctly position a demonstration in-store, could help to make the demonstration and end-of-aisle display successful.

In order to help with obtaining success, demonstrators could identify and respond more significantly to particular shopper types such as individual shoppers, female shoppers and shoppers with trolleys. Through being aware that individual shoppers need a little more encouragement (to pay attention to the demonstration) than groups of shoppers (who encourage each other to participate in the activity anyway), it seems more logical that demonstrators encourage those who need it rather than those who do not. Female shoppers and shoppers with trolleys could be given a greater level of focus, as concentrating on shoppers who derive satisfaction from the shopping activity, who are more likely to make impulse purchases (Kaltcheva & Weitz, 2007; Breugelmans & Campo, 2011) and who show greater interest, may be more likely to generate additional sales for the supplier/demonstrator and retailer, than shoppers who have a utilitarian approach to supermarket shopping, who are less likely to be influenced by impulse purchasing and show a lack of interest. Targeting those individuals who already display a heightened awareness and greater interest for the promotional device may be a much easier group to influence than to generate new interest. Therefore, demonstrators should be focusing their energy more on influencing these types of shoppers rather than other types of shoppers.

In addition, the positioning of the demonstration by the retailer can also help to influence different shopper types to pay more attention to the end-of-aisle display and demonstration. Positioning the demonstration away from the end-of-aisle display could help to minimise the accompanied shoppers' distracting tendencies (from the end-of-aisle display to the demonstration) and may stop the aisle shoppers from missing the demonstration completely. Therefore, this may encourage more attention to be directed toward the end-of-aisle display from both accompanied and aisle shoppers. Also, the demonstration could be positioned so that it is facing shoppers travelling in the pre-determined direction of movement. This could help to capture more shoppers on the first exposure than trying to capture those back-tracking or travelling in the opposite direction, as they displayed a lack of interest anyway. Lastly, a place in the perimeter but away from the end-of-aisle display could still be a practical place to position a demonstration, as the majority of shoppers travel this area (Kahn & McAlister, 1997; Larson et al., 2005; Skogster et al., 2008; Sorenson, 2009), meaning high exposure rates can be achieved - however, as mentioned, the area needs to be large enough to ensure crowding and congestion do not occur.

## 6.2 Limitations and Future Research

While important insights have been gained around shopper movement patterns and the effects of positioning an in-store demonstration near an end-of-aisle display, it is not without limitations. To begin, because this study was exclusively undertaken within a supermarket in New Zealand, that specifically targeted the higher-end shopper, it would be worthwhile to replicate this study in other shopping contexts and in different regions around the world. Other shopping contexts such as lower-end supermarkets, discount retailers, organic and natural food outlets, pharmacy's, gas stations and in different regions such as North America, Europe, Central Asia etc., to see whether shopper movement patterns and the effects of positioning a demonstration near an end-of-aisle display would remain the same across other retail environments and within other countries around the world. Due to the duopoly within the New Zealand supermarket industry, there are a limited number of retailers, meaning it is rather simplistic compared to overseas markets (Bava et al., 2009). Subsequently, the replication of this study in more competitive markets may be a worthy avenue for further investigation.

Also, given the current study is the first of its kind, it would be useful to replicate it with changes to the data collection methods. Gathering sales data for the products involved and conducting interviews alongside the security footage observations would allow for a more insightful understanding of shopper behaviour. Even though products taken for purchase during the demonstration were included, sales data from before the promotion and during the promotion would provide more detailed information on the exact increase in sales, which could in turn help with the positioning of an in-store demonstration and could help to determine the profitability of the promotional devices. As Phillips and Bradshaw (1991) pointed out, in-store interviewing allows for a more complete picture of the shoppers' experience to be composed. Even though in-store interviewing does have its down falls, when used in conjunction with other reliable and accurate techniques it can help in the overall construction of the shoppers experience in-store.

Another change to the data collection method could be to undertake eye tracking in-store instead of observations via security footage. This technique, alongside interviews and gathering of sales data, could provide greater insights into the effects of positioning an in-store demonstration near an end-of-aisle display and the level at which shoppers attention is affected, as visual attention levels can be recorded via shopper eye

movements toward visual stimuli within supermarkets (Clement, 2007). A greater level of depth of visual attention can be demonstrated through the use of eye tracking as a first visual attention, a returning visual attention and an attention whilst physically tasting the sample, speaking with demonstrator or inspecting the product can be analysed (Clement, 2007). Also the shoppers' eye movements outside of the camera observation area could be included, enabling all possible shoppers who paid attention to the demonstration and end-of-aisle display to be included. Through the use of this technique in conjunction with the sales data and interviews, a greater level of understanding surrounding the in-store demonstration and end-of-aisle displays could be fashioned.

Furthermore, it would be useful to test this study utilising different product categories for both the demonstration and end-of-aisle display. The demonstration could hold products that are hedonic versus utilitarian in nature and the end-of-aisle display could hold complementary or substitute products to those of the demonstration product. Through experimenting with different product categories, the results of the current study could be confirmed, or it could identify variances across categories. Furthermore, shoppers' responses to sensory stimulated demonstrations positioned near an end-of-aisle display could also be investigated to help discover if the same effects presented here would remain. Sensory stimulation through olfactory dimensions such as scent (Kotler, 1973-1974) could be incorporated into the demonstration. In the current study, no smell protruded from the demonstration area because the product was juice. If a demonstration product was cooked on sight and a smell was produced, it would be of interest to see if the demonstration situated near an end-of-aisle display would still have the same effect on shopper's behaviour or if it would differ. The effects of store atmospherics on shopper's behaviour are well known (Kotler, 1973-1974). Both of these are ideas for future research and would not only further the current knowledge surrounding in-store demonstration and end-of-aisle displays, but it would also further current knowledge regarding what products to position where and if olfactory dimensions would have the same or different effects on shoppers' behaviour.

Lastly, due to the external validity of the current approach, it would be of interest to replicate the current study in a laboratory setting where a higher level of control can be adhered to, this would help to confirm the findings or differences in findings between the natural and stimulated environments. Through providing areas for future research, hopefully others are inspired to take this research to the next level, or develop an

interest for the complexities surrounding in-store demonstrations and end-of-aisle displays. Seeing as shopper movement patterns, in-store demonstrations and end-of-aisle displays are largely under-researched, there is huge potential for further research in this area.

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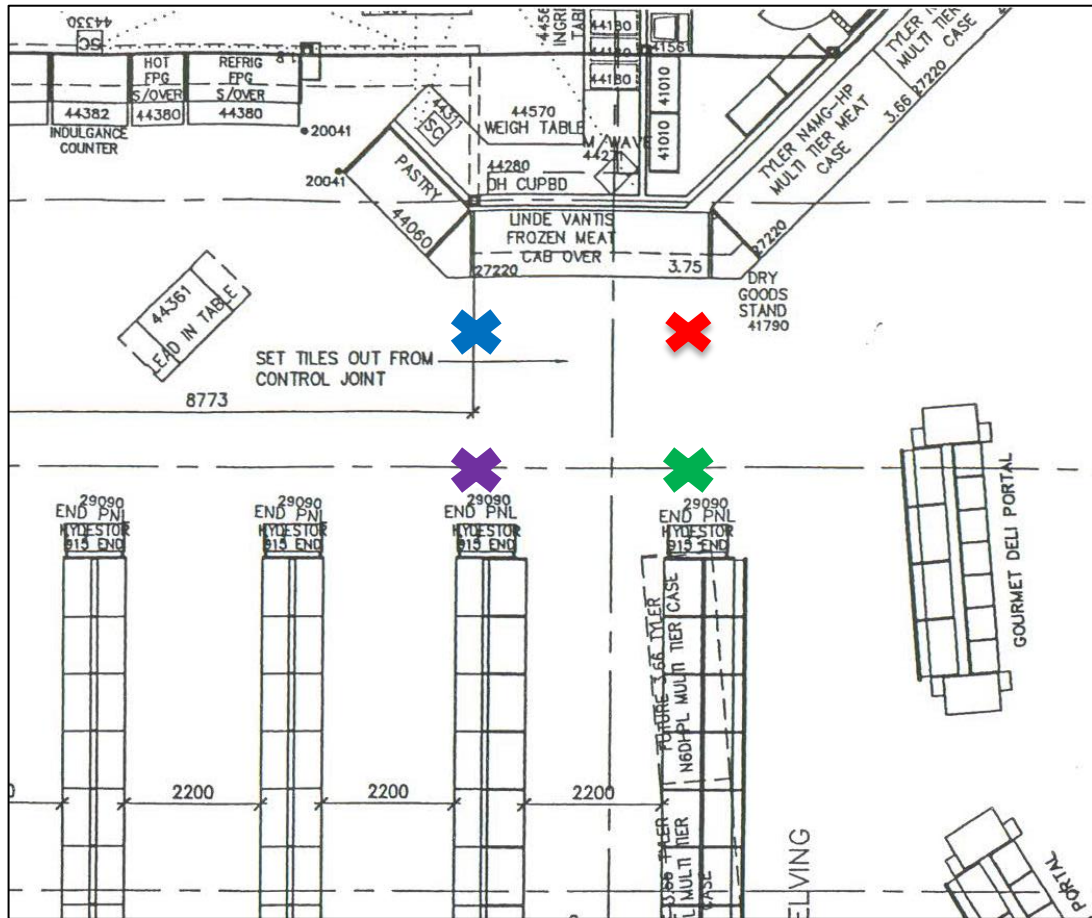
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## 8. Appendices

### Appendix One: Map of Research Area



#### Key

- ✖ Day One: positioning of juice demonstration
- ✖ Day One: positioning of juice demonstration product on end-of-aisle display
- ✖ Day Two: positioning of juice demonstration
- ✖ Day Two: positioning of another promotional product on the end-of-aisle display (Biscuits)
- ✖ Day Three: No demonstration
- ✖ Day Three: No demonstration
- ✖ Day Three: positioning of the juice products on end-of-aisle display
- ✖ Day Three: positioning of biscuit products on the end-of-aisle display

## Appendix Two: Categorical Variables Coding

Variables	Original Coding	Adjusted Coding
<b>Shopping Party</b>		
Individual	1	0 (PC1-14)
Male/Female	2	1 (PC1) 0 (PC2-14)
2xFemale	3	1 (PC2) 0 (PC3,4,5,6,7,8,9,10,11,12,13,14,1)
Female/Child	4	1 (PC3) 0 (PC4,5,6,7,8,9,10,11,12,13,14,1,2)
Male/Child	5	1 (PC4) 0 (PC5,6,7,8,9,10,11,12,13,14,1,2,3)
Female/more than 1 child	6	1 (PC5) 0 (PC6,7,8,9,10,11,12,13,14,1,2,3,4)
2xMales	7	1 (PC6) 0 (PC7,8,9,10,11,12,13,14,1,2,3,4,5)
2xFemales/Male	8	1 (PC7) 0 (PC8,9,10,11,12,13,14,1,2,3,4,5,6)
Male/more than 1 child	9	1 (PC8) 0 (PC9,10,11,12,13,14,1,2,3,4,5,6,7)
2xFemale/Child	10	1 (PC9) 0 (PC10,11,12,13,14,1,2,3,4,5,6,7,8)
4xFemales	11	1 (PC10) 0 (PC11,12,13,14,1,2,3,4,5,6,7,8,9)
3xFemales	12	1 (PC11) 0 (PC12,13,14,1,2,3,4,5,6,7,8,9,10)
Male/Female/2xChild	13	1 (PC12) 0 (PC13,14,1,2,3,4,5,6,7,8,9,10,11)
Male/Female/Child	14	1 (PC13) 0 (PC14,1,2,3,4,5,6,7,8,9,10,11,12)
2xFemales/2xChild	15	1 (PC14) 0 (PC1-13)
<b>Shopping Device</b>		
No Device	1	1 (PC1) 0 (PC2) 0 (PC3) 0 (PC4) 0 (PC5)
Trolley	2	0 (PC1) 1 (PC2) 0 (PC3) 0 (PC4) 0 (PC5)
Trundler	3	0 (PC1) 0 (PC2) 1 (PC3) 0 (PC4) 0 (PC5)
Pram	4	0 (PC1) 0 (PC2) 0 (PC3) 1 (PC4) 0 (PC5)
Wheelchair	5	0 (PC1) 0 (PC2) 0 (PC3) 0 (PC4) 1 (PC5)
Basket	6	0 (PC1) 0 (PC2) 0 (PC3) 0 (PC4) 0 (PC5)
<b>Gender</b>		
Female	1	0 (PC1) 0 (PC2)
Male	2	1 (PC1) 0 (PC2)
Male and Female	3	0 (PC1) 1 (PC2)

<b>Direction of Movement</b>		
Anti-clockwise	1	0 (PC1) 0 (PC2)
Clockwise	2	1 (PC1) 0 (PC2)
Both (Anti-clockwise & Clockwise)	3	0 (PC1) 1 (PC2)
<b>Direction of Travel</b>		
Perimeter Travel	1	0 (PC1) 0 (PC2)
Aisle Travel	2	1 (PC1) 0 (PC2)
Both (Aisle and Perimeter)	3	0 (PC1) 1 (PC2)
<b>Paid attention to end-of-aisle display</b>		
Yes	1	1
No	2	0
<b>Paid attention to demonstration</b>		
Yes	1	1
No	2	0
<b>Removed product from end-of-aisle display</b>		
Yes	1	1
No	2	0
<b>Removed product from demonstration</b>		
Yes	1	1
No	2	0

\*PC refers to parameter coding

**Appendix Three:** Two-way interaction entered into SPSS for shopper’s attention to the end-of-aisle display and shopper’s attention to the demonstration.

<b>Number</b>	<b>Two-way interaction</b>	<b>Dependent Variable</b>
1	DirectionofMovement*ShoppingDevice	PAE or PAD
2	ShoppingDevice*Travel	PAE or PAD
3	ShoppingDevice*Gender	PAE or PAD
4	ShoppingDevice*ShoppingParty	PAE or PAD
5	DirectionofMovement*Travel	PAE or PAD
6	DirectionofMovement*Gender	PAE or PAD
7	DirectionofMovement*ShoppingParty	PAE or PAD
8	Travel*Gender	PAE or PAD
9	Travel*ShoppingParty	PAE or PAD
10	Gender*ShoppingParty	PAE or PAD
11	Day*ShoppingDevice	PAE or PAD
12	Day*DirectionofMovement	PAE or PAD
13	Day*Gender	PAE or PAD
14	Day*ShoppingParty	PAE or PAD

\* PAE stands for paid attention to end-of-aisle display and PAD stands for paid attention to demonstration.

**Appendix Four:** Three-way interaction entered into SPSS for shopper's attention to the end-of-aisle display and shopper's attention to the demonstration.

<b>Number</b>	<b>Three-Way Interactions</b>	<b>Dependent Variable</b>
1	Day*ShoppingDevice*DirectionofMovement	PAE or PAD
2	Day*ShoppingDevice*Travel	PAE or PAD
3	Day*ShoppingDevice*Gender	PAE or PAD
4	Day*ShoppingDevice*ShoppingParty	PAE or PAD
5	Day*DirectionofMovement*Travel	PAE or PAD
6	Day*DirectionofMovement*Gender	PAE or PAD
7	Day*DirectionofMovement*ShoppingParty	PAE or PAD
8	Day*Travel*Gender	PAE or PAD
9	Day*Gender*ShoppingParty	PAE or PAD
10	Day*Travel*ShoppingParty	PAE or PAD
11	ShoppingDevice*DirectionofMovement*Travel	PAE or PAD
12	ShoppingDevice*DirectionofMovement*Gender	PAE or PAD
13	ShoppingDevice*DirectionofMovement*ShoppingParty	PAE or PAD
14	DirectionofMovement*Travel*Gender	PAE or PAD
15	Gender*ShoppingParty*ShoppingDevice	PAE or PAD
16	Gender*ShoppingParty*DirectionofMovement	PAE or PAD
17	DirectionofMovement*Travel*ShoppingParty	PAE or PAD
18	Travel*Gender*ShoppingParty	PAE or PAD
19	Travel*Gender*ShoppingDevice	PAE or PAD

\* PAE stands for paid attention to end-of-aisle display and PAD stands for paid attention to demonstration.

**Appendix Five:** Four-way interaction entered into SPSS for shopper’s attention to the end-of-aisle display and shopper’s attention to the demonstration.

<b>Number</b>	<b>Four-way interaction</b>	<b>Dependent Variable</b>
1	ShoppingDevice*DOM*Travel*Gender	PAE or PAD
2	ShoppingDevice*DOM*Travel*ShoppingParty	PAE or PAD
3	DOM*Travel*Gender*ShoppingParty	PAE or PAD
4	Gender*ShoppingParty*Day*ShoppingDevice	PAE or PAD
5	Travel*Gender*ShoppingDevice*ShoppingParty	PAE or PAD
6	Gender*ShoppingParty*ShoppingDevice*DOM	PAE or PAD
7	Day*ShoppingDevice*DOM*Travel	PAE or PAD
8	Day*ShoppingDevice*DOM*Gender	PAE or PAD
9	Day*ShoppingDevice*DOM*ShoppingParty	PAE or PAD
10	Day*DirectionofMovement*Travel*Gender	PAE or PAD
11	Day*DOM*Travel*ShoppingParty	PAE or PAD
12	Day*Travel*Gender*ShoppingParty	PAE or PAD

\* PAE stands for paid attention to end-of-aisle display and PAD stands for paid attention to demonstration.