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Small but Powerful: The Impact of Shelf Talker Flags on Consumer Shopping Behavior

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Abstract

Unseen is unsold, which means that shoppers can only buy what they see in the store. Therefore, retailers use different in-store marketing techniques to increase visual exposure and stimulate purchases. In this paper, I investigate the effect of shelf talker flags on consumer shopping behavior. In doing so, I hypothesize that shelf talker flags increase the subjectively perceived search ease and purchases of marked products. A field experiment shows that shelf talker flags make products more visible and easier to find at the point of purchase, significantly increasing consumers' subjectively perceived search ease. Furthermore, the results suggest that shelf talker flags can influence consumer buying behavior and increase purchases of marked products. However, this result is only marginally significant.

Keywords: in-store marketing; search ease; shelf talker flags; unplanned purchases; visual attention

1. Introduction

In retail, the "unseen is unsold" paradigm often applies, meaning that goods that do not reach customers visually cannot be purchased (Wästlund et al., 2018). The basic function of the retailer is to confront the buyer with his offer so that he can satisfy his needs (Streicher et al., 2021). However, nowadays supermarkets often have several thousand stock-keeping units (SKUs) in their assortment (Schwartz, 2004), so this is not an easy task. That's why retailers use various techniques to increase product visibility and encourage purchases. This has benefits for both sides, for the retailers as well as for the shoppers. On the one hand, if shoppers see more products, they make more purchases, especially unplanned purchases. On the other hand, customers also benefit from an improved presentation of goods, for example by simplifying the search process in stores (Chandon et al., 2000). This is important because supermarkets in reality tend to have complex and large assortments, which otherwise often lead to decision-making difficulties for the shoppers (Iyengar & Lepper, 2000). So, what can retailers do? What they can do ranges from structural aspects in product presentation to shelf management strategies to promotional signals at the point of purchase. One specific promotional tool used to make products visually salient at the point of purchase is shelf talker flags. In America and England, they are already widespread. However, in Austria, they are not yet found in supermarkets. Additionally, while other visual sales promotions, such as in-store displays and their impact on consumer shopping behavior, are well studied (e.g., Chandon et al., 2009; Roggeveen et al., 2016), there is hardly any research that specifically addresses shelf talker flags. Therefore, this paper aims to fill this gap by investigating the effect of shelf talker flags on consumer shopping behavior.

Specifically, I hypothesize that shelf talker flags increase subjectively perceived search ease and purchases of marked products. A field experiment shows that shelf talker flags make products more visible and easier to find at the point of purchase, significantly increasing consumers' subjectively perceived search ease. Furthermore, the results suggest that shelf talker flags can influence consumer buying behavior and increase purchases of marked products. However, this result is only marginally significant.

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The remainder of the paper is divided into four sections. First, a review of the existing literature on unplanned purchases and visual attention is provided, and the hypotheses are derived. Second, the research design of the experiment is described. Third, the results are reported. Finally, the results and their implications as well as the limitations of this work and future research directions are discussed.

2. Literature Review

2.1. The relationship between unplanned purchases and visual attention

2.1.1. Unplanned Purchases

Consumer purchases in retail stores can be divided into planned purchases and unplanned purchases. With planned purchases, consumers plan what purchases they will make (e.g., using a shopping list) before they visit the store (Bucklin & Lattin, 1991). This contrasts with unplanned purchases, which are not planned a priori and are often triggered by in-store stimuli (Inman et al., 2009). As reported by the Point of Purchase Advertising Institute (POPAI), for the vast majority of purchases (74%), the decision to buy or not buy a product is made while shopping (POPAI, 1997). As a result, unplanned purchases account for a significant proportion of customers' overall shopping behavior. Approximately 62% of all consumer purchases at mass retailers (e.g., Target), are unplanned (POPAI, 2014). This is consistent with a study by Inman, Winer, and Ferraro (2009), in which the proportion of unplanned purchases was 60.9%. Unplanned purchases can therefore be seen as an important component of retailers' profits (Gilbride et al., 2015). Although unplanned purchases are often associated with negative effects for shoppers e.g., with a loss of self-control leading to excessive spending (Rook, 1987; Streicher et al., 2021), shoppers are not unaware of them. On the contrary, shoppers actually regulate their unplanned purchases by having an implicit budget for them (Stilley et al., 2010). As Stilley, Inman, and Wakefield (2010) report, consumers have a fixed budget in mind for their purchases, which consists of spending on planned purchases and a residual amount for in-store decisions and thus for unplanned purchases. They refer to the latter portion as "in-store slack." In addition, unplanned purchases can also have positive effects for buyers. For example, they can use an improved product presentation to find out about alternatives to their standard products, which may actually be better (Iyer, 1989).

Unplanned purchases often occur because in-store stimuli remind customers of forgotten needs or trigger new needs (Inman et al., 2009). When consumers perceive a stimulus in a store, they do not simply ignore it but evaluate it (Yeung & Wyer, 2004), and if it's useful for their purposes, this may trigger affective or cognitive responses (Inman et al., 2009). However, as Inman, Winer, and Ferraro (2009) show, not all stimuli are equally suitable for this. Coupons for instance tend to harm unplanned purchases (Inman et al., 2009) because consumers usually decide whether or not to use a coupon before entering a store (Kahn & Schmittlein, 1989). Therefore, coupons are more likely to play a role in planned purchases (Inman et al., 2009). In contrast, they find that displays have a positive impact on unplanned purchases, especially when it comes to frequently needed purchases. Interestingly, consumers seem to expect products in end-of-aisle displays to be discounted, which leads to an increase in sales of the products, even if they have a normal price (Inman et al., 1990). There are also differences between the product categories. The study by Inman, Winer, and Ferraro (2009) finds that less frequently visited and hedonistic categories have a higher probability of an unplanned purchase. As these examples show, in-store stimuli can lead to purchases, especially unplanned purchases. However, for these in-store stimuli to have an impact, they must receive the visual attention of consumers in order to be noticed at all.

2.1.2. Visual attention

Attention, specifically visual attention, has a strong influence on in-store decisions and therefore plays an important role in consumer decision-making (Orquin & Mueller Loose, 2013). According to Russo and Leclerc (1994), consumer decision-making in the store can be divided into three phases: Orientation, Evaluation, and Review. Visual attention refers to the process by which visual impressions are filtered and selected for subsequent processing and eventual incorporation into awareness (Paré & Dorris, 2012). Several studies show that the extent of visual attention is strongly related to eye movements (e.g., Deubel and Schneider, 1996; Hoffman and Subramaniam, 1995; Kowler et al., 1995). Henderson and Hollingworth (1999) report that people are able to subliminally process the essence of a visual impression through an initial fixation from the peripheral visual field. If Inow relate it to shopping situations, this means that people can get a first rough overview of the assortment in the store (Chandon et al., 2009). However, to visually process more detailed information, for example about a product, a fixation of the eyes is required (Burke & Leykin, 2014). Therefore, eye fixations are considered a good measure of visual attention in research (Chandon et al., 2009; Orquin & Mueller Loose, 2013).

As described by Elmo Lewis' AIDA model (cf. *Figure 1*), the customer's buying process begins with attention and ends with action (Heath & Feldwick, 2008). This means that a product must first attract the customer's attention so that the other phases (interest, desire, action) can take place at all. Fittingly, in retail, there is the well-known saying "unseen is unsold", which means that consumers can only buy those products that they also visually perceive (Wästlund et al., 2018). This can be well explained by the way visual processing works. If products do not attract visual attention, then they do not receive eye fixations from consumers and are thus not identified (Orquin & Mueller Loose, 2013). Thus, consumers do not even know that the products are available and therefore they remain unsold.

How much consumers see and, conversely, then buy depends, among other things, on the breadth of their atten-

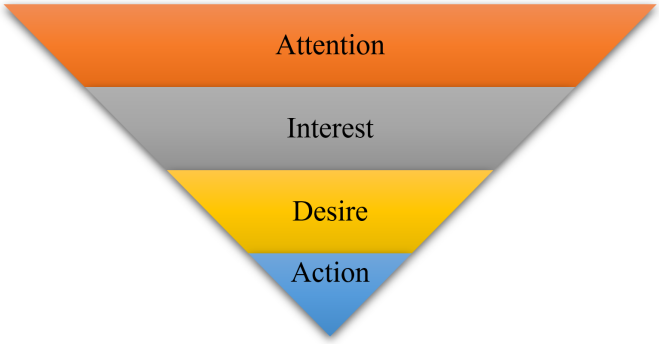

Figure 1: The AIDA model (Source: Adapted from Li and Yu (2013, p. 48))

tion (Streicher et al., 2021). Attentional breadth describes whether people focus their gaze on "a wider or a more limited visual area" (Friedman et al., 2003, p. 278). While people with narrow attention focus only on a fraction of all visual stimuli and ignore others (Wadlinger & Isaacowitz, 2006), people with broad attention are more susceptible to visual stimuli and tend to pay attention to a larger number of stimuli (Streicher et al., 2021). By manipulating consumers' attentional breadth in field and laboratory experiments, Streicher, Estes, and Büttner (2021) find that attentional breadth affects product choices and increases unplanned purchases. As they report, this is caused by broader attention activating an exploratory mindset, which leads consumers to explore the store more.

2.1.3. In-store exploration

In order for an SKU to have any chance at all of catching the attention of shoppers, they must first visit the area of the store where the product is positioned in the first place (Chen et al., 2021). For a long time, retailers assumed that customers go from aisle to aisle while shopping in a supermarket, walking through almost the entire supermarket (Hui et al., 2013). However, it seems that this doesn't quite correspond to reality. Recent studies that have used path tracking to examine consumer shopping behavior in retail stores have found that, on average, shoppers visit only about a third of the total store (Hui & Bradlow, 2012). Instead of walking through the entire store, the majority of shoppers stay mainly in the peripheral areas of the store and visit only those aisles that are relevant to their need fulfillment (Hui et al., 2009; Larson et al., 2005). As a result, most aisles are not even crossed by shoppers, leaving large parts of the assortment unseen (Hui et al., 2013). From a retailer's point of view, this is obviously a problem, because if shoppers don't see the majority of the product categories, much remains unsold. To counteract this, retailers often try to trigger exploratory shopping, a behavioral pattern of consumers that influences their shopping behavior (Streicher et al., 2021). Contrary to typical consumers, shoppers with an exploratory mindset, browse through the store and explore the merchandise by moving or looking around the store (Baumgartner & Steenkamp, 1996; Streicher et al., 2021). As Titus and Everett (1995) argue, shopper locomotion is significantly influenced by the nature of the search strategy. As consumers with an exploratory mindset browse more in-store, they see a greater number of product categories and stimuli in the store (Streicher et al., 2021), which in turn increases the likelihood of unplanned purchases (Granbois, 1968). Therefore, retailers try to encourage shoppers to explore the store. Exposure to in-store stimuli may even cause customers to experience some urge to buy, and make impulse purchases (Rook, 1987).

2.1.4. Impulse buying

Impulsive shoppers view shopping more positively, enjoy exploring the store and are more inclined to make in-store purchase decisions (Beatty & Ferrell, 1998). At this point, it's important to distinguish between impulse purchases and unplanned purchases, as they are similar but not the same thing. Although impulse purchases are also unplanned, the key differentiator is a certain urge to buy that consumers feel (Beatty & Ferrell, 1998). Impulsive shoppers are characterized, among other things, by the fact that they usually don't think long (Hoch & Loewenstein, 1991) and react strongly emotionally when shopping (Rook & Fisher, 1995; Verplanken & Herabadi, 2001). In addition, unplanned purchases by impulsive shoppers also occur because they browse around the store more than other shoppers (Beatty & Ferrell, 1998). Impulse buying is often associated with negative outcomes such as the buyer experiencing financial problems, feelings of guilt, or post-purchase disappointment (Rook, 1987). It can even go so far that consumers develop pathological buying behavior, where they are subject to a certain compulsion to buy (O'Guinn & Faber, 1989). Past research on impulse buying has suggested that for impulsive shoppers, the products purchased may be secondary, as it is primarily the shopping process that triggers positive feelings in them (O'Guinn & Faber, 1989; Verplanken & Herabadi, 2001). Additionally, the behavior of impulsive buyers is often characterized by hedonic motives such as variety and pleasure-seeking (Bayley & Nancarrow, 1998). So, you could say that it's not so much the products as the shopping itself that they enjoy.

Recently, a link between impulsive buying behavior and an attentional bias has also been found (Büttner et al., 2014).

Because shoppers with high buying impulsivity are more open to sudden purchases, they are more easily attracted to in-store stimuli (Hoch & Loewenstein, 1991). As a result, impulsive shoppers find it harder to control their visual attention, which leads them to be distracted more often by other products in the assortment (Büttner et al., 2014). By shifting their attention to more products, they notice more products, which in turn can then lead shoppers to make more unplanned purchases (Büttner et al., 2014). In addition, attention to enticing stimuli also makes self-control more difficult (Field & Eastwood, 2005) which further encourages impulse buying. Consistent with these results, Streicher, Estes, and Büttner (2021) show in their studies that the visual attention of impulsive shoppers has a causal effect on their shopping behavior.

However, in addition to visual attention, there are also situational factors and customer characteristics, that influence unplanned purchases.

2.1.5. Situational factors & shopper characteristics

Whether or not a customer makes unplanned purchases also depends in part on situational factors that occur during the shopping experience (Park et al., 1989). Consumer sentiment, for example, has a strong effect on the number of impulse purchases as various studies (e.g., Gardner and Rook, 1988; Rook, 1987) show. Consumers who view shopping positively and enjoy exploring the store have a higher likelihood of making purchase decisions in the store (Beatty & Ferrell, 1998). In addition, consumers are generally more likely to visit a store area if other shoppers are there (Hui et al., 2009). However, as soon as too many people are there, it becomes too crowded for shoppers, and the likelihood of them buying a product is reduced (Zhang et al., 2014). In addition, a study by Luo (2005) suggests that the presence of people influences perceived desire to buy, as participants reported varying degrees of urge to buy when they imagined that peers or family members were present. This may be due to the different social relationships between them and the buyer (Rook & Fisher, 1995). However, a study by Inman, Winer, and Ferraro (2009) shows that whether or not individuals are accompanied while shopping does not appear to influence unplanned purchases.

Furthermore, the time available for the purchase plays a role. According to Park, Iyer, and Smith (1989), shoppers who don't know the store well and are not in a hurry are those with the most unplanned purchases. Time pressure generally has a strong influence on consumers' in-store decision behavior (Iyer, 1989). When consumers are in a hurry due to time pressure, it has a negative impact on unplanned purchases (Iyer, 1989; Park et al., 1989). This is due to the fact that shoppers don't have much time to search for products or to explore the store (Beatty & Smith, 1987). Research on visual processing reports that when time pressure is present, consumers try to acquire information faster by fixating on individual objects for less time (Pieters & Warlop, 1999). Moreover, Hui, Bradlow, and Fader (2009) argue, that as shopping time progresses, shoppers begin to browse less and shop more efficiently when they realize that they have already spent too much time shopping. This in turn can lead to perceived time pressure that causes shoppers to move faster, stop less often, and thus come into less contact with products (Titus & Everett, 1995).

Another factor is the personal characteristics and inclinations of consumers. Shoppers vary in their susceptibility to in-store buying decisions (Streicher et al., 2021). Some shoppers find it very difficult to resist temptations and therefore repeatedly make unplanned purchases that they subsequently regret (Faber & Vohs, 2011). This consumer behavior is often associated with impulse buying (Rook & Fisher, 1995; Verplanken & Herabadi, 2001). Inman, Winer, and Ferraro (2009) also find a greater likelihood of unplanned purchases among female shoppers and larger households (e.g., consisting of five people). They argue that this is mainly the case because women tend to shop more often than men (Starrels, 1994) and larger households buy more products. As a result, both consumer groups come more into contact with stimuli in the store that can trigger certain needs (Inman et al., 2009). Furthermore, shopping regularity plays a role. When consumers shop regularly, they are likely to need only a few products and focus on buying them quickly and leaving the store (Inman et al., 2009), which negatively affects unplanned purchases. In contrast, when consumers shop infrequently and therefore make larger purchases at one time to satisfy their needs, unplanned purchases are more probable (Bell et al., 2011).

Consumers' purchase goals have a strong influence on their purchase intentions and their levels of in-store visual attention (Burke & Leykin, 2014). When consumers set their shopping goals only roughly in advance, unplanned purchases are more likely to occur (Bell et al., 2011). Some consumers see shopping as an experience and a fun activity, while others just want to quickly buy the groceries they need, making shopping a task that must be completed (Babin et al., 1994; Kaltcheva & Weitz, 2006). Buyers who are more task-oriented may use a shopping list to remind them of the needed products they want to buy (Block & Morwitz, 1999). Shopping lists are very helpful for planned purchases but have a negative effect on unplanned purchases (Inman et al., 2009). Even the payment method plays a role. Paying with card can make purchases more pleasant, as it is considered to be not as painful as buying with cash (Prelec & Loewenstein, 1998). Indeed, consumers who pay by card or check tend to make more unplanned purchases (Inman et al., 2009).

As this section has shown, unplanned purchases depend heavily on the visual attention that is attracted in the store. Since unplanned purchases make up a large part of retailers' revenues (Gilbride et al., 2015), they strive to create as much visual exposure as possible. Common methods such as travel distance, shelf management strategies, and promotional signals at the point of purchase are discussed in the next section.

2.2. In-store marketing techniques to create visual exposure

The first method retailers can use to enhance shoppers' exposure to in-store products is supporting in-store explo-

ration by increasing in-store travel distance. Several studies (e.g., Kollat and Willett, 1967; Park et al., 1989) report that physical products in stores can serve as external memory aids for shoppers to activate new or forgotten needs. Thus, if more products come into the customer's field of vision as he or she moves further around the store, this can increase their awareness of potentially interesting products and trigger unplanned purchases (Granbois, 1968). In research, two primary metrics are used to determine the distance traveled in the store: the amount of aisles visited, and the time spent shopping in the store (Hui et al., 2013). Both have been shown to have a positive impact on unplanned purchases by increasing shoppers' exposure to in-store stimuli (Granbois, 1968; Hui et al., 2013; Inman et al., 2009). To extend in-store travel distance, retailers can use two techniques. On the one hand, retailers can relocate products in the store, and on the other hand, mobile promotions can be used (Hui et al., 2013).

The first strategy increases the travel distance by changing the structural aspects of the product presentation. This method is based on Granbois' (1968) study and is the classic method for increasing travel distance in the store (Hui et al., 2013). In this method, retailers place popular product categories (e.g., milk) scattered throughout the store so that customers have to travel a longer distance to make their planned purchases (Granbois, 1968; Iyer, 1989). Along the way, shoppers are then exposed to more in-store stimuli in hopes of increasing unplanned purchases (Hui et al., 2013). Fittingly, an old retail adage says that you should hide the milk in the back of the store (Hui et al., 2013). In this manner, retailers encourage shoppers to walk throughout the store and make unplanned purchases. A prominent example is IKEA. IKEA gives its customers a predefined path to follow, where it almost forces them to walk past all the products to get to the checkout (Streicher et al., 2021).

In the second strategy, retailers use mobile promotions to attract shoppers to low-traffic categories. This can be achieved through tailored promotions, e.g., coupon offers (Hui et al., 2013). Retailers can work with location-based grocery apps to get information about shoppers' locations and shopping lists. Then they can use this information to entice the shopper into unplanned categories through tailored coupon offers, to stimulate unplanned purchases (Hui et al., 2013).

In a field experiment, Hui, Inman, Huang, and Suher (2013) investigated the impact of both strategies on unplanned purchases by collecting path data from shoppers in stores with RFID tags. The results indicate that both strategies (product relocation vs. mobile promotions) can increase unplanned purchases. In the case of the product relocation strategy, they find that it may increase unplanned purchases by 7.2% versus 16.1% in the case of mobile promotions. As the researchers argue, the key benefit of the latter technique is the individualization option for each consumer. Since neither strategy precludes the other, retailers could use both simultaneously to increase unplanned purchases (Hui et al., 2013). However, there may be a trade-off between encouraging unplanned purchases by increasing travel distance and making it convenient for shoppers to purchase products. By lengthening the distance customers must travel to find their planned purchases, some customers may find the store unpleasant and avoid shopping there in the future (Hui et al., 2013). Therefore, retailers should carefully consider whether and to what extent they want to pursue this strategy.

In contrast to travel distance, which can be seen more as a store-wide strategy closely related to the store layout, there are also shelf-level methods retailers can use to increase visual exposure. Various eye-movement studies (e.g., Janiszewski, 1998; Lohse, 1997) report that attention can be influenced and even increased by advertising or catalog displays. In addition, according to a consumer study by Rook (1987), visual confrontation with products or stimuli in stores can trigger an increased feeling of compulsion to buy. Therefore, retailers use various methods to draw customers' attention to certain products, e.g., by increasing shelf space for certain product categories or positioning products several times in the store to increase their visibility and thus the chance of a purchase (Chandon et al., 2009; Streicher et al., 2021). Shelf space can be defined as the amount of space a product category occupies in the store (Campo & Gijsbrechts, 2005). By expanding the shelf space of product categories, sales of these products can be increased as Wilkinson, Mason, and Paksoy (1982) show. However, space constraints don't always allow retailers to increase shelf space. Alternatively, retailers can raise the number of facings of certain products in the store to draw more attention to them, while keeping the overall product category space constant (Chandon et al., 2009; Drèze et al., 1994). Indeed, as an eye-tracking study by Chandon, Hutchinson, Bradlow, and Young (2009) shows, an increase in the number of shelf facings can enhance product sales. This is because a higher number of shelf facings influences visual attention, which in turn acts as a mediator for brand evaluation (Chandon et al., 2009). The results also indicate that this is especially the case for low-market brands, young and educated shoppers, and regular customers of the brands. Further research indicates that this effect is partly influenced by shoppers' expectations. Shoppers may interpret a high number of facings as an indication of an important brand (Buchanan et al., 1999).

Last but not least, sales promotions and promotional signals are also often used at the point of purchase (POP) to advertise products (Chandon et al., 2000). Sales promotions can be "defined as temporary and tangible monetary or non-monetary incentives intended to have a direct impact on consumer behavior" (Chandon et al., 2000, p. 65). Monetary promotions such as discounts, coupons, and rebates (Chandon et al., 2009) are not the exception in the retail sector, but rather the rule. Price promotions can be used by retailers to attract visitors and increase traffic (Grewal et al., 1998) and a few studies also showed that they have an effect, even though short-lived, on brand performance (Dodson et al., 1978; Doob et al., 1969). In contrast to these positive effects, however, there are also some negative aspects. Price discounts don't affect sales in the long run (Dodson et al.,

1978; Doob et al., 1969), are costly for retailers, and reduce profits (Jedidi et al., 1999). Moreover, price promotions can make customers more price-sensitive in the long run (Mela et al., 1997).

Because of these effects, retailers are increasingly also using nonmonetary promotions, which are designed to attract the attention of consumers at the point of sale (Chandon et al., 2009). In practice, such visual promotions include, for example, displays, shelf talker flags, in-store advertising, or flyers (Ailawadi et al., 2009). Gaining attention at the POP is essential because it strongly influences consumers' purchase decisions (Chandon et al., 2007). For example, Woodside and Waddle (1975) show that point-of-purchase signing can increase sales even when there is no price reduction. Displays also influence consumer behavior and can have a positive effect on retailers' sales by stimulating unplanned purchases as shown by various studies (e.g., Chandon et al., 2009; Roggeveen et al., 2016). Well-known brands such as Coca-Cola have long understood this and rely on creative store displays to boost product sales (Keh et al., 2021).

Regardless of whether the promotions are monetary or nonmonetary, the fundamental question is why consumers respond to promotions in the first place. As Chandon, Wansink, and Laurent (2000) argue, consumers respond to promotions, because they provide various benefits for them. The main reason why consumers respond to promotions is generally thought to be the associated cost savings, e.g., in the form of discounts or rebates (Blattberg & Neslin, 1993). In addition, promotions enable shoppers to switch to higher-quality products and facilitate the search process in the supermarket (Inman et al., 1990; Wansink et al., 1998). Finally, nonmonetary promotions in particular also offer shoppers the opportunity to satisfy hedonic needs such as entertainment, exploration, and value expression (Chandon et al., 2000).

Since this section is mainly about techniques retailers use to attract visual attention in their stores, the influence of promotional signals on it should be highlighted. Promotional signals visually highlight products at the point of purchase, greatly simplifying the search process and ultimately making the entire shopping experience more convenient for the consumer (Chandon et al., 2000). This function is essential because, as will be explained in the next section, too much visual exposure can also lead to decision-making difficulties.

2.3. Assortment – Less can be more

As shown in the previous section, retailers try to create as much visual exposure as possible through various techniques. However, too much exposure might negatively affect consumer decisions. In this context, of course, the assortment and especially the size of the assortment plays a role. Assortment can be defined as "the number of different items in a merchandise category" (Levy & Weitz, 1995, p. 30). Assortment size plays a key role in retailing and is an important factor for consumers, in the selection of the store (Iyengar & Lepper, 2000). Therefore, it's a frequently discussed topic, both in practice and in research.

By offering assortments that customers can use to meet their needs and wants, retailers increase the value of products to shoppers (Oppewal & Koelemeijer, 2005). As retailers generally try to present as many products as possible to consumers (Streicher et al., 2021), this often leads to large assortments. In modern society, generally dominates the assumption that more choices are better because it gives you some freedom of choice (Iyengar & Lepper, 2000). This attitude also applies to the retail world, where the myth prevails that a large assortment is always better. Overall, studies have shown that consumers like more choices and don't like to be limited in their decisions (Broniarczyk et al., 1998; Fitzsimons, 2000). Underlying this is the expectation of shoppers that they will be better able to satisfy their needs if they have more choices (Kahn & Lehmann, 1991). However, more recent research takes a more differentiated view on assortment size and suggests that a large assortment does not always have to be better; on the contrary, it can even have serious consequences. Apart from the fact that operating costs naturally increase with the number of SKUs in the store (Oppewal & Koelemeijer, 2005) too large assortments can influence purchase behavior negatively (Iyengar & Lepper, 2000).

For example, Diehl and Poynor (2010) find in their studies that purchases from a large assortment lead to lower satisfaction levels on the shoppers' side compared to purchases from a smaller assortment. Satisfaction in this context can be understood as the evaluation of a product after a decision has been made, while expectations express certain assumptions that often refer to the future (Oliver, 1996). The satisfaction with a purchase is strongly influenced by the expectations of shoppers, and when those expectations cannot be fulfilled by the assortment, shoppers are dissatisfied with their purchases (Diehl & Poynor, 2010). Additionally, if they make a decision, they are more likely to regret it after the fact (Iyengar & Lepper, 2000). Since a very large assortment means a large selection, shoppers have high expectations of finding a product that perfectly fits their needs. In reality, however, the perfect product often does not exist. This leads to consumers being disappointed in their expectations. With smaller assortments, on the other hand, customers' expectations are lower, which means they are more satisfied when they find a suitable product (Diehl & Poynor, 2010).

Furthermore, experimental studies by Iyengar and Lepper (2000) reveal that too large assortments can be overwhelming for shoppers because of the many choices available. The study shows that although shoppers generally find a wide range of choices attractive, they also have more difficulty making a decision. According to Iyengar and Lepper, this is partly due to the flood of options associated with the decision, but also due to an increased sense of responsibility associated with the decision. In some cases, this can even lead to people not making a decision at all (Diehl & Poynor, 2010; Iyengar & Lepper, 2000) and thus not buying anything.

A normal supermarket typically has more than 30.000 SKUs in its assortment (Schwartz, 2004). With so much choice, consumers are often uncertain (Dhar, 1997) and have difficulty choosing the right products (Diehl, 2005; Iyengar

& Lepper, 2000). Therefore, retailers need to simplify the search process.

2.3.1. Techniques to optimize the visual processing of the shelves

Humans cannot process all the stimuli they perceive in their environment at the same time (Chandon et al., 2009). This also applies to the visual processing of the assortment in retail stores. The part of the assortment that the shopper perceives is ultimately determined by his or her attention (Streicher et al., 2021). In light of this, and because supermarkets are becoming more and more complex nowadays, consumers need to be selective in how they use their visual attention to process information (Burke & Leykin, 2014). Indeed, shoppers often use different clues to navigate the store and to estimate the size of the variety of products offered in a store. These are, for example, the space occupied by the category, the presence of favorite products (Broniarczyk et al., 1998), or the arrangement and number of repetitions of products (Hoch et al., 1999). As a result, each consumer views the assortment through his or her own eyes and considers only that part of the assortment that is perceived in the decision-making process (Broniarczyk et al., 1998). Thus, the actual assortment is not as important as retailers often think, it's more about the perceived assortment. At the store level, already a familiar and well-organized layout can help consumers navigate the assortment more easily and find the products they need (Park et al., 1989). Furthermore, whether the products are well-organized or unorganized influences how the assortment is perceived by consumers and affects search ease (Hoch et al., 1999). When the customer finally stands in front of a shelf, all barriers to purchase must be minimized so as not to discourage him or her from buying (Burke, 2005). Retailers can use various techniques to facilitate the processing of the assortment.

A first, relatively simple way for retailers to counteract the negative consequences of a too large assortment and to facilitate the search process is to reduce the assortment by eliminating SKUs. Although the method seems simple, in reality, many retailers hesitate to do this because assortment is considered a critical factor in consumer store selection (Broniarczyk et al., 1998). However, research shows that supermarket shoppers make decisions with very low levels of engagement and are not particularly active in seeking alternatives (Dickson & Sawyer, 1990). This led researchers to investigate whether the assortment could be reduced without too serious consequences. Indeed, Broniarczyk, Hoyer, and McAllister (1998) show that retailers can reduce the number of products without negatively affecting the shopper's perception of the assortment. They argue in their paper that even with a reduction in assortment, profit can be increased under certain circumstances. However, for this strategy to work, two requirements must be met. First, consumers' favorite products must continue to be available, and second, the space of the product category must remain constant (Broniarczyk et al., 1998).

A second method to support the visual processing of the assortment is the choice of a suitable presentation method. It makes a difference whether the assortment is presented visually, e.g., with pictures, or described with text. This strategy is perhaps more suitable for retailers with online stores, but it's also fundamentally applicable to stationary retail. In general, consumers prefer a visual representation of the assortment in the form of images, because it allows them to scan the assortment faster (Townsend & Kahn, 2014). While humans have to process text step by step, images can be processed as a whole (Hart, 1997). Therefore, visual information can be grasped much faster (Townsend & Kahn, 2014). Because the visual presentation of assortments is easier for consumers to process, they also find it more enjoyable. This preference is what Townsend and Kahn (2014) call the "visual preference heuristic" in their paper. However, this doesn't mean that a visual presentation is always better. On the contrary, it depends on the size of the assortment. When the assortment is large, a visual presentation can be overwhelming and increase complexity for customers, and a presentation via text may be better (Townsend & Kahn, 2014).

Finally, as shoppers prefer to browse the assortment visually (Townsend & Kahn, 2014), it's important for retailers to pick up consumers on this level as well (Deng et al., 2016). In retailing, in-store displays are often used for this purpose. Not only can they stimulate sales (Roggeveen et al., 2016), but they can also simplify visual processing. As Deng and her colleagues (2016) have found, horizontal displays in particular seem to make it easier for shoppers to visually process the assortment. As they report, because of their horizontal field of view, humans can process horizontal displays faster and easier, and thus process the assortment more efficiently. The results of their study further show that this can even lead to a larger selection in the product category.

2.3.2. Promotion techniques to make products visually salient

The human brain can only deal with a limited number of visual impressions at the same time (Clement et al., 2013). In the same way, the visual attention of consumers in the supermarket is also limited. As supermarkets become more cluttered, marketers need to make sure their products are visible while shopping (Chandon et al., 2007). Visual saliency plays an important role here. The visual salience of a stimulus can be described as a feature that stands out and attracts attention (McArthur & Post, 1977). In a retail context, visual salience can be seen as "the likelihood that it will attract in-store attention" (Chandon et al., 2007, p. 228). When a brand attracts visual attention, it not only has benefits for that individual brand but also has a positive impact on other brands in the assortment, as it can trigger a memory-based consideration for other brands (Hutchinson et al., 1994).

According to prior research, the position of products affects consumers' attention and preferences (Valenzuela & Raghubir, 2009). This implies that not all positions receive the same amount of attention from consumers. Some posi-

tions receive more attention and others less. For the amount of attention, a product receives from consumers, especially the horizontal and vertical positioning on a shelf plays a major role. In general, it has been found that products positioned in the horizontal center of a shelf get more attention because shoppers are inclined to look there (Atalay et al., 2012). This behavior also influences consumers' purchase decisions. As Chandon, Hutchinson, Bradlow, and Young (2009) find in an eye-tracking study, brands positioned at the top or near the center of the shelf receive more attention and are evaluated better compared to products in other positions. As Valenzuela and Raghubir (2009) report this is also due to the consumers' belief that retailers place the most popular products in the center. Regarding the vertical position of a product, Chen, Burke, Hui, and Leykin (2021) find in an eye-tracking study that the optimal position for products is not at eye level as many retailers believe, rather it is about 14.7 inches (37.34 centimeters) lower. This means the optimal vertical position of a product is approximately at the height of the consumer's chest. Additionally, as further results of the study show shoppers' in-store attention is also influenced by a lateral bias. When shoppers cross an aisle, they are 21% more likely to notice products on the right (Chen et al., 2021).

Another method, that can be applied to make products visually more salient at the POP is imaginative displays. An imaginative display can be defined "as a product display constructed using multiple units of the same product in a novel yet aesthetically appealing form" (Keh et al., 2021, p. 111). Since these displays are significantly different from standard displays, they are more novel to consumers (Keh et al., 2021; Mugge & Schoormans, 2012). This makes the products stand out more from others and attract more attention from consumers (Raghubir & Greenleaf, 2006). Keh, Wang, and Yan (2021) find in their study, that imaginative displays can influence consumer buying behavior and increase sales when the shape of the display matches the benefit of the product to the consumer. However, they also report that retailers should use this method cautiously because if these two factors don't match, then it can negatively impact shopper behavior.

After all, not only the design of the product presentation but also the design of the products themselves can make them visually salient. As Clement, Kristensen, and Grønhaug (2013) report, product design features can capture consumer attention in two ways: either through physical features such as a unique shape and high contrast or by making the packaging as simple as possible to facilitate visual processing. In addition, Van der Lans, Pieters, and Wedel (2008) report that factors such as the brightness and color of a product package are important factors for brand search efficiency. Indeed, a study by Burke and Leykin (2014) shows that unique packaging can reduce product search times by up to 40%.

2.3.3. Shelf-Talker-Flags

A further promotional tool retailers can use to visually highlight a product at the point of purchase is shelf talker flags (STFs). Shelf talker flags, sometimes also called "Wobblers", belong to the category of nonmonetary promotions, and are small flags, which are attached to the shelf. By equipping products with shelf talker flags, they become visually more salient at the point of purchase. Moreover, promotional signals can facilitate consumers' in-store search process as products become visually more prominent and therefore easier to discover (Chandon et al., 2000). This effect has already been confirmed by prior research (Dickson & Sawyer, 1990; Inman et al., 1990). Thus, shelf talker flags should facilitate the search process by making products visually more prominent, which in turn should have a positive impact on subjectively perceived search ease. More formally:

> **H1**: Shelf talker flags, compared to a situation without shelf talker flags, increase subjectively perceived search ease.

By visually highlighting products, shelf talker flags could draw consumers' attention to more potentially interesting products. Since visual attention is an important factor in consumer decisions in stores (Chandon et al., 2007), the increased visual attention provided by shelf talker flags could lead to more purchases. Additionally, advertising signals can facilitate the purchase decision because they usually give consumers a reason why a product should be purchased (Chandon et al., 2000). For instance, the purchase quantity is often dictated by promotions, which further simplifies the purchase decision for the consumer (Wansink et al., 1998). An example of this would be product offers where a price reduction is only applied when two or more products are purchased. Generally, consumer decisions in grocery stores tend to be characterized by low engagement (Dickson & Sawyer, 1990). Moreover, Chaiken and Maheswaran (1994) report that when people are poorly motivated or unable to evaluate a product, they often use a "consensus heuristic" to shape their attitudes. Simply put, this means that shoppers rely on the opinions of others and assume that if many people like a product, it must be good (Valenzuela & Raghubir, 2009). If shelf talker flags now label a product as "Bestseller", consumers will become aware of popular products, which in turn could trigger the consensus heuristic, especially when consumers have little knowledge about a product category. Thus, this could also influence consumers' purchase behavior. This leads to the second hypothesis:

> **H2:** Shelf talker flags, compared to a situation without shelf talker flags, increase consumers' purchases of marked products.

Next, the study that was conducted to test the hypotheses and thus the effect of shelf talker flags on consumer shopping behavior is described.

3. Empirical part

3.1. Study Description

The study was conducted as a field experiment in cooperation with MPreis, an Austrian supermarket chain, in one

of their stores in Innsbruck. Furthermore, it should be mentioned that the study was conducted as part of a university course together with four other fellow students. The study tests the effect of shelf talker flags on subjectively perceived search ease and purchases of marked products using a one-factor between-subjects design with two levels (shelf talker flags: with vs. without). It was conducted over a two-week period (Week 1 = without STFs, Week 2 = with STFs).

The research model (cf. *Figure 2*) describes the direct effect of the independent variable *shelf talker flags* on the two dependent variables: *subjectively perceived search ease* and *purchases of marked products*. First is tested whether manipulating the visual saliency of products by equipping them with shelf talker flags increases subjectively perceived search ease (H1). Then the effect of shelf talker flags on the purchases of marked products is tested (H2). For data collection, questionnaire-based interviews with shoppers were conducted in the store.

3.2. Field setting

Data collection took place in two weeks at the end of May respectively beginning of June 2022 with one week in between. The reason was that there were public holidays that might have otherwise skewed the study. The first week covered the period from 17.05 - 19.05 and the second week the period from 30.05 - 02.06. In both weeks, the survey took place, on Tuesday, Wednesday, and Thursday from 10 am to 5 pm. Random assignment of conditions was not possible due to the logistical effort associated with the field setting, so one condition (with vs. without STFs) was run per week. Therefore, the experiment can be considered a quasi-experiment as the conditions were not completely randomized. In the first week, the condition without shelf talker flags was carried out, and in the second week the condition with shelf talker flags. In order to make the shoppers familiar with the shelf talker flags a little bit, these were already attached after the first week of the experiment. After the end of the experiment period, all shelf talker flags were removed again. For data collection, two researchers were positioned after the checkout and near the exit of the store to intercept and interview shoppers after their purchases.

3.3. Sample

There were no predefined criteria for participants; every shopper who made a purchase in the store was approached to participate in the study. It is therefore a convenience sample. Across the two weeks of the experiment, 444 shoppers (65% female, $M_{age} = 51$, $SD_{age} = 21$) participated in the study. In the first week, 244 (54.95%) participated in the study, compared with 200 shoppers (45.05%) in the second week. The lower number of participants in the second week may be explained by the fact that some had already participated in the first week. Of the 444 participants, 26 (5.86%) were minors. These were excluded from the study due to the lack of representativeness of the overall sample, resulting in a final sample of 418 participants. All shoppers were interviewed only once and received no compensation, financial or otherwise, for their participation in the study.

3.4. Manipulation

The management of MPreis provided us with a list of 33 best-selling products from various different product categories. Then, shelf talker flags were designed to manipulate the visual salience of the selected products. The shelf talker flags were designed as 8cm × 5.5cm (3.15 × 2.17”) red rectangular signs and have "Bestseller" as the inscription. An example of the shelf talker flag design is shown in *Figure 3*. In the first week of the experiment, the condition without STFs, the status quo of the store was maintained, so nothing was changed in the store. In the second week, the condition with STFs, visual salience of the selected products was manipulated by placing shelf talker flags next to the products on the shelf. An example is shown in *Figure 4*. The shelf talker flags were not placed in any particular area of the store, rather they were spread throughout the supermarket. All 33 best-selling products were marked with shelf talker flags only once, with one exception: the 250ml can of Red Bull, which was marked twice in the store. So, in total, 34 shelf talker flags were placed in the store.

To ensure that all shelf talker flags were correctly positioned and still hanging next to the products, regular tours through the store were made. This happened at least twice a day, and if necessary, damaged, or lost shelf talker flags were replaced with new ones.

3.5. Main procedure

Data collection was conducted through a questionnaire-based interview with shoppers. Since the experiment was conducted in Austria, the interviews were conducted in German. Two researchers were located after the checkout and near the exit of the store. All shoppers who purchased something in-store were intercepted and asked to participate in the study. The questionnaire was constructed from previous literature and contained statements about *shelf attractiveness* and *search ease* as well as a control question regarding a shopping list. The statements were operationalized on a seven-point Likert-Scale ranging from -3 (strongly disagree) to +3 (strongly agree). In addition, there was a list of all 33 best-selling products on the back of the questionnaire. The entire questionnaire can be found in the *Appendix*. If consumers had purchased one of the best-selling products, the researchers noted this along with the number of products purchased. Other measures were expenses, age, and gender. *Table 1* shows the measures and reliability scores.

4. Results

4.1. Controls

There was no statistically significant difference between the two conditions for the two control variables gender ($p = .22$) and shelf attractiveness ($p = .99$). However, the variable

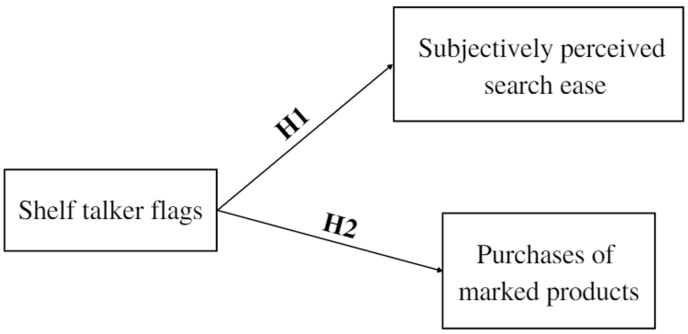

Figure 2: Research Design

Figure 3: Shelf talker flag design

Figure 4: Exemplary positioning of shelf talker flags in a product category

Table 1: Measures and reliability scores of survey items

Variable	Items (-3 = strongly disagree; +3 = strongly agree)	Source
Shelf Attractiveness (α = .77)	Die Regale im Gang wirken gut organisiert!	Adapted from: Sevilla and Townsend (2016)
	Die Warenpräsentation in den Regalen ist optisch ansprechend!	
	Die Warenpräsentation ist visuell leicht zu verarbeiten!	
Search Ease (α = .79)	Es ist leicht, sich einen Überblick über das Produktangebot zu verschaffen!	
	Produkte, welche regelmäßig benötigt werden, sind leicht zu finden!	
	Die wichtigsten Produkte sind leicht zu entdecken!	
	Rabatt- oder Werbeschilder am Regal haben mich auf interessante Produkte aufmerksam gemacht!	Adapted from: Hilken et al. (2017)
	Rabatt- oder Werbeschilder am Regal waren nützlich für meinen Einkauf!	
	Rabatt- oder Werbeschilder am Regal haben mir bei der einen oder anderen Kaufentscheidung geholfen!	

expenses per shopper were significantly higher in the condition with STFs (M = €21.69) than in the condition without STFs (M = €17.89, $p < .05$). Also, the mean age of participants was significantly higher in the condition with STFs (M = 51 years) than in the condition without STFs (M = 47 years). Furthermore, age correlated positively with the expenses of the shoppers (r = .17). Thus, I included age as a covariate in the following analysis. However, the significance pattern did not differ when age was included as a covariate. Therefore, the covariate age is not discussed further.

4.2. Subjectively perceived search ease

An independent t-test with search ease as the dependent factor and the presence of shelf talker flags (i.e., yes, or no) as the independent factor was used to test the effect on subjectively perceived search ease. Results show that the shopper-reported search ease was significantly higher (M = 1.35) in the condition with STFs than in the condition without STFs [M = 1.11, $t(416) = 2.09$), $p < .05$]. Thus, hypothesis 1 is confirmed.

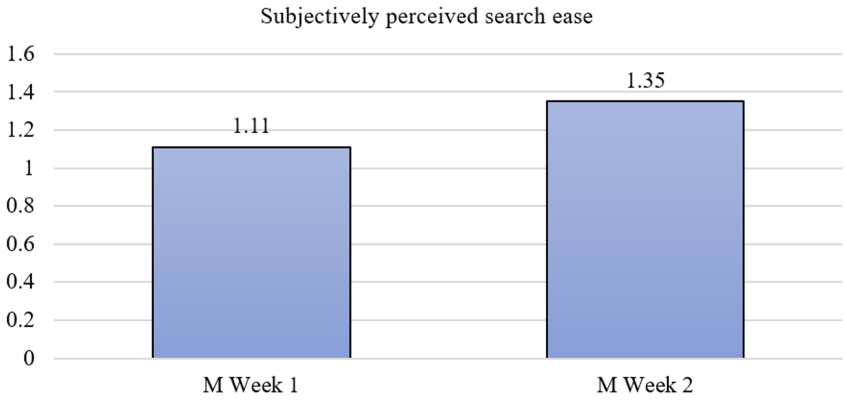

Figure 5: Subjectively perceived search ease

4.3. Purchases of marked products

An independent t-test with the purchases of marked products as the dependent factor and the presence of shelf talker flags (i.e., yes, or no) as the independent factor was used to test the effect on the purchases of marked products. Results show that shoppers on average purchased marginally more of the marked products in the condition with STFs ($M = .12$) compared to the condition without STFs [$M = .06$, $t(416) = 1.76$), $p = .08$]. This partially supports hypothesis 2.

5. Discussion

5.1. General discussion

This paper investigated the effect of shelf talker flags on consumer shopping behavior. First, I proposed that shelf talker flags positively affect the subjectively perceived search ease of consumers. Shelf talker flags make products visually more salient at the point of purchase. This simplifies the shopper's search process in the store as products can be discovered more easily in the assortment. Therefore, the subjectively perceived search ease of consumers increases. Second, it was hypothesized that shelf talker flags increase purchases of marked products. Shelf talker flags can increase customers' awareness sets of interesting products, by visually highlighting products. If consumers become aware of more products, this can increase sales (Deng et al., 2016) of marked products.

To investigate these two effects, I conducted a field experiment over a period of two weeks, where I manipulated the product presentation of 33 bestseller products by using shelf talker flags with the label "Bestseller". As assumed, in the condition with STFs, subjectively perceived search ease was evaluated significantly higher (H1). So, as our results show, shelf talker flags can significantly facilitate the search process of consumers in the store, which is becoming more and more important as retail stores offer large assortments and consumers are facing decision difficulties (Iyengar & Lepper, 2000). Furthermore, in the condition with STFs, I found an increase in the purchases of marked products (H2). However, this result is only marginally significant and should therefore be viewed with caution.

5.2. Theoretical contributions

The research on visual in-store marketing is constantly growing, as marketers and practitioners alike are highly interested in the factors that drive (unplanned) purchases. Prior literature has identified numerous techniques retailers can use to increase unplanned purchases, ranging from store-wide methods like travel distance (e.g., Granbois, 1968; Hui et al., 2009, 2013), over shelf management strategies (e.g., Campo and Gijsbrechts, 2005; Chandon et al., 2009; Chen et al., 2021; Drèze et al., 1994) to promotional signals at the point of purchase (e.g., Ailawadi et al., 2009; Chandon et al., 2000, 2007; Woodside and Waddle, 1975). Displays and their impact on consumer behavior have been studied frequently in research (Campo & Gijsbrechts, 2005). In contrast, shelf talker flags and their effects have hardly been studied so far. This paper adds to the existing literature, by investigating the effect of shelf talker flags on consumer shopping behavior.

As Chandon, Wansink, and Laurent (2000) argue, promotional signals can facilitate the search process of customers in the store and make shopping more convenient. While prior research has shown that this is indeed the case (e.g., Dickson and Sawyer, 1990; Inman et al., 1990), I extended the literature by showing that even a simple marker like a shelf talker flag can significantly facilitate the search process for shoppers in the store. In addition, I investigated whether or not shelf talker flags can increase purchases of marked products. By labeling the shelf talker flags with "Bestseller" I also incorporated the theory of the consensus heuristic (Chaiken & Maheswaran, 1994). However, I did not especially test for the consensus heuristic and our result on the purchases of marked products is only marginally significant.

5.3. Practical implications

Nowadays, retail stores are oftentimes complex and contain several thousand SKUs in their assortment (Schwartz, 2004). This makes it increasingly difficult for customers to find products that meet their needs and increases the difficulty of making decisions (Diehl & Poynor, 2010; Iyengar & Lepper, 2000). Therefore, retailers need to simplify

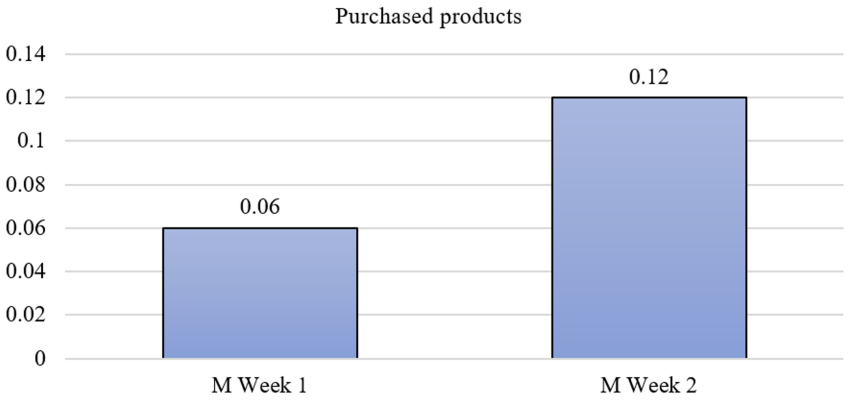

Figure 6: Purchases of marked products

the search process. Considering that a typical supermarket contains about 30.000 SKUs or more (Schwartz, 2004), I equipped only about 0.11% of them (33 products) with shelf talker flags. Yet I found a significant increase in the subjectively perceived search ease of consumers. Shelf talker flags are therefore a simple, but powerful method retailers can use to visually highlight products at the point of purchase to subsequently facilitate the search process of shoppers.

In addition, retailers often use monetary promotions (e.g., discounts or rebates) to attract shoppers to the store (Grewal et al., 1998) and to support purchases. However, these are costly and decrease profits for retailers (Jedidi et al., 1999). Shelf talker flags, in contrast, are cheap and easy to use for retailers and our results indicate that they can increase purchases of marked products. While I added shelf talker flags to best-selling products in our experiment, this may not be ideal for real-world use. In reality, other products probably make more sense since best-selling products sell well anyway. The additional effect of shelf talker flags on sales is therefore likely to be lower for best-selling products than for less popular products. Therefore, shelf talker flags could be used to show shoppers alternatives to popular products. For example, Tirola Kola could be highlighted as an alternative to Coca-Cola, which was one of the best-selling products in our experiment. However, I believe that the products should not be completely unknown and must be a good alternative. Therefore, the second best-selling product would be ideal for this purpose.

5.4. Limitations and Future Research

Our work has some important limitations and offers interesting possibilities for future research. First, our result on the effect of shelf talker flags on the purchases of marked products is only marginally significant. Therefore, a positive effect could not be completely proven. However, a possible explanation for the lack of significance could lie in the process of data collection. The data measuring the purchases of marked products is based solely on a questionnaire-based survey of in-store shoppers. Although the researchers conscientiously tried to collect all data accurately, not all shoppers agreed to let us look at their receipts or in their baskets. As a result, I had difficulty collecting the data accurately, which may have resulted in our data not being particularly precise. Nonetheless, our result suggests that there may be a positive relationship between shelf talker flags and purchases. Further research should measure this relationship more precisely, e.g., using a full sample of sales during the experimental period.

Second, the study was conducted as a field experiment. On the one hand, this is beneficial because the shelf talker flags could be tested in a natural, real-world environment and provide real shopper data. On the other hand, however, there are a lot of confounding variables that I could not exclude and that might have influenced our results. Situational factors such as time restrictions or the number of other customers in the store strongly affect in-store purchase decisions (Beatty & Smith, 1987; Hui et al., 2009; Park et al., 1989; Zhang et al., 2014) and could not be excluded. This may also explain the differences in the control variables in the two survey weeks. In addition, because I used real best-selling products in the experiment, I had the problem that some of the products I marked were almost always sold out. Also, it was not always possible for the store employees to restock the products immediately. Finally, the experimental conditions could not be completely randomized, making it a quasi-experiment. All of this could have potentially biased our study. To obtain more reliable data and to verify our results, a laboratory experiment would be useful.

Finally, with 34 shelf talker flags, I equipped only a small number of all available SKUs in the store. It would be interesting to investigate the effects of a larger number of STFs. More shelf talker flags could show an even greater effect on search ease. Conversely, it could also be that precisely because very few products were marked with shelf-talker flags, this caused them to stand out from the mass of products. However, Ibelieve there may be a tipping point where it could become a visual distraction for consumers. That, in turn, could negatively impact consumer shopping behavior. Thus, future research could investigate the impact of a larger number of shelf talker flags on consumer shopping behavior.

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