Using mobile while shopping in-store: a new model of impulse-buying behaviour

Using Mobile While Shopping In-store: A New Model of Impulse-Buying Behavior

Abstract

Purpose: The purpose of this work is to develop a comprehensive model of impulse buying that considers the impact of mobile device use on shopping behaviour as a tool for shopping preparation or as a tool for self-regulation.

Methodology: Data were obtained through a single stage mall intercept survey method using a structured questionnaire from 406 respondents interviewed after the checkout. Data analysis was done using a structural equation modelling approach with LISREL 8.8.

Findings: The results allow supporting the majority of the hypothesis of the proposed conceptual framework. Specifically, findings show the impact of mobile usage on shopping behavior which results in less impulse purchases.

Originality: Prior research found the antecedents of impulse buying in individual characteristics, situational variables and endogenous variables. However, they did not consider mobile pre-shopping factors or mobile usage. Filling the gap in the existing literature, our work sets out to develop a comprehensive model of impulse-buying that considers the impact of mobile usage on shopping behavior.

Practical implications: The research demonstrates how shoppers using mobile device in-store felt less urge to purchase during the shopping resulting in reduced unplanned purchases.
The effects of mobile device use on purchasing decisions in store are designed to create a new scenario for the practice of shopper marketing and retailers and manufacturers have to seek for new ways to capture consumers' attention in store and to influence shoppers' perceptions early in the shopping cycle, without diminishing the role of in-store marketing levers.

Keywords: impulse buying, mobile device, shopper marketing; smartphone usage, consumer behavior

Paper Type: Research Paper

Introduction

Manufacturers and retailers have always been interested in understanding the impulse-buying behaviour in the grocery setting. Both recognize the growing importance of the point of sale in influencing consumers' decisions. In fact, even if grocery items are generally perceived to be low-involvement goods and the grocery shopping trip a low-involvement activity (Smith and Carsky, 1996), understanding of factors triggering impulsive purchases are important since as many as nine out of ten shoppers occasionally buy on impulse (e.g. Silvera *et al.*, 2008; Cobb and Hoyer, 1986). A factor that contributes to the high number of impulse purchases is that supermarkets are designed to encourage such purchases (e.g. Zhang *et al*., 2007; Hultén and Vanyushyn, 2011).

Manufacturers have gradually shifted their strategic focus from the traditional marketing levers to in-store marketing, while retailers have invested many resources in shopper marketing to influence consumers' decisions in front of the display.

Despite the vast literature on factors which influence the consumer's decision- making process inside the store and on impulse buying behaviour (Kollat and Willet, 1967; Iyer and Ahlawat, 1987; Iyer, 1989; Inman *et al.*, 2009; Hulten, 2012; Mohan *et al*., 2013; Shankar, 2014; Wiese *et al.*, 2015; Bellini *et al.*, 2016; Bellini and Aiolfi, 2017 and 2019), recent changes in the business and technological landscape have created a new scenario for shopping behaviour in grocery retailing. Specifically, digitalization has significantly affected the retail landscape and managers have become interested in designing new strategies that could improve their profitability by taking advantage of technological innovations (Kollmann *et al.*, 2012; Pantano and Viassone, 2014). One of the most appealing targets for marketing managers is the customers' decision-making process in the digital world (Sun and Wu, 2011; Ström *et al.*, 2014; Ansari and Riasi, 2016).

Over the last few years, widespread mobile connectivity has significantly influenced the consumer's decision-making process. Such impact depends on the type of use that is done (Sciandra and Inman, 2014). In fact, in a retail environment, mobile devices could be used both in-store and out store. Consumers use their mobile out of the store to collect information before entering the point of sale. On the other hand, consumers can use the mobile in store as a guide for shopping. For example, to check their digital shopping lists, make on-line price comparisons, consult digital flyers or use mobile retail apps. "A recent research by PYMNTS (2019), state how among 2,300 American consumers, 48% of consumers who own smartphones use them while shopping in stores. Specifically, consumers use mobile devices mostly for shopping-related activities. For instance, 46.8% use them to access in-app discounts, 43.3% look up product information, 33.6% to compare prices at competitors and 31.1% look up product reviews. In addition, a recent survey by Statista (2020b), state that around 46% of consumers worldwide felt comfortable using their own mobile phone for in-store activities and specifically, 73% of survey respondents felt secure to use their mobile device for shopping-related activities such as to look up product information while in an in-store retail environment." Thanks to this kind of mobile in-store usage, consumers are more aware during the shopping trip. Consequently, using mobile devices in store as a guide for shopping, consumers reduce their attention to the in-store marketing stimuli promoted by retailers resulting in reduced unplanned purchases (Bellini and Aiolfi, 2017 and 2019). By looking at the literature, we found two main strands of literature about how in-store mobile usage affects retailers' performances. In conducting our study, we followed the one that states that the use of mobile devices in a shopping-related manner lead customers to make fewer unplanned purchases compared to those who do not use mobile devices (Sciandra and Inman, 2014; Bellini and Aiolfi, 2017 and 2019). Giving these results, it becomes crucial to understand how mobile phones influence the decision-making process inside the store as well as the buying behaviour of shoppers.

Prior research developed models that explained impulse buying, but they did not consider pre-shopping factors, or mobile usage (Beatty and Ferrell, 1998; Mohan *et al.*, 2013; Bellini *et al.*, 2017). Prior research developed models that explained impulse buying, but they did not consider both pre-shopping factors and mobile usage (Beatty and Ferrell, 1998; Mohan *et al*., 2013; Bellini *et al*., 2017). Specifically, only few contributions have already shown that the degree of shopping preparation influences the behavior of shoppers inside the store resulting in reduced impulse purchases: the greater the tendency to plan purchases, the lower the tendency to make impulse purchases (Bellini *et al*., 2016 and 2017). As stated by Bellini *et al*. (2017), consumers are more prepared than in the past and tend to limit the influence of the retailers in store. This phenomenon is reinforced even more by the mobile usage during the shopping experience in-store that may influence consumers, who, thanks to their pre-purchase preparation, tend to respect their physical, mental or digital shopping list and, therefore, be less influenced by the retail environment (Bellini and Aiolfi, 2019). Considering the increase in pre-shopping activities and the growth of mobile device use, it is important to extend the previous models to consider these variables. Starting from the prior models (Beatty and Ferrell, 1998; Mohan *et al.*, 2013; Bellini *et al.*, 2017), we intended to develop and test a comprehensive model which considers pre-shopping preparation tendency and the in-store mobile usage as antecedents of impulse buying behavior. Specifically, we posit that both reduce the feel of urge to buy impulsively experienced during the shopping trip and the impulse buying behavior. This new model will help researchers and marketers better understand shopping behaviour in the digital world, where consumers are more prepared than they were in the past, using mobile devices both out of store, as a tool for shopping preparation, and in store, as a tool for self-regulation. In order to develop our impulse buying model, we used a structural equation modelling approach that took into account the impact of mobile device use on in-store shopping behaviour.

Conceptual framework and hypotheses

Impulse buying

In-store behavior of shoppers has been an interest for researchers for over sixty years (e.g., Kollat and Willett, 1967; Stern, 1962; Kim and Park, 1997; Underhill, 1999 and 2009; Sorensen *et al.*, 2017). Specifically, researchers' attention to the factors that influence the consumer's decision making inside the store lead to several studies that have tried to advance the science of shopping (Kollat and Willet, 1967; Iyer and Ahlawat, 1987; Iyer, 1989; Inman *et al*., 2009; Hulten, 2012; Mohan *et al*., 2013; Shankar, 2014; Wiese *et al*., 2015; Bellini *et al*., 2016). Of all the aspects of shopper behavior in-store, we intentionally focus, in our work, on the fundamental patterns of impulse buying behavior for which a wide literature exists (e.g., Muruganantham and Ravi, 2013; Venkateswara *et al*., 2015). Within this wide literature, the definition we chose to analyze in our work comes from Iyer (1989), who divided impulse purchases into four categories: pure impulse buying (defined as purchases characterized by a complete absence of planning); suggested impulse buying (defined as a purchase that occurs when the retailer and the store itself suggest new product alternatives to satisfy a want or a need); reminded impulse purchases (intended as a purchase that occurs when consumers remember to buy a product that is needed only when they are in store in front of the shelf) and planned impulse purchases (defined as purchases partially planned before entering in the store, e.g. purchases for which the category has been decided in advance).

Impulse buying reflects the ability of retailers to generate immediate desires and redirect consumers' purchases towards products or categories with no pre-shopping intentions. Individuals are aware of such power of retailers and try to limit this effect by activating some 'self-control strategies'. In grocery retailing, there are two ways to control consumers' impulsiveness: define a mental budget to be followed during the shopping expedition (Heat and

Soll, 1996; Stilley *et al.*, 2010) and devote time to the preparation of the shopping trip (Heckhausen and Gollwitzer, 1987; Iyer and Ahlawat, 1987; Thomas and Garland, 1993 and 2004). The shopping list, for example, is an 'external memory aid' (Block and Morwitz, 1999) which increases the probability of a correspondence between intentions and actions.

Over the last few years, the growing penetration of digital technology has reinforced such tendency of self-regulation, enabling individuals to prepare their shopping expedition with different tools in addition to the written shopping list (Bellini and Aiolfi, 2017 and 2019). In addition, consumers enter the store much more prepared than in the past. Thanks to technologies, consumers are now able to collect information out-of-store, carry out several and various pre-trip activities, such as comparison of pricing, promotions, and range among different retailers. Consumers, thus, enter the store much more prepared and they are able to make shopping quickly, only looking for products they had planned to buy, guided by a digital shopping list, digital coupons or printed customized promotions (Bellini *et al*., 2016). Literature stated that the degree of grocery shopping preparation is related to the shopper's behavior inside the store in terms of its influence on the balance between planned and impulse buying: the higher the degree of shopping preparation, the greater the tendency to plan purchases before entering the store and the lower the tendency to make impulse-purchases in store (Bellini *et al.*, 2016).

The strong connection between preparatory activities and the nature of purchases has enriched the literature with a new model of shopper behavior, which considers the pre-shopping tendency among the factors affecting impulse purchases (Bellini *et al.*, 2017). From this perspective, impulse purchases depend on individual characteristics and some variables referring to the particular shopping trip. The model shows that pre-shopping tendency directly influences impulse-buying in terms of lower impulse purchases.

Impulse buying and mobile device usage in-store

The widespread mobile connectivity and the growing penetration of mobile devices have significantly affected consumer decision-making processes. However, such impact depends on the type of use that is done (Sciandra and Inman, 2014). The use is defined as 'task-unrelated' when individuals use this device in a manner that is not directly related to the focal decision task. For example, mobile usage is considered 'task-unrelated' when consumers engage in private conversations, send personal text messages, check e-mails and surf the Web. Conversely, the use is considered 'task-related' when individuals use this device in a manner directly related to the shopping. As far as grocery shopping is concerned, the use is 'task-related' when consumers use the mobile device for accessing digital shopping lists, collecting information about prices and products, scanning product barcodes, comparing prices, using mobile shopping applications or collecting digital coupons to be redeemed in store.

This latter type of usage could help consumers make better decisions, since the environment does not influence them as much and they expend less effort inside the store (Bellini *et al.*, 2016). Therefore, digital and mobile tools may positively affect both the quality and the efficiency of purchases and decision-making processes inside the store.

From a retailer's perspective, several authors found in-store mobile usage affecting retailers' performances in different ways. For example, Grewal *et al*. (2018) consider mobile distraction a key factor for increasing purchases and therefore profits, as customers spend more time in the store and pay much more attention to the shelves.

On the other hand, some authors (Sciandra and Inman, 2014; Bellini and Aiolfi, 2017 and 2019) better define the type of mobile usage (related and unrelated to the shopping goal) and demonstrate that the use of mobile devices in a shopping-related manner lead customers to

make fewer unplanned purchases compared to those who do not use mobile devices, as they are better equipped to stay on track while shopping.

Proposed impulse buying model

The growing penetration of mobile devices, along with increasing mobile device use in a task-related manner (Bellini and Aiolfi, 2019; PYMNTS, 2019; Statista 2020), raises the opportunity to revise the existing literature on impulse-buying behavior.

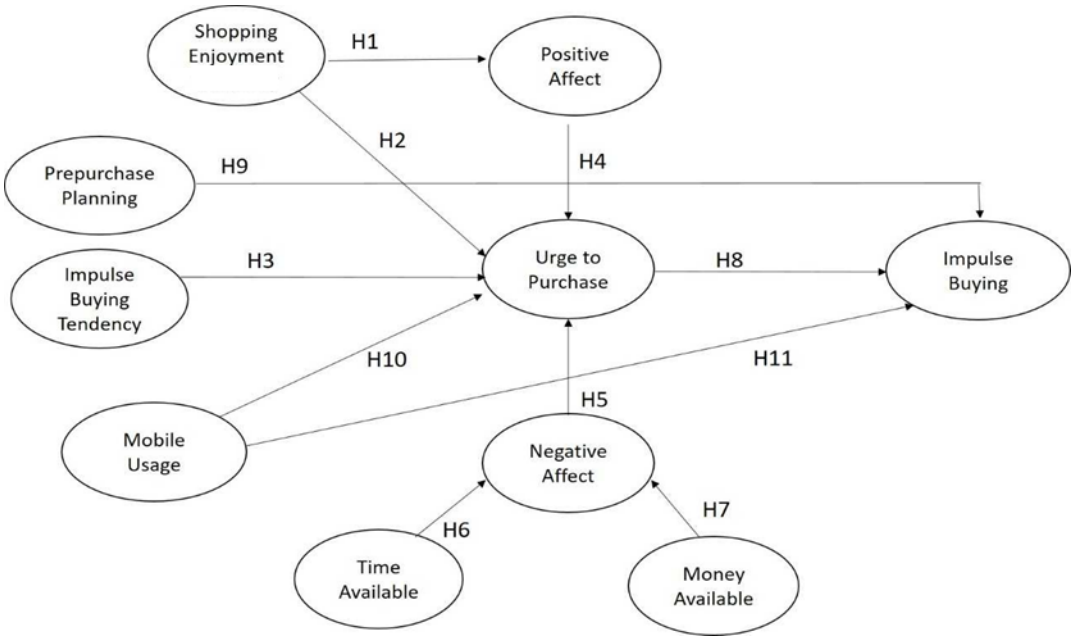
The purpose of our work is to offer a model of impulse buying which can help researchers and practitioners better understand shopping behavior in the new retail setting, where consumers are much more prepared than in the past, using mobile devices both out-of-store, as a tool for shopping preparation, and in-store, as a tool for self-regulation.

In line with prior research, our model considers shopping enjoyment and impulse-buying tendency as individual traits (Sproles and Kendall, 1996), the influence of positive and negative affect (Beatty and Ferrell, 1998; Bellini *et al.*, 2017), the influence of exogenous situational variables such as time and money available (Beatty and Ferrell, 1998), the urge to purchase impulsively (Beatty and Ferrell, 1998; Dholakia, 2000) as mediators of the influence of the other variables on impulse-buying behavior.

Moreover, we include pre-purchase planning tendency among the individual characteristics already considered in existing literature (Bellini *et al.*, 2017). Finally, filling the gap in existing literature, we include consumers' mobile usage only for shoppers using the mobile device in a shopping-related manner.

This sub-section explains the conceptual framework of our revised model of impulse-buying behavior (see Figure 1).

Figure 1 Conceptual framework



Shopping enjoyment and positive affect

Literature defines shopping enjoyment as the pleasure an individual obtains in the shopping process (Beatty and Ferrell, 1998). According to literature, shoppers who consider shopping as an enjoyable activity derive pleasure from the shopping experience. Therefore, they are more likely to get psychological rewards from the shopping experience itself (Bellenger, 1980; Beatty and Ferrell, 1998; Bellini *et al.*, 2017). Therefore, pleasure and enjoyable shopping experiences lead to positive moods also in the grocery setting, as demonstrated by several studies (Beatty and Ferrell, 1998; Mohan *et al*., 2013; Bellini *et al*., 2017). These considerations lead to the following hypothesis:

H1: The higher the level of shopping enjoyment, the higher the level of positive affect.

Shopping enjoyment and urge to purchase impulsively

According to Beatty and Ferrell (1998), we defined the urge to purchase impulsively as a state of desire that is experienced upon encountering an object in the environment. It clearly precedes the actual impulse action and, as stated in literature, it is spontaneous and sudden. Prior research states that shoppers who consider shopping as an enjoyable activity derive pleasure from the shopping experience and spend more time shopping and browsing longer before making a purchase (Westbrook and Black, 1985; Beatty and Ferrell, 1998; Atulkar and Kesari, 2018). Since recreational shoppers obtain gratification from the process of shopping, they can hardly resist the urges that are experienced upon encountering a product in the retail environment, and they are more likely to engage in unplanned purchases (Rook, 1987; Beatty and Ferrell, 1998). Thus, we offer this hypothesis:

H2: The higher the level of shopping enjoyment, the higher the level of urge to purchase impulsively

Impulse buying tendency and urge to purchase impulsively

In line with prior research, we defined impulse-buying tendencies as a tendency to make unplanned purchases and to buy spontaneously, with little or no deliberation or consideration of consequences (Beatty and Ferrell, 1998; Weun *et al.*, 1998; Bellini *et al.*, 2017). According to literature, shoppers with higher levels of impulse buying tendencies are more likely to experience more urges to buy impulsively in a retail setting (Beatty and Ferrel, 1998; Bellini *et al.*, 2017). This leads to the following hypothesis:

H3: The higher the level of impulse buying tendencies, the higher the level of urge to purchase impulsively.

Positive affect and urge to purchase impulsively

Literature states that there is a positive and direct association between positive affect and urge to purchase impulsively (Rock and Gardner, 1993; Beatty and Ferrell, 1998; Bellini *et al.*, 2017). According to prior research, in a retail setting a positive mood would lead to impulse-buying more than a negative mood: individuals in a positive mood have an unconstrained feeling, the desire to reward themselves and higher energy levels (Rook and Gardner 1993). Moreover, the psychological literature suggests that positive moods cause people to feel they have more freedom to act (Cunningham, 1979) and consequently, pleasure is positively associated with a likelihood of overspending during the shopping expedition (Donovan *et al*., 1994). Hence, the following hypothesis:

H4: The higher the level of positive affect, the higher the level of urge to purchase impulsively.

Negative affect and urge to purchase impulsively

According to literature review, the effects of negative moods on behavior are not so clear. Sometimes positive moods and negative moods produce the same effects, while other times they produce opposite effects (Clark and Isen, 1982). Generally, in a retail setting, negative affect creates the desire to withdraw from the retail environment as it makes the shoppers perceive the store to be unlikely to answer to their shopping needs (Eroglu and Machleit, 1993). Since negative affect may cause withdrawal from the store, it is unlikely to result in impulsive urges. Hence, we hypothesize:

H5: The higher the level of negative affect, the lower the level of urge to purchase impulsively.

Time available and negative affect

In line with Beatty and Ferrell (1998), we introduced an exogenous situational variable considered important in the buying behaviour scenario: Time Available. We defined Time

Available as the amount of time shoppers feel they have available for that shopping expedition (Beatty and Ferrell, 1998). According to this definition, Time Available is the opposite of Time Pressure (Iyer, 1989; Beatty and Ferrell, 1998; Xu, 2007).

Iyer (1989) found that Time Pressure negatively affects individuals' behaviour inside the store while Beatty and Smith (1987) found that time availability is positively connected to search activity in a retail setting. Thus, as stated by Beatty and Ferrell (1998) and Muruganantham and Ravi (2013), in-store browsing appears not only to be positively affected by the customer's available time but it also has a positive impact on the customer's positive feelings.

In-store browsing appears to be positively influenced by an individual's available time and impulse-buying tendency. Thus, in turn, in-store browsing has a positive impact on consumers' positive feelings and impulse buying urge (Beatty and Ferrell, 1998). In other words, having little time available for the shopping activity could lead to frustration and negative reactions to the environment to people who lend themselves to carry out planned activities within the store. This is consistent with literature that confirms that not achieving a goal is positively associated with negative affect (Babin *et al.*, 1994; Dawson *et al.*, 1990). Hence, the following:

H6: More time availability leads to lower levels of negative affect.

Money available and negative affect

According to Beatty and Ferrell (1998), we introduced in our model a second situational variable: Money Available. Money Available is a situational variable operationalized as the perception of respondents about their monetary budget for that specific shopping expedition. This is consistent with the definition given by Beatty and Ferrell (1998) for which Money Available was "the amount of budget or extra money the individual perceives she or he has to spend on that day". Thus, we considered Money Available as the amount of monetary budget or extra money individuals perceive they have to spend on that shopping expedition (Beatty and

Ferrell, 1998). Since money availability increases the buying power of people, if people do not have the required money, they will avoid buying and the shopping environment (Jeon, 1990). Particularly, individuals avoid hedonic purchases in order to not increase their negative feelings (Levav and Mcgraw, 2009). This leads to a negative affect during the shopping expedition. On the contrary, if people have enough money, they could use the money available for virtuous expenditures to alleviate their negative feelings (Leavy and Mcgraw, 2009).

Previous research stated that money availability has a strong relationship with our overall well-being: the perception of available money produces more excitement, i.e. positive affect and less frustration during the customer's journey in the shopping environment (Beatty and Ferrell, 1998; Matz *et al.*, 2016). Furthermore, spending causes a great increase in happiness and well-being, especially when it is on goods and services that match consumers' personalities (Matz *et al.*, 2016). Thus, as stated by Matz *et al.* (2016) money available can indeed increase happiness if it is spent 'right'. Hence, the following hypothesis:

H7: More money availability leads to lower levels of negative affect.

Urge to purchase impulsively and impulse buying

In line with previous studies (Beatty and Ferrell, 1998; Mohan *et al.*, 2013; Bellini *et al.*, 2017), we have identified impulse-buying as the incidence of impulse purchases, calculated as the percentage of the number of products purchased by impulse over the total number of products purchased. Unlike previous studies on impulse purchases (Beatty and Ferrell, 1998; Bellini *et al.*, 2017), we considered as impulse purchases also *reminded* purchases, in the belief retailers are responsible of reminding the customers products they need in order to satisfy their customers and establish a long-lasting relationship with them. Prior research shows a positive relationship between urge to purchase impulsively and impulse buying (Beatty and Ferrell, 1998; Bellini *et al.*, 2017). As more urges are experienced, the likelihood of engaging in impulse

purchases increases (Beatty and Ferrell, 1998). Hence, shoppers who continuously experience impulsive urges during their shopping expedition are unable to resist many of these impulsive urges despite their 'self –control strategies' implemented to limit the ability of retailer to generate immediate desires and to be less conditioned by in-store stimuli (Hoch and Loewenstein, 1991; Dholakia, 2000; Baumeister, 2002). Therefore, we propose the following hypothesis:

H8: The higher the level of urge to purchase impulsively, the higher the level of impulse buying.

Prepurchase planning and impulse buying

According to Gauri *et al.* (2008), we defined pre-purchase planning as the degree to which a consumer develops clear purchase intentions and engages in particular preparatory behaviors before visiting the grocery store. In line with prior research, shoppers devote time and efforts in the preparation of the shopping expedition in terms of price searching and planning of purchases in order to avoid impulsive purchases (Heckhausen and Gollwitzer, 1987; Iyer and Ahlawat, 1987; Thomas and Garland, 1993 and 2004). The literature has shown the existence of a positive association between the degree of grocery shopping preparation activities and the shopper behavior inside the store in terms of impulse buying. Specifically, the higher the degree of shopping preparation, the greater the tendency to plan purchases before entering the store and the lower the tendency to make impulse purchases in store (Bellini *et al.*, 2016). Hence, the following hypothesis:

H9: The higher the level of pre-purchase planning, the lower the quantity of impulse buying.

Mobile usage, urge to purchase impulsively and impulse buying

The growing penetration of mobile devices into individuals' daily lives has also significantly influenced consumer's decision-making process. However, literature stated that such impact

depends on the type of use that is done: ‘task-related’ or ‘task-unrelated’ (Sciandra and Inman, 2014; Bellini and Aiolfi, 2017 and 2019).

In our model, we have decided to focus only on the directly related use of mobile during the shopping task. Therefore, as suggested by Sciandra and Inman (2014) and Bellini and Aiolfi (2017 and 2019), we considered only shoppers who used their mobile devices to collect information about prices and products, to scan product barcodes, to compare prices, to create and consult a digital shopping list, to use the retailer’s app, and to collect digital coupons to be redeemed in store. From a consumer’s perspective, this type of usage could help consumers to make better decisions, as the shopping environment does not influence them as much.

Conversely, from a retailer’s perspective, the use of the mobile in-store in a shopping-related manner, as a tool for self-regulation, will reduce the effectiveness of their in-store marketing strategies: individuals using mobile devices in a shopping-related manner make fewer unplanned purchases compared to those who do not use mobile devices.

Therefore, these considerations lead to our final hypothesis:

H10: Shoppers using mobile technologies in a shopping-related manner will experience lower levels of urge to purchase impulsively.

H11: Shoppers using mobile technologies in a shopping-related manner will make fewer impulse purchases.

Methodology

Sample

The research was founded on a single-stage mall-intercept survey method, in order to collect data using a process widely used in the literature (Beatty and Ferrell, 1998; Sharma *et al.*, 2010; Mohan *et al.*, 2013; Sciandra and Inman, 2014; Bellini *et al.*, 2017; Bellini and Aiolfi, 2017

and 2019). A leading Italian grocery retailer gave us the permission to conduct our survey in its stores. 406 shoppers were interviewed by three researchers, but 77 individuals were then excluded because they used the mobile device in a shopping-unrelated manner and we decided to not consider those shoppers in our structural equation model. The aim of the research, in fact, is to understand which are the determinants of impulse buying in a multi-channel context characterized by an interesting growth in the use of the mobile as a pre-shopping planning tool (Sciandra and Inman, 2014; Bellini and Aiolfi, 2019). If it is true, as it has been shown, that those who use mobile in a shopping-related manner are more likely to buy on impulse, it seems necessary to review the traditional paradigms that explain the purchasing behavior and, therefore, to include in the model on the determinants of impulse buying also the use of mobile in a shopping-related manner. For these reasons, it was decided in the model to consider only users who make shopping-related use of it, not being of interest to understand the use of the tool for other purposes. Thus, we excluded 77 respondents who did not use their phone for a shopping related reason. These individuals could not put in the 'non-mobile' users group because, for the purposes of this study, they still used it (even if for reasons not related to the shopping task) and therefore they are not comparable to non-use. Consequently, our sample was composed of 329 individuals and Table I illustrates the demographic features of the sample.

"Insert Table I about here"

Procedure

We intercepted shoppers after the checkout and we asked them to answer to a structured questionnaire. We first asked them if they had used their mobile devices during their shopping expedition and for which reasons they used it (see Table II).

"Insert Table II about here"

In order to classify the mobile device use according to previous contributions (Sciandra and Inman, 2014; Bellini and Aiolfi, 2017 and 2019), we defined a shopping-related usage if the respondents indicated that they had used their phone to create or access a digital shopping list, to compare prices of products, to use the app of the retailer, to compare different retailers for the best price, to look at a retailer's website or at a manufacturer's website, to scan a QR code on a package, and/or to call someone for help with a decision. Conversely, mobile device use was classified as shopping-unrelated if the customers indicated they had used their phone to make or receive calls, to send and reply to personal messages, to check or send e-mails, to control their social networks, to look at websites not related to the shopping trip, to listen to music, and/or to play. Table II explains how many respondents used a phone during that specific shopping expedition (33.5%, 136 respondents) and how many did not use it (66.5%, 270 respondents). In addition, Table II explains how many of our respondents used a mobile device for activities related to shopping in-store (43.5%, 59 respondents) and how many for shopping unrelated activities (56.5%, 77 respondents). Specifically, since our research focused on mobile usage in a shopping-related manner, Table III shows the several types of shopping-related mobile usage in-store declared by our respondents and their respective percentages.

"Insert Table III about here"

Furthermore, considering the goals of our research, it was necessary to measure the number of products purchased by impulse. In line with previous studies (Beatty and Ferrell, 1998; Mohan *et al.*, 2013; Bellini *et al.*, 2017; Bellini and Aiolfi, 2019), the incidence of impulse purchases was calculated as the percentage of the number of products purchased by impulse over the total number of products purchased during the specific shopping trip. Therefore, shoppers were invited to show their receipt to identify, together with the researcher, impulse-purchased products, namely products that they had not planned to buy (the so-called "*pure impulse*") or

that were reminded by the retailer during the shopping expedition (the so-called "*reminded*") (Beatty and Ferrell, 1998). As suggested by Bellini and Aiolfi (2019), the identification of the impulse purchases was made by a double-checked process: the interviewer and the shopper compared the planned products (in the shopping list) with the products actually purchased during that specific shopping trip by cross checking the list and the basket.

Finally, shoppers answered to questions regarding how they prepared their shopping activities before entering the store (Pre-purchase Planning by Gauri *et al.*, 2008), their view of shopping as an enjoyable activity (Shopping Enjoyment by Sproles and Kendall, 1996), how often they engaged in impulse buying (Impulse Buying Tendency by Weun *et al.*, 1998), the urges experienced to make impulse purchases during the specific shopping trip (Urge to Purchase by Beatty and Ferrell, 1998), their monetary budget and time available for the trip (Money and Time available by Beatty and Ferrell, 1998) and the level of positive and negative affect experienced during the shopping trip (Positive and Negative Affect, by Watson *et al.*, 1988).

Measures

All the considered variables were measured with multiple-item scales with the exception of Impulse Buying and Mobile Usage. All the scales used in this research were drawn from previous studies about consumer and shopper behavior, translated and adapted for our research's purposes. Specifically, we adapted the Shopping Enjoyment items from Sproles and Kendall (1986). Beatty and Ferrell (1998) identified the Negative Affect items and Time and Money Available, while the Positive Affect scale was adapted from the PANAS scale by Watson *et al*. (1988). Furthermore, Impulse Buying Tendency scale was adapted from the existing scale developed by Beatty and Ferrell (1998), while Pre-Purchase Planning came from Gauri *et al.* (2008). In order to investigate Impulse Buying variables, researchers, through the cross checking of the list and the basket, counted the total number of impulse purchases,

considering both pure and reminded impulsive purchases. Therefore, we calculated the incidence of impulse purchases to be considered as dependent variable in our proposed model. As far as data using proportions, Steel and Torrie (1980) recommended the arcsine transformation to address the concern that the variance of means tends to be smaller near 0 percent and 100 percent compared to the means near 30 percent to 70 percent. For this reason, in line with Mohan *et al.* (2013), we transformed our dependent variable using the arcsine transformation in order to develop a more accurate analysis. Finally, Mobile Usage, in line with the hypothesis, was considered as a dichotomous variable, where 1 refers to people who used mobile in a shopping-related manner (e.g. digital shopping list, on-line price comparison, consultation of digital flyers, usage of apps), and 0 refers to consumers that did not use the mobile during their shopping trip.

Findings and discussion

Measurement model

To test our hypotheses, we used a structural equation modelling approach using LISREL 8.8. As recommended by Anderson and Gerbin (1988) and Sethi and King (1994), we tested the measurement model before analyzing the structural one. For each construct, the adequacy of the individual items and the composites were assessed by measures of reliability and validity (Beatty and Ferrell, 1998). First, we tested the reliability by using the Cronbach's Alpha (Santos, 1999). Second, to test the convergent validity of our measures, we examined the significance of the factor loading (Anderson and Gerbing, 1988) and the composite reliability. Furthermore, discriminant validity was assessed by comparing the variance extracted (AVE) to the square of the correlation between the two latent variables (Fornell and Larcker, 1981). Table IV shows all the items considered in the analysis.

"Insert Table IV about here"

As far as how reliability is concerned, our results demonstrated that all the values were higher than the minimum acceptable value of 0.70. Furthermore, we found all the factor loadings significant, and the composite reliability of each construct higher than the cut-off value (0.70), confirming the convergent validity.

Finally, as far as discriminant validity, we found evidence of it for each construct as the average variance extracted (AVE) in each factor exceeds the correlation coefficient.

The model had a good fit: $\chi^2 = 589.771$ (p = 0.0), df = 308, $\chi^2/df = 1.91$, RMSEA = 0.052, CFI = 0.97, std RMR = 0.03. All the fit indices were better than the recommended ones (RMSEA < 0.06, CFI > 0.95, stdRMR < 0.05).

Structural equation model

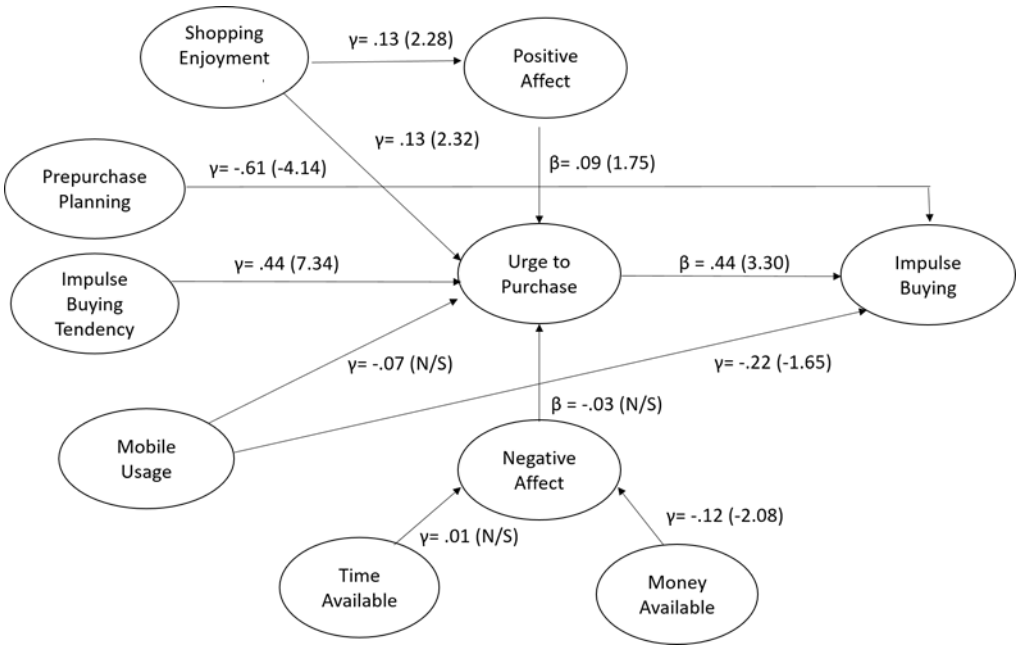
The overall fit of the model was found to be good: $\chi^2 = 693.741$ (p 0.0), df = 328, $\chi^2/df = 2.11$, SRMR = 0.06, RMSEA = 0.058, CFI = 0.95, with all fit indices in line with recommended values.

Figure 2 shows the final structural model with all the path coefficients and the significance (t-value) for each of them. Results allowed us to support the majority of our hypothesis, except for H5 (*the higher the level of negative affect, the lower the level of urge to purchase impulsively*), H6 (*more time availability leads to lower levels of negative affect*), and H10 (*shoppers using mobile technologies in a shopping-related manner will experience lower levels*). Specifically, Shopping Enjoyment has a positive effect on Urge to Purchase, both direct ($\gamma = .13$, p-value <.01), and through the mediation of Positive Affect ($\gamma = .13$, p-value <.05, $\beta = .09$, p-value <.10), supporting H1 (*the higher the level of shopping enjoyment, the higher the level of positive affect*), H2 (*the higher the level of shopping enjoyment, the higher the level of urge to purchase impulsively*) and H4 (*the higher the level of positive affect, the higher the level of urge to purchase impulsively*). Thus, consistent with prior research (Westbrook and Black,

1985; Beatty and Ferrell, 1998; Mohan *et al*., 2013; Bellini *et al*., 2017; Atulkar and Kesari, 2018), shoppers who consider shopping as an enjoyable activity derive pleasure from the shopping experience that lead to positive moods and spend more time shopping and browsing longer before making a purchase. Therefore, shoppers who obtain gratification from the process of shopping, can hardly resist the urges that are experienced in the retail environment, and they are more likely to engage in unplanned purchases (Rook, 1987; Beatty and Ferrell, 1998). As expected in the H3 (*the higher the level of impulse buying tendencies, the higher the level of urge to purchase impulsively*), the Impulse Buying Tendency has a strong positive impact on Urge to Purchase (γ= .44, p-value < .000). Therefore, consistent with prior research (Beatty and Ferrel, 1998; Bellini *et al.*, 2017), shoppers with higher levels of impulse buying tendencies are more likely to experience more urges to buy impulsively in a retail setting. In addition, we found that Urge to Purchase has a significant positive impact on Impulse buying (β = .44, p-value <.000) for H8 (*the higher the level of urge to purchase impulsively, the higher the level of impulse buying*) and a negative direct effect of Pre-purchase Planning on Impulse Buying (γ= -.61, p-value <.000) for H9 (*the higher the level of pre-purchase planning, the lower the quantity of impulse buying*) but we didn't found any significant relationship between negative affect and urge to purchase (H5). Consequently, shoppers who continuously experience impulsive urges during their shopping expedition are unable to resist the immediate desires generated by in-store stimuli (Hoch and Loewenstein, 1991; Dholakia, 2000; Baumeister, 2002). Conversely, as consistent with Bellini *et al.* (2016), the higher the degree of shopping preparation, the greater the tendency to plan purchases before entering the store and the lower the tendency to make impulse purchases in store. Furthermore, we found a negative direct relationship between Money Available and Negative Affect (γ= -.12, p-value <.05) for H7 (*more money availability leads to lower levels of negative affect*). Finally, there is a negative and direct impact of Mobile Usage on Impulse Buying (γ= -.22, p-value <.10; Fisher, 2006;

Noymer, 2008), supporting H11 (*shoppers using mobile technologies in a shopping-related manner will make fewer impulse purchases*). Therefore, from a retailer's perspective, the use of the mobile in-store in a shopping-related manner, as a tool for self-regulation, reduces the effectiveness of the in-store marketing strategies. Specifically, individuals using mobile devices in a shopping-related manner make fewer unplanned purchases compared to those who do not use mobile devices.

Figure 2 Structural model



Conclusions and implications

Recent changes in shopping behaviour, specifically the increase of pre-trip activities, have created a new scenario for the practice of shopper marketing. Retailers and manufactures have started to recognize that the key trigger points in the shopping cycle can occur both outside and inside the store (Shankar, 2014; Bellini *et al.*, 2017).

The widespread mobile connectivity and the growing penetration of mobile devices have strengthened such trends. Shoppers do not use the mobile device only during the pre-shopping

phase, to collect information out-of-store (Bellini *et al.*, 2016), but they bring the device in-store, using it as a guide for the purchases, to check the digital shopping list, compare prices, search for promotions or use the retailer's application (Bellini and Aiolfi, 2017 and 2019).

However, only 43.5% of our respondents affirm to use their mobile devices for shopping-related activities while shopping in-store and this result seems to be inconsistent with our research. In absolute value these consumers are few but considering that there are very few retailers in Italy that stimulate this shopping-related usage, they are not actually so relatively few. Specifically, the scenario of shopper marketing in a mobile perspective is characterized by a high demand and low supply. The demand is mature and consumers are ready to adopt retailers' apps and the e-commerce channel, as can be seen from the growth of this phenomenon in this period (also in light of the effects of Covid19 pandemic). Conversely, the supply is lagging behind and retailers are managing the mobile channel as if they were still in an initial and development phase. For instance, there is a lack of availability of suitable retailers' apps and this is consistent with the fact that only 3.4% of our sample use the mobile in-store to manage the retailer's apps (see Table III).

However, using mobile devices in-store in a shopping-related manner has made shoppers much more organized and prepared. Since the use of mobile devices is directly related to the focal task (namely to complete the shopping mission), shoppers spend their cognitive resources to on the decision-making task. Therefore, they are more aware during the shopping trip and for this reason less prone to in-store marketing stimuli compared to consumers using mobile in a shopping-unrelated manner. As a result, they reduce their unplanned purchases.

Our model shows that mobile device usage influences impulse-buying more directly than through the urge to purchase. Specifically, shoppers using mobile devices in-store, for activities related to the shopping task, felt less urge to purchase during the shopping trip and made fewer

impulse purchases compared to shoppers using mobile devices for activities not related to the shopping task.

Impulse buying is an important issue in consumer research and we believe that the findings we summarized offer significant implications that could help advance the state of knowledge and its retailing application. The effects of mobile device usage on purchase and decision-making processes in-store create a new scenario for the practice of shopper marketing. Retailers and manufacturers are forced to identify new ways to capture the attention of their buyers inside the store. Therefore, practitioners must be aware of the fact that consumers are becoming increasingly dependent on digital technologies and the use of mobile devices within the retail setting will probably increase over the very next years (Shankar *et al.*, 2011; Pantano and Viassone, 2014).

Our findings could stimulate companies to completely exploit the potential of the mobile-related use while shopping, turning the threat of the effects caused by a mobile-related usage into powerful opportunities not just for retailers but also for manufacturers. The innovative smart technologies such as artificial intelligence and machine learning technologies could allow a more personalized, engaging and enjoyable shopping experience inside the store, and bring possible solutions to exploit the potential of the mobile-related usage inside the store. Furthermore, retailers could develop innovative mobile retail applications and stimulate customers to use those apps during their shopping trip, in order to give them significant content to constantly connect with them in store. Despite the backwardness of the supply and the scarcity of apps, the speed of growth of m-commerce confirms the potential of this market. Precisely for this reason, recently (October 2020), some retailers are starting experiments on the use of mobile as a tool to replace self-scanning. This demonstrates retailers' interest in stimulating mobile usage in-store in a shopping-related manner as well as retailers' awareness that consumers also use their mobile devices in-store for shopping-related activities and

therefore they are exploring the potential of this tool as a means of planning and controlling spending.

The influence of mobile becomes even more relevant if we consider its substantial usage in the different phases of the overall consumer journey. Specifically, marketers have to revise their best practices and design new directions to influence shoppers' perceptions early in the shopping cycle, without diminishing the role of the point of sale and therefore the role of in-store marketing levers managed by the retailers.

To summarize, retailers should take two paths if they want to gain a competitive advantage in the omnichannel scenario. On one hand, they have to revise traditional marketing practices to consider mobile both as a mean for shopping and as a means of communicating directly with the consumer during the entire decision-making process. In particular, due to its growing relevance and effects on consumers' spending behavior, m-commerce has gained a crucial role in marketing and retailing, catching the attention of both scholars and practitioners. On the other hand, they must continue to invest in the point of sale, in order to make the customer experience more and more attractive.

Limitations and future directions

Despite the valuable contributions that this research can offer in order to advance the state of knowledge on consumer behaviour and impulse buying, this study has some limitations. First, one possible concern is about the statistical generalizability of the structural model that might not be fully realized. Our sample is probably neither truly random nor necessarily representative of any larger population. Moreover, as part of the social desirability problems connected to the methodology used, it is necessary to underline that the specific shopping trip investigated could have influenced the answers given by customers about their general tendencies (shopping enjoyment, impulse buying tendency, pre-purchase planning), as the entire interview was made

at the end of the trip. Furthermore, one important variable that can justify some model relations is the 'product need', as this variable could influence the urge to purchase and impulse buying. Further research will include the variable in the model and consider it as a control variable. Furthermore, the model may seem very complex due to the large number of variables considered for the analysis. This complexity comes from the fact that we decided to consider most of the relationships already tested by the main models on impulse buying (Beatty and Ferrell, 1998; Mohan *et al.*, 2013; Bellini *et al.*, 2017). The idea was to take the most cited models in literature, start from a validated basic model, and then build the new one. In future research and updates on the topic we expect to consider more variables as covariates and control for them without unnecessarily complicating the research. Moreover, it can be interesting to consider all the potential mediation effects that could be hypothesized and tested according to a specific theoretical framework of reference. Furthermore, it might be interesting to measure the "In-store browsing" and its relationship with the incidence of impulse buying considering both the distribution of shopping trips in terms of time spent in-store and the total amount of money spent for that specific shopping expedition.

Another potential good point for further researches is that experimental work to demonstrate causality in a controlled way would be a good follow up for this field study. In future research, we intend to test alternative models/paths to demonstrate the superiority of the proposed model (or a new model with updated variables) over competing ones.

In addition, we intend to enlarge the sample and investigate the phenomenon in different store formats, so we can understand the impact of competitive convergence on in-store shopping behaviour.

Finally, given the importance of mobile commerce that accounts for 63.5% of total retail e-commerce sales worldwide in 2020 and around 72.9% by 2021 (Statista, 2020a) as well as the necessity to retain mobile consumers over time to achieve long-term profitability, it is

interesting to investigate the online impulse buying (Chan *et al*., 2017). Recent research estimates that about 40% of all purchases made by consumers in the online channel are attributable to online impulse buying (Liu *et al*., 2013). Probably, one of the factors that have contributed to the disruptive development of online impulse purchases is the online shopping environment, which is more favorable to impulse buying behavior than the offline one. Although the topic of impulse purchases has been well-studied in literature, there are few academic contributions to the knowledge of online impulse buying.

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