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The use of mobile devices in-store and the effect on shopping experience: A systematic literature review and research agenda.

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The use of mobile devices in-store and the effect on shopping experience: A systematic literature review and research agenda.

Abstract

The use of mobile devices continues to change the in-store shopping experience and constantly increases curiosity among academics and retailers. However, in spite of the emergence of studies on this topic, the information about the effects of their use is still scattered. The aim of this research is to provide an overview on what is currently known about the effect of the use of mobile devices in-store on the shopping experience, and describe the most important findings. Furthermore, future research directions are also provided in order to extend the existing knowledge. This systematic literature review has analysed a top-quality poll of papers, published in the past decade. As a result, it contributes to a better understanding of this focal phenomenon by analysing the different types of use and the value added to the shopping experience. Our framework provides a systematisation of these findings.

KEYWORDS: Customer experience, Retail environment, Future research, Smartphones, Systematic review

1. Introduction

The increasing adoption of mobile devices, such as smartphones, tablets, and wearables, has prompted an evolution in consumer behaviour. The presence of mobile devices in retail is a result of their natural role in our society (Fuentes, Bäckström, & Svingstedt, 2017). The technology of mobile devices is continuously evolving and at the same time giving to customers better usability and additional tools, such as access to information. Customers use mobile devices in-store as a shopping assistant, before, during, and after the store visit (Skrovan, 2017). This type of change affects the entire customer journey across screens, devices, and channels (Faulds et al., 2018). Therefore, it can be an opportunity to reach customers at the touch points or at the moments they are more likely to be influenced (Lemon & Verhoef, 2016; Pantano & Priporas, 2016).

The shopping experience is no longer exclusive to physical spaces, which urges the need of a seamless retail experience to become essential. In order to meet customers' needs and improve their experience, retailers currently adopt new in-store technologies and attempt to improve their online presence, whether through a website, app, or social media (Lemon & Verhoef, 2016). However, the omnichannel environment requires motivation from customers (Zhang et al., 2018).

In an in-store environment, which tends to be as controlled by the retailer as possible, the mobile device has several roles that can aid the customer in managing the variables in their favour. Further, it can also assist the customer in the decision-making process (e.g., search for information from competitors). The use of mobile devices affects customers' decisions in a way that the retailers cannot control (Bèzes, 2019).

Despite the increase of the online channel, the sensorial aspects and immediacy of the in-store shopping experience are unique, continuing to be the focus of research. According to Bonfanti et al. (2020), the last decade brought the biggest amount of research about the in-store shopping experience. Yet, despite that, there is no agreement about the definition and measurement of such experience. On one hand, we have different channels, products, and service types, as well as different consumer cultures. On the other hand, the market is in constant technological evolution.

The use of mobile devices in-store has become the cornerstone of current reality and the shift to the omnichannel environment is mainly due to the use of mobile devices in-store. As Pollak (2018, parag.6) states “it could mean the difference between customers coming into your store primed and ready to buy, or leaving frustrated and empty-handed”. According to Blázquez (2014), the in-store experience has to be considered as part of a whole and connected customer experience. Therefore, it becomes fundamental for retailers to learn more about the use mobile devices in-store, in order to provide a better shopping experience.

Previous research has shown that studies about the use of mobile shopping are dispersed from the marketing perspective and diverse in methodologies (Groß, 2015; Marriott, Williams, & Dwivedi, 2017). Bonfanti et al. (2020), in their study about the in-store shopping experience, point out the theoretical gap on the omnichannel perspective of the in-store experience, but also the lack of studies on the impact of new technologies. Tyrväinen & Karjaluoto (2019), conducted a review on mobile retailing adoption, where the topic of the use of mobile devices in retail is discussed, but only a few studies address their role in-store. Researchers are still focused on the technological aspects, on the use of mobile devices as a channel (m-shopping) and as a way of delivering marketing communications.

When studying an emergent topic like this, the available literature can be scarce and scattered. To bridge this gap, carrying out a systematic literature review can tackle and extract meaningful information, as well as theoretical foundations (Webster & Watson, 2002). In our study, a systematic literature review summarises the existing literature, using a set of quality criteria and providing an in-depth analysis. A hybrid review is applied, composed of a

structured review followed by a Theory, Context and Methods (TCM) framework, adapted from previous research (Loureiro, Bilro, & Angelino, 2020; Paul, Parthasarathy, & Gupta, 2017).

The aim of this research is to provide an overview of the current knowledge about how the use of mobile devices in-store affects the shopping experience. Moreover, the study intends to describe the most important findings, while also considering possible inconsistencies. In addition, our purpose is to identify research gaps and provide future research directions. Proposals for future research allow academics and retailers to have a different perspective on the subject. Furthermore, it also permits them to pursue a topic that is relevant for research and, in turn, contribute to the advancement of its investigation. In extend, we expect to address the doubts of retailers about the effects on the in-store shopping experience (Spaid, O'Neill, & Ow, 2019; van de Sanden, Willems, & Brengman, 2019).

Hence, the review of the existing literature on this particular topic intends to provide:

- A presentation of the most important streams and studies on the topic;
- An understanding of the effects of the use of mobile devices in the in-store shopping experience;
- Suggestions for future research.

This paper is organised as follows: In the next section, the methodology is presented, including all the steps of data collection and analysis, followed by the study's descriptive results. Further, we present content analysis and an overview of the significant research streams on the use of mobile devices in-store. Subsequently, we propose a conceptual framework and future research agenda. Afterwards, the managerial implications will be discussed and finally the conclusions, containing identified limitations of the study.

2. Methodology

Literature review papers “identify and synthetise relevant literature to evaluate a specific research question, substantive domain, theoretical approach, or

methodology and thereby provide readers with a state-of-art understanding of the research topic” (Palmatier, Houston, & Hulland, 2018, p.1). Depending on the purpose of the research, a systematic review can be of various types: Structured review based on the used theories, constructs and methods (Canabal & White, 2008; Kahiya, 2018; Marriott et al., 2017); Framework-based review (Paul & Benito, 2018; Paul & Rosado-Serrano, 2019); Bibliometric review (Ruggeri, Orsi, & Corsi, 2019) aiming for model or framework development (Paul & Mas, 2020); Hybrid narrative (Bilro & Loureiro, 2020) or hybrid with bibliometric and structured review (Goyal & Kumar, 2020); Theory-based review (Hardeman et al., 2002); Method-based (Sorescu, Warren, & Ertekin, 2017); Meta-analytic review (Rana & Paul, 2020).

For the purpose of this paper, the authors conducted a hybrid narrative review in order to structure the research agenda according to the TCCM framework (Theory, Context, Characteristics and Methods), similar to the procedure adopted by Paul et al. (2017), but focusing on theory, context, and methods (TCM) (Goyal & Kumar, 2020).

The first step was the definition of the topic, along with the objectives and research questions of the study. Following recommendations of Palmatier et al. (2018), before starting the review, a Protocol was designed with the steps of the process, as well as methods and criteria for the screening and evaluation of the papers. In order to ensure the replicability of the study, it is presented below how the research was carried out, the paper's search definitions and screening process, the quality criteria selection, and the methods used on the information analysis. Nevertheless, this methodology is vulnerable to validity threats, such as, the difficulty to access all the papers, the language bias, and the fact that data can be quickly outdated.

2.1. Defining the scope

Since the information about the use of mobile devices within the marketing area is disperse (Groß, 2015), in order to reach our goal it was necessary to define a scope for the literature review.

Accepted Article

According to Marriott et al. (2017, p.569), mobile shopping can be defined as “being the online searching, browsing, comparing, and purchasing of goods and services by consumers through wireless handheld or mobile devices; in particular, smartphones and tablets”. This implies using the mobile device to shop online, or using it as part of the decision-making process (online or offline) (Tyrväinen & Karjaluoto, 2019). The latter, related to in-store, will be the focus of our research and it will exclusively concentrate on the physical retail store. The usage of mobile devices or the intention of their use need to be performed by customers inside the store. Despite the cross-channel, multi-channel, or omnichannel environment of the studies, the findings have to contribute with knowledge about the use of mobile devices in-store and present direct or indirect effects on the customer’s shopping experience.

2.2. Search and selection procedures

In order to access the best quality information, we defined a number of criteria to include only the papers that would most likely answer the research questions, aligned with the guidelines for search and selection criteria proposed by Paul & Criado (2020). As for the search method, we followed the guidelines proposed by Callahan (2014).

The search method was designed based on online databases, specifically Web of Science (WOS) and Scopus. These two databases were chosen to ensure further that the main editors were listed in the results. The search process for the review was conducted in May 2020 (May 25 for WOS and May 28 for Scopus).

Through previous research on terms that addressed mobile devices usage in-store, as well as possible effects on shopping experience, a pool of words and terms associated with the research topic was created, as presented in Table 1.

[Table 1 – Pool of terms and synonyms driven from previous analysis of the literature]

Similar terms and synonyms associated with the topic were found and in order to obtain a more comprehensive review, a search string was designed, which encompassed the largest number of terms relevant to the topic. The search was conducted using the same search string in both databases:

((Mobile OR “Mobile devices” OR “Mobile internet devices” OR “M-shopping” OR “Mobile phone” OR “Smartphone”) AND (“In-store” OR “In store” OR “Brick-and-mortar” OR “Brick and mortar” OR Offline OR Physical) AND (Experience OR Shopping OR “Shopping experience”))

The sample unit is peer-reviewed academic journals articles, since the most relevant information can be found in this type of publications (Webster & Watson, 2002). The practitioner’s literature was not considered in this search, as it is not possible to compare objectives and methodologies, and simultaneously use the same analytical constructs (Athanasopoulou, 2009). Books, chapters, conference papers and documents such as notes and letters were excluded.

In the identification and screening step, the searches were restricted to the subsequent inclusion criteria: academic journals, peer-reviewed, full-text, written in English, published between 2007 and 2020 worldwide. While understanding that the use of mobile devices is a topic studied by several scientific areas, such as computer science or engineering, the search was restricted to “Business, management, and accounting” in Scopus and “Business, economics” in WOS.

The specific time frame was chosen due to the types of mobile devices under analysis. The only devices that were considered needed to be launched and adopted after the period of 2006-2007, with IOS, Android, Windows, and Blackberry systems that enable Apps and the use of 3G/4G Internet (Marriott et al., 2017). These mobile devices are more similar to what is known nowadays as smartphones, tablets, and wearables.

The first search by “Article title, Abstract, and Keywords” led to 2,493 results in WOS and 64,204 results in Scopus. After the identification and screening criteria, which is summarised in Table 2, the obtained results were 100 papers for WOS and 4,869 for Scopus.

[Table 2 - Identification and screening criteria]

For quality criteria, only the journals listed and ranked in the Chartered Association of Business Schools (ABS, 2018) were included. ABS is recognised as being a guide for quality journals of international standards (Paul & Benito, 2018). All papers that were not published by the journals listed in ABS were excluded, resulting in 69 papers for WOS and 2,907 papers for Scopus.

In the next step (eligibility), which addresses content validation, we used a set of inclusion and exclusion conditions, as presented in Table 3. After the title reading process, the results were reduced to 63 papers in WOS and 99 papers in Scopus. Subsequently, we merged the results and removed the duplicates, which resulted in 79 papers. After reading the abstracts, we removed 12 papers, following the same criteria. This resulted in 37 papers and, at this stage, the scope and inclusion and exclusion criteria in the full-text reading were also considered.

After the analysis of the final set of papers obtained through the search in the databases, we used citation mining, including forward and backward search (Webster & Watson, 2002) in order to find more relevant studies that could also be appropriate for the quality criteria and that could not be found by keyword search. Only the papers that corresponded to all criteria and contained potential answers to the research questions were selected and included in the final assortment of eligible papers. This search added 9 papers, resulting in a final amount of 46 papers.

[Table 3- Inclusion and exclusion criteria in content analysis]

Finally, all the papers answered the quality criteria and the scope of the topic, contributing to knowledge on the use of mobile devices in-store. For a better understanding of the methodological procedures and steps, the flow chart of the procedure is presented in Figure 1.

[Figure 1 - Procedure and search outcome flow chart]

Once the final set of papers that met all the quality criteria was defined, their analysis was carried out. Therefore, the main information of the papers was combined in a data extraction form on an Excel spreadsheet.

To conduct the data analysis, Palmatier et al. (2018) advocates a descriptive analysis as a useful way of starting, but also understanding trends and gaps on the topic. Aligned with the recommendation, we analysed how the number of papers is distributed, developing an overview of the topic and a state of the art. Furthermore, we deepened the understanding of the topic and articulated the findings.

3. Results

This section shows the results of the literature review, reported through general descriptive statistics that map the research for academics interested in the topic. This review covers the papers published, citations, the period of publication, journal of publication, the origin of the authors, research methodologies, and finally a narrative content analysis including research stream cluster.

3.1. Descriptive analysis

The results of the methodological approach were the identification of 46 papers, from 26 different journals that are presented in the Table 4. Firstly, we analysed the distribution by year of publication, then by journal, country of affiliation and finally the most cited papers.

[Table 4 - Journals that published papers by year]

The first paper found in the time-range period (2007-2020) was published in 2010. However, most of the papers on the subject were only published after 2014. As it can be seen in Table 4, 2019 has been the most prolific in research addressing this issue to date. Since the research was conducted in late May, there

is likelihood that still by the end of 2020 there will be published papers with information related to the discussed topic. In the journals listed in the ABS (2018), the *Journal of Retailing and Consumer Services* has the highest number of published papers (n=10), having been consistent since 2014 with one or two published papers per year.

The majority of the authors of the papers published on the topic are from the USA (n=48). However, if we analyse the total number by continent, the European studies reach the total number of 62 authors (Table 5) with Sweden, the UK, and Germany representing the highest amount. Consequently, we can observe that these findings are geographically constrained, and there are extremely few papers from developing countries.

[Table 5 - Author's affiliation countries]

We were unable to identify seminal papers on this topic, although as far as we could analyse it, the conceptual paper of Shankar et al. (2010) is the most cited paper and one of the first ones addressing the use of mobile devices in-store. The 5 most cited papers were published before 2016 and frequently cited by research published in 2018 and 2019 (e.g. Fong, Fang, & Luo, 2015; Groß, 2015; Shankar et al., 2010) (Table 6).

[Table 6 - Top 10 most cited papers]

3.2. Research methods used

The data set contained a predominance of quantitative studies; the application of experiments and surveys was clearly the most used (62%), while among qualitative approaches the methods were very disperse, yet, interviews accounted for 13% of them. In our final set, we could not find any scale development or any attempt to measure the effect of the use of mobile devices on the in-store shopping experience. Table 7 shows the studies by methodological approach and

the corresponding papers. Figure 2 presents the weight of the methods in the final set.

[Table 7 - Research methodologies]

[Figure 2 - Research methodologies: Distribution in the final set of papers]

3.3. Content Analysis

While analysing the final collection of papers, following the content analysis, a pattern on the research streams emerged. We clustered three main streams in order to allow for a more structured view and understanding: Acceptance and adoption of mobile technology; Attitudes and reactions regarding mobile marketing; and Attitudes and behaviours towards the use of mobile device (activity focused). Other approaches could not fit any of the clusters for being more scattered (Faulds et al.,2018; Groß, 2015) (Figure 3).

[Figure 3 - Number of papers distributed by research stream cluster]

Since our research was focused on the use of the mobile devices, it was expected that the theoretical approach presented in the final set of papers would be focused on the attitudes and behaviours of customers and their outcomes for retailers. Nevertheless, studies related to the acceptance and adoption of mobile technology or services on retail as well as topics, such as the attitudes and reactions towards mobile marketing, emerged in the literature review and contributed to the objectives of our research. Therefore, the main findings are presented below and the papers are grouped by stream clusters, as it is shown in Table 8.

[Table 8 - Papers distribution by research stream clusters]

Attitudes and behaviours towards the use of mobile device - activity focused

This research stream aggregated all the studies that address changes and implications of customer's attitude and behaviour and the consequent retailers' outcomes when mobile devices are used. The impact on purchase, purchase intention, and sales are the main focus. They address specific types of use, such as mobile payment (Falk et al., 2016); Tasks related or non-related to shopping (Bellini & Aiolfi, 2019; Sciandra, Inman, & Stephen, 2019); and tasks for multipurpose that do not specify the usage (Banerjee & Longstreet, 2016; Fuentes et al., 2017).

Acceptance and adoption of mobile technology

The identified research studies intend to predict the acceptance and adoption of mobile devices services for in-store shopping purposes (e.g., m-payment and self-checkout) (Aloysius et al., 2016; Falk et al., 2016). Tyrväinen & Karjaluoto (2019), analysed the mobile adoption, with focus on the mobile device as a channel, yet incorporating some important insights about the usage in-store.

Attitudes and behaviours towards mobile marketing

Retailers usually use the customer's proximity to the mobile devices in order to communicate and track the customer in-store, as much as possible. For instance, during the shopping trip, they use the possibility of tracking shopping carts and the advantages of loyalty card programmes. This way, they can provide the customers with an optimal route to the advertised product making them more tolerant to the detour in their shopping route and rising the redemption rates (Hui et al., 2013). This research stream studied the use of mobile coupons, mobile phone location-based advertising, and gamified shopping activities (Danaher et al., 2015; Gazley et al., 2015; Högberg et al., 2019; Högberg et al., 2018; Kang et al., 2015).

Other papers, not present in the final set (Blázquez, 2014; Marriott & Williams, 2018; Rodríguez-Torrico, Cabezdud, & San-Martín, 2017; Wang,

Malthouse & Krishnamurthi, 2015), were found on the screening stage. They address topics such as, mobile shopping and mobile marketing, however, there was no evidence of their use or intention to use in-store.

4. Findings and Discussion

After an overview of the main topics covered in each identified research stream, this section addresses the research questions and discusses the main findings.

4.1. The use of mobile devices in-store

The analysis begins with the reports of direct effects of the use of mobile devices in-store on the shopping experience. Some reports demonstrate positive (Högberg, Shams, & Wästlund, 2019), others neutral (Aloysius et al., 2016) and some even negative effect (de Kerviler, Demoulin, & Zidda, 2016) on such experience. In case of absence of record of a direct effect, the analysis is done through the types of usage of mobile devices (Fuentes & Svingstedt, 2017; Pantano & Gandini, 2018), retailer outcome variables (Bellini & Aiolfi, 2019; Grewal et al., 2018), and effect on constructs and dimensions related to the shopping experience (Pantano & Priporas, 2016; Rippé et al., 2017).

The in-store shopping experience is a multidimension construct that is enhanced when hedonic and/or utilitarian value is added to the experience (Terblanche, 2018). The hedonic value and the customer hedonic motivations are most frequently mentioned and strongly related to enjoyable and entertaining experiences, which is usually linked with the affective dimension of the experience (Holbrook & Hirschman, 1982; Jones, Reynolds & Arnold, 2006).

Mobile device usage and retail outcomes

Enabled by the use of mobile devices and retailers' technologies, the in-store shopping experience is turning into an omnichannel experience, and it can be triggered by retailers or the customers (Bèzes, 2019). If it is the latter, retailers lose control and give agency to the customer that has more control over retail variables (Fuentes et al., 2017; Spaid & Flint, 2014).

The studies of Fuentes et al. (2017), Fuentes & Svingstedt (2017) and Spaid & Flint (2014) are focused on the practice of shopping, and the role that mobile devices play in the changing customer shopping behaviour and experience. Their findings point in the same direction and describe the utilitarian and hedonic motivations associated with the use of mobile devices. At the same time, the motivations encompass the positive effects on customers experience such as the empowerment and the perceived control brought by the mobile assistance as well as the entertainment and enjoyment. More experienced users tend to explore the entertaining features, reshaping the retail environment (e.g., music, games, podcasts, etc.). However, in addition to the positive effects reported in these studies, the customers also acknowledge negative effects, such as the difficulty of multitasking and overbuying.

The first divergencies are found when Fuentes et al. (2017), Grewal et al. (2018) Sciandra et al., (2019) and Sciandra & Inman (2015), all mentioned the use of mobile devices as source of distraction, yet with different outputs. Sciandra et al., (2019) and Sciandra & Inman (2015) mentioned that during non-shopping activities the use of mobile devices affects negatively display recall and increases unplanned purchases. However, when used for shopping activities, the customer buys less unplanned products. Grewal et al. (2018) suggests that the distraction caused by the use of mobile phone increases purchases, making customers spend more time in a store, deviate from their purchase path and spend more time searching for the shelves. The most significant finding is that the use of mobile devices does not affect the customer's level of satisfaction.

Fuentes et al. (2017), points out that the use of mobile devices can lead to distraction from the shopping goals and that it is a negative aspect. Bellini & Aiolfi (2019) also mentioned that the distraction caused by the use of mobile devices can also have an effect in the way customers are impacted by in-store stimuli, reducing its effect and decreasing the impulse buying. On a positive note, they show the utilitarian aspect of the out-of-store preparation and the assistance that mobile devices provide to the customers, resulting in a more conscious decision-making (Bellini & Aiolfi, 2019). Hui et al. (2013) and Grewal et al. (2018) hold a different opinion about the impact of the in-store

stimuli. They state that the customers become more exposed to in-store stimuli, due to an increased distance travelled in-store when using their mobile device.

Specific types of mobile devices usage and their effects

According to the usage type and respective customer motivation, we can find different effects. One of the most researched mobile services (m-services) is the m-payment, which is payment made through a mobile device. Hedonic motivations are commonly associated with adoption of such service (Bailey et al., 2019; de Kerviler et al., 2016; Karimi & Liu, 2020), however, the main challenge is to overcome the perceived risk that this adoption can pose. Other m-services have a neutral effect, such as the mobile checkout, where there is no evidence on utilitarian or hedonic benefits (Aloysius et al., 2016; Hoehle et al., 2018). Customers report convenience as the most important benefit from using their mobile devices (de Kerviler et al., 2016).

Högberg, Shams & Wästlund, (2019) and Högberg et al. (2018) dedicated their research to gamified shopping activities through the use of mobile devices. Their findings showed that gamification affects the hedonic value, which is the best predictor of satisfaction, provided that there is enough engagement with the game.

In regard to the service of mobile location-based advertising (LBA), the design of the promotion is critical in order to succeed. The most important factor is location, time, and personalisation, while the price is the least important (Bues et al., 2017; Shieh, Xu, & Ling, 2019). Gazley, Hunt, & McLaren (2015) state that location is associated to intrusiveness and thus, diminishes the effect of attitude on customisation. Affective involvement is more related to the intention to download the retailer app for LBA than cognitive involvement (Kang, Mun & Johnson, 2015). In the particular case of beacons for LBA, the hedonic component in the experience is fundamental to achieve success (van de Sanden et al., 2019).

Research studies that involve mobile coupons are mostly focused on the redemption rates and the most important features that promote the redemptions; such as time, location, type of product, and face value (Danaher et al., 2015;

Fong et al., 2015; Hui et al., 2013; Mills & Zamudio, 2018). Meanwhile, no effects on shopping experience were reported.

The relationship and the role of the salesperson in the retail environment has also changed since customers began to rely more on the information from their mobile devices. The perceived control is driven by the access of all kinds of information required for the decision-making process, which reduces the need to interact with salespeople. Even while interacting with salespeople, customers use the mobile device as a support (Pantano & Gandini, 2017; Rippé et al., 2017; Spaid & Flint, 2014).

Lemon & Verhoef (2016) state that the role of mobile devices in the information search in-store is fundamental, and studies point out that the research and review are the most preferable stage (Ewerhard et al., 2019; Holmes et al., 2014; Rippé et al., 2017). The so-called webroomers (the ones who search online and purchase offline) search for information when they have high convenience, shopping enjoyment, and impulse buying orientations. They more frequently search for utilitarian goods rather than hedonic ones (Kim, Libaque-Saenz, & Park, 2019). The trust and satisfaction with the information found in the process can be transferred to the retailer (Spaid et al., 2019). The opposite customer's behaviour (search offline and buy online) often concerns physical retailers, since they are wary of the effects. Findings of Viejo-Fernández, Sanzo-Pérez & Vázquez-Casielles (2020) show that customers (showroomers) who use their smartphones in-store are more likely to purchase products with a higher price.

Hedonic and Utilitarian related aspects

As mentioned previously, in addition to searching for information, many customers use their mobile devices for other non-shopping tasks, such as social media management, listening to music, playing games, managing personal finances, working or simply communicating with others. Women seem to use mobile devices more frequently to perform such activities, since they value more social relationships and multitasking (Bhatnagar & Papatla, 2019; Kiba-Janiak, 2014; Pantano & Gandini, 2017). Nakano & Kondo (2018), referred to the

importance of social media and mobile devices as relevant elements to increase sales in physical retail stores.

Generally speaking, m-services developed by retailers contain a strong utilitarian component that enables customers to perform efficiently the shopping tasks associated with the customer's decision process, rather than enhance the shopping experience through hedonic added value. They lead the customers to the sense of accomplishment, related to the reinforcement of purchase intention and repatronage intention. Moreover, the convenience, from a cognitive perspective, positively affects the experience (Pantano & Priporas, 2016; Spaid & Flint, 2014; Tyrväinen & Karjaluoto, 2019).

In the retail context, the previous experience with the online channel and stage of mobile adoption determine what is most important for the customer, in terms of their preference on utilitarian or hedonic benefits (Tyrväinen & Karjaluoto, 2019).

In-store mobile device usage effects

The effects of the use of mobile devices in-store can be analysed in a framework which presents that different types of use have different results on the effects on customers, and consequently on the shopping experience (Figure 4). According to Babin et al. (1994), expected benefits can be divided into: task-oriented users seeking to be more efficient in their shopping experience (utilitarian benefits) and those seeking for more entertaining shopping experiences (hedonic benefits).

[Figure 4 – Conceptual framework for in-store mobile device usage effects]

Summarising, customers use their mobile devices in-store for shopping tasks (e.g. look for competitors' prices, shopping lists, coupons redemption, etc.) and for non-shopping tasks (e.g. social media, entertainment, job tasks, etc.), generating different outcomes for retailers (Bellini and Aiolfi, 2019; Sciandra et al., 2019; Sciandra & Inman, 2015), and specific types of usage (e.g. Gamified activities, m-payment, etc.) can affect customers in different ways (e.g.

entertainment, convenience, control, etc.). In order to affect the in-store customer shopping experience in a positive way, retailers must add hedonic components to the use and interaction with the customer's mobile devices.

The use should be promoted and encouraged, since reports of negative effects highly exceed the positive ones. Noticeably, most of the mobile device usage that adds hedonic value is mainly driven by customers' initiative and not controlled by retailers. These findings cast an overview on the topic that can aid practitioners in designing better touchpoints for the shopping experience as well as academics in providing an understanding of the state-of-the-art, but also framing the main effects of the mobile device's usage in-store.

4.2. Future research agenda

Based on the findings of this literature review (Appendix A), and using the TCM framework, the following research agenda presents the knowledge gaps and accordingly, suggests new directions regarding: theory development, context, and methodologies.

Theory: research directions

The study of this emerging topic could benefit from new approaches and different perspectives. Most of the findings that contribute to this review derived from the main topic of mobile shopping and omnichannel retail, and the literature related to it and specific settings continue to be little-known. We encourage new research to design a theoretical framework on the impact of mobile devices on in-store shopping experience.

Further research can explore the role of mobile device in-store within concepts such as mobile payment, webrooming, showrooming, gamification, retailers technologies, mobile location-based advertisement, and other interactive mobile services where customers can co-create value for the shopping experience (Jiang et al., 2019; Li et al., 2019; Spaid & Flint, 2014; Ström et al., 2014; van de Sanden et al., 2019; Viejo-Fernández et al., 2020).

Acceptance and adoption of m-technology is still a subject under study, as technology and mobile services evolve. The interaction with retailers' technologies (artificial intelligence, virtual reality, and augmented reality) are technologies currently developing and it is fundamental to understand the

determinants of interaction. Despite the extensive literature on the theory of Technology acceptance model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT), the introduction of other dimensions, such as the social and/or psychological risk, can be addressed in the perspective of TAM and the UTAUT (Spaid & Flint, 2014).

Grewal et al. (2018) and Sciandra et al. (2019), also underline the need to understand the differences between the effects of shopping-related tasks and non-related tasks while using mobile devices. This affects customer satisfaction, purchase intentions and also loyalty, which may differ depending on the type of use.

The social media, the electronic word-of-mouth and influencers are some examples of what can be shaping the customer's experience through the use of mobile devices. How can feedback and comments through mobile devices shape the experience? And what is the impact of social media and online influencers on physical retailers? These questions can be found in the review and may be well addressed in future research.

Finally, the retailers' perspective should also be considered, since they implement the strategies and possess knowledge about the outcomes.

Contexts: research directions

Since the focus of this literature review is in-store, it is only natural that the retail environment was the main set for the studies whose majority was conducted in groceries stores (Bellini & Aiolfi, 2019; Grewal et al., 2018; Sciandra et al., 2019), but also in sports stores (Högberg et al., 2019), shopping malls (Li et al., 2017), movie theatres (Fong, Fang, & Luo, 2015) and food retailers (Saarijärvi, Mitronen, & Yrjölä, 2014). Consequently, it reveals a lack of research in service settings, whose analysis could also be beneficial for physical stores, as pointed in many studies (Bellini & Aiolfi, 2019; Grewal et al., 2018; Hui et al., 2013; Mills & Zamudio, 2018; Viejo-Fernández, Sanzo-Pérez, & Vázquez-Casielles, 2020).

Regarding diversity of settings, it is evidently necessary to study the attitude and behaviour towards various categories of products. Customers have individual preferences in using mobile devices to support their decision and purchase products belonging to different categories (Dorie & Loranger, 2020). This phenomenon can be explained by the level of involvement with the product. Customers are willing to spend more time searching for information, because they need assurance about their decision. They tend to try to minimise the lack of information and use complementary sources of information, such as their mobile devices (Rippé et al., 2017; Yurova et al., 2017). Therefore, it is important to conduct research within context of different product categories (Bues et al., 2017; de Kerviler et al., 2016; Fagerstrøm et al., 2020; Gazley et al., 2015; Högberg et al., 2018; Holmes et al., 2014; Nakano & Kondo, 2018; Ono et al., 2012; Viejo-Fernández et al., 2020).

In addition to the in-store environment, the customers' perspective of the use of mobile devices must be considered. It embraces the omnichannel, either due to everyday life necessity or the technological advances that promote their use. Thus, the next step in research must approach the identifications of touchpoints in-store and the context variables related to customers, such as time pressure, individual needs, experience, etc. (Bues et al., 2017; Hoehle et al., 2018; Viejo-Fernández et al., 2020; Ewerhard et al., 2019).

Finally, in this review, as described before, the majority of the studies derived from the European Union and North America. Focusing on the reality of the Western countries, it becomes challenging to obtain a full understanding and replicability of the study's results. Future research in other countries, cultures and/or other socio-economic circumstances must be addressed in order to develop country-specific strategies (Bailey et al., 2019; Banerjee & Longstreet, 2016; Bues et al., 2017; Fagerstrøm et al., 2020; Fuentes & Svingstedt, 2017; Holmes et al., 2014; Kiba-Janiak, 2014; Nakano & Kondo, 2018; Pantano & Gandini, 2017; Rippé et al., 2017; Shankar et al., 2010; Viejo-Fernández et al., 2020).

Methodology: research directions

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According to the previous analysis, the majority of papers adopt a quantitative methodology design (Table 7), with numerous experiments (n=15) and surveys (n=14). Since this subject is relatively recent, it may benefit from exploratory qualitative studies, as they can contribute to and build on new conceptual models (Patton, 2004). Furthermore, the analysis over a long period of time can develop knowledge on the topic (Falk et al., 2016; Högberg et al., 2019), since it is directly correlated to a technological object and its use. Moreover, as the topic evolves and different effects might emerge through time, a longitudinal research can be useful.

Based on the review, issues with sample and data size were pointed out such as, the country of origin or samples restricted to young adults. Thus, the sample and data for future research should be heterogeneous in age, gender, and socioeconomic status, but the samples should be also bigger, improving future studies (Bailey et al., 2019; Fagerstrøm et al., 2020; Fuentes & Svingstedt, 2017; Ono et al., 2012; Pantano, Priporas, & Dennis, 2018).

The age of the participants can affect the outcomes of the research as it is seen in the Grewal et al. (2018) experiment, where the elderly were more affected by the distraction caused by the mobile devices. For future research, not only the age spectrum must be wider, but also analyses of the cohorts effect on the attitudes and behaviours should be conducted (Bailey et al., 2019).

In addition to the importance of creating a theoretical model that can explain the impact of mobile devices on the shopping experience, it is also essential to design instruments that can measure it. According to the research results, no such attempt has been made to date and appropriate scales could help to expand this field. Future research on attitudes and behaviours, focused on consumer activities, requires measurement of their effects on the shopping experience. The studies by Fuentes et al., (2017) and Spaid & Flint (2014) address the effects using a qualitative approach, but they lack measurement.

Broad data analysis significantly allows for a deeper understanding of customer attitudes and behaviour, and aids retailers while creating strategies aligned with customers' preferences. However, in order to enable that, retailers and practitioners must share data with the academic community so that the

information can be analysed under the same analytical constructs and in turn can improve the existing theory (Aloysius et al., 2016). Other methods, such as simulations and experiment designs should also be considered (Fagerstrøm et al., 2020; van de Sanden et al., 2019).

One of the main goals of this study was to identify research gaps and provide future research directions. Therefore, after the literature review the following research questions are suggested:

RQ1: What is the impact of the use of mobile devices on each specific dimension of the in-store shopping experience?

RQ2: How can the impact of the use of mobile devices on the in-store shopping experience be measured?

RQ3: What are the determinants for interaction with retailers' technologies (e.g., artificial intelligent, virtual reality, and augmented reality) when using the customer's mobile device?

RQ4: What activities, shopping related and non-shopping related, can affect the customer's shopping experience?

RQ5: What is the impact of social media and online influencers in physical retailers?

5. Managerial contributions

Despite the heterogeneity of studies on the subject, this research demonstrates that mobile devices certainly affect the decision-making process. Most of the services developed by retailers so far allow for a more efficient decision-making process focused on the utilitarian aspects of shopping management (Pantano and Priporas, 2016; Spaid and Flint, 2014; Tyrväinen and Karjaluoto, 2019). This leads customers to feel empowered and in control when they use their mobile devices for shopping assistance. However, their use also brings enjoyment and entertainment as the features of the mobile devices allow customers to personalise their experience through online touchpoints and redesign the retail environment. This results in the need to know the ways in which the customer

uses their device, but at the same time, retailers must promote and encourage the customer to use the device in ways that are most convenient to them.

As Sciandra, Inman, & Stephen (2019) report, the type of use can affect the retailer outcome. The non-shopping related activities are more prone to negatively impact the shopping activities and consequently the retailer outcome (fewer purchases). On the other hand, in what regards the customer experience, they can result in more enjoyment. Therefore, to maximise customer experience and the retailer outcome as well as create a seamless experience, the first step is to make the in-store environment as technology-friendly as possible. Afterwards, retailers must develop solutions for shopping management, including an entertainment component where customers can choose what they want or need to improve their experience in-store. Creating a shopping list before the shopping trip makes the decision-making process more conscious and helps customers to fulfil the shopping plan (Bellini & Aiolfi, 2019), but e.g., introducing a gaming component to the task will bring them more entertainment.

If studies are to show that store communication efforts can be ignored and retailers' high investment is lost because customers are distracted with their devices (Bellini & Aiolfi, 2019), the investment should be diverted or complemented in mobile communication (Bues et al., 2017; Grewal et al., 2018). The retailers must promote the use of mobile devices for social purposes: managing social media, writing reviews, sharing and requesting opinions of family, friends, or followers, in order to add value to the social interactions (Nakano & Kondo, 2018). The social media and mobile devices are also an important element since they can increase in-store sales (Nakano & Kondo, 2018).

Simultaneously, it is crucial to continuously stimulate the aspects of the shopping experience in-store, encouraging contact with store employees and facilitate the interaction between them through the use of mobile devices. In addition, it can stimulate the cognitive and affective aspect of the experience by bringing online stimuli to the offline. The store environment can stimulate the senses in a unique way and it is still an important aspect that must be continually developed, explored, and integrated with the online solutions. The synchrony of both environments is fundamental in order create an integrated scenario and

experience, while giving to the customer the opportunity to be participant and add value to the shopping experience (Banerjee & Longstreet, 2016).

From the wi-fi signal to the search and purchase solutions, all staff members in-store must be aware of this reality and be prepared to face it. Whether it is an employee who receives a complaint where the customer presents information that is collected on his device, or a member of the security team who sees a customer creating an Instagram story where the products or services are going to be shared among the customer's contact network. These behaviours are often discouraged in-store, but they bring hedonic feelings to customers and ultimately benefits to retailers.

This study gains ever higher relevance at a time when customers resort to technology solutions, avoiding direct human contact due to restrictive measures imposed by the pandemic (COVID-19), as the role of the physical store is changing and the omnichannel services are increasing (Accenture, 2020; Briedis et al., 2020). When customers shop, they use the mobile device as their advisor, assistant, and shopping companion (Fuentes et al., 2017). This implies an opportunity for retailers to play an active role and be present in the crucial moments, making the customer's participation in the shopping process more dynamic. Services such as contactless payment, virtual consultations, curbside pickup, social commerce, and others can take advantage of the potential of mobile device functionalities.

Physical retailers still fear the showroom behaviour (search offline and buy online), but as mentioned in Viejo-Fernández et al. (2020) research, the showrooming, when performed in-store using mobile devices, is more likely to make the purchase action more expensive. Therefore, it is important to create a way to direct customers to the retailer's online platforms where all the necessary information is available, but also guarantee a competitive price in relation to potential online competitors.

The review findings give answers to the most sceptical retailers investing in mobile solutions. The concerns related to privacy are more of a retailer's perceptions than consumers, as they understand the value exchange (van de Sanden, Willems, & Brengman, 2019). As Grewal et al. (2018) states, the effect

for the retailers is generally positive. In fact, this can increase purchase intention and effective sales. These conclusions contribute to the knowledge about how we should design better solutions for interacting with this type of customers.

6. Conclusion

This paper covered the most relevant scientific production on the use of mobile devices in-store since the popularisation of smartphones. By developing a search method based on several quality criteria, we summarised the most valuable findings that contribute to a better understanding of the herein discussed topic. This hybrid review allowed to carry out a historical survey of the development of the knowledge on the topic, but also its trends. It proved to be an emerging and specific theme, where much remains to be done. This research frames the existing knowledge and offers new research directions, while it also provides retailers with the information necessary to enhance the shopping experience for their customers that use mobile devices in-store.

As this matter is part of our daily routine, we may not give due importance and properly explore the potential. Mobile devices can be used for enhancing the customer experience and can lead to satisfaction and retailer's benefit. However, it is necessary for the retailers to know more about the best practices to create this experience and increase the return of their investment.

In summary, we identified the following conclusions on the effects of mobile devices usage in-store, discussed in the previous section:

- The use of mobile devices in-store is mainly the consequence of utilitarian motivations, such as convenience, the need to be more efficient, and in control of the shopping process. Despite retailers' exploration of these motivations and development of m-services that meet utilitarian customers' needs, it was verified that the hedonic value is what can enhance the shopping experience and bring satisfaction to customers;
- Promoting the use of mobile devices in-store can in fact increase purchase intention and effective sales, whether due to distraction caused by the device leading to more impulse purchases, or the greater distance travelled within the store, exposing customers to more stimuli. Yet, there is still a

lack of empirical studies on this area. Additionally, other important retailers' outcomes need to be addressed, and also the antecedents and outcomes of the shopping experience from the customer perspective.

The present study, as far as the authors know, is the first to attempt a systematic literature review on this focal phenomenon. Due to being a specific and emerging subject, one of the limitations of our study is a small number of papers. The time interval was also short due to the type of devices chosen. Despite the number of studies on smartphones, tablets, and wearables being scarce, it is important to better understand the use of these devices that are part of our daily routine and are indispensable in our lives. As the analysis of the number of published studies indicates, the number of publications tends to increase. The information proved to be scattered and possibly there are more studies in different areas that could add to knowledge to the topic. Finally, this study is a starting point for those who are interested in the topic, whether they are academics or practitioners. The proposed research agenda can be useful to guide new research studies and expand knowledge on the subject.

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Figure captions

Figure 1 – Procedure and search outcome flow chart

Figure 2 - Research methodologies: Distribution in the final set of papers

Figure 3 – Number of papers distributed by research stream cluster

Figure 4- Framework for in-store mobile device usage effects

Tables Legend Section

Table 1 – Pool of terms and synonyms driven from previous analysis of the literature

Table 2 - Identification and screening criteria

Table 3- Inclusion and exclusion criteria in content analysis

Table 4 - Journals that published papers by year

Table 5 - Author's affiliation countries

Table 6 - Top 10 most cited papers

Table 7 – Research methodologies

Table 8 - Papers distribution by research stream clusters

Table 1 - Pool of terms and synonyms driven from previous analysis of the literature

Key concepts	Mobile Devices	In-store	Shopping experience
Synonyms	Mobile Devices	In-store	Shopping experience
and other	Mobile	In store	Experience
Similar	Mobile internet	Brick-and-mortar	Shopping
Terminologies	devices	Brick and mortar	
	M-shopping	Offline	
	Mobile phone	Retail	
	Smartphone	Retail store	
		Physical	

Table 2 - Identification and screening criteria

	Inclusion	Exclusion
Document and Source type	Academic Journal Article	Others
Filter	Full-text; peer-reviewed papers	Others
Language	English	Others
Time frame	2007 – 2020	<2007
Subject areas	“Business, management, and accounting” in Scopus. “Business”, “Economics” and “Management” in Web of Science.	Others
Quality criteria	ABS 2018 list	Others

Table 3 - Inclusion and exclusion criteria in content analysis

Content Analysis	Inclusion	Exclusion
Settings	In-store, physical retail stores (Offline)	E-commerce, M-commerce (Online)
Mobile Device	Smartphone, Tablet, or Wearable with IOS, Android, Windows, and Blackberry systems that enable Apps and the use of Internet.	In-store technologies promoted by retailers (e.g. scanners, touchscreens)

Table 4 - Journals that published articles by year

Journals	2010	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Journal of Retailing and Consumer Services				2		1	2	2	1	2	10
Computers in Human Behavior					1	1	1			1	4
International Journal of Retail and Distribution Management				1	1				1		3
International Review of Retail, Distribution and Consumer Research									2		2
Journal of Business Research						1			1		2
Journal of Marketing			1					1			2
Journal of Marketing Research					2						2
Journal of the Academy of Marketing Science								1	1		2
Psychology and Marketing							2				2
Advances in Consumer Research					1						1
Business Horizons								1			1
Decision Support Systems							1				1
Economics & Sociology				1							1
European Journal of Marketing					1						1
International Journal of Electronic Commerce			1								1
International Journal of Logistics Management								1			1
International Journal of Operations and Production Management						1					1
Journal of Customer Behaviour		1									1
Journal of Interactive Marketing		1									1
Journal of Internet Commerce									1		1
Journal of Marketing Management									1		1
Journal of Marketing Theory and Practice				1							1
Journal of organizational computing and electronic commerce									1		1
Journal of Research in Interactive Marketing						1					1
Journal of Services Marketing									1		1
Service Business									1		1

Total	2	1	1	5	6	5	6	6	11	3	46
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Table 5 – Author’s affiliation countries

Country	Number of Authors
USA	48
Sweden	17
UK	10
Germany	8
Finland	6
Japan	6
Taiwan	5
Australia	4
Belgium	4
France	4
New Zealand	4
Spain	4
Norway	3
Italy	2
Korea	2
China	1
Iceland	1
India	1
Netherlands	1
Peru	1
Poland	1
Qatar	1

Table 6 –Top 10 most cited papers

Authors and year of publication	Number of citations
Shankar et al. (2010)	261
Fong et al. (2015)	194
Groß (2015)	84
Danaher et al. (2015)	83
Kerviler et al. (2016)	81
Ström et al. (2014)	69
Pantano & Priporas (2016)	69
Holmes et al. (2014)	67
Gazley et al. (2015)	55

Table 7 - Research methodologies used

Approach	Design	Research Method	Number of articles	Papers
Theoretical	Qualitative	Conceptual	2	Shankar et al. (2010) Faulds et al. (2018)
		Literature Review	4	Banerjee & Longstreet, (2016) Groß (2015) Ström et al. (2014) Tyrväinen & Karjaluo (2019)
	Quantitative	Experiment	15	Bues et al. (2017) Danaher et al. (2015) Falk et al. (2016) Fong et al. (2015) Grewal et al. (2018) Högberg et al. (2018) Högberg et al. (2019) Hui et al. (2013) Karimi and Liu (2020) Li et al. (2017) Mills & Zamudio (2018) Rippé et al. (2017) Sciandra & Inman (2015) Sciandra, Inman & Stephen (2019) Shieh et al. (2019)
Survey				14
Database		1		Viejo-Fernández et al. (2020)
Qualitative	Interviews	6		

Focus groups

4

Aloysius et al. (2016)

Fuentes & Svingstedt (2017)

Houliez (2010)

van de Sanden et al. (2019)

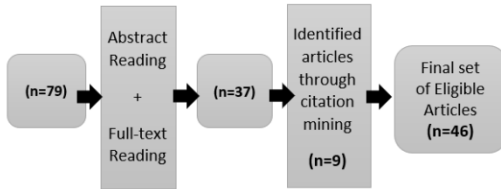
Table 8 - Papers distribution by research stream clusters

Research Domains	Papers
Attitudes and behaviours towards the use of mobile device - activity focused	Banerjee & Longstreet (2016); Bellini & Aiolfi (2019); Bhatnagar & Papatla (2019); Ewerhard, Sisovsky & Johansson (2019); Fagerstrøm, Eriksson, & Sigurdsson (2020); Falk et al. (2016); Fuentes, Bäckström & Svingstedt (2017); Fuentes & Svingsted (2017); Grewal et al. (2018); Hoehle et al. (2018); Holmes, Byrne & Rowley (2014); Houliez (2010); Kiba-Janiak, (2014); Kim, Libaque-Saenz & Park (2019); Li et al. (2019); Nakano & Kondo (2018); Pantano & Gandini (2018); Pantano & Priporas (2016); Rippé et al. (2017); Saarijärvi, Mitronen & Yrjölä (2014); Sciandra, Inman, & Stephen (2019); Sciandra & Inman (2015); Spaid & Flint (2014); Spaid, O'Neill & Ow (2019); Viejo-Fernández, Sanzo-Pérez & Vázquez-Casielles (2019)
Attitudes and behaviours towards mobile Marketing	Bues et al. (2017); Danaher et al. (2015); Fong, Fang & Luo (2015); Gazley, Hunt & McLaren (2015); Högberg et al. (2019); Högberg, Shams, & Wästlund (2018); Hui et al. (2013); Kang, Mun & Johnson(2015); Mills & Zamudio (2018); Shankar et al. (2010); Shieh, Xu, & Ling (2019); Ström Vendel & Bredican (2014); van de Sanden, Willems & Brengman (2019)
Acceptance and adoption of mobile technology	Aloysius et al. (2016); Bailey et al. (2019); de Kerviler, Demoulin & Zidda, (2016); Karimi & Liu (2020); Tyrväinen & Karjaluoto (2019)
Others	Faulds et al. (2018); Groß (2015)

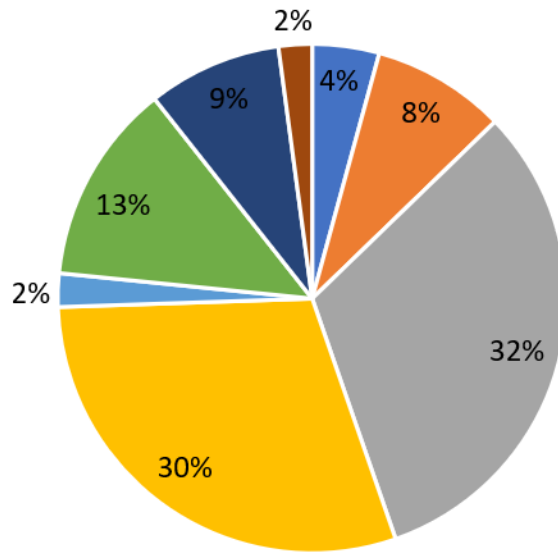
Identification and screening



Content analysis
Inclusion and exclusion

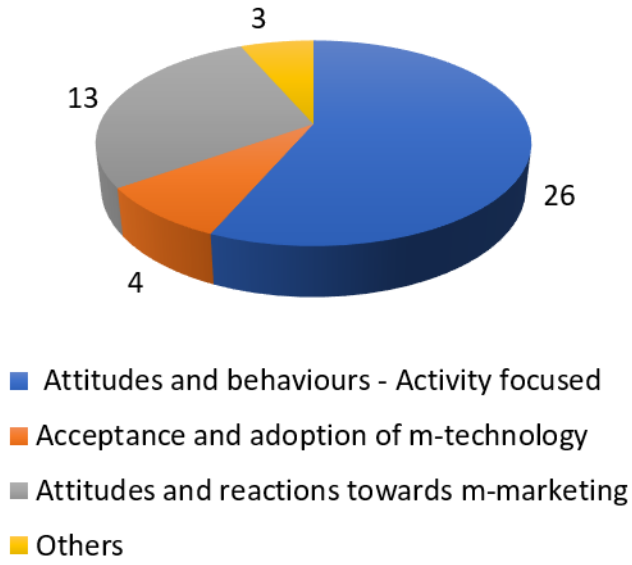


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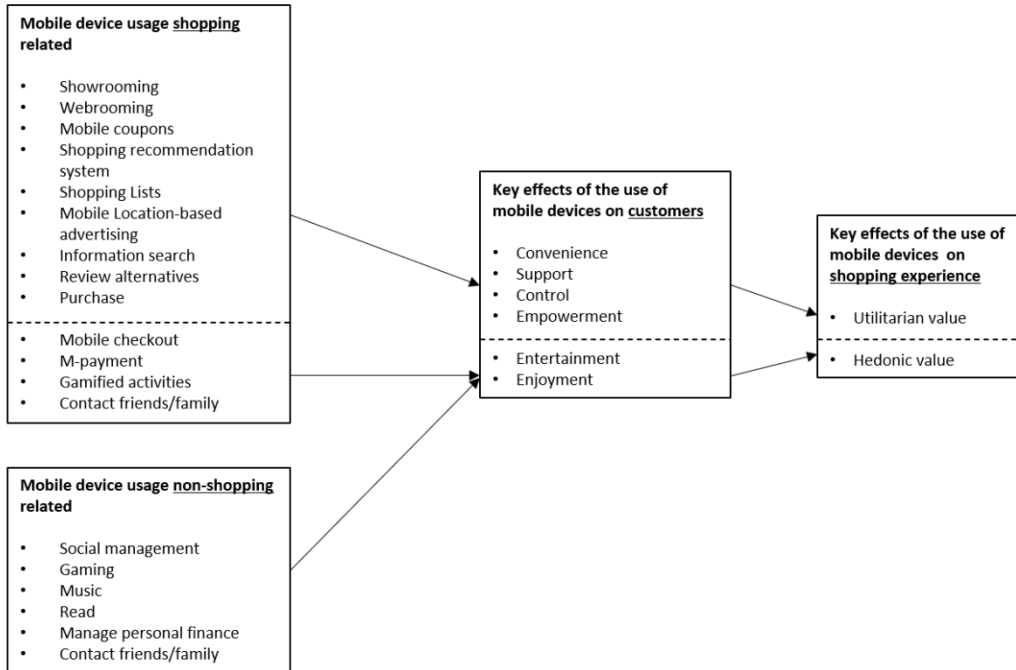


- Conceptual
- Database
- Literature Review
- Interviews
- Experiment
- Focus groups
- Survey
- Ethnography

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Appendix A – Highlights from the papers included in the systematic literature review

Authors and year of publication	Main Findings	Future Research
Aloysius et al. (2016)	The strongest predictors for the adoption of mobile scanning and payment are computer self-efficacy, technology anxiety, and personal innovativeness.	How can firms exploit big data and offer customers more attractive solutions based on their individual preferences?
Bailey et al. (2020)	The factors “ease of use” and “system trust” are the most significant in the role of the adoption of m-payment.	The use of m-payment on other types of goods or services, other contexts, and analysis of other demographic.
Banerjee & Longstreet (2016)	Dissociation of virtual-physical environment is a negative aspect and the customers need to be guided to an integrated scenario.	Studies in other cultures and different social settings.
Bellini & Aiolfi (2019)	The use of mobile devices while shopping decreases impulse purchases.	Extend the sample to other types of retail. Analyse the preparation phenomenon out-of-store.
Bhatnagar & Papatla (2019)	Consumer ownership of electronic devices produces the habits of using mobile devices for information search and social management.	Test if the ownership of electronic devices in fact produces the habits.
Bues et al. (2017)	For the design of mobile promotions in-store, the price is the least important driver, and the location where the customer received the mobile ad is the most important driver for purchase intention.	Context variables related to the customer. The study of additional factors of value and effects of personalisation and exclusivity.
Danaher et al. (2015)	Time and location are the most important features of the coupons for redemption. Specific weekdays highly affect redemption rates.	Customise coupons in terms of face value, price format, expiry length, etc.
Ewerhard et al. (2019)	The channels are complementary since they are used at different stages.	What are the effects of improving the omnichannel and what happens when it is neglected? What are the critical touchpoints?
Fagerstrøm et al. (2020)	IoT services related to the expiry date, quality indicators, and offers had a positive impact on tendencies to explore the smartphone app, and increase the likelihood to buy.	Experimental research using a prototype app. Different countries, sample and product category.
Falk et al. (2016)	Mobile payments lead to more positive OSPI judgments and significantly increase customers' willingness to pay when compared to cash payments.	Research on mobile payments, based on a sense of transparency and on how mobile payments are made by customers. Longitudinal study.
Faulds et al. (2018)	Identifications of four-pillar for mobile shopping: consumer-retailer interconnectedness, consumer empowerment, proximity-based consumer engagement, and web-based consumer engagement.	[unidentified]

Fong et al. (2015)	Competitive local targeting can increase sales without the negative effects of focal local targeting (saturation and cannibalise profits).	Further research should investigate the effects of brand asymmetries and defensive mobile tactics.
Fuentes & Svinstedt (2017)	For the adoption of mobile shopping, the consumers have to possess technological and shopping skills and it has to be meaningful and suitable to their lifestyle.	Studies of mobile shopping among other groups of practitioners, other countries, and between user groups.
Fuentes et al. (2017)	It can be a distraction for the shopping goals, and sometimes even a physical barrier to accomplish the shopping tasks since multitasking is difficult.	[unidentified]
Gazley et al. (2015)	Receiving mobile phone location-based advertising at the point of purchase strengthens the relationship with intrusiveness and attitudes, but diminishes the effect of customisation on attitudes.	Consider more widespread product categories and try to measure actual behaviour. There is also the potential to investigate mobile relationship marketing.
Grewal et al. (2018)	The distraction caused by the use of mobile phone increases purchases because shoppers spend more time in the store.	Research on different shopping tasks and different activities using the mobile phone. Study of different types of retailers.
Groß (2015)	It provides a classification framework and literature review on m-shopping. The acceptance and reactions to m-shopping are the most explored aspects and the technological aspects are still scarce.	While studies have mostly explored the consumers' acceptance and reactions to m-shopping themes, the technology perspective is still being researched.
Hoehle et al. (2018)	Customers show a higher tolerance for validation with mobile shopping checkout compared with traditional self-service checkout.	Integrate tolerance for validation in the examination of the effects on customer satisfaction, repurchase intentions, and loyalty.
Högberg et al. (2018)	In-store mobile advertising using gamification is not always useful. If there is not enough engagement, customers do not tend to act on offers.	Products that are relevant to the participants and use real offers.
Högberg et al. (2019)	Gamification affects hedonic value and the hedonic value is a better-continued engagement predictor than satisfaction with the reward.	Longitudinal research on the effects of gamification and its implications for creating customer experiences.
Holmes et al. (2014)	The use of mobile devices in-store is higher for products with a high level of involvement and risk at the search and review stage of the decision-making process.	Explore different categories and other countries.
Houliez (2010)	The shopping experience is a combined experience, the technologies and store result in a new servicescape.	More research is needed to fully assess the potential impact of mobile devices on the social dimension of servicescapes.
Hui et al. (2013)	Targeted mobile promotions can increase the in-store shopping distance and so their unplanned spending, by exposing the customers to more in-store stimuli.	Different stores and retail environments.
Kang et al. (2015)	The relationship between emotional involvement and intention to use is greater for mobile consumers with high experiential orientation than for those with low experiential orientation.	Address perceived risk as a determinant to downloading and usage intention.
Karimi & Liu (2020)	Customers' mood interacts with decision-making style and the need for gratification affects the intention to adopt m-payment.	Use other methodologies and research in different settings, the impact of mood, decision-making style, and need for gratification.

de Kerviler et al. (2016)	Between m-p-payment and in-store m-info search, the customer perceived more risk and benefits in the first one, therefore it is more difficult to adopt.	Studies in other categories, such as fashion, household appliances, and groceries. Study the effect of m-search and m-payment loyalty.
Kiba-Janiak (2014)	There are differences between gender and the use of in-store. Men more often compare prices, search for reviews, and other information. Women prefer to call friends and family to ask for advice.	Study different countries. Survey the retailers.
Kim et al. (2019)	Webroomers prefer to use mobile platforms over PCs while searching for information. Utilitarian shopping motives are stronger predictors for searching for goods than they are for experiences.	Study other countries. Analyse the showrooming effect. Develop a model that apprehends more psychological mechanisms behind consumer search behaviour and platform choice.
Li et al. (2017)	Based on the purchase information of other customers and on the user's social information, the proposed system can effectively provide the ideal route for purchasing support.	The use of semantic analysis on customers' preferences on social websites.
Mills & Zamudio (2018)	Successfully deploying mobile coupons must consider segment membership, loyalty, coupon value, and NPR to optimise redemption.	Examine the percentage of brand purchases in a category with coupon redemption and other retail settings.
Nakano & Kondo (2018)	Mobile and social media are important elements to increase sales in physical stores.	Study in other countries and product categories types.
Ono et al. (2012)	Idea motivation is the most important in browsing mobile-based online stores and browsing physical stores .	Different ages and product categories. Add another type of browsing (desktop) and consumer characteristics to the model.
Pantano & Gandini (2017)	Social network substitutes face-to-face interaction with a salesperson. Used mainly for utilitarian purposes and to support the shopping experience.	Quantitative approach. Larger sample. Older participants. Collect data from different countries.
Pantano & Priporas (2016)	The use of mobile in the purchase experience is more convenient and chosen by consumers from a cognitive perspective.	Use larger and more representative samples and also research in other countries.
Rippé et al. (2017)	Results show that adaptive selling can affect purchase intention and customer's likelihood to comply with mobile device input. The perceived control increases purchase intention.	Research in other countries and cultures. Explore other ways where the salesperson can improve the shopping experience.
Saarijärvi et al. (2014)	M-services allow food retailers to have a more relevant role in the in-store activities, diversifying the activities, and adding value to the experience.	Address the customer perspective on food retailers' m-services and find the potential effect and on the use of m-service on their consumer activities and impact on satisfaction and loyalty.
Sciandra & Inman (2015)	The use of mobile devices as a source of distraction affects negatively display recall and increases unplanned purchases when used for non-related shopping activities. Consumers are unaware of the negative effects and understand the positive effects.	Study how shopping-unrelated mobile device use impacts consumers' explicit memories of external stimuli. Use eye-tracking technology to understand where and how long consumers focus on their mobile devices.

Sciandra, Inman & Stephen (2019)	Non-related shopping tasks negatively affects consumers' shopping plans and increase unplanned purchases, the effect is higher in consumers who are highly dependent on their mobile devices.	[unidentified]
Shankar et al. (2010)	The consumer, the mobile, and the retailer are the three key entities of the conceptual framework proposed for mobile marketing in retail environment.	How advances in technology and changes should guide retailers? How mobile marketing differs across countries? How mobile technology will change marketing communications?
Shieh et al. (2019)	Pull Location-Based Advertising created greater click intention among consumers than the opt-out push LBA when the consumers recognised the benefits of LBA messages.	Investigate the interaction effect between hedonic content time-consciousness to obtain evidence of the effect of LBA. How decoy options can induce a reduction of negative emotions and help when making an LBA-induced buying decision.
Spaid & Flint (2014)	The use of mobile devices in-store is motivated by intrinsic and extrinsic factors and can be used for utilitarian and hedonic purposes. They give the shoppers a higher sense of empowerment assisting them throughout the shopping experience.	TAM theories may investigate the way the comments and imitated feedback shape the experience. Study the return of investment in technologies that interact with MD.
Spaid et al. (2019)	The shoppers' satisfaction about the information they found online creates a positive effect on satisfaction and trust towards the retailer, and also on repatronage intentions.	Explore the relationships and psychological experiences of shoppers.
Ström et al. (2014)	The retailer's value is impacted by the perceived value of mobile marketing by the consumer, and it also can increase the relative value for retailers and consumers.	Measure the relative outcome value of mobile marketing. Evaluate the effectiveness and efficiency of mobile marketing practices.
Tyrväinen & Karjaluoto (2019)	The past experience with the online channel and with a mobile device and the perceived usefulness and ease of use can influence the adoption. The motivation and the stage of adoption influence customer behaviour.	Research could consider the relationship between online and mobile channels.
van de Sanden et al. (2019)	Retailers must have an integrative approach when implementing beacons and add hedonic components to the experience in order to be successful.	The use of field experiment could benefit the research of Mobile location-based advertisement in-store.
Viejo-Fernández et al. (2020)	Showroomers who use smartphones in-store are more likely to buy more expensive products.	Understand the touchpoints of the Omni-shoppers customer journey and their behaviour at each stage. Approach the antecedents and consequences of showrooming from an economic and cognitive-affective perspective. Study other product categories and sectors.
