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Determinants of utilitarian value in mobile commerce applications in the fashion industry

Factores determinantes del valor utilitarista en las aplicaciones de comercio móvil del sector moda

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Abstract

This paper identifies the key drivers of perceived utilitarian value when using a mobile fashion retail app. We analyze and test the impact of consumer beliefs regarding technology, the features of the mobile alerts messages and permission marketing variables (irritation and perceived control) related to the mobile alerts. A research model is tested using a sample of 340 mobile shoppers of fashion products in Spain. Results show that utilitarian value is determined by perceived usefulness, informativeness of the alerts and use of permission marketing. Ease of use increases the perceived usefulness, personalization increases the informativeness of the alerts and perceived control decreases consumer's irritation.

JEL Code: M31, L81
Keywords: mobile commerce; informativeness; personalization; irritation; perceived control

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Resumen

El presente trabajo de investigación analiza los factores determinantes del valor utilitarista percibido en una aplicación de comercio móvil de productos de moda. Se propone y contrasta empíricamente un modelo de relaciones que analiza el impacto de las creencias ante la tecnología, las características del mensaje recibido a través de alertas y el marketing de permiso de las alertas (irritación y control percibido). El contraste de hipótesis realizado a partir de una muestra de 340 clientes reales en España, que compran productos de moda a través del móvil, evidencia que el valor utilitarista viene determinado por la utilidad percibida, el valor informativo de las alertas y el uso del marketing de permiso. La facilidad de uso incrementa la utilidad percibida, la personalización aumenta el valor informativo, y el control percibido disminuye la irritación.

Código JEL: M31, M31, L81
Palabras clave: comercio móvil; valor informativo; personalización; irritación; control percibido

Introduction

Smartphones have become a powerful medium of commerce. Globally, 55% of internet users already make purchases from smartphones, with a trend that will continue to increase and reach its peak as digital natives mature as consumers, reaching 75% by 2021 (Ditrendia, 2019). In Europe, the percentage of sales via smartphones continues to grow, with 44% in 2018, ranking third in the world, behind the Middle East and Africa (Ditrendia, 2019). With 40% of internet users already shopping from smartphones, Spain is still slightly below the world average (Ditrendia, 2019). This reality is a consequence of today's consumer lifestyle, where smartphones are indispensable, providing relevant information where and when needed. Consequently, companies have also given smartphones a predominant place in their communication strategies, taking advantage of the characteristics of this medium, such as ubiquity, localization, convenience, or even the possibility of reaching the user in a personalized way (Sanz et al., 2015, Clarke III, 2001). Thus, given that this is a channel with significant potential for making purchases, and due to the explosive growth of mobile applications and the fact that the behavioral patterns of the mobile shopper are specific and differ from those of the online shopper, the interest of researchers in this marketing channel is growing.

According to Jun Jie Hew's (2017) meta-analysis study, the trend in mobile commerce research and its specialties has been steadily increasing, revealing that research in this area is now flourishing. However, there are still important gaps in the study of user behavior in mobile applications, with few previous studies carried out specifically on purchasing through smartphones. For illustrative purposes, note the works of Liu and Li (2019), Madan and Yadav (2018), Natarajan et al. (2018), and Verkijika (2018), which investigate mobile purchase usage intention. Despite their advantages, the personal and

non-transferable nature of mobile devices can also trigger negative attitudes on the part of the consumer, who may perceive marketing communications made through mobile apps as an intrusion into their privacy (Kweon et al., 2012), decreasing their perceived value. Thus, companies using a notification service in their mobile commerce applications face significant challenges in gaining consumer acceptance and engagement with their messages.

A key research question to analyze is the impact of intrusive marketing communications on utilitarian value as perceived by consumers. In Spain, the fashion sector has been chosen as the context for the present research since it occupies the second position in the ranking of products most sold through mobile phones (45%) after the leisure sector (Ditrendia, 2019). In addition, the fashion industry is one of the most influential and fastest-growing sectors for mobile commerce sales. Nonetheless, studies of mobile commerce commerce applied to the fashion industry are scarce (Sun & Chi, 2018; Kim et al., 2009; Ko et al., 2009), thus requiring further analysis. From a business management point of view, a better understanding of the factors that lead to an increase in the perception of perceived utilitarian value will benefit fashion companies. They will be able to tailor the content of their mobile applications so that customers find their needs better met by accessing a higher-value experience, thus encouraging purchases and recommendations.

Given the above, the following specific objectives are proposed for this research:

1. To study the influence of message characteristics (informative value, personalization), consumer beliefs (perceived ease of use and perceived usefulness), and permission marketing antecedents (irritation and perceived control) on perceived utilitarian value.
2. To propose and contrast an integrative model of the influence of message characteristics, consumer beliefs, permission marketing, and perceived utilitarian value.
3. To test the validity and reliability of the proposed conceptual model.

Literature review and hypotheses statements

This research's approach has been based on Davis' (1989) Technology Acceptance Model (TAM), which is one of the best-proven models for measuring acceptance (Zhang et al., 2012). This model, originally developed by Davis (1989), includes perceived ease of use, perceived usefulness, attitude toward use, behavioral intention to use, and actual use of the system. Perceived ease of use and perceived usefulness are the most important attitudinal determinants of the actual use of the system. In comparison, the attitude toward use predicts the users' intention to use the system, which determines the actual use of the system.

Perceived utilitarian value

The utilitarian value of the purchase process refers to the value related to achieving a purchase objective. Consumers who perceive utilitarian value in a mobile commerce application consider that the benefits in terms of savings derived from using an application to make purchases are greater in terms of time and effort, so it is to be expected that their predisposition to purchase will be greater. Thus, from a utilitarian point of view, consumers are concerned with buying products efficiently and in a timely manner to achieve their goals with the minimum of irritation (Childers et al., 2001). In the field of mobile commerce, previous research has studied utilitarian value (Pipitwanichakarn, T. & Wongtada, N., 2019; Madan & Yadav, 2018; Khoi et al., 2018; Hew et al., 2015; Deng et al., 2014; Malik et al., 2013); being supported as a variable that has a strong relationship with the adoption of mobile shopping (Natarajan et al., 2018; Natarajan et al., 2017; Liébana-Cabanillas et al.,2017; Wong et al., 2015). Likewise, a set of utilitarian benefits associated with the act of purchase (ease of information search, evaluation of alternatives and payment) have been identified as influencing repurchasing intentions through mobile devices (Mahapatra et al., 2017).

Background of perceived utilitarian value

Consumer beliefs: Perceived usefulness and ease of use

In the context of the present study, perceived usefulness refers to the degree to which the consumer believes that using a mobile application to purchase fashion products will improve their shopping process due to the time and money savings associated with using this technology. Perceived ease of use is defined in the context of this research as the degree to which the consumer considers the effort required to purchase fashion products through a mobile application to be low, including the related learning period. Several studies in the mobile commerce domain have shown that perceived usefulness and perceived ease of use are important determinants of perceived utilitarian value (Natarajan et al., 2018, Liébana-Cabanillas et al., 2017). Therefore, following the reviewed literature, it is proposed that both perceived usefulness and perceived ease of use in fashion mobile apps positively influence perceived utilitarian value.

H1. Perceived usefulness in a fashion mobile commerce app positively influences perceived utilitarian value.

H2. Perceived ease of use in a fashion mobile commerce app positively influences perceived utilitarian value.

Additionally, perceived ease of use influences perceived usefulness, as the simplicity of a system can improve the outcome (Davis, 1989; Davis et al., 1989), with a technology (mobile applications) perceived as more useful if it is easier to use. Therefore, it is proposed:

H2b. Perceived ease of use in a fashion mobile commerce app positively influences perceived usefulness.

Characteristics of the message: Information value and personalization

Information value refers to the ability to effectively provide relevant information (Oh & Xu, 2003). As such, information delivered to consumers via smartphone devices, according to Siau and Shen (2003), needs to exhibit qualitative characteristics such as accuracy, timeliness, and usefulness to the consumer. Consequently, what consumers expect from messages is what is relevant to them (Milne & Gordon, 1993). Not surprisingly, Chowdhury et al., (2006) find that consumers are not annoyed if mobile commerce advertisers present ads with appropriate information. Recent studies in mobile advertising (Küster et al., 2017, Sanz et al., 2015) have shown the influence of informative value on the attitude toward the mobile ad. Therefore, it is proposed:

H3. The information value obtained through mobile advertising notifications positively influences the perceived utilitarian value of fashion mobile commerce apps.

Personalization is a subject of study in a mobile marketing context, as consumers increasingly expect tailored and location-based services. Previous studies have shown that customers are receptive to personalized advertising relevant to their lifestyles (DeZoysa, 2002). In conjunction with time and location, marketers can target mobile ads based on consumer preferences (Watson et al., 2002), increasing the impact of these messages (Scharl et al., 2005). That is, the information sent via mobile ads notifications could be more valuable because it is personalized. In addition, mobile commerce apps allow consumer profiles to be constructed, monitoring their activities and location and enabling more sophisticated personalization techniques based on the consumer's sociodemographic characteristics, preferences, and communication context (Xu et al., 2008). In the context of the present research, an analysis has been conducted on the personalization of mobile advertising notifications sent to the users of the mobile commerce application for fashion products. In the field of mobile advertising, studies by Xu (2006), Sanz et al. (2015) and Küster et al., (2017) find the influence of personalization on attitudes to mobile advertising. Therefore, the following hypotheses are proposed:

H4. Personalization of mobile advertising notifications positively influences the perceived utilitarian value of fashion mobile commerce apps.

H4b. Personalization of mobile advertising notifications positively influences the information value of fashion mobile commerce apps.

Permission marketing: Irritation and perceived control

Consumer irritation refers to feelings of displeasure, discomfort, and anger caused by annoying stimuli such as incidents, messages, or interactions that may go against what a consumer expects or anticipates in a particular situation (Ducoffe, 1996). In the present research context, the irritation that could be caused by mobile advertising notifications sent to users of a mobile commerce application for fashion products is studied. Irritating advertisements provoke annoyance and impatience in customers (Ducoffe, 1995). When advertising employs techniques that annoy, offend, insult, or are overly manipulative, consumers tend to perceive it as an unwanted and irritating influence. Irritation can reduce advertising effectiveness and perceived value for consumers (Aaker & Bruzzone, 1985; Luo, 2002).

In the case of mobile advertising, it can provide excessive and non-relevant information that is distracting and overwhelming for the consumer (Steward & Pavlov, 2002), which can be perceived as an intrusion on the privacy of the smartphone user. According to Ditrendia's study "Mobile in Spain and Worldwide" (2015), more than half of Spanish mobile marketing users (52%) do not open mobile advertising ads because they find them annoying. Kim and Han (2014) demonstrate the negative influence of irritation caused by mobile advertising on the flow of experience with mobile advertising. As such, when mobile advertising contains information that irritates the receiver, consumers may feel confused and react negatively (Kim & Han, 2014; Stewart & Pavlov, 2002; Xu, 2006). Sometimes the intrusive tactics that advertisers employ when competing for consumers' attention can be annoying to the public (Zhang, 2000). Therefore, it is proposed:

H5. Irritation caused by mobile advertising notifications negatively influences the perceived utilitarian value of a fashion mobile commerce app.

Perceived control describes the individual's perception of the skills or resources needed to make a behavioral decision (Mathieson, 1991). In the present research context, it refers to the ability and resources to modify or cancel permission to receive mobile advertising notifications. It is argued that a sense of perceived lack of control may be a factor that prevents consumers from participating in new media marketing (Hoffman et al., 1999). The application of perceived control to smartphone technology offers mixed results; some authors suggest that perceived control has little association with intentions to receive mobile marketing communications (Karjaluoto & Alatalo, 2007; Merisavo et al., 2007; Venkatesh et al., 2003). Other studies point to perceived control as a determinant of mobile marketing acceptance (Barwise & Strong, 2002; Nysveen et al., 2005; Shankar et al., 2010). The present work proposes that

perceived control positively influences the utilitarian value of a mobile commerce application for fashion products. The consumer with the skills, resources, and opportunities to modify or cancel the notifications received will avoid wasting time and effort spent reading unwanted messages and will therefore perceive greater efficiency in their purchasing decisions. Therefore, the following hypothesis is proposed:

H6. Perceived control over mobile advertising notifications positively influences the perceived utilitarian value of a fashion mobile commerce app.

No study in the academic literature has analyzed the effects of perceived control on irritation in the context of mobile apps. In other interactive media like the Internet, which offers a high degree of user control over the medium, intrusion—defined as the disruption of consumer goals (Li et al., 2002)—has been detected as an antecedent to feelings of irritation (Edwards et al., 2002). The study by Sanz et al. (2011) shows that perceived control decreases irritation with mobile advertising messages in teenagers. Given the above, the following is proposed:

H6b. Perceived control over mobile advertising notifications negatively influences the perceived irritation associated with them.

The hypotheses presented comprise the following model (see Figure 1).

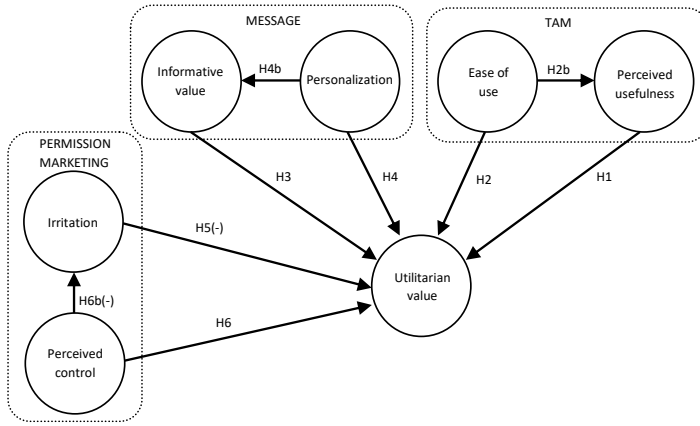

Figure 1. Conceptual Model
Source: created by the authors

Methodology

Description of the sample

An empirical study of a causal nature was conducted through an online survey with a structured questionnaire to respond to the objectives and contrast the hypotheses put forward. The empirical study was conducted in July 2015. The sample was collected by sending four structured online questionnaires by email to a total of 79,300 customers of a Spanish multinational company, a leader in mobile commerce in the fashion sector. All customers browse and buy exclusively through its mobile application, which allows the measurement of actual purchase and recommendation behavior. The sample selection procedure was non-probabilistic (convenience). Finally, after a filtering process to eliminate incomplete or incorrect questionnaires, 340 valid responses were obtained.

Table 1 shows the characteristics of the profile of the sample, made up mostly of women (70.5%), whose age was mostly between 25 and 34 (36.1%), and 35 to 44 (47.1%). 66.1% of them have higher education (university, postgraduate), and their main occupation is that of employees (80.1%). Regarding purchasing behavior (see Table 2), 65% have been buyers for more than 1 year, with a purchase rate of more than 3 times in 43.5% of the cases (heavy shoppers). In terms of products purchased, clothing (79.9%) and footwear (77.7%) stand out, followed by accessories (49.6%).

Table 1
Characteristics of the sample

Characteristic	Type	Vertical percentage
Gender	Man	29.50%
	Woman	70.50%
Age (in years)	15 - 24	3.60%
	25 - 34	36.10%
	35 - 44	47.10%
	45 - 54	11.30%
	Over 55	1.90%
Educational level	Primary	2.20%
	Secondary	11.00%
	Professional Diploma	20.70%
	Undergraduate	52.60%
	Postgraduate	13.50%
Activity	Employee	80.10%
	Self-employed	8.60%
	Unemployed	5.20%
	Student	2.80%
	Pensioner	0.60%
	Housework	2.80%

Source: created by the authors

Table 2
Description of the sample according to purchasing behavior

Characteristic	Type	Vertical percentage
Length of time as purchaser	Less than 6 months	21.20%
	From 6 months to 1 year	13.80%
	From 1 to 2 years	29.20%
	More than 2 years	35.80%
Frequency of purchase (During the last year)	1 time	15.70%
	1 - 3 times	40.80%
	4 - 7 times	31.10%
	More than 7 times	12.40%
Purchased products	Clothing	79.90%
	Footwear	77.70%
	Accessories	49.60%
	Sportswear	30.30%
	Kids	31.40%

Source: created by the authors

Measurement

The information-gathering instrument used was an online survey, designed on the basis of the existing scales found in the literature, using a 7-point Likert scale (1 "do not agree at all," 7 "strongly agree"). The scales used to estimate the variables under study are detailed below. Perceived utilitarian value was measured following the scale proposed by Sirdeshmukh et al. (2002) and subsequently applied by Kim and Han (2011) and Kim and Oh (2011). Continuing with the antecedents of utilitarian value, perceived usefulness and ease of use have been measured by adapting the scale developed by Davis (1989) and Davis et al. (1989). Personalization has been measured by adapting the scale used by Xu (2006) and Merisavo et al. (2007), and informative value by adapting the scale proposed by Wang and Sun (2010) and applied by Lui et al., (2012). As for the permission marketing variables, irritation was measured by adapting the scale proposed by Lee et al., (2006), and perceived control was measured by adapting the scale proposed by Vogt (1997) and subsequently applied by Kautonen and Kohtamaki (2006). Appendix 1 shows how the aforementioned scales have been adapted in the present research.

Validation of the measuring instrument

A Confirmatory Factor Analysis (CFA) was carried out in the EQS 6.1 program to ensure the validity and reliability of the data obtained. The results showed no convergent validity problems since the CFA showed a satisfactory model fit (Chi-square of 519.501 with 231 degrees of freedom, NFI=0.935; NNFI=0.955, CFI=0.963, and IFI=0.963; RMSEA=0.061), and all factor loadings were significant and above 0.6

(Bagozzi & Baumgartner, 1994; Bagozzi & Yi, 1988). There were also no reliability problems, both according to the Cronbach's α criterion (Cronbach, 1951), as well as the composite reliability (always above the cut-off point of .70) and the average variance extracted (always above the cut-off point of .50). See Table 3.

Table 3
CFA results and psychometric properties of the measurement model

Concept	Items	Load	Standardized load	T-value	Cronbach	CRI	AVE
Perceived usefulness	PU1	1.097	0.878	20.388	0.918	0.920	0.742
	PU2	1.111	0.890	20.799			
	PU3	1.123	0.899	21.138			
	PU4	1.123	0.761	16.306			
Ease of use	EU1	0.925	0.873	20.108	0.913	0.919	0.742
	EU2	0.982	0.970	24.128			
	EU3	0.826	0.690	14.988			
	EU4	0.946	0.871	20.156			
Utilitarian value	UV1	0.812	0.705	14.947	0.897	0.899	0.690
	UV2	0.928	0.824	18.372			
	UV3	1.075	0.897	20.709			
	UV4	1.080	0.878	19.685			
Informative value	IV1	1.493	0.893	21.087	0.962	0.961	0.861
	IV2	1.516	0.921	22.085			
	IV3	1.579	0.957	23.813			
	IV4	1.505	0.940	23.021			
Perceived control	PC1	1.592	0.916	21.592	0.887	0.895	0.742
	PC2	1.649	0.928	22.017			
	PC3	1.297	0.720	15.081			
Personalization	PE1	1.489	0.874	19.521	0.893	0.894	0.808
	PE2	1.487	0.917	20.961			
Irritation	IR1	1.321	0.760	16.293	0.908	0.913	0.779
	IR2	1.670	0.918	21.680			
	IR3	1.698	0.958	23.072			

**= $p<0.01$; *= $p<0.05$
Source: created by the authors

To evaluate discriminant validity, the following were used: (a) the approach suggested by Anderson and Gerbing (1988), called the confidence interval test, which involves calculating a confidence interval of +/-2 standard errors between the correlation of the factors, determining validity if the interval does not include the value 1; and (b) the extracted variance test (Fornell & Larcker, 1981), verifying that the square of the covariance of each pair of factors is less than the variance extracted from each of these factors. As seen in Table 4, these conditions were met for each factor, confirming the discriminant validity of the measurement model.

Table 4
Discriminant validity

	PU	EU	UV	IV	PC	PE	IR
Perceived usefulness	0.861	(0.741; 0.837)	(0.694; 0.810)	0.210; 0.418)	(0.219; 0.431)	(0.259; 0.467)	(-0.311; -0.087)
Ease of use	0.789	0.862	(0.559; 0.707)	(0.141; 0.353)	(0.176; 0.388)	(0.145; 0.365)	(-0.295; -0.075)
Utilitarian value	0.752	0.633	0.831	(0.352; 0.540)	(0.314; 0.514)	(0.322; 0.522)	(-0.493; -0.293)
Informative value	0.314	0.247	0.446	0.928	(0.516; 0.668)	(0.533; 0.685)	(-0.601; -0.433)
Perceived control	0.325	0.282	0.414	0.592	0.862	(0.714; 0.826)	(-0.636; -0.468)
Personalization	0.363	0.255	0.422	0.609	0.770	0.899	(-0.577; -0.393)
Irritation	-0.199	-0.185	-0.393	-0.517	-0.552	-0.485	0.882

Source: created by the authors

Analysis and discussion of the results

The covariance-based Structural Modeling method was used to test the proposed hypotheses, running in the EQS 6.1 program. This structural method yielded a satisfactory model fit: Chi-square of 580.639 with 240 degrees of freedom, NFI=0.927, NNFI=0.949, CFI=0.956, and IFI=0.956. The RMSEA=0.065 shows an acceptable fit as it is less than 0.8. Table 5 shows the values of the standardized loadings of the proposed structural relationships, indicating their corresponding significance levels deduced from their respective associated t-statistic values.

Table 5
Structural Equations Model; contrasting the Hypotheses

	Hypotheses to be contrasted	T-value	Standardized load	Confirmation
H1	Perceived usefulness — Utilitarian value	7.425	0.602**	Accepted
H2	Ease of use — Utilitarian value	NS		Rejected
H2b	Ease of use — Perceived usefulness	15.968	0.792**	Accepted
H3	Informative value — Utilitarian value	2.742	0.149**	Accepted
H4	Personalization — Utilitarian value	NS		Rejected
H4b	Personalization — Informative value	11.962	0.635**	Accepted
H5(-)	Irritation — Utilitarian value	-3.511	-0.179*	Accepted
H6	Perceived control — Utilitarian value	NS		Rejected
H6b(-)	Perceived control — Irritation	-9.837	-0.561*	Accepted

** = p<0.01; *<0.05
NS: Not satisfactory
Source: created by the authors

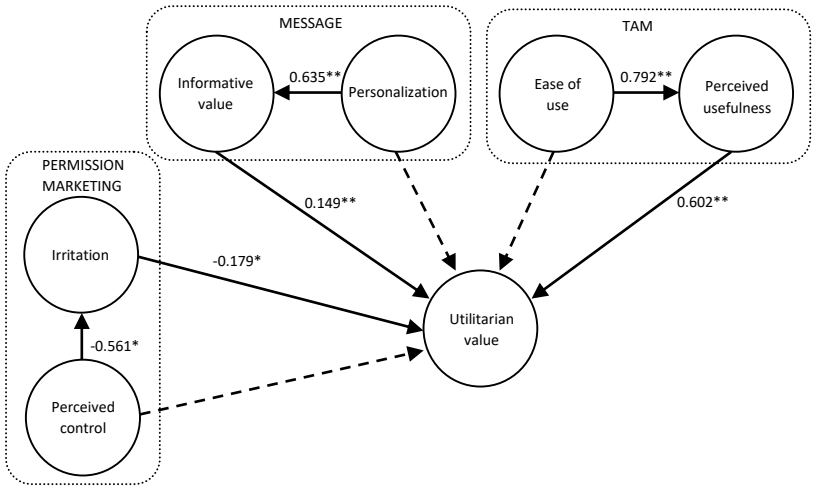

Figure 2. Summary of Results
Source: Created by the authors

The discussion of the results and the contrast of hypotheses according to the proposed objectives are presented below.

Regarding the antecedents of utilitarian value, it is confirmed that perceived usefulness positively influences utilitarian value (H1 accepted; β=0.602**), indicating that the user values the degree to which the mobile commerce application enhances their fashion purchasing experience (Davis, 1989). Ease of use, meanwhile, indirectly influences utilitarian value through perceived usefulness (H2b accepted; β=0.792**), with a highly significant loading, confirming what was established in the TAM model (Davis, 1989; Davis et al., 1989). The simplicity of using the mobile commerce application during the fashion shopping process influences the perception of its efficiency, increasing the perception of its usefulness. Therefore, previous findings (Ruiz et al., 2010) linked to Davis' (1989) technology acceptance model (TAM) are complemented, demonstrating that beliefs linked to technology (usefulness and ease of use) in the context under study are key determinants of perceived utilitarian value in a mobile commerce application.

Regarding the relationship between message characteristics and utilitarian value, the results show that the informational value of the mobile advertising notifications positively influences the utilitarian value of the mobile commerce application (H3 accepted; β=0.149**). Although personalization does not directly influence utilitarian value (H4 rejected), it does indirectly influence utilitarian value through informational value (H4b accepted; β=0.635**). The purpose of personalization is to increase the relevance of advertising to consumers, increasing their receptivity to advertising messages as an intrinsic and differential feature of mobile advertising (Xu et al., 2008). Consequently, users may feel that all

notifications must be set to their preferences before they are sent, so it is a feature that does give them added value.

Regarding the relationship between permission marketing variables and utilitarian value, it is observed that irritation significantly and negatively influences utilitarian value (H5 (-) accepted; β=-0.179**). This result implies that the effect of irritation on the perceived utilitarian value tested in the context of mobile advertising (Kim & Han, 2014) can also be extended to the specific context of notifications sent by mobile apps in the fashion sector. Nonetheless, no relationship was found between perceived control and utilitarian value, and this hypothesis was rejected (H6 rejected). In turn, perceived control has a very significant and negative influence on irritation (H6b (-) accepted; -0.561**), which indicates that the greater the user's perceived control, the lesser the feeling of irritation generated by excessive frequency of exposure. This relationship has rarely been contrasted in the mobile marketing literature, so it complements the permission marketing literature.

Conclusions

This research contributes to the academic literature on perceived utilitarian value by proposing and contrasting an integrative model of the influence of message characteristics, consumer beliefs, and permission marketing on perceived utilitarian value. As indicated by Boksberger and Melsen (2011), it is necessary to undertake the specific study of each of the dimensions of perceived utilitarian value, as well as their interaction with other marketing constructs. Thus, the proposed model provides a different view of relationships between variables that may be a useful addition to the proposals made previously in the specific literature on utilitarian factors and their relationship with the perceived value in smartphone environments in the fashion sector, such as the work of Ko et al. (2009), where the influence of perceived ease of use, perceived usefulness, instant connectivity, and enjoyment on perceived value is studied. In the present research, the influence not only of perceived ease of use and perceived usefulness but also of informational value, personalization, perceived control, and irritation on the utilitarian dimension of perceived value is proposed. Likewise, by proposing the study of irritation and perceived control about mobile advertising notifications—where perceived control is the variable that reduces the irritation produced by them—the present research could complement works such as that of Kim and Han (2014), who analyzed the negative influence of irritation on the flow of experience with mobile advertising. The application of the research to the specific context of the fashion sector is another contribution, given the scarcity of research applied to it despite its potential in mobile commerce.

From a business point of view, there are also significant managerial implications for fashion companies that use the smartphone as a sales channel in order to reinforce the main factors that influence

the perceived utilitarian value. To increase the utilitarian value, it is necessary to work on the variables that, in turn, influence the utilitarian value itself: the factor with the greatest influence on the utilitarian value is perceived usefulness, which in turn is strongly influenced by the ease of use. In this regard, users are increasingly demanding less effort and more speed and efficiency in the use of applications. Therefore, one strategy to make them more user-friendly is to ensure that all the steps involved in the purchasing process through the mobile commerce application (browsing the products, adding the products to the cart, initiating the order, confirming the shipping information, and payment) are carried out simply (with the minimum number of essential tasks), flexibly, and with efficient and dynamic adaptability to the functionalities of the different platforms. Therefore, any elements in the functionality of the different devices that lead to the abandonment of the application must also be identified.

Utilitarian value can also be augmented through informational value, which in the context of this study refers specifically to information received through mobile advertising alerts, for example, to raise awareness of new products available, discounts, and incentives, a strategy that captures the user's attention and leads them to the mobile store. Likewise, the informative value is strongly influenced by personalization. Users expect messages to be relevant to them. Therefore, the recommendation for companies in the sector is to offer timely, accurate, and useful information to the user, with the corresponding element of personalization. To this end, a qualitative study could be carried out, as well as periodic surveys that indicate what information the user is interested in receiving through notifications and that study the form of the notification itself. Examples would be to send notifications with a different icon, trying to classify them according to the information sent (a promotion that is about to end, new products, incentives for the purchase of a minimum amount, among others) so that the user identifies the icon symbol, making it easier for them to recognize the relevance of the information, and, based on this, the need to click on the notification instantly or to remember to do so soon.

Another relevant aspect that increases the utilitarian value is the reduction of the irritation that could be caused by the notifications sent to users. One of the keys is to give the user more control over the notification delivery. Therefore, the recommendation is, on the one hand, to find the right balance in the sending of mobile advertising notifications so that it does not irritate users, for which the threshold of tolerance must be found. On the other hand, the user should feel that they have control over the delivery of notifications through permission marketing tactics, e.g., the user could be reminded periodically that they can change their preferences about the delivery of notifications, unless they are satisfied with the value of the information received. It would also be useful for the application to implement functions that allow users to express their opinions simply and effectively.

It is also necessary to mention some limitations of the research and some suggestions for future work. This study has focused on a specific company, sector, and purchase channel (the purchase of fashion

products via mobile commerce applications), which should be considered when extending the conclusions obtained to the fashion industry in general or to other mobile marketing formats. Consequently, it is suggested to apply the relationships of the proposed model to a representative sample of shoppers through mobile commerce applications. Moreover, the rapid evolution of the electronic environment makes it advisable to repeat the study periodically since the conclusions may change rapidly due to the nature of the context in which this research was carried out. Another possible limitation is that the study has focused on measuring intentions, which are not always converted into behaviors. For the above reasons, it is recommended that the experimentation technique be used to evaluate actual purchasing behavior.

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Annex

Table A1
Measurement of the variables

Variable	Statement		Indicator	Source
Perceived Utilitarian Value (UV)	The products I buy on this smartphone application offer a good quality/price ratio.		UV1	Sirdeshmukh et al. (2002); Kim and Han (2011); Kim and Oh (2011).
	The time I spend shopping on this smartphone app is reasonable.		UV2	
	The effort I put into shopping on this smartphone app is worth it.		UV3	
	I think that, in general, it is worth using this smartphone application to purchase.		UV4	
Perceived Usefulness (PU)	Using this smartphone application to buy...	... makes the purchasing process easier.	PU1	Davis, (1989), Davis et al. (1989)
		... allows me to make purchases more quickly	PU2	
		... is useful to me	PU3	
		... allows me to buy in a more efficient manner	PU4	
Perceived ease of use (EU)	Using this smartphone application to buy...	... has been easy to learn for me	EU1	
		... is easy for me	EU2	
		... does not require much mental effort	EU3	
		... is easy following the instructions available in the smartphone application	EU4	
Informative value (IV)	The smartphone notifications I receive...	... provide me with timely information on the products available	IV1	Wang and Sun (2010), Lui et al. (2012)
		... provide me with relevant	IV2	

		information about the products available		
		... are a good source of information on available products	IV3	
		... include updated information on available products	IV4	
Perceived control (PC)	I feel that with this smartphone application....	... I can choose the type of notifications I receive	PC1	Kautonen and Kohtamaki (2006)
		... I can easily control the number of notifications I receive	PC2	
		... I can easily cancel the permission to send me notifications	PC3	
Personalization (PE)	Smartphone notifications show me customized messages		PE1	Xu, (2006), Merisavo et al. (2007)
	The contents of the smartphone notifications are tailored to my preferences and interests.		PE2	
Irritation (IR)	The smartphone notification service...	... is offensive	IR1	Lee et al. (2006)
		... is annoying	IR2	
		... is intrusive	IR3	