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Social commerce website design, perceived value and loyalty behavior intentions: the moderating roles of gender, age and frequency of use.

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Abstract

Drawing on the stimulus-organism-response (SOR) framework, a model is tested that improves the understanding of customer loyalty toward social commerce websites. The results showed that: information and service quality are key antecedents of perceived value, whereas rewards and recognition, and customization are non-significant. Perceived value is an important driver of customer loyalty toward these websites. The model's relationships are affected by gender and frequency of use. Overall, the findings of this study extend the understanding in the social commerce context of: (i) the antecedents of customer perceived value and behavioral intentions; and (ii) the moderating effects of age, gender and frequency of social commerce use on the model relationships.

Keywords: social commerce, perceived value, loyalty.

1. Introduction

Social commerce is a business model that has emerged from the use of social media for electronic-commerce (e-commerce) transactions (Wu and Li, 2018). In social commerce, businesses use social media to sell, create communities, interact and engage with their customers, and to develop loyalty behaviors, through tools such as online chats, review systems, virtual groups and video sharing, among others. Social commerce, in comparison to e-commerce, promotes greater interactivity and collaboration between customers, and between customers and firms, and creates more socially based customer communities (Zhang *et al.*, 2014). The interpersonal relationships that develop facilitate exchanges of information and recommendations that help customers make purchasing decisions (Kim and Park, 2013). In addition, bidirectional communication allows companies to get to know their customers better, facilitates value co-creation and contributes to improved customer experiences (Hajli *et al.*, 2017).

Given the expected growth in this sector, many companies have begun to operate through social commerce (BI Intelligence, 2018). However, in the rush to position themselves in this new business model, executives should not focus their attention solely on attracting customers, but also on their retention, as loyalty is indispensable for the achievement of greater long-term benefits.

Studies into consumer behavior in social commerce have mainly analyzed the antecedents of purchase and adoption intention, but customer retention is a key factor, and it needs more research (Busalim and Hussin, 2016). Han *et al.* (2018), in a systematic review of the literature, identified more than four hundred social-commerce related academic works published between 2006 and 2017, of which only seven examined customer loyalty: five in works that focused on use behavior as a research theme and two that focused on other research themes. However, in recent years several studies have increased the knowledge of customer loyalty toward social commerce websites (see Appendix A). These works have focused on studying the influence that loyalty has on factors such as: trust in the social commerce platform and in its users (Cheng X. *et al.*, 2019; Nadeem *et al.*, 2020; Yeon *et al.*, 2019), social capital (Cheng J. H. *et al.*, 2019) and brand page affordances (Fang *et al.*, 2020). Loyalty in the social commerce context has been measured mainly through repurchase intention (e.g., Cheng JH *et al.*, 2019), or as a one-dimensional construct called brand loyalty (e.g., Fang *et al.*, 2020; Nadeem *et*

al., 2020; Wu and Li, 2018; Xue *et al.*, 2020; Yeon *et al.*, 2019). Some works have studied other behaviors, such as word-of-mouth (WOM) intention (Cheng X. *et al.*, 2019) and engagement (Shen *et al.*, 2019; Xue *et al.*, 2020). However, few works have conceptualized loyalty through more than one independent construct or with a second order construct related to behaviors that may reflect a customer loyalty relationship beyond repurchase, and that include other behaviors common in social commerce, such as positive word-of-mouth and engagement. In this sense, recently, Molinillo *et al.* (2020a) conceptualized loyal behavior through four constructs: willingness to cocreate, stickiness intention, eWOM intention and repurchase intention.

Perceived value is one of the main predictors of purchase intention in social commerce (Chen *et al.*, 2017). However, to date, few studies have analyzed its effect on customer loyalty toward social commerce websites, understood as specific online entities (i.e., Wu and Li, 2018). At the same time, there is a need to better understand the drivers of perceived value in social commerce contexts (Han *et al.*, 2018). Authors have previously shown the effect of antecedents such as social support (Hajli *et al.*, 2015), experience, website reputation and trust (Lee *et al.*, 2016), learning from social interactions (Chen *et al.*, 2017) and social media marketing (Wu and Li, 2018) on perceived value. Hence, in this study, following the theoretical frameworks of Baethge *et al.* (2016) and Zhang *et al.* (2016), we argue that information quality, service quality, customization and rewards and recognition are key drivers of customer perceived value in the social commerce context. In this regard, we adopt an environmental psychology perspective drawing on the stimulus-organism-response (SOR) paradigm (Mehrabian and Russell, 1974). The SOR model proposes that some environmental stimuli impact on consumers' emotional and cognitive states, which in turn results in behavioral responses. The present study explores the effect that stimuli presented on social commerce websites have on consumers, and how they respond. Given that prior studies have demonstrated the validity of the SOR framework in this context (e.g., Hu *et al.*, 2016), it is considered that it provides an appropriate basis for this research. In addition, to better understand the model's relationships, the effects of two sociodemographic variables (age and gender) and one behavioral variable (frequency of visits to the website) are analyzed.

The purpose of this research is multifold. First, this study contributes to the literature by responding to calls for further research to broaden the understanding of customer loyalty and the essential value drivers in social commerce (Busalim and Hussin,

2016; Han *et al.*, 2018). Second, this study examines the effects of four important aspects of social commerce website design (i.e., information quality, service quality, rewards and recognition and customization) on customer loyalty behavior intentions, through perceived value. Third, the present study analyzes the impact of perceived value on loyalty through three customer behavioral intentions: to purchase, recommend and engage. Fourth, this study assesses the moderating roles of gender, age and frequency of social commerce use on the research model's relationships.

In order to achieve the research goals, the following research questions (RQs) are proposed:

RQ1. How do constructs related to website design (i.e., information quality, service quality, rewards and recognition and customization) explain the perceived value of social commerce sites?

RQ2. How does perceived value influence loyalty-related behaviors (i.e., repurchase, recommending and engagement)?

RQ3. How do age, gender and frequency of use moderate the associations between website design constructs and perceived value, and between perceived value and loyalty-related behavior constructs?

This study contributes to the theory and practice of marketing by enhancing the understanding of customer perceived value and behavioral intentions in the social commerce context, by testing relationships and a moderating effect hitherto unassessed. Therefore, we believe that the present study's findings will be of interest to academics and to social commerce website managers.

2. Social commerce

In recent years social commerce has been a significant topic of research (Lin *et al.*, 2017); however, the concept has various different definitions in the literature. Liang and Turban (2011) conceptualized it as e-commerce activities and transactions undertaken in the social media environment using Web 2.0 technologies. Lin *et al.* (2017) defined social commerce as “a phenomenon rooted in social media practice and Web 2.0 technologies, which have become popular consumer tools to socialize and share commercial-related information” (p. 190). Baghdadi (2016) emphasized the collaborative

and participatory nature of interactions among members of a value chain. These authors' definitions allow us to identify various common elements: use of social media, participant interactivity (buyers, sellers, searchers), diverse activities (selling, buying, comparing, and sharing information about products, co-creation), social relationships and community factors.

The concepts of e-commerce and social commerce diverge at levels of scope, business goals and consumer interaction with the website (Han *et al.*, 2018; Huang and Benyoucef, 2013). While e-commerce seeks to maximize efficiency by personalizing experiences and offering superior features, social commerce focuses on creating a collaborative online experience and social interactions. This allows the social commerce client to share information, generate WOM, feel part of a community and, even, take on the role of the seller (Busalim and Hussin, 2016). Similarly, the value creation process differs between both types of business. That is, in e-commerce, the process, products and services are designed by the company, while in social commerce the system is participatory and collaborative (Baghdadi, 2013).

Although the diversity of business models can be as great as the different possible combinations of the aforementioned characteristics, social commerce can generally be divided into two types: 1) traditional e-commerce-based websites integrating Web 2.0 tools such as forums, chatrooms and recommendation systems (e.g., Amazon.com); 2) Web 2.0-based platforms integrating commercial features, including advertisements and transactions (e.g., Shop.com in Facebook) (Huang and Benyoucef, 2013; Liang and Turban, 2011). The first type limits the interaction between customers to publishing comments on the reviews of other customers, and to rating products, while the second also allows other interactions (e.g., private messages), the creation of communities, and the co-creation of content in multiple formats (photos, videos, news, etc.) (Hajli *et al.*, 2017). However, depending on the combination of characteristics, it is possible to establish other social commerce classifications. For example, Han *et al.* (2018) identified up to 8 different types of social commerce based on how relationships between consumers are established, their objectives, what information they share and what type of platform they use.

3. The stimulus-organism-response (SOR) framework

The SOR psychological model explains human behavior through a three-phase process; perceptions of external or environmental stimuli (S) influence the emotional and cognitive states of the individual (O), which drive conscious or unconscious responses (R) (Mehrabian and Russell, 1974). Recent studies have shown that the SOR model is a viable theoretical framework through which to explain consumer behavior in social commerce (e.g., Herrando et al., 2018; Xue et al., 2020; Zhang et al., 2014).

The authors in the present study use the SOR model to provide a parsimonious and structured way of exploring the effects of four environmental stimuli (information quality, service quality, rewards and recognition and social commerce site customization) on customer perceived value (O), and the effect of customer perceived value on repurchase, positive electronic word-of-mouth (eWOM) and customer engagement behavior intentions (R). Thus, this study contributes to the literature by validating a model that extends the applicability of the SOR paradigm to provide a theoretical framework for the study of consumer behavior in social commerce, within which we explore the effect of variables hitherto unexamined in-depth in the social commerce literature. Specifically, to the best of the authors' knowledge, it is a novel approach to analyze a model integrating the effect of rewards and recognition and customization as stimuli, perceived value as the organism and customer engagement behavior intention as the response.

3.1. Stimuli (S): information quality, service quality, rewards and recognition and customization

The design of social commerce websites has an important effect on consumers' interactions, and alters their purchase decision-making processes (Huang and Benyoucef, 2017). Information quality and service quality are two of the dimensions most frequently used by researchers to measure the design, quality and success of a service website (Wu et al., 2015). In the present study, information quality refers to the relevance, accuracy, timeliness, usefulness, understanding and sufficiency of the information provided by social commerce sites (Huang and Benyoucef, 2013). Service quality refers to the reliability, responsiveness, empathy and problem-solving capacity of social commerce sites (Huang and Benyoucef, 2013). Both dimensions, quality of information and quality of service, are taken into account by customers when evaluating service received (Wang et al., 2016).

Rewards and recognition relates to the receipt of any form of monetary or non-monetary reward, and any form of public recognition, for active participation in a social commerce site. Rewards and recognition may include monetary, functional, social and psychological benefits (Füller, 2010; Wirtz *et al.*, 2013). Rewards and recognition, typical social commerce site tools (Han *et al.*, 2018), stimulate participant interactions (Huang and Benyoucef, 2013; Zhang *et al.*, 2016), and are the website commercial features that users most value (Huang and Benyoucef, 2015).

Customization is the ability of the social commerce site to respond effectively to customers' preferences and personal needs, through functionality that allows adaptation of its interfaces, interaction and personalized recommendations (Zhang *et al.*, 2014). Customization aims to improve the social aspects of websites, their characteristics and their potential (Huang and Benyoucef, 2015), to achieve higher levels of interaction (Baghdadi, 2016). It is one of the characteristics of the usability of social commerce sites and, as such, has a big influence on the stages of the purchase decision-making process (Huang and Benyoucef, 2017).

3.2. *Organism (O): perceived value*

Perceived value has been identified as a key element in the explanation of consumer behavior and future intentions toward companies and brands (McDougall and Levesque, 2000). In the present study perceived value refers to the overall assessment that a client makes of the usefulness of a social commerce site, based on perceptions of what (s)he receives and what (s)he has to give in return.

In the online transaction literature it has been shown that perceived value is affected by a variety of benefits (e.g., information quality, system quality, performance expectancy, money savings, convenience, enjoyment, trust) and costs (e.g., privacy concerns, fees, price, technological effort) (see Shaw and Sergueeva, 2019). The present study focuses on the analysis of the effect of four website design characteristics on perceived value. In this study perceived value is taken to represent the psychological process (cognitive and affective) that mediates between external stimuli and customer responses. As such, perceived value has been identified as an important antecedent of customer loyalty in e-commerce (Kim and Niehm, 2009) and social commerce contexts (Hajli *et al.*, 2015).

3.3. Responses(R): Customer loyalty intention

Loyalty behavior is of interest to online businesses given its importance for commercial success. The difficulty of measuring customers' actual behavior has led researchers to use behavioral intention, which has been shown to be a valid predictor of actual behavior. Loyalty intention has been conceptualized in various ways. Oliver (1999) defined loyalty intention as "a deeply held commitment to rebuy or repatronize a preferred product/service consistently in the future ..." (p. 34). Zeithaml *et al.* (1996) suggested that loyalty intention is typified by positive behavior manifested toward a company, shown through intentions, such as preference for a company, repurchase intention, willingness to recommend and positive word-of-mouth, measured one-dimensionally. Molinillo *et al.* (2019) also argued that customer loyalty intention is a one-dimensional construct that captures customers' intentions to repurchase and recommend.

However, other authors have conceptualized loyalty through two or more dimensions, both as a second order construct and as an independent variable. In the online context most works have conceptualized loyalty intention through two independent dimensions: repurchase intention and positive eWOM intention (e.g., Gruen *et al.*, 2006). Although these two dimensions adequately reflect the concept of loyalty, in our opinion they are not sufficient to capture the possible implications of loyalty in the social commerce context. In this sense, previous studies have suggested that loyalty may also be associated with other activities that reflect the strength of the client's relationship with the social commerce website, such as willingness to co-create and stickiness intention (Molinillo *et al.*, 2020a). In addition, Xue *et al.* (2020) recently showed that engagement is one of the client's responses to the internal processing (organism) of social commerce stimuli; while Shawky *et al.* (2020) suggested that loyalty can be understood as a higher level of customer engagement. From this perspective a committed consumer will establish a psychological connection with the company/brand that will keep him/her tied to it for the long term (Xue *et al.*, 2020). When customers are engaged in online social environments it has been observed that their participation levels are higher (Martínez-López *et al.*, 2017), they help other users more and they make more positive comments (Van Doorn *et al.*, 2010).

Accordingly, in the present study we conceptualize loyalty intention through three independent constructs: repurchase intention, positive eWOM intention and customer engagement behavior intention. Repurchase intention has been defined as the buyer's

perception of the likelihood of whether (s)he will, in the future, purchase products from a social commerce site that (s)he has previously patronized (Lin *et al.*, 2017). Positive eWOM intention is the consumer's willingness to share positive information about products, services, brands, etc. on the Internet. Customer engagement behavior has been defined as "a customer's behavioral manifestations that have a brand or firm focus, beyond purchase, resulting from motivational drivers" (Van Doorn *et al.*, 2010). Customer engagement is a key element in success in social commerce, given the interactive nature of social media (Shen *et al.*, 2019); however, few studies have hitherto analyzed this variable, so more empirical research is required to better understand its role.

Instead of analyzing the effects of perceived value on customer loyalty as a one-dimensional construct, or as a second order construct, this study analyzes the effect of perceived value on each of the three dimensions proposed. This provides more knowledge and a better understanding of the effects of perceived value on loyalty.

4. Hypotheses development

4.1. Environmental stimuli and perceived value

Information quality is an essential variable for the success of a social commerce website. The access to information provided by other users is one of the characteristics of social commerce that most influences customer-provider relationships (Kim and Park, 2013). If customers believe that the information provided by a social commerce site is relevant, accurate, useful and adaptable to their needs, they will value the information very positively in their relationship with the site (Zhang *et al.*, 2016). Thus, the more a customer learns from a social commerce site's recommendations, ratings and forums, the better will be his/her evaluation of the site (Chen *et al.*, 2017). That is, if the consumer considers that a site has provided him/her with good information quality, his/her perception will be that (s)he has received good value. In the online environment, several studies have demonstrated the existence of a positive relationship between information quality and perceived value (e.g., Kim C. *et al.*, 2012; Wang *et al.*, 2016). Specifically, in social commerce sites, high information quality levels are associated with higher customer perceived value (Wang *et al.*, 2016). Thus, the following hypothesis is proposed:

H1. Information quality has a positive effect on customer perceived value of social commerce sites.

The consumer behavior literature has identified service quality as one of the most important antecedents of customer perceived value (Parasuraman and Grewal, 2000). According to Wu *et al.* (2015), service quality relates mainly to reliability, responsiveness and the security provided to customers. If customers believe that a social commerce site provides a reliable, responsive, empathetic and problem-solving service, their assessment of it will be more positive (Huang and Benyoucef, 2013). Several studies in the context of online shopping have highlighted that when customers are provided with high quality service, higher levels of perceived value are obtained (e.g., Fang *et al.*, 2016; Kim C. *et al.*, 2012; Wang *et al.*, 2016). In particular, service quality positively influences the perceived value that consumers derive from social commerce sites (Wang *et al.*, 2016). Consequently, the following hypothesis is proposed:

H2. Service quality has a positive effect on customer perceived value of social commerce sites.

Of the commercial characteristics of social commerce sites, customers most value the rewards and recognition system (Huang and Benyoucef, 2015). Customers receive rewards and recognition for various activities, such as interaction with other users, sharing experiences and making purchases (Han *et al.*, 2018). In practice, these systems act as loyalty programs through which social commerce sites reward their customers. For example, through monetary benefits (e.g., lotteries, special offers and loyalty programs), functional benefits (e.g., information, support and preferential treatment), social benefits (recognition by other users, gratitude, reputation) and psychological benefits (e.g., self-esteem, good feelings, optimism) (Wirtz *et al.*, 2013).

In general, customers positively value the rewards and recognition they receive through social media, which in turn makes them feel they want to do something in return, which leads them to increase their participation, engagement (Van Doorn *et al.*, 2010) and value co-creation (Füller, 2010). In particular, previous studies have shown that rewards and recognition positively influence customer perceived value (Yi and Jeon, 2003). Thus, the following hypothesis is proposed:

H3. Rewards and recognition have a positive effect on customer perceived value of social commerce sites.

Customization, in the e-commerce context, relates to those activities that retailers undertake to adapt their sites to meet the customer's real needs, and which add value to and strengthen the customer-retailer relationship (Srinivasan *et al.*, 2002). Tam and Ho (2006) showed that customers find e-commerce content more useful when it is personalized. Lee J. *et al.* (2012) argued that customers appreciate customized programs both for the value they obtain from the final product or service and because they enjoy the experience of the customization process. Few works have empirically analyzed the effect of customization in the context of social media and social commerce. Zhang *et al.* (2014) showed that customization positively influences the customer's social commerce experience, while Wan *et al.* (2017) showed that high customization even leads customers to become functionally dependent on social media sites. Based on these points, the following hypothesis is proposed:

H4. Customization has a positive effect on customer perceived value of social commerce sites.

4.2. Perceived value and customer loyalty intention

Perceived value is one of the most important determinants of post-purchase consumer behavior in the retail context (Zeithaml *et al.*, 1996). When the value customers receive is high, their loyalty intention is increased (Zeithaml *et al.*, 1996), but when it is low, they will be more likely to change retailers, seeking to improve their perceived value (Kim and Niehm, 2009). Previous studies have shown that, in the e-commerce context, perceived value positively influences purchase intention (Kim H.W. *et al.*, 2012) and repurchase intention (Fang *et al.*, 2016; Kim C. *et al.*, 2012). In the particular context of social commerce, to date few studies have analyzed the relationship between perceived value and repurchase intention. Hajli *et al.* (2015) empirically demonstrated that perceived value positively influences continuance participation intention in online social commerce communities. More recently, Wu and Li (2018) showed the key role of customer value as an antecedent of customer loyalty in social commerce. Consequently, the following hypothesis is proposed:

H5. Customer perceived value has a positive effect on repurchase intention in social commerce sites.

Positive eWOM is another indicator of favorable loyalty intention toward companies (Zeithaml *et al.*, 1996). When consumers perceive that a service supplier has provided them with value they develop emotional commitment toward the company that leads them to favor it with positive WOM (McKee *et al.*, 2006). Previous studies in the e-commerce context have shown empirically that perceived value increases positive eWOM (Gruen *et al.*, 2006; Shaikh *et al.*, 2018). In social commerce, customers use several tools to disseminate eWOM, such as recommendations, referrals, ratings, reviews and forums. In fact, the participation of users who give their opinions, evaluate and recommend products, is one of the essences of social commerce. In this context, customers feel especially motivated to transmit eWOM because, in addition to the benefits obtained, they hope it will positively influence how they are perceived by the user community (Lee D. *et al.*, 2012). Therefore, the following hypothesis is proposed:

H6. Customer perceived value has a positive effect on positive eWOM intention in social commerce sites.

Perceived value is also one of the key antecedents of customer engagement. In particular, in the social media literature it has been shown that perceived value is one of the most important drivers of customer engagement intention (Wirtz *et al.*, 2013). For example, Verhagen *et al.* (2015) reported that cognitive, social and hedonic benefits significantly influence customer engagement intentions in virtual environments. Carlson *et al.* (2019) showed that brand social media values have a positive impact on customer engagement. In different settings, Kim *et al.* (2013) reported that perceived value positively influenced mobile users' engagement intention, and Fang *et al.* (2017) showed that perceived benefits are positively associated with behavioral engagement intention toward travel applications. Consequently, the following hypothesis is proposed:

H7. Customer perceived value has a positive effect on customer engagement behavior intention in social commerce sites.

4.3. The moderating effects of gender, age and frequency of social commerce use

Previous studies have shown that gender influences the behavior of users in their intention to shop online (Shaouf *et al.*, 2016), in their loyalty to online services (Sánchez-Franco *et al.*, 2009) and in the perceived value they obtain from mobile commerce (Okazaki and Mendez, 2013). In the context of social commerce, Huang and Benyoucef

(2017) showed that gender influences perceptions of social commerce website designs and the importance given to the functionality and usability of websites. Molinillo *et al.* (2020a) reported that gender affects the impact of social support and community factors on customer engagement and customer loyalty toward social commerce websites. Thus, the following hypothesis is proposed:

H8. Gender moderates the effects of the characteristics of social commerce website design on customer perceived value, and the impact of customer perceived value on customer loyalty intentions.

Similarly, age is a characteristic that commonly influences users' behavior in the online context. In the context of social commerce, several authors have highlighted the need to further study the effects of age (Hew *et al.*, 2016). Huang and Benyoucef (2017) found that age influences the importance given to the social aspects, functionality and usability of websites. Liébana-Cabanillas and Alonso-Dos-Santos (2017) showed that age moderates the effect of perceived value on intention to use social commerce. Hence, the following hypothesis is proposed:

H9. Age moderates the effects of the characteristics of social commerce website design on customer perceived value, and the impact of customer perceived value on customer loyalty intentions.

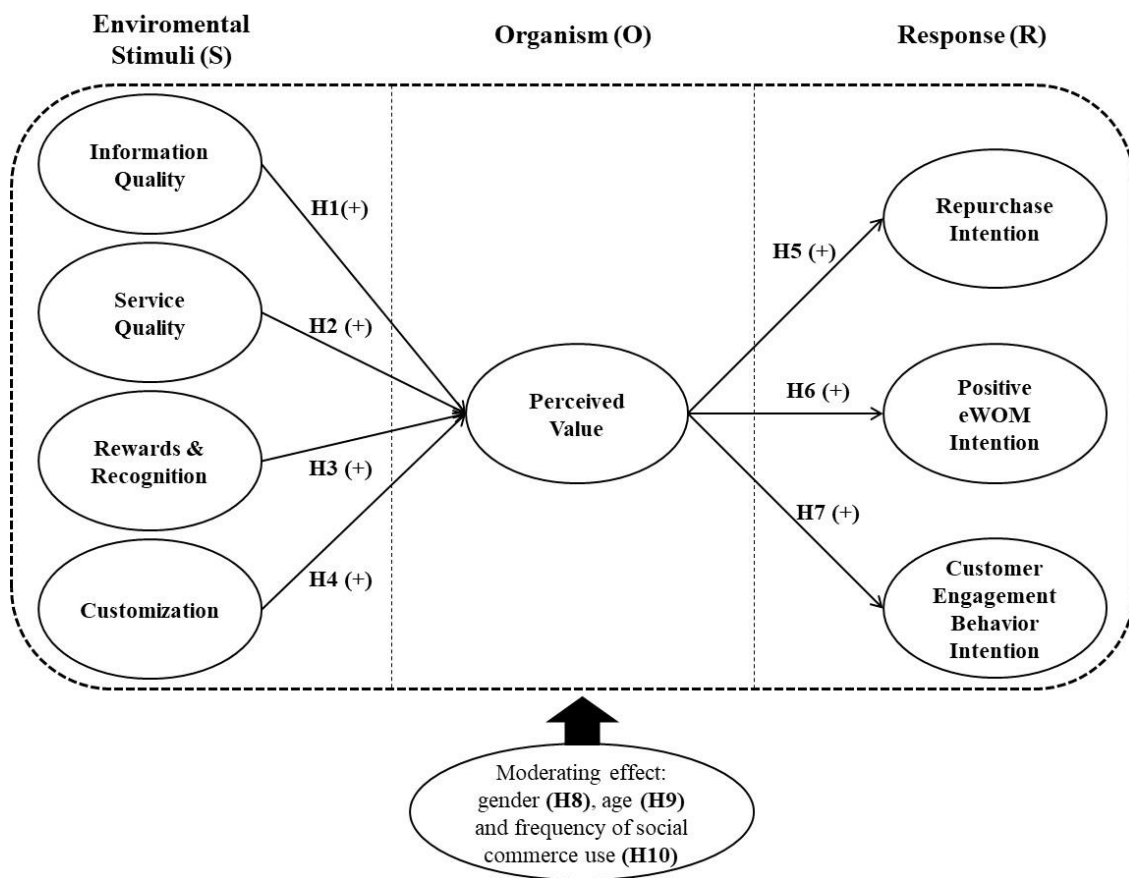
Frequency of use is a behavioral variable that might be a consequence of the characteristics of a social commerce website, or even of its perceived value. However, it might also be considered, on occasions, to be a moderator of the customer-retailer relationship. Bolton and Lemon (1999) introduced the payment equity concept (in the context of equity theory), which suggests that consumers' views of service delivered evolve over time with use, and they revise their equity assessments of their interactions with the service provider. Previous studies have shown that frequency of use is a significant moderator of customer behavior in contexts such as social networking services, internet banking and e-commerce. Wang (2010) showed that the frequency at which customers browse in a particular online store positively influences their loyalty intention toward that store. Aldas-Manzano *et al.* (2011) reported that the effect of trust on loyalty is less for clients who frequently use online banking, because users base their expectations of benefits more on experience than on trust. Molinillo *et al.* (2020b) showed

that intensity of use weakens the impact of perceived usefulness and perceived enjoyment on customer loyalty intention toward mobile games. In the context of social media, Lee (2016) showed that active users perceive greater value and develop greater emotional attachment to social networking services. Based on this discussion, the following hypothesis is proposed:

H10. Frequency of use moderates the effects of the characteristics of social commerce website design on customer perceived value, and the impact of customer perceived value on customer loyalty intention.

Figure 1 depicts the study research model.

Fig. 1 Research Model



5. Methodology

5.1. Research instrument

The data for the empirical evaluation of the research model were collected through a self-administered online survey. The model constructs were measured through reflective measurement scales validated in previous research adapted to the social commerce context. Information quality and service quality were measured by four and six items, respectively, adapted from Wang *et al.* (2016); rewards and recognition was

measured by 3 items adapted from Kim *et al.* (2008); customization was measured through 5 items adapted from Srinivasan *et al.* (2002); perceived value was measured through 4 items adapted from Kim H.W. *et al.* (2012); repurchase intention was measured by 3 items adapted from Shin *et al.* (2013); positive eWOM intention was measured using 4 items adapted from Yang *et al.* (2015); and customer engagement behavior intention was measured by 3 items adapted from Fang *et al.* (2017). In all cases, 7-point Likert-type scales were used (1 = strongly disagree; 7 = strongly agree) (see Appendix B). As the original scales were in the English language, and the target population is Spanish, to maintain the accuracy of the original scales the questionnaire was translated into Spanish by a professional service.

In addition, prior to the data collection, five experts reviewed the questionnaire and introduced minor modifications to improve the understanding of the questions, while maintaining the meanings of the original scales. Subsequently, a pre-test was conducted with a convenience sample of 100 undergraduate students with experience of social commerce websites. The Cronbach's *alpha* results were greater than 0.80 (Nunnally, 1978). The final survey questionnaire consisted of one screening question, one behavioral question (frequency of social commerce use), 32 items designed to measure the eight model constructs and 6 socio-demographic questions.

5.2. Sample and data collection

The target population of the study was customers who had made purchases using the Facebook "Shop Now" button on a firm's fan page (e.g., Ralph Lauren or GAP). Facebook provides its users with tools for interaction and content generation, is the most popular social media in the world and, therefore, one of the most used by companies for social commerce.

The data were collected through an online survey, with a structured questionnaire, in Spain in May 2018. Following a convenience sampling method and, to reduce possible bias, the link to the questionnaire was posted on various Facebook pages and distributed through email lists. Before they completed the questionnaire the participants viewed an invitation to take part in the study and a piece about the objectives of the study, which included a tick box where they provided their consent to participate. Participation was voluntary. If they agreed to take part they could access the questionnaire using the link. First, a screening question was posed to exclude people who did not belong to the target

group. If they had previous experience in social commerce websites they were asked to complete the questionnaire based on their experience with only the website they visit most frequently. Subsequently, the questions to measure the model, and questions about demographic characteristics, were posed. At the end of the survey the participants were invited to send the study participation invitation to their contacts with experience of social commerce. Responses with repeat values and identical IP addresses were discarded. A total of 272 valid questionnaires was obtained. Of the respondents, 56.6% were female, 58.1% under 24 years of age, and 50% visit social commerce sites several times a day (see Table 1).

Table 1. Sample characteristics (n=272).

Characteristic	Count	%
<i>Gender</i>		
Male	118	43.4
Female	154	56.6
<i>Age</i>		
< 24 years	158	58.1
≥ 24 years	114	41.9
<i>Level of studies completed</i>		
Primary school studies	6	2.2
Secondary school studies	28	10.3
High school	21	7.7
University studies	165	60.7
Postgraduate university studies	45	16.5
Other	7	2.6
<i>Main employment situation</i>		
Housework	3	1.1
Unemployed	14	5.2
Student	164	60.3
Retired	2	0.7
Self-employed worker	18	6.6
Employee	71	26.1
<i>Net annual income (€)</i>		
No income	98	36.0
< 6,000 €	54	19.9
6,000 - 11,999	41	15.1
12,000 - 17,999	25	9.2
18,000 - 23,999	15	5.5
24,000 - 29,999	15	5.5
30,000 - 35,999	8	2.9
36,000 - 59,999	9	3.3
> 59,999	7	2.6
<i>Frequency of social commerce use</i>		
Low	136	50.0
High	136	50.0

5.3. Data analysis procedure

Structural equations modeling, using partial least squares (PLS-SEM), was applied to evaluate the quality of the measurement instrument and the hypotheses of the proposed model. PLS-SEM is considered appropriate when operating with small samples and when normality is not assumed (Hair *et al.*, 2013). In the present study it was not possible to guarantee, through the Kolmogorov-Smirnov normality test with SPSS, that the data were normally distributed. In addition, the theoretical knowledge that supports the relationships of the proposed model is still under development (Fornell and Bookstein, 1982). SmartPLS3 software (Ringle *et al.*, 2015) was used, and the stability of the estimates was verified by the bootstrapping procedure (500 subsamples), with two-tailed testing, at a significance level of 0.05.

6. Results

6.1. Common method bias

We conducted a Harman's single factor test to assess the impact of common method bias (CMB). If a single item has a total variance above 50% it can introduce CMB into the data and the empirical conclusions (Podsakoff *et al.*, 2003). In the present study the total variance for a single factor was 31.81%. However, assessing all factors in the model leads to 78.48% of explained variance, which suggests that CMB should not be an issue for this data set (Higuera-Castillo *et al.*, 2019).

6.2. Measurement model assessment

Table 2 shows the results of the construct reliability and the convergent validity assessments. All factor loads are greater than 0.70. Cronbach's *alpha* (CA) and composite reliability (CR) in all cases exceeded the minimum value 0.8 suggested by Nunnally (1978). The average variance extracted (AVE) exceeded the minimum recommended level of 0.5 (Fornell and Larcker, 1981).

Table 2. Variable descriptive statistics, reliability and convergent validity.

Construct	Item	M	SD	Loading	CA	CR	AVE
Information quality (IQ)	IQ1	4.551	1.699	0.918	0.936	0.954	0.839
	IQ2	4.540	1.642	0.929			
	IQ3	4.629	1.719	0.900			
	IQ4	4.728	1.691	0.915			

Service quality (SQ)	SQ1	4.195	1.652	0.881	0.951	0.961	0.804
	SQ2	4.261	1.648	0.924			
	SQ3	4.614	1.803	0.884			
	SQ4	4.404	1.633	0.928			
	SQ5	4.103	1.720	0.870			
	SQ6	4.221	1.688	0.890			
Rewards and recognition (R&R)	R&R1	3.643	1.720	0.916	0.921	0.950	0.864
	R&R2	3.724	1.656	0.930			
	R&R3	3.897	1.664	0.942			
Customization (CU)	CU1	4.566	1.787	0.882	0.919	0.938	0.753
	CU2	4.305	1.794	0.886			
	CU3	4.327	1.706	0.932			
	CU4	3.640	1.754	0.790			
	CU5	4.004	1.735	0.841			
Perceived value (PV)	PV1	4.798	1.774	0.925	0.961	0.971	0.894
	PV2	4.853	1.751	0.959			
	PV3	4.691	1.672	0.952			
	PV4	4.838	1.746	0.946			
Repurchase intention (RI)	RI1	4.368	1.832	0.914	0.912	0.944	0.849
	RI2	3.930	1.847	0.922			
	RI3	4.213	1.802	0.928			
Positive eWOM intention (PE)	PE1	4.173	1.856	0.940	0.968	0.976	0.912
	PE2	4.305	1.784	0.960			
	PE3	4.368	1.735	0.959			
	PE4	4.397	1.761	0.961			
Customer engagement behavior int. (CE)	CE1	3.629	1.784	0.916	0.917	0.947	0.856
	CE2	3.382	1.741	0.926			
	CE3	3.610	1.752	0.935			

Note. M = Mean; SD = Standard deviation; CA = Cronbach's *alpha*; CR = Composite reliability; AVE = Average variance extracted.

To test the discriminant validity three valid PLS-SEM methods were followed: i) the loading coefficients must be greater than the cross loads; ii) the inter-construct correlations must be less than the square root of the AVEs (Table 3); iii) the heterotrait-monotrait (HTMT) ratio must be less than 0.9 (Table 3). All values were below the recommended maximum thresholds.

The assessments demonstrated the reliability and validity of the measures; thus, the structural model is appropriate for the analysis.

Table 3. Discriminant validity.

Constructs	CE	CU	IQ	PV	RI	R&R	SQ	PE
Customer engagement behavior int. (CE)	<i>0.925</i>	0.570	0.360	0.444	0.723	0.418	0.447	0.664
Customization (CU)	0.514	<i>0.867</i>	0.644	0.616	0.687	0.559	0.673	0.589
Information quality (IQ)	0.337	0.616	<i>0.916</i>	0.817	0.600	0.639	0.839	0.619
Perceived value (PV)	0.420	0.604	0.774	<i>0.946</i>	0.685	0.515	0.821	0.690
Repurchase intention (RI)	0.660	0.640	0.556	0.644	<i>0.922</i>	0.444	0.665	0.793
Rewards and recognition (R&R)	0.386	0.510	0.593	0.486	0.410	<i>0.930</i>	0.328	0.445
Service quality (SQ)	0.421	0.639	0.794	0.787	0.623	0.587	<i>0.897</i>	0.647
Positive eWOM intention (PE)	0.628	0.565	0.590	0.666	0.747	0.422	0.624	<i>0.955</i>

Note. The square roots of the AVEs are in italics on the main diagonal. The Fornell-Larcker criterion is depicted below the main diagonal. The heterotrait-monotrait (HTMT) ratio is above the main diagonal.

6.3. Structural model assessment

The significance of the hypothesized relationships and the predictive relevance of the proposed model were assessed in the evaluation of the structural model. First, a bootstrapping procedure was undertaken, with 500 subsamples, to assess the significance of the coefficient paths (Hair *et al.*, 2011). As can be seen in Table 4, all the model hypotheses were supported, except H3 and H4.

Table 4. Results of hypotheses testing.

Hypothesis	Path coefficient	t-value	p-value*	Supported
H1. Information quality → perceived value	0.434	3.969	0.000	Yes
H2. Service quality → perceived value	0.453	4.232	0.000	Yes
H3. Rewards and recognition → perceived value	-0.098	1.814	0.070	No
H4. Customization → perceived value	0.098	1.498	0.135	No
H5. Perceived value → repurchase intention	0.686	15.480	0.000	Yes
H6. Perceived value → positive eWOM intention	0.691	16.665	0.000	Yes
H7. Perceived value → customer engagement	0.445	8.067	0.000	Yes

Note. n = 500 subsamples. * 95% confidence level – two tailed.

Table 5 shows the predictive capacity values of the model. The R^2 values of each construct exceeded the minimum limit of 0.1 (Falk and Miller, 1992). Specifically, the model explains a large part of the variance of the endogenous latent variables: perceived value (73.8%), positive eWOM intention (47.7%) and repurchase intention (47.1%). To a lesser extent the model also explains customer engagement behavior intention (19.8%). In addition, the predictive capacity of the dependent constructs and the endogenous variables were estimated using the Q^2 test (Geisser, 1975; Stone, 1974) and the blindfolding procedure (Distance of omission = 7). The results are greater than 0, so the

proposed model has predictive relevance. Finally, the standardized root mean square residual (SRMR) was calculated. The value obtained was 0.055, less than the maximum acceptable value 0.08, so the model has goodness of fit.

Table 5. Assessment of the structural model.

Constructs	R ²	Q ²	β	Correlations	Explained variance
<i>Perceived value</i>	0.738	0.576			
Information quality			0.434	0.817	0.354
Service quality			0.453	0.822	0.372
Rewards and Recognition			-	0.515	-0.050
Customization			0.098	0.632	0.062
			0.098		
<i>Repurchase intention</i>	0.471	0.331			
Perceived value			0.686	0.686	0.471
<i>Positive eWOM intention</i>	0.477	0.379			
Perceived value			0.691	0.691	0.477
<i>Customer engagement b. int.</i>	0.198	0.140			
Perceived value			0.445	0.445	0.198

6.4. Results of the moderating effects

To test the hypotheses related to the three proposed moderating variables (hypotheses 8, 9 and 10), three multigroup analyses, using the PLS-MGA technique, were performed (Sarstedt *et al.*, 2011). Each moderator variable was categorized into two values which were then used as criteria to divide the sample into groups. As to gender, the sample was divided into male and female. As to age and frequency of use, the median values of their distributions were used to determine the groups. Thus, the sample was divided into two age groups, users under 24 years and users 24 years and over. In fact, 24 years is currently the boundary between the demographic cohort known as Generation Z (born between 1995 and 2005) and previous cohorts (e.g., Y, X, baby boomers, etc.). Similarly, the sample was divided into two groups based on frequency of social commerce use, with the low-frequency group using it once a day or less, and the high-frequency group using it several times a day. In the multigroup analyses the path coefficients of the two structural models resulting from the division of the sample were compared, based on the two categories of the moderating variables. The Student t-test for independent samples was used to evaluate whether there were significant differences (Ringle *et al.*, 2015).

Before performing this analysis, the invariance of the measuring instrument (MICOM) was verified. This was undertaken to ensure that any differences in the model

derived from the moderating effect of the variables were not caused by differences in the measurement models used with each group. Had this been the case it would not have been logical to carry out a multigroup analysis. The verification process confirmed the invariance configuration, the compound invariance and the partial measurement invariance. Thus, it was appropriate to carry out a multigroup analysis for the evaluation of the possible moderating effect of the variables (Table 6).

The results showed significant differences in two of the structural model relationships based on gender: the relationship between information quality and perceived value, and between service quality and perceived value. More specifically, the impact of information quality on perceived value is greater among men ($T_{Student} = -2.246$; $\beta_{Male} = 0.547$, $p = 0.000$; $\beta_{Female} = 0.242$, $p = 0.022$; $\beta_{Difference} = 0.305$, $p = 0.032$), and the impact of service quality on perceived value is greater among women ($T_{Student} = 2.146$; $\beta_{Male} = 0.273$, $p = 0.013$; $\beta_{Female} = 0.573$, $p = 0.000$; $\beta_{Difference} = 0.300$, $p = 0.029$). The differences are similar in both cases. The results, on the other hand, showed no significant differences in the model values between the two age groups.

Finally, frequency of social commerce use significantly moderated the relationships between information quality and perceived value, and between service quality and perceived value. Specifically, the influence of information quality on perceived value is greater among high-frequency users than among low-frequency users ($T_{Student} = -2.264$; $\beta_{Low} = 0.195$, $p = 0.062$; $\beta_{High} = 0.525$, $p = 0.000$; $\beta_{Difference} = 0.330$, $p = 0.024$). On the contrary, service quality exerts greater influence on perceived value among low-frequency users than among high-frequency users ($T_{Student} = 2.101$; $\beta_{Low} = 0.627$, $p = 0.000$; $\beta_{High} = 0.339$, $p = 0.000$; $\beta_{Difference} = 0.288$, $p = 0.036$). Consequently, the results do not allow us to reject hypothesis 8 and hypothesis 10, because the gender and frequency of use variables significantly moderated several of both models' relationships. On the other hand, hypothesis 9 cannot be accepted, because no model relationship was significantly affected by the customer's age.

Table 6. Results of the SEM-multigroup analysis (MGA).

Hypothesis	<i>Gender</i>						
	Male		Female		Path		
	Path Coefficient (β -value)	p-value	Path Coefficient (β -value)	p-value	difference (β -value)	T test	p-value
H1. IQ \rightarrow PV	0.547	0.000	0.242	0.022	0.305	2.156	0.032
H2. SQ \rightarrow PV	0.273	0.013	0.573	0.000	0.300	2.188	0.029
H3. R&R \rightarrow PV	0.026	0.741	-0.140	0.022	0.166	1.707	0.089
H4. CU \rightarrow PV	0.051	0.453	0.199	0.024	0.148	1.269	0.205
H5. PV \rightarrow RI	0.590	0.000	0.682	0.000	0.093	1.125	0.261
H6. PV \rightarrow PE	0.623	0.000	0.691	0.000	0.068	0.872	0.384
H7. PV \rightarrow CE	0.310	0.000	0.493	0.000	0.183	1.796	0.074
Hypothesis	<i>Age</i>						
	< 24 years		\geq 24 years		Path		
	Path Coefficient (β -value)	p-value	Path Coefficient (β -value)	p-value	difference (β -value)	T test	p-value
H1. IQ \rightarrow PV	0.465	0.000	0.266	0.054	0.199	1.285	0.200
H2. SQ \rightarrow PV	0.452	0.000	0.459	0.000	0.008	0.049	0.961
H3. R&R \rightarrow PV	-0.121	0.034	0.007	0.923	0.128	1.406	0.161
H4. CU \rightarrow PV	0.094	0.226	0.140	0.120	0.046	0.390	0.697
H5. PV \rightarrow RI	0.619	0.000	0.687	0.000	0.068	0.787	0.432
H6. PV \rightarrow PE	0.674	0.000	0.663	0.000	0.012	0.145	0.885
H7. PV \rightarrow CE	0.445	0.000	0.390	0.000	0.055	0.531	0.596
Hypothesis	<i>Frequency of use</i>						
	Low		High		Path		
	Path Coefficient (β -value)	p-value	Path Coefficient (β -value)	p-value	difference (β -value)	T test	p-value
H1. IQ \rightarrow PV	0.195	0.062	0.525	0.000	0.330	2.272	0.024
H2. SQ \rightarrow PV	0.627	0.000	0.339	0.000	0.288	2.109	0.036
H3. R&R \rightarrow PV	-0.115	0.088	-0.018	0.749	0.097	1.097	0.274
H4. CU \rightarrow PV	0.175	0.048	0.038	0.563	0.137	1.248	0.213
H5. PV \rightarrow RI	0.696	0.000	0.590	0.000	0.105	1.271	0.205
H6. PV \rightarrow PE	0.689	0.000	0.639	0.000	0.050	0.628	0.530
H7. PV \rightarrow CE	0.428	0.000	0.406	0.000	0.022	0.227	0.820

Note. Significant differences are in grey background.

7. Discussion and Conclusions

7.1. Theoretical implications

The present study makes several contributions to social commerce research. First, the results allow us to better understand the role that customer perceived value plays in the success of social commerce websites. The present study is the first to propose and

empirically evaluate a behavioral model including features of social commerce website design as antecedents of perceived value and response variables, such as customer engagement behavior intention and positive e-WOM intention. This is a contribution to the growth in the scientific knowledge of, and literature on, consumer behavior.

Second, this study enhances the knowledge of the effects on perceived value of four important aspects of social commerce website design: information quality, service quality, rewards and recognition and customization. Quality of information and quality of service were shown to significantly influence perceived value, which reinforces the findings of previous works in other online contexts (e.g., Fang *et al.*, 2016; Wang *et al.*, 2016). The present study showed that both characteristics had considerable influence, of similar intensity, on perceived value; thus, this research contributes to enhancing the knowledge of the importance of information quality and service quality by extending the results of prior studies to the social commerce context.

Third, although previous studies have indicated that rewards and recognition systems are highly valued by social commerce clients (Huang and Benyoucef, 2015), the results of the present study did not show that they had a significant relationship with customer perceived value. Perhaps this is due to the existence of full mediation through variables not included in the study, such as the value perception of loyalty programs (Yi and Jeon, 2003), or even to the inefficiency of the social commerce rewards and recognition systems currently operating in Spain, as this is the first study including that variable to be carried out in that country. Be that as it may, the contradictory results reinforce the need to extend the study of the role of rewards and recognition systems in social commerce.

Fourth, contrary to expectations, customization also had no significant effect on perceived value. This result also contributes to the consumer behavior literature because, to date, while some studies have demonstrated the positive relationship of customization with variables such as trust, commitment, attitude and customer experience (Zhang *et al.*, 2014), among others, no study has evaluated its direct effect on perceived value in the context of social commerce. This result is in line with previous studies conducted in other contexts (e.g., Franke *et al.*, 2009) that suggested that customization only increases perceived value in specific markets and circumstances, and has no influence when the client gives more importance to other factors, such as, in the present study, quality of information and quality of service.

Fifth, this study showed that customer perceived value has an important power to predict loyalty intention (i.e., repurchase, positive eWOM and customer engagement behavior). Although these relationships have been previously demonstrated in other contexts, no earlier research has evaluated them in social commerce; thus, this study contributes to the literature by extending these relationships to the field of social commerce. Specifically, the effect of perceived value on repurchase intention is consistent with previous studies conducted in the context of e-commerce (Fang *et al.*, 2016; Kim C. *et al.*, 2012). Similarly, our finding about the effect of perceived value on positive eWOM extends the results of previous studies in e-commerce (Gruen *et al.*, 2006; Lee D., *et al.*, 2012; Shaikh *et al.*, 2018). In addition, the impact of perceived value on customer engagement behavior intention is consistent with studies conducted in the context of social media and online brand communities (Carlson *et al.*, 2019; Wirtz *et al.*, 2013).

Sixth, this study showed the moderating effect of gender. Specifically, the results showed that quality of information has more influence on perceived value in men, while quality of service has more influence with women. This is an important contribution that enhances the knowledge of the effects of gender in social commerce, and addresses a gap identified in previous studies (Hew *et al.*, 2016). The results are in line with recent works that identified the existence of significant gender-based differences (Huang and Benyoucef, 2017; Molinillo *et al.*, 2020a) and extend this effect to the antecedents of customer perceived value.

Seventh, this study also contributes to the literature by identifying the moderating effect of frequency of social commerce use on the impact of information quality and service quality on customer perceived value. Specifically, information quality has greater influence on high-frequency users, while service quality has greater influence on low-frequency users. This is an important contribution because, to date, no study has analyzed the moderating effect of this variable in the context of social commerce.

Finally, although several studies have shown that age affects consumer behavior in social commerce (Huang and Benyoucef, 2017; Liébana-Cabanillas and Alonso-Dos-Santos, 2017), the present study found no significant differences. This result is in line with other studies carried out in the social commerce context (Molinillo *et al.*, 2020a). This may be because this commercial format has been operating for a considerable period,

and is now used by people of all ages, so the variable may not have a significant effect on behavior.

7.2. Managerial implications

This research also has important implications for practitioners. First, the results showed that social commerce sites can increase customer loyalty by improving perceived value. Customers who perceive greater value will be more likely to come back to the site to buy, recommend it to others and display greater customer engagement behavior intention. Second, among the factors that may increase perceived value, the results showed that managers must pay special attention to improving information quality and service quality. Thus, social commerce sites should provide customers with relevant, reliable and up-to-date information on products and services, and facilitate the use of the site's functionalities to allow other clients to participate in, and generate and share useful information about, the purchase decision-making process, through various formats (e.g., video, photographs, text, ratings, etc.). Similarly, businesses must offer superior quality service and continuous improvement, pay attention to customers' needs, resolve their doubts, offer personalized treatment and ensure the security of transactions. For example, social commerce sites might improve product search systems by introducing different criteria (e.g., family, keyword, price, etc.), offer various information channels (e.g., FAQ pages, forums, chats, email, telephone), respond quickly to customer inquiries, and study search and navigation behavior to offer products tailored to customers' needs. Third, the results showed significant differences based on gender and the frequency of use of the social commerce site. Males and females, and high- and low-frequency users, put emphasis on different aspects of social commerce design in their perceptions of value. Therefore, companies should adopt different strategies to increase their perceived value. For example, when targeting men, or high-frequency users, companies should emphasize information quality by providing relevant, reliable and up-to-date information on the products and services offered, and provide tools that allow users to share interesting information about the shopping process. On the other hand, when targeting women, or low-frequency users, they should emphasize service quality, for example, by enhancing customer service through different channels, such as chatbots, forums and the telephone, and provide the most personalized treatment possible, and guarantee transaction security both by offering a reliable means of payment (e.g., PayPal), and a transparent returns

policy respectful of consumers' rights. This differentiation might be achieved, for example, by encouraging customers to register by offering advantages, discounts and newsletters to take subsequent advantage of their databases, or by using social media segmentation tools.

Finally, companies must take into account the changes in consumer behavior that are taking place due to the unprecedented challenge posed by the COVID-19 crisis (Euromonitor International, 2020). A significant proportion of the population has experienced a loss of income that is encouraging the search for value and smart decision-making (Kantar, 2020). Furthermore, social distancing measures are driving online shopping, even among segments of the population that have never previously shopped online (Euromonitor International, 2020). Social commerce websites can take advantage of these circumstances to increase their market share by reinforcing information and customer service in the ways discussed above, so that both new and existing customers perceive they provide greater value than other commercial channels.

7.3. Limitations and future research

This work has some limitations that can lead to future work. First, the data obtained come from a cross-sectional survey, so future research might analyze the stability of the relationships over time with longitudinal data. Second, although there is no register of clients of social commerce sites, the use of non-probabilistic sampling can introduce bias into the results. Therefore, future research might use other sampling procedures, for example, through collaborating with social commerce sites to draw on their customer databases. Third, there are some advantages in measuring eWOM use through self-report questionnaires, but this procedure can introduce bias into the results. Future studies might evaluate user generated content analysis techniques such as text mining (e.g., latent semantic analysis), text regression and sentiment analysis (e.g., machine learning, lexicon-based methods, etc.), among others. Fourth, the data for the evaluation of the model were collected in Spain. However, some studies have shown that cultural differences can influence customer loyalty, so it is recommended that future studies evaluate the model in other cultural contexts. Fifth, this study focused on social commerce sites hosted on Facebook, but customer behavior may vary depending on the characteristics of the social network website. Therefore, future works might evaluate the validity of the proposed model using data collected from users of other networks, such as

Pinterest and Instagram. Sixth, although the model has high explanatory power for perceived value, two of the stimuli included were not found to be significant. Future research might include other stimuli related to the characteristics of social commerce websites, such as social support, system interaction and perceived privacy concerns. Finally, in the post-COVID-19 scenario, it would be very interesting to analyze how factors such as hedonic value, perceived entertainment and sense of community, among others, might increase purchases by consumers likely to spend more time at home.

Pre-print version

Appendix A. Studies on customer loyalty towards social commerce website and originality of this study

Sources	Target population	Predictors (P) and outcomes (O)	Methodology	Findings
Anderson <i>et al.</i> (2014)	Users that connect to apparel retailers via their Facebook pages.	P: utilitarian and hedonic motivations (time savings, information access, bargain perception, experiential shopping). O: loyalty and purchase intention.	250 users. United States. Online survey. SEM.	Hedonic and utilitarian motivations affect loyalty toward social commerce websites. Loyalty influences purchase intentions.
Cheng X. <i>et al.</i> (2019)	Social commerce app users.	P: familiarity, trust disposition, information quality, members' endorsements, trust toward social commerce members and toward social commerce apps. O: WOM and social shopping intention.	614 users. China. Online survey. SEM.	Social shopping intention is strongly influenced by trust in the social commerce app, while WOM intentions are influenced by trust in other members.
Cheng J.H. <i>et al.</i> (2019)	Members of Facebook fan pages engaged in online shopping.	P: social capital (structural, relational and cognitive), contracts and relational risk. O: repurchase intention.	395 Taiwan. Online survey. SEM	Social commerce retailers might foster collaboration behaviors/ activities, which should improve their ambidextrous governance mechanisms, thereby increasing repurchase intention.
Fang <i>et al.</i> (2020)	Followers of Facebook brand pages.	P: visibility, selectivity, persistence, interactivity, brand page affordance, relational quality, brand experience, smart shopper feeling. O: brand loyalty and brand page endorsement.	591 users. Global market. Online survey. PLS-SEM.	Brand loyalty is influenced by the experience with the brand, smart shopper feeling and, above all, relational quality.
Hew <i>et al.</i> (2016)	Mobile social commerce users.	P: concern for information privacy, perceived usefulness, confirmation, continuance intention and satisfaction. O: brand loyalty.	208 users. Malaysia. Survey. PLS-SEM.	Continued use and user satisfaction in mobile social commerce promote brand loyalty.
Molinillo <i>et al.</i> (2020a)	Users of Facebook social commerce websites.	P: social support, community drivenness, community identification and community trust, customer engagement (vigor, dedication and absorption). O: loyalty (willingness to co-create, stickiness intention, eWOM intention and repurchase intention).	437 users. Spain. Online survey. SEM.	Social support, trust and identification with the community influence customer engagement, which in turn positively impacts on loyalty.
Nadeem <i>et al.</i> (2020)	Students. Social commerce users.	P: social commerce trust, social presence. O: commitment and loyalty.	189 users. Saudi Arabia. Online survey. SEM.	Trust has a key role in loyalty toward social commerce websites.
Shen <i>et al.</i> (2019)	People who have a homepage on a leading social commerce community.	P: technology attractiveness (task, social and physical), interest in social commerce and community involvement. O: social commerce engagement.	376 users. China. Online survey. PLS-SEM.	Technology attractiveness influences community involvement, which in turn impacts on social commerce engagement.
Wu and Li (2018)	Consumers who have made purchases through Facebook.	P: social commerce marketing mix and customer value (utilitarian, social and hedonic). O: customer loyalty.	599 users. Taiwan. Online survey. PLS-SEM.	The social commerce marketing mix affects customer value, which positively impacts on loyalty in social commerce.

Sources	Target population	Predictors (P) and outcomes (O)	Methodology	Findings
Xue <i>et al.</i> (2020)	Users of a leading live-streaming social commerce platform.	P: anchor-consumer interaction, customer-customer interaction, machine-customer interaction; perceived usefulness, perceived risk and psychological distance. O: social commerce engagement.	377 users. China. Online survey. SEM	Live interactions increase the perception of ease of use and reduce perceived risk. These two variables positively affect social commerce engagement.
Yeon <i>et al.</i> (2019)	Users with shopping experience in social networking sites (SNSs).	P: Trust in the retailer, trust in the SNSs, attitude, intention to buy, actual purchasing behavior, heuristic factors, and systematic factors. O: loyalty toward retailers and loyalty toward SNSs.	323 users. N/A Online survey. SEM	Trust in the individual retailer does not influence customer loyalty, but trust in the social network does, albeit indirectly. Heuristic and systematic factors, attitude, intention to buy and current purchasing behavior are also antecedents of loyalty.
Zhang <i>et al.</i> (2016)	Users of a microblogging platform.	P: self-congruence, social norms, information quality, interactivity; relationship quality (trust, commitment, satisfaction). O: brand loyalty.	424 users. China. Online survey. PLS-SEM	Loyalty is directly affected by relationship quality, and indirectly by self-congruence, social norms, information quality and interactivity.

Appendix B. Measurement scales

Constructs	Items	Authors
<i>Information quality</i>	IQ1. This social commerce site provides me with the precise information I need IQ2. The information content provided by this social commerce site meets my needs IQ3. I think the information content provided by this social commerce site is reliable IQ4. This social commerce site provides me with up-to-date information	Wang <i>et al.</i> (2016)
<i>Service quality</i>	SQ1. When I have a problem, this social commerce site service shows a sincere interest in solving it SQ2. This social commerce site service is always willing to help me SQ3. I feel safe in my transactions with this social commerce site service in terms of security and privacy protection SQ4. This social commerce site service has the knowledge to answer my questions SQ5. This social commerce site service gives me individual attention SQ6. This social commerce site service understands my specific needs	Wang <i>et al.</i> (2016)
<i>Rewards and recognition</i>	This social commerce site... R&R1. Provides proper rewards to active members for their efforts R&R2. Provides strong support for various active member activities R&R3. Shows proper gratitude to actively participating members	Kim <i>et al.</i> (2008)
<i>Customization</i>	CU1. This social commerce site makes purchase recommendations that match my needs CU2. This social commerce site enables me to order products that are tailor-made for me CU3. The advertisements and promotions that this social commerce sites sends to me are tailored to my situation CU4. This social commerce site makes me feel that I am a unique customer CU5. I believe that this social commerce site is customized to my needs	Srinivasan <i>et al.</i> (2002)
<i>Perceived value</i>	PV1. Considering the money I pay for buying products on this social commerce site, internet shopping here represents a good deal PV2. Considering the effort I make in shopping at this social commerce site, internet shopping here is worthwhile PV3. Considering the risk involved in shopping at this social commerce site, internet shopping here is of value PV4. Overall, internet shopping at this social commerce site delivers me good value	Kim H. W. <i>et al.</i> (2012)
<i>Repurchase intention</i>	RE1. I would like to buy products from this social commerce site again RE2. I would like to buy products continuously from this social commerce site RE3. Next time I would like to buy products from this social commerce site PE1. I encourage friends or others to shop on this social commerce site	Shin <i>et al.</i> (2013) Yang <i>et al.</i> (2015)

Constructs	Items	Authors
<i>Positive eWOM intention</i>	PE2. I recommend this social commerce site to people who seek my advice PE3. I say positive things about this social commerce site to other people PE4. I recommend this social commerce site to others	
<i>Customer engagement behavior intention</i>	CE1. I intend to stay on as a member of this social commerce site. CE2. I am willing to actively participate in the activities of this social commerce site. CE3. I am willing to support other members of this social commerce site.	Fang <i>et al.</i> (2017)
<i>Frequency of social commerce use</i>		
1 = Never (thank you, the survey has ended); 2 = Rarely (less than once a month); 3 = Once every few weeks; 4 = Several times a month; 5 = Several times a week; 6 = Almost every day; 7 = Several times a day		

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