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Measuring Customer Engagement in Social Media Marketing: A Higher-Order Model

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Abstract: Customer engagement has emerged as a vital component in social media marketing strategies, prompting considerable interest from both marketers and academics. This study investigates customer engagement (CE) in a framework that includes three antecedents and a main outcome (loyalty). Based on the survey method, we test a proposed model on social media users. The data analysis focuses on exploratory and confirmatory factor analyses, as well as structural equation modeling to test the hypotheses, and a multi-group analysis. The results validate CE as a multidimensional construct and support all hypotheses of the conceptual model. As key contributions, the study reveals involvement as the strongest antecedent of customer engagement and emphasizes the importance of CE in predicting and fostering customer loyalty. This paper adds to the existing body of knowledge on customer–brand relationships by establishing the main drivers for customer engagement in digital settings, with valuable theoretical and practical perspectives. Finally, our findings provide managerial recommendations on the development of social media marketing strategies conveyed to enhance customer engagement.

Keywords: customer engagement; social media marketing; loyalty; customer–brand relationship; digital marketing

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1. Introduction

With an increasing role in consumers' lives, social media provides a valuable marketing strategy for creating valuable relationships with customers in e-settings. A GlobalWebIndex report [1] found that digital consumers allocate approximately 2 h and 24 min each day to social media and messaging apps. As a result, marketers are investing more time and resources in interacting with consumers in digital and electronic commerce settings, while scholars are examining the opportunities for utilizing social media marketing as a strategy for generating engaged consumers [2] especially related to electronic commerce opportunities. A major construct that builds connections in social media is customer engagement, which will be the focus of this paper.

As a "channel of interaction between customers and companies" [3], social media has become a part of our lives, with multiple opportunities for consumers and marketers. Defined as a collection of internet applications which enables development and sharing of user-generated content [4], social media has also provided the research outlet for a myriad of studies: understanding on how social media brand pages can lead to brand love [5]; analyzing consumers' sentiments based on tweets and user-generated content [6]; generating citizen participation [7]; and supporting the public relations efforts of companies [8]. Moreover, in marketing, social media offers brands the opportunity to attract, interact, retain, and engage with consumers. The effect of social media marketing on customer relationships has been studied extensively [5,9–11]. For instance, a study [12] has found that more than 50% of decision processes and acquisitions are impacted by brands' social media presence. By extension, social media marketing enables the development

and sharing of content (created by brands or consumers) in an interactive network that stimulates participation and 'absorption' [13].

There are many social platforms with different marketing purposes, such as: TikTok for small video snippets; Snapchat for multimedia messaging; Twitter for microblogging; WeChat for payments, social media and messaging; LinkedIn for professional networking; and many more. However, Facebook is the most widely used social media platform in the world [1]. In 2020, Facebook recorded 2.8 billion monthly active users worldwide and 1.84 billion daily active users [14]. Overall, there are 3.3 billion registered users on Facebook, Instagram (photo and video sharing), WhatsApp (text and video messaging), and Messenger [14].

In this context of social media usage surge, customer engagement (CE) has been proposed as a concept that can help develop mutually beneficial relationships between consumers and brands. Customer engagement has been the focus of marketing campaigns developed by practitioners, and the research interest of many academic studies focused on theoretical perspectives [2,9,10,13] and practical insights, such as exploring engagement metrics of social networks in the Chilean wine industry [3] or developing actionable guidelines based on factors that influence CE [15].

From a theoretical standpoint, the majority of studies [11,16–20] explain this concept as a multidimensional concept with three components: cognitive, emotional, and behavioral, generating conceptual studies [21–25], qualitative papers [13,26,27], and quantitative research [28–31]. Considering the multidimensionality of this concept, various authors [9,19,28,29,32] propose the empirical examination of CE as a higher-order construct measured through three simultaneous dimensions. Other academics [18,33,34] focus their measurement of customer engagement as a first-order construct.

The measurement opportunities notwithstanding, CE is considered a key marketing strategy for acquiring and retaining customers, as well as creating and sustaining a competitive advantage [18,27]. In this line of ideas, the foundation of this concept is rooted in the extended domain of relationship marketing and service-dominant logic. In consideration of this, engaged customers can contribute to "organizational innovation processes, create brand referrals and co-create experiences" [33]. As a result of its strategic potential, various authors [11,16,26] encouraged empirical research that would test different models that explore causal relationships between CE and other constructs. Despite numerous investigations on this concept, most studies have only focused on conceptual perspectives and authors seem divided in their assessment of the predictors and effects of customer engagement [25].

This study aims to bridge this gap and proposes a model that will show flexibility in measuring customer engagement as a multidimensional construct, considering its cognitive, emotional, and behavioral components, based on certain antecedents (involvement, commitment, customer participation) and a major outcome (loyalty). Despite the prevalence of research on this topic, as far as we are aware, there is no quantitative study that explores this proposed model.

This paper contributes to existing literature in four specific ways. First, this study investigates customer engagement in social media marketing, using Facebook as the main social platform that facilitates the development of CE for long-lasting customer–brand relationships. Second, this article offers psychometric examination of CE as a multidimensional higher-order construct based on three simultaneous components. Third, this research aims to bridge the gap of empirical studies related to customer engagement and offers new evidence of its role as a consequence and effect on other concepts [16,26]. Fourth, the paper contributes to customer loyalty literature by empirically demonstrating the effect of CE on loyalty. This paper is structured in five sections. The following section provides the hypotheses development and a literature review of the concepts examined in this paper. Next, we explain the research methodology and the research model's outcomes based on validation and model testing. Finally, we discuss the findings and their theoretical

and managerial implications, while also addressing the study's limitations and future research opportunities.

2. Theoretical Perspectives and Hypotheses

2.1. Theoretical Foundation and Conceptualization of Customer Engagement

Academic reviews argue that the foundation of customer engagement (CE) can be explained by the theories of relationship marketing [11] (and service-dominant (SD) logic [10,17,26,27]). Both theories consider consumers as "active contributors to brand interactions" [30] and are centered on the importance of long-lasting interactions, hence the association between these theories and the conceptualization of CE.

Customer engagement impacts consumers' brand experience and contributes to the attraction and retention of customers, which are key premises of relationship marketing [22]. Similarly, from the service-dominant logic perspective, CE reflects the dynamics between certain agents (organizations, customers, stakeholders), named "value configurations" [35], that communicate with one another in a particular network leading to an interactive and co-created value [10,36]. As established by Brodie et al. [26], the "interactive experience" is an important basis for CE.

In marketing literature, the key concepts that justify the SD logic and relationship marketing as theoretical background insights for customer engagement are the interactivity and proactivity of consumers in co-creating the value they receive as a result of a brand experience [25,37]. The SD reasoning implies that the principle of "superior value co-creation" replaces the popularly held notion of "providing value to consumers" as the basis of any business strategy aimed at achieving a competitive advantage [11]. Thus, we propose that interactive experiences, as they relate to the paradigms of relationship marketing and SD logic, can explain the theoretical background of CE.

Based on this theoretical foundation, CE studies indicate the emergence of various forms of this concept, including 'customer engagement' [10,34,38], 'consumer engagement' [30] 'customer engagement behavior' [39], 'customer–brand engagement' [11,16–18,28], 'community engagement' [40], 'continued engagement intention' [41], and 'brand engagement in self-concept' [5]. In this paper, we will investigate the concept of customer engagement (CE) because we examine its connection to loyalty, which requires the status of 'customer'.

Comprising a series of definitions on the evolution of this concept in marketing literature, Islam and Rahman [25] conceptualize customer engagement "as the readiness of a customer to actively participate and interact with the focal object (e.g., brand/organization/community/website/organizational activity), [which] varies in direction (positive/negative) and magnitude (high/low) depending upon the nature of a customer's interaction with various touchpoints (physical/virtual)." While defining "consumer brand engagement", Hollebeek [18] focuses on this concept's multidimensionality describing it as "a consumer's positively balanced brand-related cognitive, emotional and behavioral activity during or related to focal consumer/brand interactions".

In their CE definition, Moliner et al. [34] highlight the emotional bond between a consumer and a brand, which represents a direct result of the immersion that "assumes a proactive and favorable psychological state" for the consumer. Moreover, Brodie et al. [26] reiterate this position, considering CE as "a psychological state that occurs by virtue of interactive, co-creative customer experiences with a focal agent/object (e.g., a brand) in focal service relationships". Because of this psychological state, customer engagement can explain behaviors that go beyond product acquisition and can take different forms, from posting online product reviews [40], to 'customer social-influence' and 'customer knowledge sharing' [38]. By focusing especially on the behavioral dimension of customer engagement, Bijmolt et al. [42] distinguish three manifestations of this concept: word-of-mouth or recommendations, co-creation with the customer and complaining behavior which affect a particular brand or company in different ways and extend beyond generating sales.

The topic of customer engagement has been examined in different contexts. For instance, authors have examined this concept in settings related to multichannel services [41], while other authors have focused their research efforts on explaining the effect of CE on business performance and service innovation, as well as on the performance of sales representatives [43]. Additionally, different papers have also explored the role of engagement in a virtual reality experience in the hospitality sector [44,45]. Nonetheless, this paper focuses on CE in social media marketing.

On social media, consumers have become more engaged with the brands they buy or aspire to buy, often acting as marketers for these brands [2,42]. Moreover, consumers who are active on social media tend to show more elevated amounts of trust, commitment, satisfaction, loyalty, and emotional bonding [27,29]. Thus, the importance of examining this concept.

Certain studies offered different interpretations of the dimensionality of CE, for instance Van Doorn et al. [39], who considered only the behavioral dimension of CE, while Mollen and Wilson [21] addressed only the affective and cognitive dimensions. However, consensus on this subject is that customer engagement is a multidimensional concept [16,17,26,29] with three components: cognitive, depicted as "absorption, attention, awareness, cognitive processing" [46]; emotional, referring to enthusiasm, enjoyment, pleasure, "positive affect for a brand" [18]; and behavioral, represented as "energy, effort and time spent on a brand" [18].

To empirically examine CE's three dimensions, Hollebeek et al. [18] proposed a scale based on three similar manifestations of CE: cognitive processing, affection, and activation. Further, Harrigan et al. [29] and Obilo et al. [47] implemented this proposed scale in social media studies and verified its validity. Nonetheless, Obilo et al. [47] highlighted certain issues of overlapping of the three dimensions with similar concepts (attitude, attachment, intention), further expanding the study by proposing a new scale (with 21 items) based on four factors: "content engagement", "advocacy", "co-creation", and "negative engagement" [47]. Additionally, Mirbagheri and Najmi [46] developed a new scale that measures four items CE's components: "affective engagement (interest and enjoyment); behavioral engagement (participation) and cognitive engagement (attention)". Furthermore, So et al. [32,48] concentrated their research on tourism, developing a scale that portrayed CE as a higher-order construct composed of five first-order factors: "enthusiasm (or vigor), attention, absorption, interaction, and identification". Moreover, Vinerean and Opreana [49] established a scale that measures CE based on the renowned dimensions: emotional (four items), cognitive (four items), and behavioral (four items). By examining CE as a higher-order construct, this research builds upon these existing papers and enhances the study of CE.

2.2. Customer Engagement Antecedents

2.2.1. Involvement

Generally, consumer involvement is linked to an internal state that indicates intensity, direction, and persistence, and has been defined by Zaichkowsky [50] as "a person's perceived relevance of the object based on inherent needs, values, and interests". Moreover, other conceptualizations describe it a consumer's "care" for a product [13] when buying and consuming a brand. Harrigan et al. [29] state that a consumer who exhibits a high level of involvement will most likely "invest thoughts, emotions, and behaviors into their preferred brands". As such, in social media marketing, involvement can take the form of a personal relevance or the consumers' interest in a brand [18].

Multiple authors [29,41] have made the distinction between involvement and customer engagement, explaining that involvement is a psychological concept that does not examine behaviors [48]. Mollen and Wilson [21] distinguish the two constructs by attesting that customer engagement, unlike involvement, requires "experimental and instrumental value". To support this idea based on tourism brands on social media, Harrigan et al. [29] place involvement as an antecedent of CE because "consumers have a level of interest

and personal relevance in a brand before a specific engagement behavior". Hollebeek et al. [18] found the positive effect of involvement on CE. Similarly, Dwivedi [28] examined product category involvement in relation to CE and discovered a direct connection. This research aims to extend the work of different authors [11,29,32,34,47,48] by exploring the following hypothesis:

Hypothesis 1 (H1). *Involvement is positively associated with customer engagement, examined as higher-order construct, considering its emotional, behavioral, and cognitive sub-dimensions.*

2.2.2. Customer Participation

Customer participation is a key element in relationship marketing as it reflects the "active co-producer" [36] status of a customer when he/she chooses to participate in the production of a purchased service. Thus, customer participation is a concept interconnected with co-creation and co-production [51]. Co-creation is a client's active participation in the development of a product [35] by sharing ideas, co-designing a product, or jointly producing certain products. Consumers who wish to contribute can take part in the creation of new products, provide feedback on innovations and/or improvements to existing products and services. Continuing this idea, Kim and Park [52] established various forms of social media participation: deliberate participation (i.e., giving a certain type of assessment on social media), inadvertent participation (i.e., seeking information), and resultant participation (i.e., intention to purchase, word-of-mouth). To anchor the concept in social media, Chae and Ko [53] proposed the concept of 'customer social participation' defined as "an effort to achieve co-creation of values through required, but the voluntary interactive participation of the customers in service production and delivery process in social media".

Customer participation is mentioned in several definitions that highlight its link to customer engagement, in terms of participation intensity [11,54], participation in joint activities [55,56], co-creation and complaint behavior [42], or co-creative experiences [26]. Interactions enable customer participation in value-added processes and collaboration with organizations, thus providing the basis for CE. Past studies [11,26,57] have emphasized the role of participation as an antecedent of customer engagement. Thus, we propose:

Hypothesis 2 (H2). *Customer participation is positively related to customer engagement, examined as higher-order construct, considering its emotional, behavioral, and cognitive sub-dimensions.*

2.2.3. Commitment

Commitment reflects a client's desire to maintain a valuable relationship [58] due to "a psychological state that forces a person to take a certain course of action" [59]. As such, commitment has the potential to impact the perceptions of future interactions and experiences with a marketing object [60]. Thus, it is assumed that when individuals exhibit commitment, they are much more likely to develop positive attitudes and behaviors towards that brand, leading to consumer engagement [11,24,56]. Mollen and Wilson [21] have emphasized its connection to commitment in an active relationship where the brand is personified in the eyes of consumers. Customer engagement is often formulated in the context of a psychologically rooted commitment, whereby the object of a customer's commitment is considered the only acceptable choice in a product category [61]. Moreover, Bowden [13] emphasizes the importance of both types of commitment, both calculative and affective, in developing a model for studying CE. Most studies [11,13,16,24,27,33,39,56] have highlighted commitment as a cause of customer engagement. Therefore, we propose the following hypothesis:

Hypothesis 3 (H3). *Commitment has a positive impact on customer engagement, examined as higher-order construct, considering its emotional, behavioral, and cognitive sub-dimensions.*

2.3. The Impact of Customer Engagement on Customer Loyalty

A primary goal of this study is to investigate the connection between customer engagement and loyalty as the main outcome. As a construct rooted in relationship marketing, CE will manifest as a bond between customers and brands and this connection will serve as the premise for future brand interactions and repurchasing of preferred brands.

As a standalone concept exhibiting a non-random behavior [55], consumer loyalty represents "a deeply held commitment to re-buy or re-patronize preferred products/services consistently in the future" [62]. Moreover, Too et al. [63] describe this concept as "a multifaceted construct which takes into account both psychological and behavioral components" leading to repeat patronage. As customer engagement involves multiple interactions between consumers and brands [16,24], this will lead to the development of "psychological bonds that a consumer is likely to sustain in the future" [28].

Considering the premises of loyalty, Kumar et al. [23] convey their definition of CE by highlighting the customer lifetime value, that aims to generate long-term buying behaviors, through repeat purchases, upselling and cross-selling, linking CE to loyalty. Moreover, Bowden's [13] CE process is primarily concerned with examining, creating, and developing customer relationships and the mechanisms that lead to customer loyalty for a specific brand. The same idea linking consumer engagement to loyalty in an online setting is shared by Brodie et al. [26,27]. Similarly, Harrigan et al. [29] explored the concept of behavioral loyalty as an outcome of CE for tourism brands on social media. Other authors [11,13,16,17,28,32,33,48] have focused their qualitative and quantitative studies on examining the effect of CE on loyalty. Thus, we hypothesize:

Hypothesis 4 (H4). *As a higher-order construct with three sub-dimensions (emotional, behavioral, and cognitive), customer engagement has a positive influence on customer loyalty.*

Based on these proposed hypotheses, in this paper, we will explore a model in which CE is represented as a higher-order construct (Figure 1).

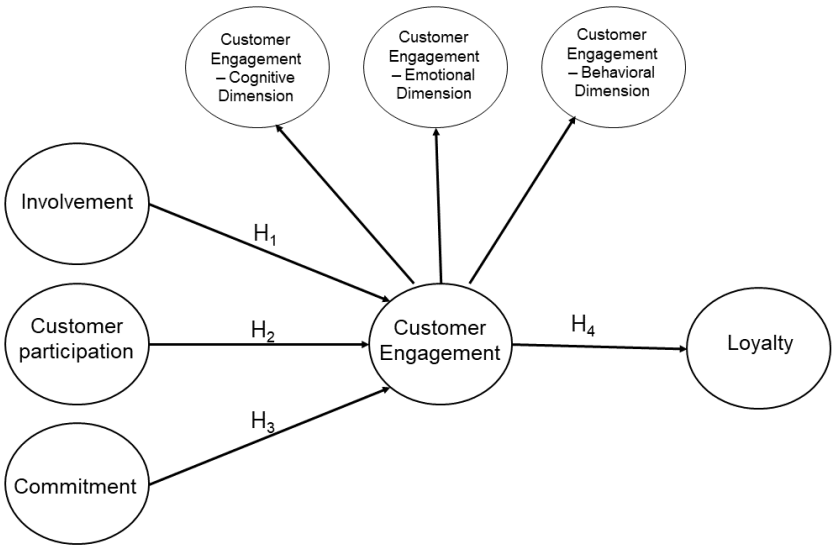

Figure 1. Conceptual model of CE as a higher-order construct.

3. Research Method

This study examines customer engagement in social media marketing, considering three antecedents (involvement, customer participation, commitment) and a main consequence (loyalty) in a quantitative study, based on a cross-sectional online survey and using an international sample of respondents.

3.1. Measures

For this study, the research items (presented in Appendix A) were extracted from existing studies to highlight quality and validity for the survey instrument. All the items include statements that requested respondents to demonstrate their agreement level based on five-point Likert scales (1 = strongly disagree, 5 = strongly agree). The constructs' measurement items examined in the questionnaire are the following: eleven items measured the three components of 'customer engagement' based on Vinerean and Opreana's study [49]; five items operationalized 'customer loyalty' considering the scale items proposed by Chen [58] and Too et al. [63]; three items measured 'involvement' in accordance with Chen's study [58]; three items were used to assess 'commitment' based on measures previously used by Jahn and Kunz [54] and Chen [58]; three items derived from studies developed by Kamboj et al. [51] and Casaló et al. [55] operationalized 'customer participation'. Using scale items from existing literature further enhances the reliability of this study. Item wording was adjusted to reflect the study's scope. Other demographics were included in the questionnaire. The survey instrument for this quantitative study was pre-evaluated with the assistance of six experts in digital marketing (academics and marketers). Based on their assessment on the wording and clarity of the survey, certain adjustments were made to reflect their recommendations.

3.2. Data Collection and Respondents' Profile

Considering this study's purpose, we chose Facebook as the social media platform that leads to CE by focusing on respondents' relationship with their preferred brands. To characterize and evaluate the connections between proposed constructs, we used a survey approach for a quantitative marketing research [9,28,33]. Giving the popularity of Facebook, we chose to base this research on a sample of respondents from multiple continents or countries, as suggested in previous studies developed by Fernandes and Moreira [9] and Islam and Rahman [25]. Worldwide, Facebook is considered the most popular social media platform [14], transcending country borders. Thus, we aimed to provide a global perspective on the proposed model and the opportunity to replicate it in multiple countries. To acquire data from respondents and analyze their connection with their preferred brands on Facebook, we used a cross-sectional and self-administered survey. Respondents were recruited through Facebook groups (with a specific focus on shopping and brand communities) and by mail and social media messages. Participation in the study was voluntary and confidential. The data was collected over a period of four months (December 2020–March 2021). Furthermore, the responses of the participants were analyzed collectively. This research approach based on a convenience sample (as a non-probability sampling technique) was widely applied in prior CE studies [9,28,29,33].

Regarding the premises of the research instrument, the survey's initial section included multiple screening questions, such as: date of joining Facebook, hours spent on Facebook per week, brand they buy or engage with regularly, brand interactions on Facebook, noticing Facebook posts from their preferred brand, frequency of brand purchases. Regarding customers' brand interaction, if the respondents answered in the affirmative that they follow their favorite brand on Facebook then they reflected qualified observations. Further, the respondents were instructed to answer the questions considering their preferred brand. The survey's items were randomized to avoid biases.

Initially, 549 responses were recorded. After eliminating biases, superficial responses (85 eliminated responses) and assuring congruence to the survey's scope (73 eliminated responses), the final valid dataset comprised of 391 observations, adhering to Hair et al.'s [64] recommendation of using a sample of 100–400 observations to capture a model that can be replicated under matching data conditions.

Table 1 provides information on the sample of respondents. Of the 391 respondents, 69.6 percent are male. Most respondents (46.8 percent) have an annual income between USD 25,000 and 75,000. Further, 97.4 percent of the respondents have higher education degrees (Bachelor, Master). The sample includes responses from different countries, from

all continents: 51.7% from Europe, 23% from North America, 10.5% from Asia, 10.2% from Oceania, 3.1% from Africa, and 1.5% from South America. Based on a ratio scale, the respondents' average age is 31.07, with 6.646 standard deviations, ranging from 18 to 47 years old. On average, respondents spend a minimum of 1 h per day on Facebook. Considering the initial questions regarding their preferred brands, data processing involved an industry segmentation of these brands. Out of 391 observations, 22.5% selected brands from the 'Electronics' industry (Apple and Samsung being the most popular brands); 21% opted for 'Entertainment and Leisure' brands; 17.4% nominated 'Apparel and Accessories' brands; 10.5% picked Automotive brands; 10.2% chose 'Food and Beverages' brands; 10% preferred 'Publications and Magazines' brands; 8.4% preferred retail brands.

Table 1. Summary of respondents' profile (n = 391).

Variable	Operationalization	Frequency	Percentage
Sex of the respondent	Female	119	30.4%
	Male	272	69.6%
Education level	Highschool diploma	10	2.6%
	Master Diploma	36	9.2%
	Bachelor Diploma	345	88.2%
Annual household income	<USD 25,000	3	0.8%
	2—USD 25,000–50,000	183	46.8%
	USD 50,001–75,000	64	16.4%
	USD 75,001–100,000	34	8.7%
	>USD 100,001	46	11.8%
	Do not wish to answer	61	15.6%
Industry of preferred brand	Electronics	88	22.5%
	Entertainment and Leisure	82	21.0%
	Apparel and Accessories	68	17.4%
	Automotive	41	10.5%
	Food and Beverages	40	10.2%
	Publications and Magazine	39	10.0%
	Retail Stores (Online and Offline)	33	8.4%
Continent	Europe	202	51.7%
	North America	90	23%
	Asia	41	10.5%
	Oceania	40	10.2%
	Africa	12	3.1%
	South America	6	1.5%

The sample was further evaluated based on Levene's test. For this test, we considered the respondents' Facebook usage and two factor variables (respondents' continent and gender). In the survey, the respondents evaluated their usage of Facebook on a scale from 1 to 10, where 1 represented a light user (someone who is not particularly focused on using this social media platform) and 10 represented a heavy user. Based on the results obtained for the Levene statistic, respondents' usage of Facebook showcased homogeneity across the different continents reported by the participants of this study (with a Levene statistic of 0.479 at a significance level of 0.792) and across the male and female groups (with a Levene statistic of 2.158 at a significance level of 0.143). For both tests, the reported significance values were higher than the 0.05 threshold, thus, the assumption of homogeneity of variances was not compromised [64].

3.3. Analyses

To assess the proposed model, the analysis is based on exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and structural equation modelling (SEM). First, EFA helps with the exploration of the data to find underlying patterns. Second, CFA helps to test the measurement theory underlying the first and second-order models. Third,

SEM examines the newly proposed model for customer engagement in digital settings. In contrast to a regression analysis or other dependency analyses that seek to explain relationships in a single equation, the statistical objective of a structural equation model is to examine a set of relationships representing multiple equations (Hair et al., 2018). In the next sections, these analyses will be explored based on their application in SPSS (version 25) and AMOS.

4. Empirical Analysis and Results

4.1. Exploratory Factor Analysis

As a first step, exploratory factor analysis (EFA) is used to examine the structure of the constructs. The EFA was applied using the maximum probability for extraction and Promax for rotation, following the recommendations from Harrigan et al. [29] for datasets that will be further analyzed in CFA and SEM. The EFA procedure generated seven factors that help understand the underlying variables of the model. The EFA's results showcase adequacy according to the 0.940 score for Kaiser–Meyer–Olkin measure of sampling and the significant Barlett's test ($\chi^2(300) = 5731.972$, $p < 0.001$). All seven resulted factors have an Eigenvalue greater than 1 and total variance explained is 73.611% which exceeds the accepted threshold [64]. Table 2 presents the EFA's pattern matrix of resulted factors. Further, the reliability condition of the scales was met because all scale items registered values above the 0.7 threshold for Cronbach's alpha coefficient [65], as presented in Table 2.

Table 2. EFA results and scale reliability based on Cronbach's alpha.

Latent Variable	Items	Cronbach's Alpha	Factor						
			1	2	3	4	5	6	7
Consumer Engagement—Cognitive dimension (CE-C)	CE-C1	0.870			0.760				
	CE-C2				0.883				
	CE-C3				0.727				
	CE-C4				0.655				
Consumer Engagement—Emotional dimension (CE-E)	CE-E1	0.897		0.858					
	CE-E2			0.797					
	CE-E3			0.821					
	CE-E4			0.764					
Consumer Engagement—Behavioral dimension (CE-B)	CE-B1	0.807						0.731	
	CE-B2							0.782	
	CE-B3							0.706	
Commitment (CM)	CM1	0.800				0.827			
	CM2					0.700			
	CM3					0.746			
Customer Participation (CP)	CP1	0.817							0.741
	CP2								0.776
	CP3								0.71
Involvement (INV)	INV1	0.847					0.706		
	INV2						0.751		
	INV3						0.776		
Loyalty (LOY)	LOY1	0.882	0.731						
	LOY2		0.752						
	LOY3		0.809						
	LOY4		0.793						
	LOY5		0.745						

Source: Survey data processing by the authors.

4.2. Confirmatory Factor Analysis

Further, we have conducted a confirmatory factor analysis (CFA) to test the measurement theory, using the maximum likelihood procedure [64]. The EFA's factors' structure was confirmed by a second-order CFA, due to the inclusion of a higher-order construct (CE with its three first-order dimensions). To validate a second-order CFA, first we have to assess the first-order CFA [64]. Upon first inspection of the first and second-order measurement models, there were no issues with the identification of the CFA: the degrees of freedom were higher than zero, and the larger sample of 391 did not produce a Heywood case because all the latent constructs had at least three indicators [64]. First and second-order CFAs were examined based on convergent and discriminant validity. The results of the first-order CFA indicated adequacy (Table 3).

Table 3. Convergent and discriminant validity of the first-order CFA.

	AVE	CR	CE-B	CM	CP	INV	LOY	CE-E	CE-C
CE-B	0.583	0.807	**0.763**						
CM	0.580	0.805	0.593	**0.762**					
CP	0.599	0.817	0.616	0.626	**0.774**				
INV	0.649	0.847	0.597	0.615	0.677	**0.806**			
LOY	0.598	0.882	0.577	0.530	0.646	0.652	**0.774**		
CE-E	0.688	0.898	0.631	0.520	0.541	0.603	0.493	**0.829**	
CE-C	0.626	0.870	0.619	0.678	0.682	0.661	0.580	0.665	**0.791**

Note: AVE = average variance extracted, CR = composite reliability values. Square-roots of AVE are in bold, on the diagonal; Off-diagonal values represent the correlations between the latent constructs. Source: Survey data processing by the authors.

Convergent validity was assessed based on average variance extracted (AVE), composite reliability values (CR), and factor loadings [66]. Based on the results presented in Table 3, both AVE and CR values exceed the acceptable thresholds of 0.5 or 0.7 [66,67]. Additionally, all standardized estimates are statistically significant and above the 0.5 threshold [64]. Further, discriminant validity presents how each construct in the model is different from other factors [64]. Table 3 shows that the values calculated as the square root of AVE exceed the correlations between the other latent constructs [66]. Moreover, the pairwise correlation coefficients between factors did not exceed the 0.85 threshold [67] (Table 3). Thus, conditions for convergent and discriminant validity are met.

After conducting and validating the first-order CFA, we proceeded to determine the adequate fit of the second-order model [64]. The second-order measurement model's results (Tables 4 and 5, Appendix B) adhere to recommended thresholds [68]: $\chi^2(258) = 341.634$, $p < 0.001$, χ^2 df = 1.324, GFI = 0.939, CFI = 0.985, TLI = 0.983, RMSEA = 0.029, SRMR = 0.031.

First, for convergent validity, the AVE and CR values (Table 5) exceed the recommended thresholds [64,66,67]. Second, the standardized loadings are statistically significant ($p < 0.001$) and have achieved the minimum standard of 0.5 [9] or 0.7 [64]. Only one item registered a value of 0.699 ($p < 0.001$) (Table 4), as a borderline value. Thus, no item required removal from the second-order CFA. Further, for discriminant validity (Table 5), the correlations between the other latent factors are lower than the square root of AVE [64]. Moreover, the pairwise correlation coefficients between factors do not surpass the 0.85 threshold [67]. Thus, requirements for discriminant and convergent validity are adequately fulfilled. Additionally, descriptive statistics are provided for each scale item available in this research (Table 4). The items' means range from 3.335 and 3.785 (out of 5). Thus, all mean scores are higher than the mid-scale point of 2.5. Moreover, the corresponding standard deviations are confided between 0.808 and 0.959. A supplementary analysis based on the mean scores registered for all scale items, showed that the respondents rated the overall mean of the emotional dimension of customer engagement as the highest one (mean = 3.77), followed by the behavioral dimension of customer engagement (mean = 3.62), the cognitive dimension of customer engagement (mean = 3.56), loyalty (mean = 3.54), involvement (mean = 3.53), commitment (mean = 3.44), and customer participation recorded the lowest

score (mean = 3.42). These results are similar to the ones previously reported in studies focused on customer engagement models developed by Dwivedi [28] and Rather [33].

Table 4. Results of the second-order CFA.

Construct and Items	M	SD	SL	*t*-Value	SMC	*p*-Value
Customer Engagement—Cognitive Dimension						
CE-C1	3.581	0.922	0.813	18.069	0.661	***
CE-C2	3.509	0.908	0.726	15.566	0.527	***
CE-C3	3.596	0.942	0.795	17.530	0.632	***
CE-C4	3.570	0.947	0.826	-	0.682	***
Customer Engagement—Emotional Dimension						
CE-E1	3.754	0.959	0.834	20.726	0.696	
CE-E2	3.775	0.928	0.807	19.708	0.651	***
CE-E3	3.785	0.920	0.871	-	0.759	***
CE-E4	3.752	0.921	0.801	19.405	0.642	***
Customer Engagement—Behavioral Dimension						
CE-B1	3.668	0.875	0.781	-	0.610	***
CE-B2	3.675	0.877	0.766	14.369	0.587	***
CE-B3	3.529	0.852	0.741	13.974	0.549	***
Customer participation						
CP1	3.335	0.849	0.816	-	0.666	***
CP2	3.335	0.855	0.703	14.003	0.494	***
CP3	3.583	0.840	0.799	16.052	0.638	***
Commitment						
CM1	3.486	0.877	0.815	-	0.664	***
CM2	3.391	0.949	0.699	13.476	0.489	***
CM3	3.442	0.817	0.766	14.709	0.587	***
Involvement						
INV1	3.524	0.828	0.785	16.698	0.616	***
INV2	3.547	0.846	0.798	17.017	0.637	***
INV3	3.506	0.900	0.833	-	0.694	***
Loyalty						
LOY1	3.568	0.868	0.777	15.840	0.604	***
LOY2	3.527	0.856	0.782	16.226	0.612	***
LOY3	3.442	0.808	0.747	14.693	0.558	***
LOY4	3.509	0.891	0.774	15.780	0.599	***
LOY5	3.629	0.879	0.789	-	0.623	***

Note: M = mean; SD = standard deviation; SL = standardized loadings; SE = standard error; t-value = value of the *t*-statistic test, SMC = squared multiple correlation, *** $p < 0.001$.

Table 5. Convergent and discriminant validity of the second-order CFA.

	AVE	CR	INV	CM	CE	CP	LOY
INV	0.649	0.847	**0.806**				
CM	0.580	0.805	0.615	**0.761**			
CE	0.690	0.869	0.741	0.730	**0.831**		
CP	0.599	0.817	0.677	0.626	0.747	**0.774**	
LOY	0.599	0.882	0.652	0.530	0.662	0.645	**0.774**

Note: CR = composite reliability, AVE = average variance extracted; Square-roots of AVE are in bold, on the diagonal; Off-diagonal values represent the correlations between the latent constructs. Source: Survey data processing by the authors.

In this analysis, common method bias was addressed based on general recommendations from Podsakoff et al. [69] and marketing-related suggestions proposed by MacKenzie and Podsakoff [70]. A priori methods were developed to minimize the repercussions of biases on findings' validity. Thus, we aimed to cancel the exerting influence of common method bias during the data collection process [69,70]. For the online survey, we ran-

domized the questions to avoid responses' bias for similar items. Moreover, during data collection, we tried to neutralize this issue [69] by collecting responses from multiple countries and then letting customers specify their preferred brands on Facebook. Consequently, the respondents' characteristics and their preferred brands are distinct, minimizing the introduction of common method bias in the data collection process. Additionally, the variables' multicollinearity was also tested. More specifically, we calculated the tolerance and VIF for each independent variable. VIF values are lower than the 10-threshold proposed by Hair et al. [64], as the highest VIF value was 3.1. Thus, multicollinearity is not an issue.

4.3. Structural Equation Model

In this section, a structural equation model (SEM) is used to test and examine the theoretically proposed hypotheses for the higher-order construct of customer engagement (Figure 1). The structural model used the maximum likelihood estimation in IBM Amos 21. The model presents good data fit [68]: $\chi^2(263) = 380.430$ ($p < 0.001$) $\chi^2/df = 1.447$, GFI = 0.931, CFI = 0.979, TLI = 0.976, RMSEA = 0.034, SRMR = 0.0358. The relationships of the structural model that explain the antecedents and main consequence (loyalty) of CE (measured as a second-order construct) are all significant (Figure 2, Table 6).

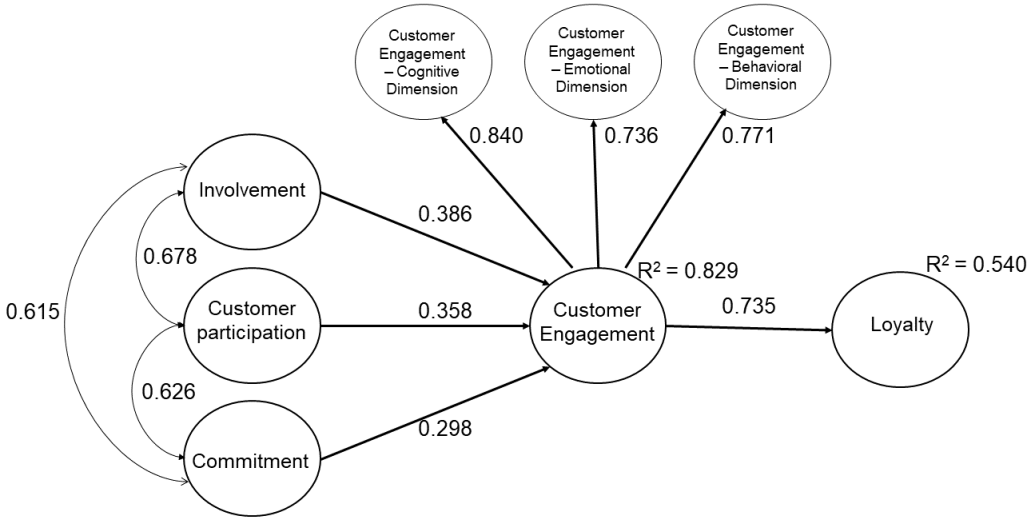

Figure 2. Results for the CE higher-order model.

Table 6. Results for the higher-order model of CE.

Relationship	Standardized Regression Estimates (β)	*t*-Value	Sig.	Result	R^2
H_1: INV → CE	0.386	5.810	***	Supported	
H_2: CP → CE	0.358	5.244	***	Supported	0.829
H_3: CM → CE	0.298	4.821	***	Supported	
H_4: CE → LOY	0.735	11.206	***	Supported	0.540

Note: *** Significant at $p < 0.001$ (two-tailed). Source: Survey data processing by the authors. Notes: INV = Involvement, CP = Customer participation, CM = Commitment, CE = Customer Engagement, LOY = Loyalty.

The results indicate that all hypotheses related to CE's antecedents (H1–H3) are significant and confirmed in the context of the proposed model. Thus, CE can be explored, as a higher-order construct, in terms of its predictors: commitment ($\beta = 0.298$, $p < 0.001$), customer participation ($\beta = 0.358$, $p < 0.001$), and involvement ($\beta = 0.386$, $p < 0.001$). Involvement is the strongest predictor of CE, nonetheless, all three antecedents collectively explain 82.9% of its variance. The relationship that examined customer engagement and loyalty is the strongest in the model, with a significant result ($\beta = 0.735$, $p < 0.001$). Thus, H4 is confirmed and provides strong evidence for this cause–effect relationship in which customer engagement explains a large proportion of loyalty's variance (54%).

Based on Rather and Hollebeek's [20] recommendations to study CE in a broader context that also controls for certain demographic variables, we aimed to evaluate the model in a multi-group analysis according to the respondents' sex to investigate potential differences in hypotheses' results [64]. Again, the goodness-of-fit of the model was assessed, obtaining the following results: $\chi^2(526) = 740.865$, $\chi^2/df = 1.408$, $p < 0.001$, GFI = 0.877, CFI = 0.962, TLI = 0.957, RFI = 0.865, RMSEA = 0.032. Based on the model's relevancy, not all indicators met the recommended thresholds, because the multi-group analysis aggregates two models and the sample for female respondents accounted for only 119 observations (Table 7). This analysis intends only to extend the model's application.

Table 7. Multi-group model results.

Respondents' Sex	Relationship	Standardized Regression Estimates (β)	*t*-Value	*p*-Value
Male (N = 272)	H_1: INV → CE	0.396	4.897	***
	H_2: CP → CE	0.348	4.132	***
	H_3: CM → CE	0.300	4.081	***
	H_4: CE → LOY	0.758	9.596	***
Female (N = 119)	H_1: INV → CE	0.372	3.084	**
	H_2: CP → CE	0.376	3.083	**
	H_3: CM → CE	0.264	2.326	*
	H_4: CE → LOY	0.665	5.635	***

Note: *** Significant at $p < 0.001$ (two-tailed); ** Significant at $p < 0.005$; * Significant at $p < 0.010$. Source: Survey data processing by the authors. Note: INV = Involvement, CP = Customer participation, CM = Commitment, CE = Customer Engagement, LOY = Loyalty.

Examining the results (Table 7, Figure 3a), the model is best suited for male respondents, as all four hypotheses are accepted at a significance level lower than 0.001. For this model, the strongest relationship is between customer engagement and loyalty (H4), which exhibits a higher score than the one recorded in the main model (0.758 compared to 0.742, $p < 0.001$), explaining 57% of the variance in loyalty. Notably, involvement proves to be a better predictor for male respondents, compared to the main model (0.396 compared to 0.386, $p < 0.001$ for the main model). Aggregately, for male respondents, all the predictors explain 85% of the variance in customer engagement.

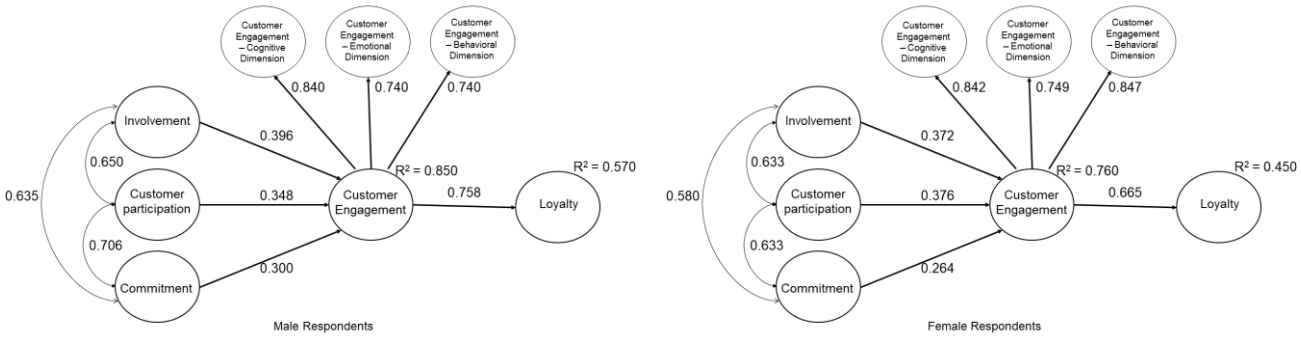

Figure 3. Multi-group analysis of CE higher-order model. (**a**) Results for male respondents; (**b**) Results for female respondents.

Regarding the females' responses (Table 7, Figure 3b), the second model is confirmed, however, the significance levels are considerably lower than the previous model. The connection between customer participation and CE has a higher score than the one recorded in the main model (0.376 compared to 0.358, $p < 0.001$). Thus, this shows that female respondents might have a greater tendency to participate in brand-related activities, which may lead to higher customer engagement. Collectively, for female respondents, CE's

antecedents explain 76% of its variance, whereas customer engagement explains 45% of the variance in loyalty.

5. Discussion

Emerging work on customer engagement shows its key role in developing long-lasting relationships [22,33], especially as it relates to electronic commerce and digital marketing opportunities. This study reveals the antecedents of CE and emphasizes the importance of this concept in fostering loyalty.

The primary objective of this study was to explore antecedents and a main consequence of customer engagement in social media marketing, while considering CE as a tri-dimensional construct (cognitive, emotional, and behavioral). With all the model's hypotheses accepted and confirmed, the findings present valuable insights. The present study reveals that customer engagement, as a higher-order construct, is driven by customer participation, involvement, and commitment, and, moreover, CE is an essential predictor of customer loyalty. Thus, the proposed conceptual model validates the multidimensionally of CE [18,28].

Out of the three dimensions that explain the higher-order construct of customer engagement, the cognitive dimension emerged as the strongest one, suggesting that customers are fully focused on their social media brand interactions and are stimulated in learning more about their favorite brand. The second strongest component of CE was the behavioral dimension, indicating that customers are willing to take part in different brand-related initiatives. Finally, the emotional component was the third strongest dimension, affirming the emotional attachment, interest, pleasure, and fun that the customers are experiencing in their brand-related social media interactions.

This study discovered customer engagement as an influencing factor in customer loyalty, offering valuable perspectives on the relationships that lead to loyalty. This result also supports the assessment that CE aids the development of favorable outlooks for brands, leading to emotional connections when considering transactional exchanges [24,48]. This result is compatible with previous findings [11,19,33] showing that engaged customers may exhibit more consistent buying behavior and positive perspectives towards a preferred brand. Moreover, this paper validates CE as a strategic component in developing valuable customer–brand relationships, becoming a prerequisite in fostering loyalty.

Based on this research, in social media settings, consumers feel commitment to a brand when that brand reflects their values. This will further lead consumers to engage with that brand and consider it the only acceptable choice in future buys [61]. In our study, the finding that commitment is an important predictor of customer engagement corroborates previous work [13,16,18,24,39,56]. The results also support the hypothesis that examined the effect of involvement on customer engagement, showcasing congruence with previous published studies [13,16,29,48]. Customers who are involved in a brand relationship will experience a higher personal relevance for that brand, leading to recurring acquisitions. Our study also explains the direct relationship between customer participation and CE. Previous studies [36] explored the difference between passive participation (such as seeking information by reading different posts and online discussions about brands) and active participation (such as posting comments about brands). Thus, participation is an essential driver of customer engagement and this empirical evidence is in line with previous work [11,26,42,56,57].

5.1. Theoretical Contributions

This research recognizes and responds to call for studies [20,25,26] that investigate models for customer engagement on digital platforms. Based on the findings of our newly proposed model of CE, we will further explore this paper's theoretical contributions.

First, by examining customer engagement, this study contributes to the extension of customer–brand relationships literature, especially as it relates to social media marketing. Social media marketing has a great potential to remind, inform, and entertain

consumers [12], creating the premises for long-lasting brand relationships [8]. Customer–brand relationships give organizations the opportunity to focus on value co-creation, long-term interactions, generate brand love [5] which are further enhanced through customer engagement [37,38,47], a concept rooted in relationship marketing and service-dominant logic [31]. This paper proposed a new model that investigates customer engagement in social media marketing. The model included the responses of 391 geographically dispersed individuals, namely B2C consumers who have expressed their affinity for a brand that they interact with on the most popular social network (Facebook). Thus, the empirical study corresponds to previous recommendations for assessing CE in a generalized, broad context [25,31]. Because of social media's ubiquity, there is notable research interest in customer engagement in digital settings, based on customer–brand interactions. Hence, the importance of this study.

Second, a main contribution of this research represents the exploration and validation of the CE scale, based on the items proposed by Vinerean and Opreana [49]. This scale was used because of its ease of generalizing the items to reflect different contexts, a prerequisite issued by Islam and Rahman [25]. Thus, the paper adds to the efforts of previous academic articles [18,29,32,46,47] in validating a scale that investigates customer engagement. Consequently, this research confirms CE as a multidimensional construct (emotional, cognitive, and behavioral dimensions) [16,17,26] and extends the existing literature that considers CE as a second-order construct [19,28,32].

Third, another key contribution is reflected in the empirical validation of CE and its main predictors. This model proposed three drivers of customer engagement (involvement, customer participation, commitment) and all the causal relationships were deemed significant. The finding that involvement is an indicator of CE in online settings is essential in terms of theoretical contributions. As Zaichkowsky [50] explained, involvement reflects the appeal, significance, and the added value for customers. Brands must utilize social media, among different online platforms, to evoke involvement if they wish to trigger customer engagement [29,47]. Based on this study's results, customer participation leads to CE, a relationship that will enhance the role of consumers in the value-adding process as they become co-creators of value [24,31]. Commitment was also found to be an important predictor of customer engagement, supporting previous studies [13,16,17,24,39,56]. Commitment is closely linked to CE because it has the potential to instigate action from a customer [59], driving continued repurchasing and affecting future interactions and experiences with preferred brands [60]. Moreover, as encouraged by different authors [25–27], the model is also validated when considering a demographic variable in a multi-group analysis, providing further evidence of its applicability.

Fourth, this study adds to the body of knowledge examining the relationship between customer engagement and loyalty. Many theoretical studies have proposed the examination of this relationship, however, very few have empirically explored this connection [9]. This research empirically validates this relationship and reinforces the importance of customer engagement in generating loyalty, corroborating existing studies [48]. Customer loyalty is considered a key element in achieving brand equity and competitive advantage, especially as it pertains to digital environments. Digital settings offer many opportunities for consumers to interact and engage with brands, creating a myriad of possibilities to entice customer loyalty.

In conclusion, the expansion of social media and other digital platforms has offered companies the opportunity to connect with customers past the transactions of products or services through significant and engaging interactions that extend to non-purchase situations [48]. Similarly, customers who choose to interact with their preferred brand on social media will exhibit enhanced engagement towards that brand.

5.2. Managerial Implications

Considering the surge of social media, marketers must find new ways to leverage customer engagement on digital platforms. With its strategic role for a company's per-

formance, social media is a channel that requires resource allocation in the form of social media listening tools, branded content propagation, or public relations coordination.

From a managerial perspective, this research improves the comprehension of customer engagement based on its importance in developing meaningful relationships and fostering brand loyalty. In the current business environment, customer engagement can improve organizational performance, including sales growth, competitive advantage, customer attrition, and superior profitability [15–17,23,31]. Moreover, due to its importance in determining loyalty, managers should constantly measure and monitor CE in regular customer surveys using the scales validated in this study. As a result, managers will be able to observe different intensity levels of CE's emotional, cognitive, and behavioral components generated across consumer segments, and then adjust marketing strategies, accordingly. In this study, the cognitive component generated the highest effect on CE. Thus, customers are interested and immersed in their social media interactions. To this effect, consumers can add value through user-generated content, participation in different brand-related activities or communities, and suggestions for service improvement.

Using the proposed conceptualization of customer engagement on social media, managers can adopt and implement this model in designing digital marketing strategies and tactics. Specifically, marketers can implement different programs focusing on CE's predictors, such as collaborative marketing and value co-creation through customer engagement. These types of initiatives provide important insights into different projects and feedback based on consumers' direct and objective experience with a product. Moreover, by promoting consumer feedback and engaging in a value-added experience, CE may lead to loyalty and brand advocacy. Marketers must place a strong emphasis on customer engagement on digital settings and social media platforms because engaged customers have a greater predisposition of recommending products, services, brands, and companies to other potential or existing customers through word-of-mouth, social media posts, social media comments/likes/shares, and reviews on different sites.

Additionally, social media marketing activities related to CE should involve efforts that lead to customer-to-business and customer-to-customer interactions that enhance the brand in digital platforms. Repeated interactions will intensify the customer–brand relationship. Consumers are willing to help companies develop better marketing offerings, and managers need to create the premises of meaningful relationships with targeted audiences.

Considering these general social media practices related to CE, it is also important to note the specific initiatives that could be developed on Facebook based on the findings of this research. Facebook offers many opportunities for marketing managers. An essential tool is Facebook's Audience Insights which provides details on key audiences, such as purchase behavior, demographics, geography, and other elements that create a better understanding of current and potential customers. This information can be strategically incorporated in creating content that engages customers and strengthens the customer–brand relationships, an essential element of this study's results. Moreover, Facebook provides brands the opportunity to create advertising campaigns tailored to specific audiences they have in their brand pages [71].

As mentioned above, social media marketers should also consider their content marketing strategy when establishing the premises of customer engagement. Most importantly, the content strategy for a Facebook brand page should not be solely focused on promoting and selling products, but on developing engaging two-way communication with key customers. A Facebook page may feature a variety of posts, ranging from online events to philanthropic causes. Another useful tool that companies can use is Facebook Live. Facebook Live is a tool that can engage audiences in real time and in different forms, such as showcasing different events, offering back-stage access to different processes related to the product or the service, and so on [72]. Additionally, Facebook gives companies the opportunity to increase interactivity with audiences by asking questions and creating polls. To gain a long-lasting competitive advantage, companies should emphasize using these Facebook tools to encourage consumer engagement in brand discussions and cre-

ate the opportunity for customers to offer feedback. Thus, companies have to provide consumers with a relevant Facebook setting for participation and involvement in brand-related initiatives to develop their engagement and brand loyalty. Overall, we expect the managerial implementation of the proposed CE model to generate greater retention and loyalty towards a brand.

5.3. Study Limitations and Future Avenues for Research

Certain unavoidable limitations and future directions for expanding the topic of CE should also be addressed.

Firstly, because this study implied a quantitative research, a major limitation is related to the multiple-countries random sample and the results' generalization results cannot be extended beyond this sample. Even though various authors [9,25] recommended developing customer engagement studies on diverse samples of participants, this novel approach should be further developed in supplementary studies. By using respondents from different continents, we intended to provide a global perspective on the proposed model, as well as the possibility of replicating it in different countries. Nonetheless, further examinations are welcomed. Similar to prior studies [9,24,28,29,32,47,52], data collection implied using a non-probability convenience sample, which requires caution in generalizing results and needs additional cross validation. Moreover, multiple industries were examined, based on respondents' preferred brands, and the number of observations from each industry category was significantly different, thus this aspect warrants auxiliary validation in future studies.

Secondly, using an online survey to collect data may lead to measurement error. Nonetheless, the observations' analysis (reliability analysis, EFA, CFA, common method bias) presented strong proof for validation of the instrument's psychometric properties, thus the outcomes have a certain level of credibility.

Finally, another limitation is related to the study's cross-sectional premise. The CE model proposed in this paper did not focus on a particular brand because respondents were asked to mention their favorite brand. Future studies could be developed to showcase cross-sectional and/or longitudinal studies that re-apply this proposed model in different frameworks. For instance, studies could examine the predictors of customer engagement and its main outcome (loyalty) in numerous contexts, such as a particular industry, culture, or a specific company. Moreover, future investigations could also establish differences in customer engagement levels for competing brands in the same industry or develop an analysis on utilitarian vs. hedonic brands. Another interesting idea to extend this model would be to focus on different customer types of luxury goods. Well-established luxury brands are reviewing their digital marketing strategies and are investing in social media to connect with their existing and aspirational customers, providing a compelling idea to assess customer engagement based on this classification of customers.

Additional avenues for research could allow a better understanding of the moderating role of different constructs (such as brand trust or word-of-mouth marketing) in developing customer engagement and enhancing loyalty for certain brands. Another direction for future research could test this CE model with predictors and brand loyalty, as a main outcome, in the context of a different social media platform that is gaining traction, namely, Instagram. As an advantage over Facebook, Instagram tends to be preferred especially by young consumers who tend to be more active on social media [73]. Recently, Instagram has sustained multiple changes in the direction of social commerce, with a special tab in the app related to encouraging shopping, providing a new basis for CE analysis. Thus, customer engagement could be explored in the context of social commerce on Instagram or other popular social media platforms (Youtube, Pinterest, Weibo) that can enhance a brand's relationship with key audiences. Future research could also address antecedents of customer engagement on Facebook based on interpersonal influences. More specifically, additional studies could explore the concept of 'tie strength' in consumers' decision to join a brand page on Facebook [71] and further engage with that brand on this popular

social network. The study developed by Palazon et al. [71] showed "empirical support for Facebook friends' capacity to contribute to the promotion of brand pages". Thus, this important finding provides the basis for brands to identify, engage, and incentivize [71] their most active fans on Facebook in attracting new brand page members.

Nowadays, companies operate in a 'data-driven ecosystem' [74] that can be leveraged to improve and extend customer–brand relationships. As related to CE, future studies could benefit from approaching a practical understanding of the link between available data at a company level and digital marketing strategies. More specifically, using Saura's [74] recommendations, future studies could explore the benefits of personalizing messages to increase customer engagement, while monitoring CRM activities and focusing on social media listening tools. These efforts will facilitate a better framework in monitoring performance metrics in digital marketing.

Moreover, as related to new trends in social media marketing, augmented reality (AR) and virtual reality (VR) will provide the next level of engagement between brands and consumers. On social media, brands can increase consumers' engagement levels by using AR for face filters or other VR forms that are aimed at improving and personalizing the customer experience [44,45]. With the sale of VR devices on the rise [44], an immersive digital environment can be created to enhance customer experiences to promote tourism destinations [45], to launch new product or services, and to showcase product demonstrations in an interactive environment. Thus, this could be another avenue for expanding the research on customer engagement.

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Appendix A

Table A1. Measurement items.

Latent Variables and Scale Items	Source of Scale Items
Consumer Engagement—Cognitive dimension (CE-C)	
CE-C1: "Using this brand's Facebook page stimulates my interest in learning more about the company and its products." CE-C2: "Time flies whenever I visit this brand's Facebook page because I want to find out more." CE-C3: "I use this brand and I visit its Facebook page because it captures my attention with useful information." CE-C4: "It seems to me that this brand's Facebook posts are very useful."	Vinerean and Opreana [49]
Consumer Engagement—Emotional dimension (CE-E)	
CE-E1: "I'm very pleased to use this brand and interact with it on Facebook." CE-E2: "I'm very enthusiastic whenever I use this brand's Facebook page." CE-E3: "The Facebook's posts that I received in my feed from this brand are fun." CE-E4: "My emotional attachment to the brand I interact with on Facebook is . . . 1 (weak) to 5 (strong)."	Vinerean and Opreana [49]

Table A1. *Cont.*

Latent Variables and Scale Items	Source of Scale Items
Consumer Engagement—Behavioral dimension (CE-B) CE-B1: "I'm willing to collaborate in various Facebook initiatives with this brand in developing new products/services/features." CE-B2: "I have "Liked", "Commented" and/or "Shared" different posts on this brand's Facebook posts." CE-B3: "In general, I feel motivated to actively engage with Facebook posts from this brand I like on social media."	Vinerean and Opreana [49]
Commitment (CM) CM1: "I care about the long-term success of this brand that I appreciate on Facebook." CM2: "I'm a proud buyer of this brand that I like on Facebook." CM3: "I feel a sense of belonging to this brand I like on Facebook."	Jahn and Kunz [54]; Chen [58]
Customer Participation (CP) CP1: "I usually provide useful information about this brand on Facebook." CP2: "I read comments about this brand on Facebook." CP3: "In general, I post messages on Facebook about this brand, with great excitement and frequency"	Kamboj et al. [51]; Casaló et al. [55]
Involvement (INV) INV1: "This brand is an important part of my online experience on Facebook" INV2: "I'm very motivated to buy this brand, that I have already liked and appreciated on Facebook." INV3: "It is very significant to me that I buy this brand that I like on Facebook."	Chen [58]
Loyalty (LOY) LOY1: "For me, this brand is the best alternative." LOY2: "I will buy this brand regularly." LOY3: "Facebook stimulates me to buy this brand repeatedly." LOY4: "I would recommend buying this brand on social media sites." LOY5: "I'm proud to tell my family and friends that I have purchased this brand."	Chen [58]; Too et al. [63]

Appendix B

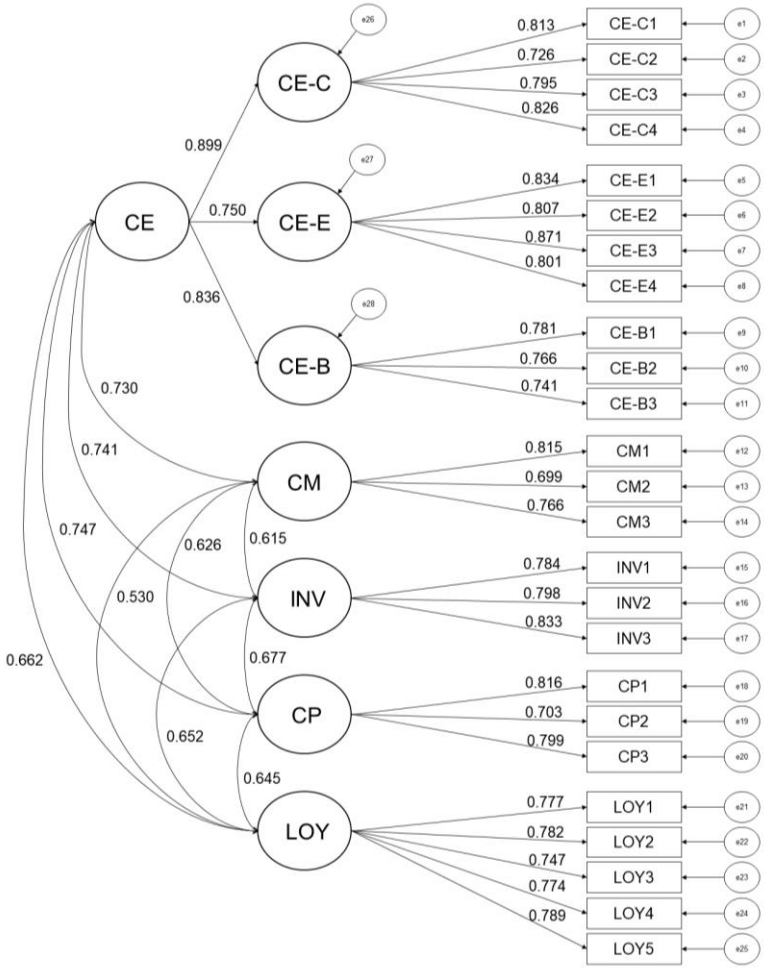

Figure A1. Second-order CFA results. Notes: INV = Involvement, CP = Customer participation, CM = Commitment, CE = Customer Engagement, LOY = Loyalty.

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