

Secrets to design an effective message on Facebook: an application to a touristic destination based on big data analysis

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ABSTRACT

The objective of this research is to identify which are the key variables for designing a message in a social network that can be used by an advertiser to generate Positive/Negative Engagement. The message's design variables have been classified into four main groups: (i) Message Tools (presence of text, images, video, labels, applications, interactive games and events calendar or others), (ii) Appropriate Message Structure (length and intelligibility), (iii) Informative Cues (links to the brand, orientation towards the product or the brand, topics relevant to the audience, and a remuneration's promise) and (iv) Persuasive and Emotional Cues (emotional signals, valence, endorsement and influencer mentions). The focus has been a tourist destination: Brand Spain that is advertised through Facebook. A content analysis was carried out and regression analysis with optimal scaling was used on 180 Spain brand's publications; 57,626 audience reactions to such publications; and 1361 audience comments on the Brand Spain Official Fan Page. According to our results, from the four blocks of predictive variables, only two of them are useful to predict Positive/Negative Engagement: (i) the use of Message Tools (videos), and (ii) the use of informative cues (relevant topics, links on posts, and post's orientation towards product).

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1. Introduction

Each year, the number of people with Internet access increases around the world, while the web's functionalities are increasingly being integrated into human life (e.g., Xiang, Wang, O'Leary and Fesenmaier, 2015). Businesses in general, and marketing in particular, have been affected by this revolution (e.g., Bi, Da Xu and Wang, 2014). In recent decades, the way to buy, to sell and to communicate with buyers has changed due to the Internet (e.g., Verhoef, Kannan and Inman, 2015). Along with this fact, companies use social networks as a way to generate engagement with their consumers (Parganas, Anagnostopoulos and Chadwick, 2015, Kumar, Bezawada, Rishika, Janakiraman and Kannan, 2016), because they help to build perceptions and positive attitudes towards the brands in the minds of consumers (Schivinski and Dabrowski, 2015).

Social networks not only have relevance at the marketing professional practice, they are also an interesting topic for academics (e.g., Kumar, 2015). For example, according to the Marketing Science Institute (MSI, 2016), one 2016-2018 research priority is to study how to design digital messages that generate customer engagement. According to Zheng, Cheung, Lee and Liang (2015), this issue is relevant, because the understanding about why or how consumers develop engagement in social networks could help companies or organizations to maintain their competitiveness in the global market. In the present study, this issue is the central axis, as will be explained below.

In the new scenario described, the tourism industry and tourist destinations have not been immune to the rise of the Internet and social networks. In academic research, social networks in the tourism sector is an emerging issue that has been growing in recent years (Leung, Law, Van Hoof and Buhalis, 2013; Zeng and Gerritsen, 2014). However, as Zeng and Gerritsen (2014) have pointed out, research about social networks in tourism is still at an incipient stage. By the other hand, in

professional practice, it is also necessary to improve brand management in social media, since not all companies or organizations in the sector are taking full advantage from the social network functionalities (eg, Stankov, Lazic and Dragicevic, 2010; Sevin, 2013; Huertas, Setó-Pàmies and Míguez-González, 2015).

According to marketing literature, the social media have a great impact on the purchasing decision in tourism industry, because they intervene in the most relevant moment of the purchasing decision process: the consumer evaluation stage (Hudson and Thal, 2013). It can be assured that social networks have a strategic importance for competitiveness in tourism and in tourist destinations (Leung et al. 2013); In addition, they offer a good return on investment (Hudson and Thal, 2013), and they improve loyalty towards tourism brands (e.g., Senders, Govers and Neuts, 2013).

Because of that reason, the objective of this research is to identify which are the key variables for designing a message in a social network (specifically Facebook), that can be used by an advertiser to generate Positive/Negative Engagement, at the specific field of tourist destinations. More specifically, and based on previous researchers, our starting point is how a strong country brand can attract tourists to a touristic destination (Kotler and Gertner, 2002; Fetscherin, 2010). Taking into account this premise (eg, Echeverri, Estay-Niculcar, Herrera and Santamaría, 2013), the current study has investigated how a specific country brand (Spain) can use Facebook to generate engagement among visitors. Research was conducted using content analysis. All the content from the Spain-brand on Facebook during 3 months was analyzed (180 posts by this brand; 57,626 reactions by audience on those posts; and 1,361 comments by audience on those posts).

With this research we have added value in two ways. First, the current study provides conclusions about the role of social networks in tourists' relationship management. Indeed, Naylor, Lamberton and West (2012) have explained that social network best practices, which are capable of strengthening positive brand's evaluations, were not yet defined. Later, Zheng et al. (2015) insisted that researchers had not yet analyzed how companies built and maintain consumer [or tourists] relationships through social networks. This research provides complete answers about what are the content key elements that make a social media strategy successful for brands, an aspect that has been poorly answered in previous works.

Second, this research has methodological relevance, since it proposes a positive/negative engagement measurement method for brand publications on Facebook. According to Leung et al. (2013), there it is currently needed new metrics to measure the effectiveness of social network communication in tourism industry.

In sum, this research results contribute to (1) broadening knowledge about social network usage patterns (eg, Kumar, 2015), (2) understanding the role of social networks in tourist relationship management (eg, Zheng et al., 2015), (3) identify key elements for a successful social media strategy (eg, Lamberton and Stephen, 2016) and (4) study the negative engagement, a construct that has been little studied in the literature (eg, Hollebeek and Chen, 2014).

2. Theoretical review

In subsequent lines, we will define the engagement concept and which are the key variables related to content on social networks that could predict positive and negative engagement. To this end, literature in different contexts will be commented (tourism and tourist destinations, global brands, NGOs, retail, sports marketing, among others)

2.1. Engagement: conceptualization, operationalization and application

The engagement research was born in the psychology field (e.g., Carpini, Cook and Jacobs, 2004); although recently, it has emerged as a central issue in marketing (Gambetti and Graffigna, 2010).

Specifically, since 2005 there has been a substantial increase in the publications about engagement in marketing field (Brodie, Hollebeek, Jurić and Ilić, 2011).

In marketing field, engagement is considered a key aspect in consumers' (or tourists) relationships with brands. In this sense, the engagement is considered as a predictor of variables related to purchase or purchase intention, brand loyalty (eg, Dobeles, Lindgreen, Beverland, Vanhamme and Van Wijk, 2007; eg, Boyd, Golden and Lotan, 2010; Vivek et al., 2012; eg, Heather, Hansen and Sen, 2016; eg, Kumar et al., 2016; eg, Zhang, Guo, Hu and Liu, 2017), consumer satisfaction / client (eg, Maslowska, Malthouse, Collinger, 2016), value, trust, affective commitment, among other variables (Vivek et al., 2012). Hence, the importance of studying the predictors of engagement.

The engagement is a construct that can be adapted and measured in different contexts and subjects of study. For example, brand engagement has been studied (Sprott, Czellar and Spangenberg, 2009), advertising engagement (Wang, 2006, Phillips and McQuarrie, 2010), consumer engagement (Mollen and Wilson, 2010), customer engagement (Brodie et al., 2011), customer brand engagement (Hollebeek, 2011a), consumer brand engagement (Gambetti, Graffigna and Biraghi, 2012), social media engagement or online brand communities engagement (Hollebeek, Glynn and Brodie, 2014; Dessart, Veloutsou and Morgan-Thomas, 2015) Facebook engagement (Bonsón and Ratkai, 2013; Bonsón, Royo and Ratkai, 2015), and tourism brand engagement in social media (Harrigan, Evers, Miles, Daly, 2017), among others.

In general, there are different definitions that have been proposed for the different forms of engagement, depending on their context or objects of study (Brodie et al., 2011). For that reason, engagement's conceptualization depends on the context in which it is measured.

Although, from an integrative approach, it could be affirmed that engagement's components are cognitive, emotional and behavioral (eg, Hollebeek, Glynn and Brodie, 2014, Harrigan et al., 2017). However, from a specific point of view, engagement's dimensions depend on the object or context where it is measured (brand, brand community, advertising, social network, social networks, website) (Hollebeek, Glynn and Brodie, 2014; Kuvykaitė & Tarute, 2015). For this reason, this variable has been dimensioned and conceptualized differently in the literature (Kidd, 2011; Zheng et al., 2015).

2.2 Contributions to positive/negative engagement conceptualization on social networks

Although there are multiple approaches about engagement's conceptualization and its dimensions, the current study defends two theoretical approaches proposed by marketing researchers (Bonsón and Ratkai, 2013, and Hollebeek and Chen, 2014). The theoretical approaches selection was made based on the aim of the study, the research context (Facebook) and the methodology used (content analysis).

In the first place, the proposal by Bonsón and Ratkai (2013) has been considered, which presents engagement as a multidimensional construct, conformed by three dimensions: (a) commitment; (b) virality, and (c) popularity. Considering an integrative perspective, these components can easily be classified as cognitive, emotional and behavioral engagement's components. The study of Bonsón and Ratkai (2013) was selected because it has adapted engagement measurement to Facebook's characteristics. In addition, its method has been used successfully in content analysis investigations, subsequently (e.g., Bonsón, Carvajal-Trujillo and Escobar-Rodríguez, 2015; e.g., Bonsón et al., 2015); and it has demonstrated its flexibility to adapt to new contexts of study, such as other social networks (Twitter and YouTube) (e.g., Bonsón, Bednarova and Escobar-Rodríguez, 2015; e.g., Bonsón, Bednarova and Wei 2016).

The Bonsón and Ratkai (2013) operationalization is integral and consistent, because it not only takes into account metrics as number of likes, number of comments and number of shared or resent messages, which are also taken into account by other authors (eg, Luarn, Lin and Chiu, 2015;

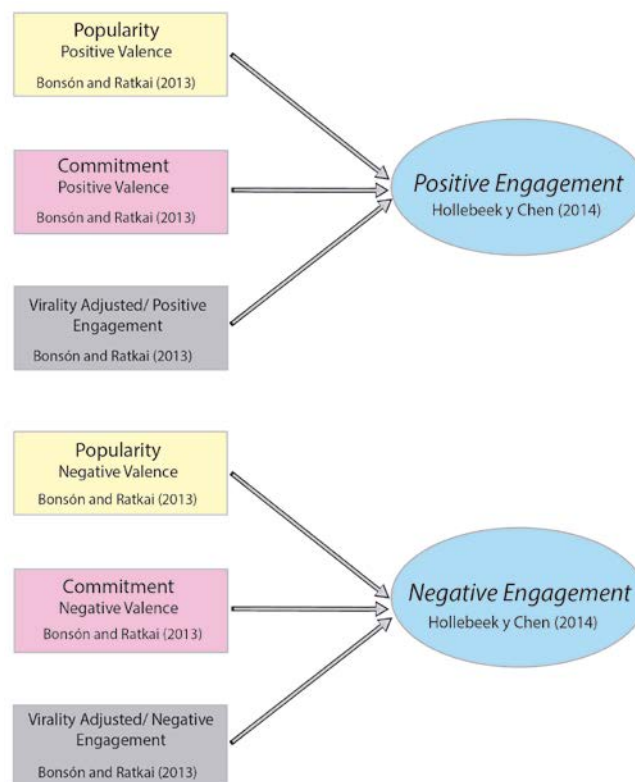
eg, Zheng et al., 2015). But this approach considers the message's scope through the number of fans on Facebook, and it also proposes an engagement index.

In the second place, the theoretical approach of Hollebeek and Chen (2014) has been considered because they have proposed that engagement's valence (which can be positive or negative) should be taken into account on research. So far, there is a lack of studies that investigate negative valence engagement, because literature has only been concerned to study the engagement's positive side (Hollebeek and Chen, 2014). According to Van Doorn, Lemon, Mittal, Nass, Pick, Pirner and Verhoef (2010), valence is an important part of engagement, since behaviors that represent engagement, such as brand recommendations, although they are predominantly positive they can also be negative

The proposal of Hollebeek and Chen (2014) has received some attention in literature, where the positive or negative engagement has been mentioned or studied recently (eg, Bowden, Gabbott and Naumann, 2015; Dessart et al., 2015, Bowden, Conduit, Hollebeek and Solem, 2017; Harrigan et al., 2017, Naumann, Lay-Hwa Bowden and Gabbott, 2017). However, it is evident that there are still more studies focused only on engagement's positive side than negative side.

In summarize, based on the proposals from the aforementioned authors (eg, Bonsón and Ratkai, 2013, and Hollebeek and Chen, 2014), in this research positive engagement is considered a multidimensional construct that reveals a positive valence brand's valuation, and that is observable through (i) virality, (ii) commitment and (iii) popularity that tourists manifest in brand communities on social networks. And the same for negative engagement in inverse terms. In Figure 1, the theoretical proposal is presented.

Figure 1. Positive and negative engagement dimensions.



Source: own development.

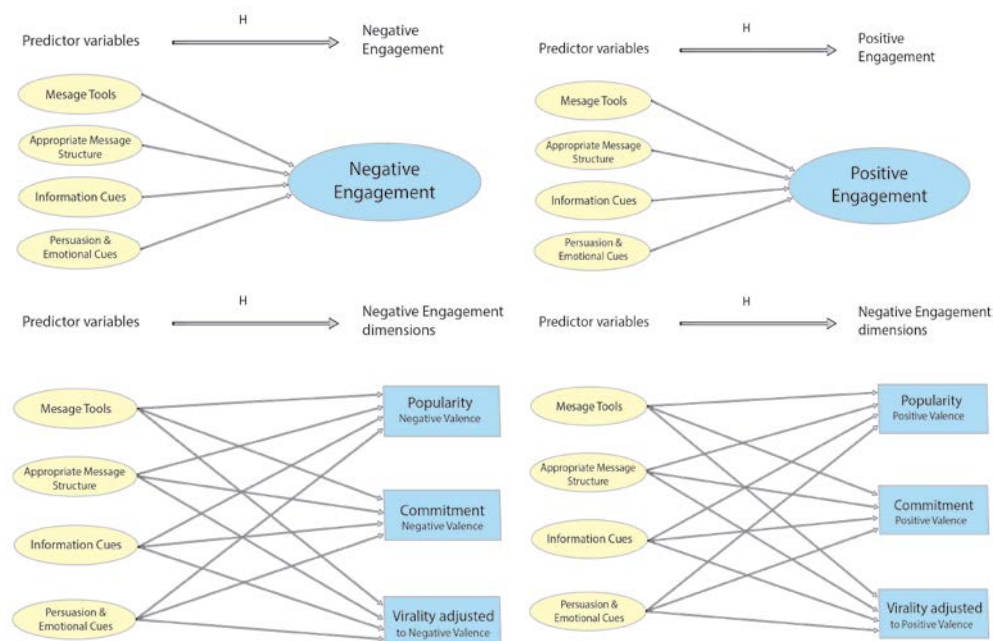
2.2 Variables related to content to predict engagement

In order to study the variables related to the content, that could trigger engagement on social networks, we started with an analysis of the research by Kumar et al. (2016). These authors have mentioned that it could be value to perform future research that consider points below: (a) the messages should be analyzed according to their typology (informative or persuasive), (b) other content generated by the firms' aspects on social media should be studied, and (c) their study could be replicated on Facebook.

Considering these proposals, other empirical studies were reviewed to understand other factors related to content that may affect engagement on social networks. Based on literature review (eg, Lovejoy, Waters and Saxton, 2012; Malhotra and Malhotra, 2012; Araujo, Neijens and Vliegenthart, 2015; Freeman, Kelly, Baur, Chapman, Chapman, Gill and King, 2014; Bonsón et al., 2015), it was decided to study the message's effectiveness to generate positive/negative engagement considering four key variables groups: (a) the Message Tools, (b) the Appropriate Message Structure, (c) the Information Cues and (d) the Persuasion and Emotional Cues. All these variables have been studied in the destination marketing context. It is expected that these messages characteristics will influence on engagement on social networks. The general hypothesis of the study is represented graphically (see Figure 2).

H: A touristic brand can use four content variables related to the message to build positive/negative engagement among visitors: (a) Message Tools, (b) Appropriate Message Structure, (c) Information Cues, and (d) Persuasion and Emotional Cues.

Figure 2. Representation of the positive and negative engagement's predictive variables



Source: own development.

2.2.1 Message Tools in a message to predict engagement

In the present research, Message Tools are defined as type of formats that can be used on Facebook posts. The following researchers have found that the six main formats are used in social

networks: "text" (Bonsón et al., 2015, Bonsón et al., 2016), "images", "videos" (Bonsón et al., 2015, Bonsón et al., 2016, Mariani, Felice and Mura, 2016), "labels" (Lovejoy et al., 2012), "applications", "interactive games" (Freeman et al., 2014), and "events calendar and others" (Bonsón et al., 2015). The following table summarizes the findings from previous studies.

Table 1. Message Tools that can be used to generate engagement and its dimensions.

Author (Year)	Text	Image	Video	Applications	Interactive games	Event calendars and others	Study context
Lovejoy et al., (2012)			X				NGOs
Freeman et al., (2014)				X	X		Food and beverage industry
Bonsón et al. (2015)	X	X	X			X	Public sector
Bonsón et al. (2016)	X	X	X				Hotels in Spain
Mariani et al. (2016)		X					Tourism destination marketing

Source: own development.

Taking into account the literature review about the Message Tools in table 1, it could be concluded that these Message Tools are key variables to predict Positive/Negative Engagement. Thus, the following specific hypotheses are inferred.

H1: The use of Message Tools in a post (text, images, video, labels, applications, interactive games, and events calendar and others) predicts:

- **A higher level of: (1) positive engagement (2) positive valence popularity, (3) positive valence commitment and (4) positive adjusted virality.**
- **A lower level of: (5) negative engagement (6) negative valence popularity (7) negative valence commitment and (8) negative adjusted virality.**

2.2.2 Appropriate Message Structure to predict engagement

The Appropriate Message Structure relates to post's length and intelligibility. Previous literature has shown that an appropriate message structure will increase engagement (e.g., Malhotra and Malhotra, 2012, Mariani et al., 2016). The first variable to study is the post's "length". Malhotra and Malhotra (2012) found that shorter posts contribute to engagement in a broad context of companies. In the same vein, Mariani et al. (2016), found, in destination marketing context in Italy, that moderate length posts positively influence on engagement. Specifically, these authors found that posts with around 200 characters generate the highest level of engagement.

The second variable found in the literature was "intelligibility". In diverse academic fields, outside marketing, the importance of intelligibility for virality has already been assessed (eg, Guerini, Pepe and Lepri, 2012), and also for engagement (eg, Rowe and Alani, 2014)). To measure intelligibility, the Gunning Fog index (Gunning, 1952) seems to be an appropriate. The following table summarizes the literature review about the relevance of an Appropriate Message Structure to predict consumers' engament.

Table 2. Appropriate Message Structure to generate engament and its dimensions.

Author (Year)	Publication´s Length	Publication´s intelligibility	Study context
Malhotra and Malhotra (2012)	X		Multiple companies.
Rowe and Alani, 2014)		X	Tecnology
Mariani et al. (2016)	X		Tourism destination marketing

Source: own development.

Taking into account the literature review, it could be stated that an Appropriate Message Structure influences on Positive/Negative Engagement. Thus, the following specific hypotheses are inferred.

H2: An Appropriate Message Structure in a post (moderate length and more intelligible posts) predicts:

- **A higher level of (1) positive engagement (2) positive valence popularity (3) positive valence commitment and4) positive adjusted virality; And a lower level of (5) negative engagement (6) negative valence popularity (7) negative valence commitment, and(8) negative adjusted virality**

2.2.3 Informative Cues in a message to predict engagement

Engagement literature has focused also on the messages' Informative Cues on social networks (eg, Malhotra and Malhotra, 2012, Freeman et al, 2014, Araujo et al., 2015, Bonsón et al., 2015, Luarn et al., 2015, Parganas et al., 2015, Bonsón et al., 2016, Chen and Fu, 2016, Kumar et al., 2016). The explanation lies in the fact that engagement on social networks enhances when certain information elements are presented. They can be summarized into four main blocks: "certain post topics", "links", "orientation" (towards the brand or towards the product) and "remuneration" (expression of benefits for active participation, rewards, achievement or other benefits). Table 3 summarizes the findings from previous studies.

Table 3. Informative Cues that can be used to generate engagment and its dimensions.

Author (Year)	Informative message in general	Links	Orientation	Topics	Remuneration	Study context
Malhotra y Malhotra (2012)	X	X		X		NGOs
Freeman et al. (2014)					X	Popular brands of food and drink
Araujo et al. (2015)	X	X	X			Global brands
Bonsón , Royo y Ratkai (2015)				X		Public sector
Luarn et al. (2015)					X	Global brands
Parganas et al. (2015)			X			Sport marketing
Bonsón et al. (2016)		X		X		
Chen and Fu (2016)	X					NGOs
Kumar et al. (2016)	X					Retail trade, wines and alcoholic beverages

Source: own development.

Based on the literature about the Information Cues at messages, the present study has intended to prove the next hypothesis.

H3. The use of informative Cues in a post (messages that contain links to the brand, an orientation towards the product, topics relevant to the audience and a promise of remuneration) predicts:

- **A higher level of: (1) positive engagement (2) positive valence popularity (3) positive valence commitment and (4) positive adjusted virality.**
- **A lower level of: (5) negative engagement (6) negative valence popularity (7) negative valence commitment and (8) negative adjusted virality.**

2.2.4 Persuasive and Emotional Cues in a message to predict engagement

Based on literature review, three main blocks of variables related to Persuasion and Emotional Cues can be used in a virtual message to predict consumers' engagement: "emotional signals" (Araujo et al., 2015), "valence" (Kumar et al., 2016) and "endosement and influencers" on posts (Chen and Fu, 2016).

First, persuasive and emotional cues in a message have been defined as those " with humor, informal or entertaining language" (Araujo et al., 2015, p. 288). They affect feelings, emotions and needs (Ashley and Tuten, 2015). These signals can be measured through pronouns, adjectives and verbs associated with an emotion; and also through the presence of emoticons and punctuation associated with emotions (Araujo et al., 2015). According to the results reported by Araujo et al. (2015), in an isolated way, the messages with emotional signals does not generate more engagement than others. However, other authors have found a significant relationship between posts with emotional content and engagement (e.g., Ashley and Tuten, 2015).

Second, post's valence is also considered an important indicator to approximate the effects of a persuasive and emotional message (Kumar et al., 2016). These authors explain that valence reflects feelings and

feelings can be classified as three ways: negative, positive and neutral. According to their results, valence is an important construct for predicting purchase variables, that are also related to engagement. For that reason, it is also relevant to evaluate its direct effect on engagement.

Third, the use of endorsement and influencers (leaders) in a message can be considered an important tool to generate persuasion (Chen and Fu, 2016). In this research, endorsements is defined as a promotional marketing technique (Spry, Pappu and Cornwell, 2011), in which a celebrity or influencers mentioned the benefits of a product or brand. Table 4 summarizes the findings from previous studies related to the use of emotional and persuasive cues in a message.

Table 4: Persuasive/Emotional Cues that can be used to generate engament and its dimensions.

Author (Year)	Emotional signs	Valence	Endorsement and mention of influencers	Study context
Araujo et al. (2015)	X		X	Global brands
Ashley and Tuten (2015)	X			Interbrand's Best Global Brands
Kumar et al. (2016)		X		Retail trade, wines and alcoholic beverages

Source: own development.

Based on the literature mentioned, it could be stated the following hypothesis:

H4: The use of persuasive and Emotional Cues in a post (it means messages that contain emotional signals, positive or negative valence, endorsement and mention of influencers) predicts:

- **A higher level of: (1) positive engagement (2) positive valence popularity (3) positive valence commitment and (4) positive adjusted virality.**
- **A lower level of (5) negative engagement (6) negative valence popularity with (7) negative valence commitment and (8) negative adjusted virality.**

3. Method

The current study is a non-experimental and ex-post-facto research according to Kerliger (1997), because researchers did not have direct control on independent variables because their manifestations have already occurred and they were not manipulable. By other hand, the regression analysis with optimal scaling transformations was chosen to analyze the data collected.

3.1 Population

The study population chosen was the Brand Spain posts published by this brand on its official Facebook fan page. The Brand Spain was chosen because, currently, Spain is the most competitive country in the whole world tourism industry (World Economic Forum, 2017). Since there are two official Facebook fan pages by Brand Spain, the one selected was the site dedicated to tourist and foreigner audiences (see Figure 3). The sample study was defined following previous studies (Pronschinske, Groza and Walker, 2012, Chen and Fu, 2016). Consequently, only the organic posts published by the Brand Spain were analyzed, since the post's originality contributes to increase its circulation virality, engagement] (Chen and Fu, 2016), and it ask has an influence on the attraction and maintenance of the Facebook fans base (Pronschinske et al., 2012). Also, it was decided to analyze publications made by the Brand Spain during the first quarter of 2017. The data were collected between July and August 2017.

Figure 3. Spain Brand Page focused on attracting tourists. Source: Spain.info Facebook page



3.2 Variables

Based on recent literature, and considering the available data on Facebook, four explanatory independent variables were considered in our study as previous lines have justified: The use of Message Tools, the Appropriate Message Structure, the use of Information Cues and the use of Persuasive and Emotional Cues. While, as predicted dependent variables positive engagement (and its dimensions) and negative engagement (and its dimensions) were considered (see Table 5).

Table 5. Measurement of the predictor variables

Predictor variables	Metrics	Measurement scales
Message Tools	Presence of text, image, video, label, interactive games and applications, calendar of events and others . After analyzing the data, the video item was classified into 4 categories: none, traditional, 4k and 360° (there are format videos).	Nominal
Appropriate Message Structure	The length was measured using number of characters per post (length). It was organized in the following categories: short (for values $<\chi-2\sigma$), medium (for values between $\chi-2\sigma$ and $\chi-\sigma$), medium-long (for values between $\chi-\sigma$ and $\chi+\sigma$), and long (for values values $>\chi+\sigma$). The intelligibility was measured using the Gunning Fog index. It was classified into 3 categories: general audience (for values below 8), high school education audience (for values between 8 and 11) and college audience (for values greater than or equal to 12). The classification method was proposed by San Noberto, Gómez-Alfonso, Triqueros, Quiroga, Gualis and Vaquero (2014).	Nominal
Informative Cues	The following items were considered: presence of links ; the post's classification according to its orientation (towards specific destinations or towards the brand Spain); the presence of a promise of remuneration , rewards and achievements for those who have participated on the brand Facebook fan page, and the relevant topics . The topics were classified after performing the content analysis. After analyzing the data, there were found 11 topics on posts. The topics were classified into the following categories: activities (proposals for sports activities, health, walks,	Nominal

	parties), art and architecture, cities, culture and history, spirituality (religious tourism), seasons (winter, spring), studies and business, holidays (national and regional holidays, international days), gastronomy (food and wine), nature and rural tourism (landscapes, beaches, towns) and participation (strategies that seek to stimulate audience participation).	
Persuasive and Emotional Cues	The presence of emotional signals according to Araujo et al. (2015); the valence classification of the publication in positive, neutral or negative; the use of endorsement strategies and /or mentions to influencers on posts.	Nominal
Dependent Variables		
<i>Engagement</i> Positive/negative	Positive/negative engagement index, according to the Bonsón and Ratkai (2013) method, and adapted to measure engagement on Facebook posts at this research (See Annex A).	Interval-ratio
<i>Engagement dimensions</i> Positive/negative	Average for every thousand fans according to Bonsón and Ratkai (2013) method, adapted at this research (See Annex A).	Interval-ratio

Source: development.

Prior to the data analysis, the coding was done. The data were classified into categories. Some categories were proposed based on the literature review, but other categories were created after analyzing the data (for example, video and topics). The data were manually collected and coded. At this research stage, the proposed engagement indexes and the engagement dimensions' averages for each thousand fans were also calculated.

4. Analysis and results discussion

To achieve the aim objective, a Brand Spain's posts content analysis was carried out. In total, 180 posts by brand Spain were analyzed; 57,626 reactions by audience on those posts; and 1,361 comments by audience on those posts. The posts were viralized 14,115 times.

The nominal frequencies of the independent explanatory variables can be observed in Table 6, as well as descriptive statistics of the dependent variables. In total, the posts obtained an average of positive engagement around 0.2315 per thousand fans. Positive engagement is much higher ($\chi = , 2315$) than negative engagement ($\chi = , 0206$). Specifically, the positive popularity is the dimension that contributes most to positive engagement ($\chi = , 1839$), followed by the positive adjusted virality ($\chi = , 0451$) and lastly by positive commitment ($\chi = , 0025$).

Table 6. Frequencies and descriptive statistics

INDEPENDENT VARIABLES	Frecuencias
Message Tools	
Text	Yes=180/ No=0
Video	No=132/ Traditional=26/ 4k=19/ 360°=3
Image	Yes=133/ No=47
Label	Yes=180/ No=0
Events calendar and others	Yes=6/ No=174
Applications	Yes=0/ No=180
Interactive games	Yes=0/ No=180
Appropriate Message Structure	
Length	Short = 3 / Medium = 29 / Medium-long = 116 / Long = 32
Intelligibility	General audience = 137 / High school education audience = 38 Higher education audience = 5

Information Cues

Topics	Activities = 25 / Art and Architecture = 21 / Cities = 13 / Culture and history = 16 / Spirituality = 6 / Seasons = 6 / Studies and business = 4 / Holidays = 22 / Gastronomy = 16 Nature and rural tourism = 37 / Participation = 14
Links	Yes=70/ No=110
Orientation	Product=106/ Brand=74
Remuneration	Yes=5/ No=175

Persuasion and Emotional Cues

Emotional signs	Yes=143/ No= 37
Valence	Positive=125/ Neutral=52/ Negative=3
Endorsement and influencers	Yes=18/ No=162

DEPENDENT VARIABLES

	M	SD	Min.	Max.
1. Positive Engagement	,2212	,1678	,0333	1,1524
2. Positive popularity	,1839	,1224	,0287	,7702
3. Positive Commitment	,0025	,0030	,0000	,0167
4. Positive Adjusted Virality	,0347	,0693	,0006	,6685
5. Negative Engagement	,0011	,0025	,0000	,0121
6. Negative Popularity	,0001	,0005	,0000	,0069
7. Negative Commitment	,0002	,0004	,0000	,0017
8. Negative Adjusted Virality	,0008	,0021	,0000	,0109

Note: own development. Results are from an exploratory analysis on SPSS 21. ($n = 180$ posts; 57.626 reactions on posts; and 1.361 comments on posts)

To test general hypothesis and specific hypotheses, the regression analysis with optimal scaling (CATREG) was used. The CATREG algorithm was developed by the Data Theory Scaling System Group (DTSS), from the Faculty of Social and Behavioral Sciences at the University of Leiden in the Netherlands (Kircher and Lutzhoft, 2011), and it has been used efficiently in multiple studies to evaluate the predictive power of categorical variables (eg, Dusseldorp and Meulman, 2001, Hussain, Cholette, Castaldi, 2007, China, Capretz and Ho, 2010, Ibem and Amole, 2014). Then, the inferential statistical analysis results are presented.

Statistical assumptions were checked before the analysis was performed ($n=180$; $n>16+1$). Eight regression models were constructed, one for each dependent variable: (i) positive engagement, (ii) positive popularity, (iii) positive commitment, (iv) positive adjusted virality t (v) negative engagement, (vi) negative popularity, (vii) negative commitment, (viii) negative adjusted virality. Then, in order to increase the model fitting, the backward Stepwise technique was used. The Spss software does not automatically allows the relevant variables exclusion from the model when it is used the CATREG algorithm. For that reason, regression analyzes have been repeated several times while variables from the model were extracted manually until to get the best fit model for each dependent variable. Bellow, the resulting eight models are presented. In total, six from eight models are statistically significant to explain the aforementioned dependent variables (see Table 7). A statistical significance level of $p<0.05$ (α) and a 95% confidence interval were used to test hypotheses.

First, when dependent variable was **positive engagement**, the results have shown a highly significant and moderate correlation ($R=0.554$) between this dependent variable and the best predictive variables

combination, related mainly to two blocks of variables: Message Tools (video, image and events' calendar) and Informative Cues (topics, links and orientation). In this case, the predictive variables explain 23.4% of total variance (R^2 adjusted=0.234), $F(0.693)=4.213$, $p<0.01$. Then, the predictive variables taken together can help to explain positive engagement on Facebook, and the results are statistically highly significant (table 7).

Secondly, when dependent variable was **positive popularity**, a highly significant and moderate correlation ($R=0.546$) was observed between the best predictor variables combination and positive popularity. The predictor variables set explains 23% of total variance (R^2 adjusted=0.230), $F(0.702)=4.334$, $p<0.01$. Then, the predictive variables taken together explain positive popularity on Facebook, and results are statistically highly significant. The best predictive variables in this regression belong again to two blocks: Message Tools (events' calendar) and Informative Cues (topics, links and orientation) (table 7).

Third, when dependent variable was **positive commitment**, the results have shown a significant and moderate correlation ($R=0.369$) between the best predictor variables combination and positive commitment. The predictor variables set explains 7.4% total variance (R^2 adjusted = 0.074), $F(0.864)=2.187$, $p<0.05$. Finally, the predictive variables taken together explain positive commitment on Facebook, and results are statistically significant. The best predictive variables in this regression belong only the use of Informative Cues (topics, links and orientation) (table 7).

Fourth, when dependent variable was **positive adjusted virality**, it was found a highly significant and moderate correlation ($R=0.538$) between the best predictive variables combination and this dependent variable. The predictive variables explain 22.5% of total variance (R^2 adjusted=0.225), $F(0.710)=4.462$, $p<0.01$. Then, the predictive variables taken together explain positive adjusted virality on Facebook. These results are statistically highly significant. The best predictive variables in this regression belong to the same two blocks: Message Tools (video) and the use of Informative Cues (topics, links and orientation) (table 7).

Fifth, when dependent variable was **negative popularity**, it was found a highly significant and moderate correlation ($R=0.437$) between the best predictive variables combination and this dependent variable. The predictive variables explain 10% of total variance (R^2 adjusted=0.100), $F(0.809)=2.106$, $p<0.01$. Then, the predictive variables taken together explain negative popularity on Facebook. These results are statistically highly significant. The best predictive variables in this regression belong to our four blocks of variables: Message Tools (image and events' calendar), Appropriate Message Structure (intelligibility), Informative Cues (topics, links and orientation) and persuasive/emotional cues (emotional signs and valence) (table 7).

Sixth, when dependent variable was **negative adjusted virality**, it was observed a significant and moderate correlation ($R=0.377$) between the best predictive variables combination and this dependent variable. The predictive variables explain 6.3% of total variance (R^2 adjusted=0.063), $F(0.858)=1.809$, $p<0.01$. Then, the predictive variables taken together explain negative adjusted virality. These results are statistically significant. The best predictive variables in this regression belong to: Message Tools (videos) and Informative Cues (topics) (table 7).

In contrast, two regression models with optimal scaling were not statistically significant (considering $p<0.05$). Specifically, when the dependent variables were: **Negative Engagement and Negative Commitment**.

Table 7. Regression analyzes

	Regression 1			Regression 2			Regression 3			Regression 4			Regression 5			Regression 6			Regression 7			Regression 8		
Dependent Variables	Positive Engagement			Positive Popularity			Positive Commitment			Positive AdjustedVirality			Negative Engagement			Negative Popularity			Negative Commitment			Negative AdjustedVirality		
	β	e	F	β	e	F	β	e	F	β	e	F	β	e	F	β	e	F	β	e	F	β	e	F

MESSAGE TOOLS (H1): ACCEPTED

Text ¹	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Video ²	0,212	0,168	1,7 4*	0,145	0,242	0,361	--	--	--	0,241	0,075	10,351 **	0,265	0,058	7,441**	--	--	--	0,346	0,53	5,081**	0,274	0,090	9,217**
Image ²	0,352	0,244	2,076**	0,083	0,229	0,129	--	--	--	--	--	--	--	--	--	0,115	0,062	3,409**	0,227	0,142	2,547**	--	--	--
Label ¹	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Events Calendar ²	0,101	0,062	2,600**	0,108	0,069	7,52**	--	--	--	--	--	--	--	--	--	0,193	0,067	8,273**	--	--	--	--	--	--
Apps ¹	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Games ¹	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

MESSAGE STRUCTURED (H2): REJECTED

Length ²	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Inteligibility ²	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-0,148	0,096	2,397	--	--	--	--	--	--

INFORMATIVE CUES (H3): ACCEPTED

Topics	0,375	0,060	39,298**	0,306	0,058	27,606*	0,218	0,059	13,773**	0,395	0,065	37,449**	0,265	0,058	20,818**	0,282	0,073	14,819**	0,216	0,049	19,318**	0,288	0,064	20,35*
Links	0,160	0,073	4,867**	0,188	0,069	7,520**	0,081	0,063	1,683*	0,104	0,063	2,695**	--	--	--	0,140	0,066	4,543**	--	--	--	--	--	--
Orientation	0,243	0,072	11,386**	0,269	0,078	12,01**	0,305	0,066	21,498**	0,200	0,076	6,994**	--	--	--	0,194	0,103	3,557**	--	--	--	--	--	--

Remuneration ²	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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PERSUASIVE/EMOTIONAL CUES (H4): REJECTED

Emotional Signs ²	--	--	--	--	--	--	--	--	--	--	--	--	--	0,324	0,174	3,457**	0,245	0,151	2,621**	--	--	--
Valence ²	--	--	--	--	--	--	--	--	--	--	--	--	--	0,282	0,176	2,572**	0,281	0,155	3,309**	0,051	0,058	0,775
Endorsement ²	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

R	0,554	0,546	0,369	0,538	0,329	0,437	0,315	0,377
R ²	0,307	0,298	0,136	0,290	0,108	0,191	0,099	0,142
R ² adjusted	0,234	0,230	0,074	0,225	0,044	0,100	0,005	0,063
Predicction error	0,693	0,702	0,864	0,710	0,892	0,809	0,901	0,858
F (ANOVA)	4,213**	4,334**	2,187*	4,462**	1,693	2,106**	1,052	1,809*

** p<0,01; *p<0.05 Liberty grades are 1/24, and 2/155.¹ These variables were extracted from model because their variance were zero.

e= Estimation Typical error

². In order to improve fit models, these variables were extracted during the *Stepwise* technique.

In sum, there is no evidence to prove that all variables considered in our study are useful to predict both positive and negative engagement, as well as its three dimensions (commitment, popularity and virality). As table 8 shows, **Message Tools** (videos, images and event calendars) and **Informative Cues** (topics, links and product orientation) are the most useful variables to predict most of the desired effects. So, H1 and H3 could be partially accepted.

On the contrary, **Appropriate Message Structure** (publications with moderate length and more intelligibility) and **Emotive Cues** cannot be used to predict our dependent variables, so H2 and H4 should be rejected.

This finding is consistent with the results of Malhotra and Malhotra (2012), and also Chen and Fu (2016). In this regard, and as expected, based on previous studies (eg, Malhotra and Malhotra, 2012, Bonsón et al., 2015, Bonsón et al., 2016), the use of certain topics are very useful to predict higher levels of positive engagement. Specifically, it was found that art and architecture, culture and history, and holidays were the topics that generate more positive engagement and positive popularity. While the topics culture and history, studies and business, and holidays show higher levels of virality. Based on the previous literature (Malhotra and Malhotra, 2012, Bonsón et al., 2015), it can be affirmed that these topics are the most relevant for the audiences. As well as Araujo et al. (2015), there was no evidence that any of the emotional cues influenced on positive engagement.

Table 8. Hypotheses tests

	Message Tools-H1	Appropriate Structure-H2	Informative Cues-H3	Emotive Cues-H4
POSSITIVE EFFECTS				
Positive engagement	H1(1): accepted Videos Image Event calendar	H2(1): rejected	H3(1): accepted topics links product orientation,	H4(1): rejected
Positive popularity	H1(2): accepted Event calendar	H2(2): rejected	H3(2): accepted topics links product orientation,	H4(2): rejected
Positive commitment	H1(3): rejected.	H2(3): rejected	H3(3): accepted topics links product orientation,	H4(3): rejected
Positive virality	H1 (4): accepted videos	H2(4): rejected	H3(4): accepted topics links product orientation,	H4(4): rejected
NEGATIVE EFFECTS				

Negative engagement	H1(5): rejected	H2(5): rejected	H3(5): rejected	H4(5): rejected
Negative popularity	H1(6): accepted videos event calendar	H2(6): rejected	H3(6): rejected	H4(6): accepted Emotional signs valence
Negative commitment	H1(7): rejected.	H2(7): rejected	H3(7): accepted topics links product orientation,	H4(7): rejected
Negative virality	H1(7): rejected	H2(8): rejected	H3(8) accepted topics topics	H4(8): rejected

6. Conclusions, implications, limitations and future lines

The aim of the study was to identify the variables related to post's content on a specific social network (Facebook), that predict positive and negative engagement (and their dimensions) in the specific field of tourism destinations (Brand Spain).

In the investigation, the general hypothesis was partially confirmed. It was expected that the use of Message Tools, an Appropriate Message Structure, Informative Cues and Persuasive and Emotional Cues would predict the desire effects. However, it was only found that Message Tools (mainly "videos") and three Informative ("topics", "links" and "product orientation") influence on the levels of positive/negative engagement and some of its dimensions (positive popularity and virality).

The main theoretical findings based on our results can be summarized into four main points: In the first place, regarding the Message Tools ("text", "images", "video", "labels", "applications", "interactive games" and "events calendar"), only one of them, "videos" leads to interesting effects. Specifically, the presence of the "360° videos" confirms that it will cause higher levels of positive engagement and virality (its absence is related to non-virality). So, as previous literature has demonstrated, some message tools could represent key drivers of engagement.

Secondly, regarding Appropriate Message Structure ("length" and "intelligibility"), it is observed that this variable does not serve to generate more positive or negative engagement, nor does it affect any of the dimensions of engagement (commitment, popularity and virality). So, this result contravenes previous investigations since other variables (different to the length of the message and its intelligibility) seem to be more relevant to generate engagement. This could be due to the fact that when it comes tourism, the Internet user wants to know as much as possible, so, length is not a restriction.

Thirdly, and regarding the Informative Cues, it can be said that this is the design variable that has the greatest power to predict engagement on a fan page that promotes a tourist destination. Specifically, the presence of "relevant topics" for an audience (Malhotra and Malhotra, 2012, Bonsón et al., 2015) predict higher levels of positive engagement, positive popularity, positive commitment and positive adjusted virality among this audience. Likewise, the absence of "links"

predicts higher levels of positive engagement and positive popularity. “Orientation” and “remuneration” do not predict higher levels of engagement.

Lastly, regarding Emotional and Persuasive Cues, it has been found that this variable does not predict either the positive or negative engagement, neither does its dimensions. So, its use is comparative less relevant. The tourist prioritizes the search of information instead of emotion when navigating through a fan page.

The practical implications that derive from these conclusions are summarized below:

First, given that regarding the Message Tools the most important one seems to be the use of videos, we recommend marketing managers of tourist destinations, to create publications with 360° videos and try other technological innovations, which could encourage engagement through the viralization of publications on social networks. On the other hand, after analyzing 180 publications by the brand Spain, 57.626 reactions from audience on posts and 1.361 comments on the official Brand Spain fan page, it has been observed that the rest of the tools do not generate as much engagement. Therefore, it is recommended to allocate less resources to other less useful tools such as “games” or “apps”.

Second, given that length and intelligibility do not help to generate engagement in this industry, when designing messages to build a country-brand using social networks, destination managers should not focus on the message’s length nor on its index Gunning Fox Index.

Third, given the importance of informative cues, it is recommended to tourism promoters to publish posts about relevant topics. In this particular case, relevant topics were art and architecture, the culture and destination’s history, and the benefits offered by destinations during holidays. Thus, when is not necessary, it is preferring not to include links on posts because it does not increase positive engagement, just as it has been found on 57,626 audience reactions and 1,361 audience comments on posts. Probably, this can be explained by two facts: (a) the audience probably prefers to stay in Facebook while reading the posts (b) the use links on posts that do not add relevant information is useless and cannot attract the audience.

Finally, it seems that is recommended to use informative posts instead of persuasive and emotional posts. More specifically, it is recommended the use of posts which offer the advantage of visiting each destination.

In sum, these findings have implications for marketing departments in tourism companies and for state tourism offices. Taking them into account, would increase the relationship with audiences. Specifically, it is recommended that posts use 360° videos, that promote specific destinations and that highlight the destination’s advantages respect to art and architecture, the culture and history, and benefits offered during holidays

This work has some limitations that can represent future research lines. To obtain complete answers, it would be necessary to carry out a new study to identify the post’s characteristics that generate the most clicks and traffic to the brand’s website. In general, click behavior is a variable of interest for marketing literature, which has been studied in other contexts (eg, Kaur, Hornof, 2005, Liu, Dolan and Pedersen, 2010, Zhang, Chen, Wang and Yang, 2011, Gauzente and Roy, 2012, Desyaputri, Erwin, Galinium and Nugrahadi, 2013, Jerath and Park, 2014, Dimitrov, Singer, Lemmerich and Strohmaier, 2017).

Another unexpected result was related to the topics that generated more negative engagement. Unlike what was expected, some of the topics that generate more negative engagement also generate more positive engagement, This finding suggests that topics that arouse greater interest in the audience, in general, produce more reactions on audience, whether positive or negative. So it seems that there are other variables that intervene in the relationship to explain the difference between positive and negative engagement. For example, individual characteristics could be

influence on (e.g., Strekalova, 2016) or individual perception, and attitudes toward the brand (e.g., Sharma and Singh, 2017).

The data from this research have been carefully processed and analyzed. It was avoided alterations or unnecessary errors, that could generate biases. In addition, during all stages, there was constant supervision from technically trained and scientifically certified professionals. For these reasons, it is stated that the findings are valid and can be replicated in other contexts.

Finally, it could be said that, although a total of three specific hypotheses from eight have been partially confirmed. The models studied have shown low percentages of explained variance. It could be explained by the fact that engagement is a multivariable phenomenon. For that reasons, it can be explained by other variables, in addition to those identified in this research. For example, it is possible that other variables related to audience's characteristics and individual differences influence on positive/negative engagement (eg, Strekalova, 2016), or those related to the context in which communication occurs, such as the tourist season (eg, Parganas et al., 2015). In other words, engagement can be studied depending on the moment in which the posts are made. It also would be interesting to review the influence of brand perception on the relationships studied. (e.g., Parganas et al., 2015).

Because it is an ex-post-facto research with a non-probabilistic sample, the obtained findings should not be generalized to populations with different characteristic from the one studied. The previous results should not be taken as conclusive data, but it just a new step in the understanding of the complex relationships between the post's characteristic and the audience's engagement. In summarizes, more studies are required to confirm the conclusions from the current study. Also, longitudinal investigations are suggested in which the variations of engagement over time could be analyzed. In the future, other methodologies to measure engagement in more real contexts should also be created. For example, experimental studies can be carried out.

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