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Developing a blog trust scale via an international Delphi panel

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ABSTRACT

Although trust is one of the most widespread and studied constructs in marketing and management, its definition, versatility and different application areas may have fostered a certain dispersion when measuring this concept. Despite the increasing importance of blogs, specific scales for, and measures of, trust have not been considered in the literature. This paper proposes a scale to measure online trust in the blog domain (Blog Trust Scale, BTS) through the development of an international Delphi panel consisting of 14 experts from 5 different countries. As a result, we have developed a solid measurement instrument of online trust in blogs, composed of 12 items and tested in four different countries.

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1. Introduction

Blogs are a highly influential medium (Hsu & Tsou, 2011; Magno, 2017) and attract interest from different agents, including newspapers, businesses (53% of marketers say that blog content creation is their top inbound marketing priority; HubSpot, 2017), tourism companies, and the political arena, where fake news is becoming important (Pew Research Center, 2016). Indeed, the growing influence and effect of false stories circulated in social media in the US 2016 election was referenced by Allcott and Gentzkow (2017). Information credibility in blogs results in better customer experiences (Hsu & Tsou, 2011). Despite interpersonal trust being a critical element for knowledge sharing in networks, it is yet to be fully investigated in an online environment (Chai & Kim, 2010).

Even though trust is not an easy concept to define (Rousseau, Sitkin, Burt, & Camerer, 1998), academic research has agreed to define trust around the idea of dependency on the integrity, capacity or character of a person or a thing; that is, the desire to trust in the reliability and integrity of a third party with whom an exchange has been or is going to be established (Morgan & Hunt, 1994) or, in practice, with the belief of one person in the promise of another (Zaltman & Moorman, 1988). Both of these two seminal definitions agree that trust can be separated into two basic types, namely

direct trust and third-party trust. Whereas direct trust is a relationship developed by the two parties themselves, third-party trust implies the existence of trust between two parties who might not know each other from before but are willing to trust each other thanks to the contribution of a reliable third party (Boeyen & Moses, 2003). This latter type of trust in which transactions might happen between two parties unfamiliar to each another is of especial importance in the online world (Salo & Karjaluoto, 2007) and, therefore, in the context of this research.

Although these are valid definitions for a wide range of contexts as well, in the business field, where trust relationships are fully recognized as one the most important success factors (McAllister, 1995), trust has been understood to be a beneficial element for the organization in terms of reduced transaction costs, increased flexibility and efficiency and as a contribution to design strategies and focused marketing plans (Dyer, 1997; Gambetta, 2000; Zaheer, McEvily, & Perrone, 1998). If trust exists, individuals are not prone to believe that salespeople will behave opportunistically (Gefen, Karahanna, & Straub, 2003), and this reinforces, in turn, the relational paradigm which feeds the marketing cycle which supports a good part of the academic research in this field in recent years.

Inevitably, the emergence of new information technologies has developed the concept of trust, enhancing its scope from the sphere of people and organizations to the electronic context, where online trust arises. Recent studies have called for further research into this new digital environment that clearly differs from established contexts (Bigné, 2016).

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Here, relationships of trust are established between people and information systems (Lee & Turban, 2001). In such circumstances, where the Internet plays an essential leadership role, trust can be defined as a factor which includes the consumer's perception that a website has met his or her expectations, in relation to the credibility of its information and to the certainty that it produces (Bart, Shankar, Sultan, & Urban, 2005). This is the most suitable definition for the blog arena on which this paper focuses and, in addition, it can be materialized, according to Wang and Emurian's (2005) orderly analysis, through patterns such as the graphic design, architecture, social orientation and content of the site. Thus, this is the definition of trust that has been used in the present research.

Blogging is one of the most established forms of user-generated media (Onishi and Manchanda, 2012; Sun & Zhu, 2013) and the largest linked to online reviews. Research into blogs is scarce (Onishi and Manchanda, 2012), dispersed and has been focused on finding influential bloggers through modelling (Khan et al., 2017); or context specific, as in tourism (Pan, MacLaurin, & Crotts, 2007). Despite the fact that blogs are more trusted than traditional types of media (Ceron, 2015; Pan et al., 2007), research into the nature of the blog and its relationship with consumer constructs, such as trust, has been almost totally neglected, but with notable exceptions (Chai & Kim, 2010).

Although the work by Urban, Amyx, and Lorenzón (2009) is an inescapable reference in this study area, of the main academic contributions to the study of online trust during the first decade of the 21st century, the compilation by Gefen et al. (2003) is the most useful inventory of the diverse dimensions that compose this variable in the digital context: credibility, integrity, reliability, competence, certainty, goodwill, intention of mutual dependence, honesty, predictability, will of vulnerability and expectation of ethical behaviour. All of these are consistent with the contributions in the previous literature (Doney & Cannon, 1997; Kumar, Scheer, & Steenkamp, 1995; Rotter, 1971; Rousseau et al., 1998; Urban et al., 2009; Verhoef, Franses, & Hoekstra, 2002). They have served as a base for modelling online trust (Corritore, Kracher, & Wiedenbeck, 2003; Tan & Thoen, 2000; Walczuch & Lundgren, 2004) and also permitted the use of different scales to measure the concept.

The aim of this research is to propose and validate a new scale to assess online trust in a specific type of website: the blog. Although there is not one single, widely accepted tool to measure perceived trust (Urban et al., 2009), some scales, such as those of Cyr, Bonanni, Bowes, and Ilsever (2005), Jarvenpaa and Leidner (1998) and Jarvenpaa, Tractinsky, Saarinen, and Vitale (1999), can be adapted to blogs. It is also posited that trust and perceived trust are thought of as equivalent terms in our study framework, as the perception of the variable is a subjective, minor nuance, which does not alter the core of the concept itself. This idea is also consistent with a good number of studies in different areas such as online shopping (Kim, Chung, & Lee, 2011; Kim, Xu, & Gupta, 2012), online trading and banking (Mukherjee & Nath, 2003; Roca, García, & De la Vega, 2009) or information systems (Arcand, Nantel, Arles-Dufour, & Vincent, 2007).

However, considering the academic warning that measuring general trust by using just one scale does not provide consistent results (Urban et al., 2009), the search for a more extensive, profound and suitable measuring instrument offers a significant opportunity for investigation. This approach will make two key contributions. First, the important role of trust in all marketing and management contexts supported by the relational paradigm, and the polyhedral and evolutionary nature of websites, require the ad hoc adaptation of a scale to make it more specific, more precise; this might allow us also to bring together all the dimensions of trust, but applied to blogs. Hence, the progressive specialization of marketing and management investigations offers a significant opportunity for the development of measuring tools particularly

adapted to different contexts, as is the case with other constructs. Second, the increasing cross-cultural nature of online interactions must be considered in our development, both in its design and testing.

To do so, our research will follow a two-step process; first, we take an existing scale, previously tested in a similar context, online social communities (Casaló, Flavián, & Guinalíu, 2008), and we establish a panel of international experts that, according to the guidelines of the Delphi method, will refine the proposal to achieve a final result. Then the proposed scale, which has been coined the Blog Trust Scale (BTS), will be tested in four countries (the USA, UK, Argentina and Spain), with two different languages and substantial cultural differences, and its psychometric indicators suggest a promising scenario for further validation.

2. Conceptual background

Much of the prior literature (Armstrong & Hagel, 1996; Bagozzi & Dholakia, 2002; Casaló et al., 2008; Malinen, 2015; Rheingold, 1993) identifies virtual communities as broad and diverse sets of groups with one specific thing in common: their intercommunication through a computer system. Castells (2001) points to network individualism as a necessary background for the creation of these communities, and the studies of Gupta and Kim (2004) and Dennen (2005) outline the different evolutionary stages and the key factors in the creation of successful virtual communities. However, it is Rheingold's (1993) work that establishes a wider framework connecting these shared interest groups with different marketing strategies (Miller, Fabian, & Lin, 2009), such as branding or knowledge co-creation between users and brands, in which the content acquires capital value. It appears, therefore, that these virtual social communities are especially suitable for the exchange of information and knowledge, for informal socialization and for the discussion of ideas (Chou, 2010).

The blogosphere, understood as a set of blogs and their natural habitat, meets all the basic premises of the conceptual delimitation described and can, therefore, be considered a specific type of online community (Armstrong & Hagel, 1996). This can be described as, fundamentally, a community of interest (Henri & Pudelko, 2003) in which the exchange of information and opinion is undoubtedly intensive and forms its core. Social structures are developing around the blog phenomenon, arising from the personal connections between the authors and, although a particular blog does not necessarily represent a community, these shared social spaces seem to emerge from the encounters between the different weblogs in a similar way to the social activities that take place among city inhabitants when they emerge from their homes (Gehl, 2001). This linking mechanism (Mayzlin & Yoganarasimhan, 2012) transcends the strictly computer-based context in which these virtual communities were created. In the same way, neither the components nor the dynamics of the functioning of a blog and a virtual social community are the same. This argument is illustrated in Fig. 1.

As Fig. 1 depicts, in a blog the authors set the tone. They have greater importance than the other users of the site because they create the communications and set the editorial line and the specific contents of the blog through their posts. Although it could be thought that the flow of communication is unidirectional, and the blogs that, wrongly, do not include a contact form or an area for readers to comment, contribute to this perception of lack of interaction, genuinely dynamic weblogs do allow bidirectional communication. The person responsible for the blog also determines the conditions and the politics of this feedback. So, readers can (freely) express their opinions, thoughts or judgements about the issues raised in each of the posts in a public area enabled for comments. This sort of messaging may or may not take place, but
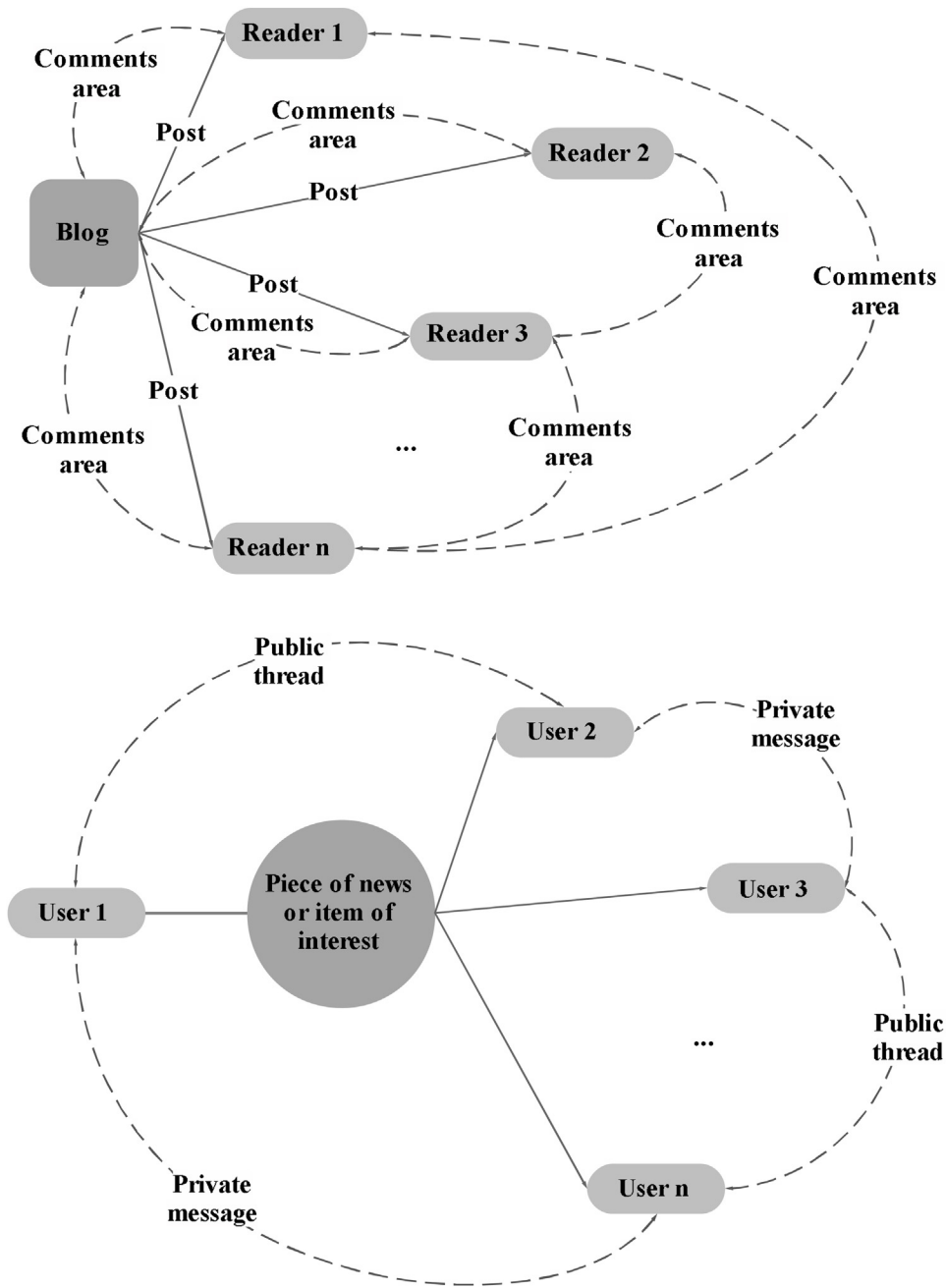
Fig. 1. Components and dynamics of functioning of a blog and a virtual social community.

it is in this space where the major part of the interaction of the blog takes place, and this dynamic could involve the author and one or more readers operating independently, so the generation of a pattern of mutual trust acquires substantial importance.

In this sense, trust development within blogs has largely been studied. On the one hand, blogsite atmospherics such as usability, speed, navigability or even privacy and security statements have been identified as relevant factors which promote trust (Aiken & Boush, 2006; Bart et al., 2005; Gupta, Yadav, & Varadarajan, 2009; Lee & Turban, 2001; Schlosser, White, & Lloyd, 2006). On the other, the information-seeking context, which may affect the nature of a blog (purchase vs. non-purchase), has also been posited as an influential variable over determinants of trust (Chen & Dibb, 2010; Hennig-Thurau, Walsh, & Walsh, 2003). With regard to the personal characteristics of bloggers, their reputation (Hsu, Lin, & Chiang, 2013) and their ability, defined in terms of using the correct ter-

minology, being critical, involved or passionate in discussing the topics or having extensive experience in the topic field, become the main characteristics that win the trust of blog readers in the case of online retail environments (Doyle, Heslop, Ramirez, & Cray, 2012). Finally, trust has been proved a considerable antecedent of knowledge sharing within personal blogs (Chai & Kim, 2010), a significant mediator in the relationship between satisfaction and commitment within political blogs (Rufín, Medina, & Rey, 2013), and also an attitudinal enhancer in the case of product-review blogs (Huang, 2015). These wide relationships suggest that trust development within blogs is a complex but solid mechanism in which features that facilitate positive person-site interaction and their functional outcomes do play a central role (Hahn & Kim, 2009; Urban et al., 2009), no matter which the blog genre may be.

Back to the bottom of Fig. 1, we consider discussion forums among the most representative examples of virtual social commu-

nities. In this type of entity, it is the pieces of news or topics of interest that each individual adds to the community that creates the dynamic between users. It is reasonable to accept that this type of content is often linked to the main shared interests that motivated the creation of the community, and so all communications are generally connected to the central theme. As opposed to the configuration of a blog, which rests mainly on the author's judgement, virtual communities usually have more active and prominent users (something that normally derives from the frequency, quality or intensity of the online activity), but also greater fragmentation. Likewise, virtual communities permit users openly to discuss and exchange messages through the threads they open and create opportunities to contact other members privately. In general terms, these communities provide the possibility of greater user participation, enable the posting of text pieces, give links to other sites, images and videos, which are, perhaps, more restricted elements in the dynamics of a weblog. Content moderation is also more flexible here than in a blog, and certain users who, for reasons of importance or seniority, are acknowledged by the rest of the community, may take charge of it. Trust between users remains, however, a constant feature in the comparison with blogs.

3. Scale development

The scale developed by Casaló et al. (2008) for evaluating online trust in online social communities is an excellent reference point that can be adapted for use in the blogosphere, based on the following arguments. First, the scale approaches trust from an extended point of view, sedimenting its measurement scale with relevant research such as that of Kumar et al. (1995), Doney and Cannon (1997) and Verhoef et al. (2002). This implies that trust in online communities such as blogs, in which commitment and long-term relationships arise as key factors, may be expressed in terms of relational capital, as stated by the very Casaló et al. (2008) and other studies (Chiu, Hsu, & Wang, 2006; Grabner-Kräuter & Bitter, 2013; Wiertz & De Ruyter, 2007). Second, the scale is defined in that it considers the dimensions of honesty, benevolence and competence with a total of 12 items, but it is also consistent with the best measurement of generalized trust by using a 7-point scale (Lundmark, Gilliam, & Dahlberg, 2016). Third, the research by Casaló et al. (2008) has been widely accepted in the literature, not only in studies on virtual communities (Ind, Iglesias, & Schultz, 2013; Sánchez-Franco & Rondán-Cataluña, 2010; Tonteri, Kosonen, Ellonen, & Tarkiainen, 2011), but also specifically on blogs (Rufín et al., 2013). Fourth, the scale was developed within the framework of virtual social communities, a field of study that has remarkable similarities to the blog context in terms of shared interests (Henri & Pudelko, 2003; Herring et al., 2005) or public interaction (Chau & Xu, 2007). Likewise, blogs can be thought of online social networks (Grabner-Kräuter & Bitter, 2013) from which these communities can emerge (Chin & Chignell, 2007). Therefore, in this paper, to use equivalent statements as a primary reference basis of the scale of online trust was a simpler and more direct task.

To achieve a more accurate of measurement for our specific object of study, blogs, to find correspondences between the cores of analysis of each item and to optimize the scale as a whole, between May and July of 2014 we designed and established a Delphi panel composed of international experts. This panel allowed us to develop, with an international perspective, a final version of a new tool to measure perceived trust.

The Delphi method is a qualitative technique developed in the 1960s (Dalkey & Helmer, 1963; Helmer & Quade, 1963), which is widely found in social sciences (Corbetta, 2003; Landeta, 2006), and still positively contributes to research (see its current validity in social sciences in Landeta, 2006). The Delphi method is based on

the idea that the opinions of a group of experts on a certain subject acting independently, anonymously and confidentially, is effective in achieving consensus on a specific issue. Indeed, it is only when the answers come from experts that a process of convergence closer to the consensus ratings is achieved (Dalkey et al., 1972; Jolson & Rossow, 1971). None of the experts consulted knew the composition of the rest of the panel or their ratings, which allowed the experiment to develop unbiased and autonomously to create, in the best of the cases, convergence around more solid answers. These answers are always supported by pre-established methodological procedures, by collective criteria and by specific and specialized knowledge. Technically, the objective is to progressively reduce the dispersion of the interquartile range so that the distribution of the answers is grouped as much as possible (Landeta, 2006). Hence, the technique used in our research enables the adaptation of an existing scale to a different context while meeting the psychometric properties of both the original and the new scale.

Following the seminal work by Pulido (1989), we applied the theoretical criteria that guarantee a better use of the method in terms of selection of experts, controlled feedback of results, generation of the questionnaire, statistical analysis and formulation of conclusions for the development of the Delphi panel. Specifically, the methodology in our case considered the following stages:

(1) The original questionnaire was thoroughly analyzed in order to: (i) obtain the core analysis of each item of the virtual communities; and (ii) propose an equivalent, starting statement applicable to the blog context previously agreed, with one of the authors of the work taken as a reference. The results of this first stage are presented in Appendix A.1.
(2) A list of experts who could ideally take part in the Delphi panel was drawn up. After a thorough review of the existing bibliography on the construct of trust, we settled on a preliminary list of 32 academics from 7 countries. The criteria for inclusion on the list of experts were the following: (a) authors of the scale taken as the reference; (b) researchers from the direct source from which the reference scale was developed; (c) academics with credits for relevant publications on several of the dimensions that integrate trust and; (4) lecturers and authors of articles that have applied trust to particularly interesting contexts related to the scope of the present research, such as the online environment or the analysis of trust on websites
(3) These authors were sent a personalized communication by email, explaining the objective of the panel, the methodology and the key development milestones, and a request for their active participation. Finally, the panel of researchers was made up of 14 members from 5 countries. Their names are given alphabetically, as follows, in Table 1.
(4) The first round of the Delphi panel was launched and the questionnaire, already adapted to the study context, was sent to the group of experts by email. This preliminary communication explained the purpose of the experiment (validating a scale to measure the perceived trust in a blog) and the rules and the methodology of the collaboration process. The participants were requested to rank each of the 12 items which formed the scale, from 1 to 5 points in accordance with their degree of agreement with the initial statements. At the same time, they were invited, with total freedom, to make additional modifications and corrections to increase the measurement accuracy of the tool, based on their extensive knowledge of the subject.

The experts were given two weeks to complete the first round. When the answers were received, we carried out the corresponding statistical analysis following Siegel and Castellan's (1988) general guidelines, and thus calculated the mean score of each statement, the quartiles, the median, the interquartile range and the groups

Table 1
Delphi panel that refined the trust scale.

Author	Institution	Country	Language
Joseph M. Cannon	Colorado State University	USA	English
Luis Casaló	Universidad de Zaragoza	Spain	Spanish
José Alberto Castañeda	Universidad de Granada	Spain	Spanish
Cynthia Corritorie	Creighton University	USA	English
Robert Davis	UNITEC Institute of Technology	New Zealand	English
Giacommo Del Chiappa	Università degli Studi di Sassari	Italy	English
Patricia M. Doney	Florida Atlantic University	USA	English
David Gefen	Drexel University	USA	English
Miguel Guinalíu	Universidad de Zaragoza	Spain	Spanish
Antonio Hyder	Universidad Cardenal Herrera	Spain	Spanish
Linda Hollebeek	University of Waikato	New Zealand	English
María Jesús López	Universidad de Vigo	Spain	Spanish
William Rand	University of Maryland	USA	English

of negative responses (1 and 2 points) and positive values (4 and 5 points). These methodological results can be seen in Table 2.

After a two-week waiting period, the second round of the Delphi panel was carried out with an identical procedure. The second questionnaire sent to each expert was enhanced using contributions from the first round and, therefore, contained a significant number of corrections, clarifications and variations from the original version. This created a clearer and more nuanced set of questions. The whole process of this qualitative work is presented in Appendix A.2. The statistical information from the first phase of the experiment was not given to the experts. The quantitative results of the second round of the Delphi panel are shown in Table 3.

The comparison between both rounds, summarized in Table 4, reveals that the statistical movement of the items shows a clear improvement in the adjustment of the scale: 11 out of the 12 indicators increased their median by 5 points, which guaranteed a centralizing tendency of a high concentration of responses with the greatest degree of agreement with the proposed statements. Consistently, 10 out of the 12 indicators improved their mean score and decreased their dispersion; another (BEN2), remained stable and slightly increased its standard deviation due to a change in the opinion of the experts and, finally, only one item (BEN3), worsened its score, both in mean and dispersion. This originated from a disputable polarity raised by a panellist, who justified this lower score with the introduction of a nuance into a statement that, as a whole, was considered to be of a minor nature (the distinction between harming others, meaning a third party, or harming other members of the blog). The detail of this working process is also displayed in Appendix A.2. In summary, the difference in results between the two rounds is depicted in Table 4.

In view of these results and having initially planned two rounds for the refinement of the scale, the changes made to adjust the measuring tool to the study context were validated and the panel

was closed. So, except for the indicator BEN3, that presented a minor discrepancy which was not considered important, the items in the scale displayed a low interquartile range, which shows a high degree of consensus among the experts, always over 78%, in the scores of 4 points (agree) and 5 points (completely agree). The process of refinement of the scale applied to blogs in this new context of application was, therefore, finalized.

4. Scale psychometric properties

In order to validate the consistency of the scale, its main psychometric properties were evaluated through an online questionnaire. The criteria for gathering data were as follows. First, four countries were chosen, two Anglo-Saxon (UK and US) and two Latin (Spain and Argentina). Second, we chose a context where trust is critical, with highly controversial political content and even issues which could be thought of as fake news (Allcott & Gentzkow, 2017; Pew Research Center, 2016). Third, blogs were identified as a suitable outlet for embedding a link to the questionnaire. Teads ranking of blogs (www.teads.tv) was chosen due to the consistency and quality of data. This Teads ranking is especially suitable for our purpose as its particular methodology classifies the prominence of a blog using a wide variety of indicators (number of visits, number of visited pages, unique users, content significance, frequency of publishing, . . .), but also remarks social impact of each site on a monthly basis. Fourth, the selection of blogs was made based on how frequently they were updated and whether they had a contact form. We finally included 81 political blogs chosen from the Teads ranking (www.teads.tv), from four different countries (the United States, United Kingdom, Argentina and Spain).

Data was collected from January to March 2015, with 2684 valid responses with the following profile: 76.6% males, average age 48.8 years, university degree 83.8%, active workers 68.7% and 15.4% retired. The overrepresentation of males and the high educational standard of the sample correspond to the profile of the readers of the blogs who took part in this major study, and it is not considered a relevant factor in our final results. Likewise, other blog variables, such as information quality, satisfaction, usefulness and identification with the content of the site, were measured, framed in a wider academic project in which blog influence on political behaviour was being assessed. The nature of this major study is considered a neutral issue in terms of the development of our scale of trust.

In order to test the validity of the scale, reliability and convergent validity were analyzed. For the internal consistency of the items, two indicators were considered: (1) Cronbach's alpha (Cronbach, 1951) and (2) composite reliability (Fornell & Larcker, 1981). Both indicators need to be higher than 0.7 (Churchill, 1979; Fornell & Larcker, 1981). However, a more exigent value of 0.8 for Cronbach's alpha may also be taken as a reference limit in basic research such as the one presented here, as suggested by Nunnally (1978).

Table 2
Statistical results after round 1 of the Delphi panel ($N = 14$).

Item	Mean	Std. Dev.	Q1/4	Median	Q3/4	Q3/4–Q1/4	% 1–2 points	% 4–5 points
HON1	3.50	1.45	2.00	3.00	5.00	3.00	28.6%	42.9%
HON2	4.71	0.61	4.75	5.00	5.00	0.25	0.0%	92.9%
HON3	4.36	0.93	3.00	5.00	5.00	2.00	0.0%	71.4%
HON4	4.07	1.21	3.00	4.50	5.00	2.00	7.1%	71.4%
BEN1	3.71	1.27	3.00	4.00	5.00	2.00	14.3%	50.0%
BEN2	4.29	1.07	4.00	5.00	5.00	1.00	14.3%	85.7%
BEN3	4.29	1.14	3.75	5.00	5.00	1.25	7.1%	78.6%
BEN4	4.29	1.20	3.75	5.00	5.00	1.25	7.1%	78.6%
COMP1	4.00	1.41	2.75	5.00	5.00	2.25	14.3%	71.4%
COMP2	4.07	1.49	3.00	5.00	5.00	2.00	14.3%	71.4%
COMP3	4.21	0.97	3.75	4.50	5.00	1.25	7.1%	71.4%
COMP4	3.93	1.21	3.00	4.00	5.00	2.00	7.1%	64.3%

Table 3
Statistical results after round 2 of the Delphi panel ($N = 14$).

Item	Mean	Std. Dev.	Q1/4	Median	Q3/4	Q3/4–Q1/4	% 1–2 points	% 4–5 points
HON1	4.43	0.85	4.00	5.00	5.00	1.00	7.1%	92.9%
HON2	4.93	0.27	5.00	5.00	5.00	0.00	0.0%	92.9%
HON3	4.57	0.76	4.00	5.00	5.00	1.00	0.0%	85.7%
HON4	4.71	0.73	5.00	5.00	5.00	0.00	0.0%	85.7%
BEN1	4.50	0.76	4.00	5.00	5.00	1.00	0.0%	85.7%
BEN2	4.29	1.14	3.75	5.00	5.00	1.25	14.3%	78.6%
BEN3	4.07	1.33	3.00	5.00	5.00	2.00	14.3%	71.4%
BEN4	4.57	0.94	4.75	5.00	5.00	0.25	7.1%	85.7%
COMP1	4.71	0.61	4.75	5.00	5.00	0.25	7.1%	92.9%
COMP2	4.64	0.74	4.75	5.00	5.00	0.25	0.0%	85.7%
COMP3	4.29	0.83	3.75	4.50	5.00	1.25	0.0%	78.6%
COMP4	4.43	0.85	4.00	5.00	5.00	1.00	7.1%	92.9%

Table 4
Difference of statistical results between rounds (R2 – R1).

Item	Mean	Std. dev.	Q1/4	Median	Q3/4	Q3/4–Q1/4	% 1–2 points	% 4–5 points
HON1	0.93	−0.60	2.00	2.00	0.00	−2.00	−21.4%	50.0%
HON2	0.21	−0.34	0.25	0.00	0.00	−0.25	0.0%	0.0%
HON3	0.21	−0.17	1.00	0.00	0.00	−1.00	0.0%	14.3%
HON4	0.64	−0.48	2.00	0.50	0.00	−2.00	−7.1%	14.3%
BEN1	0.79	−0.51	1.00	1.00	0.00	−1.00	−14.3%	35.7%
BEN2	0.00	0.07	−0.25	0.00	0.00	0.25	0.0%	−7.1%
BEN3	−0.21	0.19	−0.75	0.00	0.00	0.75	7.1%	−7.1%
BEN4	0.29	−0.27	1.00	0.00	0.00	−1.00	0.0%	7.1%
COMP1	0.71	−0.80	2.00	0.00	0.00	−2.00	−7.1%	21.4%
COMP2	0.57	−0.75	1.75	0.00	0.00	−1.75	−14.3%	14.3%
COMP3	0.07	−0.15	0.00	0.00	0.00	0.00	−7.1%	7.1%
COMP4	0.64	−0.45	1.00	1.00	0.00	−1.00	−7.1%	21.4%

Table 5
Psychometric properties of the Blog Trust Scale (BTS).

Blog perceived trust Item	Loading	*t* Value (*bootstrapping*)	Cronbach's α 0.939	Composed reliability 0.948	AVE 0.604
HON1	0.778**	66.909			
HON2	0.822**	73.084			
HON3	0.872**	127.376			
HON4	0.753**	55.646			
BEN1	0.684**	42.000			
BEN2	0.695**	48.496			
BEN3	0.604**	37.751			
BEN4	0.750**	56.173			
COMP1	0.870**	120.698			
COMP2	0.870**	120.917			
COMP3	0.801**	69.487			
COMP4	0.773**	65.362			

** $p < 0.01$.

Secondly, the reliability of the scale components was calculated. To do so, the *t* values of the items were estimated to examine the significance of their loadings. Following Carmines and Zeller (1979), loadings are admissible if higher than 0.707. This coefficient implies that over 50% of the variance of the observed item is shared with the construct and does not come from variance error (Henseler, Ringle, & Sarstedt, 2015). However, lower values, such as those obtained for items BEN1, BEN2 and BEN3, may also be acceptable, on the basis that the scale being developed by this research is in its seminal stage (Barclay, Higgins, & Thompson, 1995; Chin, 1998).

Finally, in order to assess convergent validity, the Average Variance Extracted (AVE) (Fornell & Larcker, 1981) was estimated. A minimum value of 0.5 is required to admit this indicator, as this implies that more than half of the construct's variance comes directly from the items that compound the variable. The dimensionality of the scale was also tested through Exploratory Factor Analysis, which showed that 12 items explained 60.28% of the variance into a single factor, with a Kaiser-Meyer-Olkin measure of sampling adequacy of 0.944.

The overall results of this numerical exercise show good psychometric quality for both the aggregate and the four partial samples (USA, UK, Spain and Argentina), where the consistency of the scale was also fully tested, and, therefore, support the consistency of the scale. These results are displayed in Table 5.

5. Conclusions, limitations and future lines or research

The establishment of an international Delphi panel allowed us to develop a new Blog Trust Scale (BTS), which took as a reference basis the scale of online trust of Casaló et al. (2008), originally developed for virtual social communities. The final assessment of the experts who took part in the panel shows high homogeneity in terms of composition, focus and content of the measuring instrument. The test conducted in four countries shows that the psychometric properties of the proposed scale can also be considered acceptable and, consequently, the initial objective of the study is accomplished. The statements of the BTS items are shown below, in Table 6.

Table 6
Final statement of the Blog Trust Scale (BTS): detail of items.

HON1	I think the author of this blog usually fulfils the commitments he/she makes
HON2	I think the information offered by this blog is sincere and honest
HON3	I think I can have confidence in the information that this blog provides
HON4	This blog does not contain false statements
BEN1	The author of this blog seeks mutual benefits for him/herself, readers and commentators
BEN2	The author or this blog appears to take the repercussions of his/her posts into account
BEN3	I think the author of this blog would not publish any posts that could intentionally harm others
BEN4	I think the author of this blog exhibits concerns about the issues that interest its readers
COMP1	The author of this blog is very knowledgeable about the subjects of his/her posts
COMP2	In general, the author of this blog is very well qualified in the subjects discussed
COMP3	In general, this blog contains specialized knowledge which makes the difference regarding the topics presented
COMP4	In general, this blog seems to be successful in the activity it undertakes

The result of this work offers a robust tool for measuring online trust in a specific, unexplored and emerging context of analysis, the blogosphere. Despite the two-step process of a Delphi and cross-cultural testing based on a sample of 2684 participants from four countries (USA, UK, Spain and Argentina), the development of this new scale cannot be considered a final step. In the future it will be necessary to empirically validate the scale through new and different studies.

Nonetheless, this study can be regarded as an example of the potential of this new measuring tool for emerging contexts where online knowledge plays a central role, such as those where information and user interaction are involved. In addition, this research also helps to establish blogs as sites where specific scales may be developed and applied, as is usual with commercial websites, social networks and virtual communities.

Several limitations need to be acknowledged, that open windows for future research. Firstly, choosing a specific panel of experts to carry out the research, despite being methodologically defensible, perhaps introduces a bias into the measure due to the previous experience and areas of interest of the academicians. Secondly, an existing scale, that of Casaló et al. (2008) was adopted as a reference point; a different starting point could possibly have led to a different scale. Hence, additional validations of this measurement tool would contribute to reinforcing its validity and, especially, to increasing its accuracy. Regarding the additional testing required to consolidate the validity of this nascent scale, there are several issues to be considered. Firstly, the possibility exists of repeating the psychometric analysis by gathering data from other blogospheres; that is, from scenarios with unequal social and cultural circumstances. Secondly, the countries where the testing took place have clear political agendas. The blogs the scale evaluated openly discussed political or public affairs. It would be advisable to examine blogs that cover topics other than politics. Finally, a more general perspective that, in turn, might serve as a solid base for extrapolation to other types of websites, and to areas of research that might be structurally related, is also required. In this respect, guidelines to improve the proposal made by this research could include (1) the introduction, or even the exchange, of a particular dimension of the construct of (online) trust found in the existing literature; (2) the clarification of the approach on the weblogs, illustrated, for instance with the legitimate-almost ontological-discussion between the blog and the author of the blog; and (3) the elimination of any peripheral item, as suggested by some of the experts during the Delphi method. The proposed scale is open to future refinement, which might create an even more precise filter that will allow greater adjustment of the measuring instrument to the specific and changing nature of blogs as a particular class of interactive communication tool.

Appendix A

A.1 Proposal of equivalent statements for the scale by Casaló et al. (2008)

Item	Original statement (Casaló et al., 2008)	Proposal of equivalent statement
HON1	I think that these community members usually fulfil the commitments they assume	I think this blog usually fulfils the commitments it assumes
HON2	I think that the information offered by these community members is sincere and honest	I think the information offered by this blog is sincere and honest
HON3	I think I can have confidence in the promises and contributions that these community members make	I think I can have confidence in the information that this blog provides
HON4	In general, most of the community members do not make false statements	In general, this blog does not make false statements
BEN1	I think that most of the community members search a mutual benefit when they interact with other members	I think the author of this blog searches for a mutual benefit when allowing the interaction of the readers
BEN2	I think that most of the community members take into account the repercussions that their actions could have on other members	I think the author of this blog takes into account the repercussions of his posts
BEN3	I think that most of the community members will not intentionally carry out actions that could harm other members	I think the author of this blog does not publish any posts that intentionally could harm others
BEN4	I think that most of the community members are concerned about the needs and interests of the other members	I think this blog is concerned about the issues that interest its readers
COMP1	In general, I feel very confident about the skills that the other community members have regarding the topics we discuss	In general, I feel very confident about the knowledge this blog has regarding the topics it publishes
COMP2	In general, the other community members are very well qualified in the subject we discuss	In general, the author of this blog is very well qualified in the subjects discussed
COMP3	In general, the other community members have specialized knowledge that can add to the discussions	In general, the author of this blog has specialized knowledge which makes the difference in the topics presented
COMP4	In general, the other community members seem to be successful in the activities they undertake	In general, this blog seems to be successful in the activity it undertakes

A.2 Contributions made by the members of the panel after Round 1

ROUND 1	ITEM 1/12: HON1	ITEM 2/12: HON2	ITEM 3/12: HON3	ITEM 4/12: HON4
Original statement	I think that these community members usually fulfil the commitments they assume	I think that the information offered by these community members is sincere and honest	I think I can have confidence in the promises and contributions that these community members make	In general, most of the community members do not make false statements
Proposed statement	I think this blog usually fulfils the commitments it assumes	I think the information offered by this blog is sincere and honest	I think I can have confidence in the information that this blog provides	In general, this blog does not make false statements
Panellist	Comments and suggestions on the items			
01			Change for 'I think I can have confidence in the promises this blog makes'	
02	It is difficult there can be groups that users can engage with in a blog			
03	The blog is not an individual, so it does not make commitments			The blog does not make statements, Reword it: "This blog does not contain false statements"
04	Drop "I think". It is not clear if "blog" means the posts, the comments from readers or both	Drop "I think". It is not clear if "blog" means the posts, the comments from readers or both	Drop "I think". It is not clear if "blog" means the posts, the comments from readers or both	Drop "I think". It is not clear if "blog" means the posts, the comments from readers or both
05	Commitments are made by people, not by a blog. Suggestion to replace "the blog" by "the author of the blog"		The idea of a promise is close to the one of commitment. Suggestion to replace "the blog" by "the author of the blog"	Again, the blog does nothing. An author makes false statements. Suggestion to replace "the blog" by "the author of the blog"
06	Two suggestions: (1) to replace "the blog" by "the author of the blog" and (2) to be specific on what exact commitments the item refers to	Suggestion to replace "the blog" by "the author of the blog"	This is one of three dimensions of trustworthiness. Integrity, benevolence, and ability should be included, too	Suggestion to replace "the blog" by "the author of the blog"
07	Commitments are made by people, not by a blog. Reword it: "I think the author of this blog usually fulfils the commitments he/she assumes"	Same comment as in item 1. Reword it: "I think the information offered by this blog is sincere and honest"	Need to clarify: "…information contained on this blog"	Reword it: "In general, I do not find false statements in this blog"
08	Need to clarify: "commitments the blog assumes"			Reword it: "This blog does not contain false statements"
09				
10				
11				
12	Honesty is a personal feature. Reword it: "I think the author of this blog usually fulfils the commitments he/she assumes"	Same comment as in item 1. Reword it: "I think the information offered by this blog is sincere and honest"	Same comment as in items 1 and 2: "I think I can have confidence in the information the author of this blog provides'"	Reword it: "In general, this blog does not contain false statements"
13				
14	Possible discussion between those who think the statement is fine and those who think a blog is not an agent. Suggestion to replace the word "assumes"			

ROUND 1	ITEM 5/12: BEN1	ITEM 6/12: BEN2	ITEM 7/12: BEN3	ITEM 8/12: BEN4
Original statement	I think that most of the community members search a mutual benefit when they interact with other members	I think that most of the community members take into account the repercussions that their actions could have on other members	I think that most of the community members will not intentionally carry out actions that could harm other members	I think that most of the community members are concerned about the needs and interests of the other members
Proposed statement	I think the author of this blog searches for a mutual benefit when allowing the interaction of the readers	I think the author of this blog takes into account the repercussions of his/her posts	I think the author of this blog would not publish any posts that intentionally could harm others	I think this blog is concerned about the issues that interest its readers
Panellist	Comments and suggestions on the items			
01	Need to be careful because of the low level of online interaction of politicians	Replace "posts" by "the content the blog publishes"	Reword it: "I think the author of this blog will not publish anything that intentionally could harm his/her readers"	
02		The statement is unclear: a blog can be claiming and reliable but can deliberately harm enterprises or institutions with its posts		Suggestion to replace "the blog" by "the author of the blog"
03				Reword it: "The blog exhibits concern about the issues..."
04	Drop "I think". Reword it: "The author of this blog seeks mutual benefits for him/her self, readers and commentators"	Reword it: "The author or this blog appears to take the repercussions of his/her posts into account"	Drop "I think"	Drop "I think". Suggestion to replace "the blog" by "the author of the blog"
05	Either people interact or they do not. Use a similar statement to item 1. Otherwise, this item becomes irrelevant			
06				Suggestion to replace "the blog" by "the author of the blog"
07	Reword it: "I think the author of this blog searches for a mutual benefit when fostering interaction with the readers"			Reword it: "I think this blog includes information on relevant issues for its readers"
08	It is unclear whether it is blog-user or user-user interaction in the context of the blog			
09				
10				
11				
12	The definition of benevolence used in this item should be revised in order to avoid ambiguity (content validity)		Reword it using commas: "I think the author of this blog will not publish any post that, intentionally, could harm others"	Reword it: "I think this blog concerns itself with the issues that interest its readers" or "I think the author of this blog..."
13				
14	Do not switch between blog and author of the blog. The research of this panellist has shown that inanimate objects can be perceived as having intent, so a blog could be treated this way	Same comment as in previous item	Same comment as in previous item	Use the same words ("needs and interests") as in the original statement, instead of "issues"

ROUND 1	ITEM 9/12: COMP1	ITEM 10/12: COMP2	ITEM 11/12: COMP3	ITEM 12/12: COMP4
Original statement	In general, I feel very confident about the skills that the other community members have regarding the topics we discuss	In general, the other community members are very well qualified in the subject we discuss	In general, the other community members have specialized knowledge that can add to the discussions	In general, the other community members seem to be successful in the activities they undertake
Proposed statement	In general, I feel very confident about the knowledge this blog has regarding the topics it publishes	In general, the blog is very well qualified in the subjects discussed	In general, the author of this blog has specialized knowledge which makes the difference in the topics presented	In general, this blog seems to be successful in the activity it undertakes
Panellist	Comments and suggestions on the items			
01	Suggestion to replace "topics" by "contents"	Suggestion to replace "the blog" by "the author of the blog" to make it different from the previous item	Suggestion to drop this item, as it becomes redundant	
02	Suggestion to replace "the blog" by "the author of the blog"	Suggestion to replace "the blog" by "the author of the blog"		
03	A blog does not have knowledge, it publishes the author's knowledge			
04	Reword it: "The author of this blog is very knowledgeable about the subjects of its posts"	Reword it: "It appears that readers of this blog are very knowledgeable about the topics discussed in this blog"		Item appears to be vague. The panellist is not sure how he would respond
05				People are successful. Suggestion to replace "the blog" by "the author of the blog"
06				Need to be specific about what success means
07	Reword it: "In general, I feel very confident about the knowledge the author of this blog has regarding the topics he/she publishes"	This item does not fit well: in a virtual community, there are several content creators, but in a blog it is mainly its author		This item does not belong to the classical dimensions of trust (benevolence, integrity and competence). It seems more a consequence of competence
08		Check the detail: "…is qualified…", not "…is very well qualified…"	Check the detail: "…the author of this blog offers specialized knowledge…"	
09				
10				
11				
12	Test content validity to avoid ambiguity	Suggestion to reword it: "In general, the author of this blog is well qualified in the subjects discussed"	Suggestion to reword it: "In general, the author of this blog has specialized knowledge on the topics presented"	
13				
14	Consider ending the statement: "…this blog has regarding the topics it discusses"		Consider dichotomy blog vs. author of the blog	Statement is unclear: what activities does a blog undertake. The original item is not clear either, perhaps because it is out of context

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