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MEASURING CONSUMERS' ENGAGEMENT WITH BRAND-RELATED SOCIAL-MEDIA CONTENT: DEVELOPMENT AND VALIDATION OF A SCALE THAT IDENTIFIES LEVELS OF SOCIAL-MEDIA ENGAGEMENT WITH BRANDS

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INTRODUCTION

Social network sites (hereafter, SNS) such as Facebook, YouTube, and Twitter have grown in importance in consumers' lives and influence on their communication habits. According to eMarketer (2013), nearly one in four people worldwide use social network sites - a number of about 1.73 billion people. By 2017, the global social network audience is estimated to be around 2.55 billion people (eMarketer, 2013). With consumers deeply engaging into social media, an increasing share of communication occurs within these new environments (Berthon et al., 2008). Different from the static websites in the early days of the Internet, the interactive nature of social media has ultimately changed the ways in which consumers engage with brands. When using social media on regular basis, consumers are in contact with brands and products by reading, writing, watching, commenting, "Liking", sharing, and in many other different ways.

The growth in popularity of social media across consumers and firms has opened a vast research field for scholars. For the last few years researchers have been investigating the ways in which consumers interact with brands on social media by approaching different perspectives, such as brand community (Laroche *et al.*, 2012; Schau *et al.*, 2009);

community identification and engagement (Algesheimer *et al.*, 2005); electronic word-of-mouth (Hennig-Thurau *et al.*, 2004); peer communication (Wang *et al.*, 2012); social media participation (Yeo, 2012); user-generated and firm-created content (Bruhn *et al.*, 2012; Schivinski and Dabrowski, 2014); involvement with user-generated content (Christodoulides *et al.*, 2012); reasons for "Liking" (Wallace *et al.*, 2014); and worth-of-mouth (Carroll and Ahuvia, 2006). Yet, despite the growing interest in consumers' engagement with brands on social media, academic research on its measurement is still at a very early stage. This article aims to enrich the literature with respect to the consumer's engagement with social media brand-related content, specifically by focusing on holistically measuring the aforementioned phenomenon.

Recently, Hollebeek *et al.* (2014) developed a scale to measure engagement with a brand within a brand community. Our scale is different in that as: (a) we seek to measure engagement with social media brand-related content rather than engagement with the brand *per se*; and (b) we define and measure engagement as a behavioral construct rather than affective/cognitive and behavioral.

In fact, engagement with social media related content may lead to engagement with the brand. With advertisers now investing considerable resources in social media marketing, especially in activities that aim to drive consumers' engagement with brand-related content, the reported CESBC scale will help establish the success (or not!) of those activities.

We address this gap in the literature by developing and validating a scale that differentiates between the levels and types of consumer's engagement with brands on social media. This research draws on the consumer's online brand-related activities (COBRA) framework, first introduced by Shao (2009) and later extended by Muntinga *et al.* (2011). The COBRA framework is an umbrella behavioral construct that encompasses the consumer activities pertaining to brand-related content on social media. Considering the increasing role

of branding and brand communication on social media, it is of great importance to researchers and practitioners to have a measurement instrument that not only covers a vast range of social media brand-related activities, but also differentiates across different levels of media engagement from the consumer's standpoint. This study is a first step towards this direction.

Therefore, the authors extend the COBRA framework by introducing the consumer's engagement with social media brand-related content scale (hereafter, CESBC) and discussing its systematic development and validation. To this end, a combination of qualitative and quantitative research methods was employed. For the identification and categorization of individual COBRAs a literature search on the subject was complemented by online focus groups, online depth interviews, and a netnography. To further test the factorial validity of scores from CESBC it was employed structural equation modeling with confirmatory factor analysis (CFA). Next it was performed a *post-hoc* analysis to test if there is a hierarchical relationship amongst the dimensions of COBRA with structural equation modeling (SEM). Finally, the authors validated the psychometric properties of CESBC with two nomological network constructs (*i.e.*, brand equity and brand attitudes) using confirmatory statistics.

In summary, this research contributes to the literature body on the field of online brand communication (social media marketing and user-generated content) by introducing a valid, reliable, and parsimonious measurement instrument to quantify the consumer's engagement with brand-related content on social media. Additionally, CESBC provides the basis for further empirical studies based on correlational and dependence relationships among different sets of variables, therefore playing an important role in advancing the next generation of knowledge development in this area of increasing importance for marketing.

This paper opens by reviewing the relevant literature used to conceptualize and dimensionalize COBRAs. The following section explains how qualitative techniques were

employed to help generate an initial pool of items to capture consumers' engagement with brand-related content on social media. Next the outline for the quantitative empirical analysis that is used to verify CESBC is presented, in addition to the psychometric validation of the scale. The final section discusses the empirical findings and their implications for researchers and managers.

CONSUMER'S ONLINE BRAND-RELATED ACTIVITIES

Regardless of the fact that much of social media's role in marketing communication remains to be explored and clarified (Burmann, 2010; Yadav and Pavlou, 2014), it is clear that for companies wishing to benefit from social media, the key challenge becomes to encourage their customers to get involved in online brand-related activities (Muntinga *et al.*, 2011).

Consumers' interest in brands on the Internet had its advent in the1990s, when people started to use bulletin boards on sites such as Yahoo! and AOL to share their preferences and opinions about products (Kozinets, 2001). The developments of the Internet technology originate a new dimension of consumer's involvement with brands on social media (Li and Bernoff, 2011). Web 2.0 environments such as blogs, wikis, media sharing sites, SNSs, and other social media based web sites have extended significantly the ways and depth of consumer-brand interactions (Christodoulides, 2009).

On social media, consumers use an array of tools and resources to engage with brands. However, different brand-related activities on social media may entail different levels of engagement. For instance, when the consumer watches a picture or a movie displaying a Harley-Davidson motorcycle, he or she consumes brand-related media. On the other hand, when the consumer engages with media by commenting on a post or by "Liking" a piece of content he or she is moves from the stage of observer to be a media contributor. Finally,

when the consumer decides to upload a picture of his or her new Chuck Taylor All Star sneakers on Facebook he or she creates brand-related content. Those three levels of consumer's engagement with brands on social media are incorporated into the COBRA framework in three dimensions – the consuming COBRA type; the contributing COBRA type; and the creating COBRA type.

In this study, the authors extend the literature on social media, user-generated content and engagement by developing a pencil and paper type instrument to allow theoreticians and practitioners to gauge consumer's different levels of engagement with brand-related content on social media. Conceptually, this research draws on the works of Shao (2009) and Muntinga *et al.* (2011). In an exploratory study, Shao delimitated boundaries to the levels of engagement of consumers with user-generated media (UGM). Shao suggested that individuals engage with UGM in three distinguished ways, therefore by consuming, by participating, and by producing brand-related media. Muntinga *et al.* (2011) advanced the findings of Shao by investigating the consumer's motivations to engage into online brand-related activities and therefore validating the theoretical framework with 20 consumers using instant message interviews. Additionally, Muntinga *et al.* (2011) coined the framework to be named COBRA and suggested its dimensions to be called: consumption, contribution, and creation. Although the COBRA framework was delimitated, a formal definition for COBRA was not provided. Therefore, to guide us into the conceptualization and measurement of the framework, we define COBRA as *a set of online activities on the part of the consumer that are related to a brand, and which vary in the levels of interaction and engagement with the consumption, contribution, and creation of media content*.

The consuming COBRA type has its roots in the marketing literature with the consumer's participation in networks and online brand communities (*e.g.*, Armstrong and Hagel III, 1996; Dholakia *et al.*, 2004; Kozinets, 1999; Muniz Jr. and O'Guinn, 2001). This

type of COBRA represents a minimum level of consumer's engagement into brand-related activities. It refers to individuals who passively consume brand-related media without participating (Muntinga *et al.*, 2011; Shao, 2009). The consumption of brand-related content includes media that are both firm-created and user-generated, therefore, no distinction of communication sources is anticipated. This is the most frequent COBRA type among consumers (Muntinga *et al.*, 2011).

The contributing COBRA type includes both peer-to-peer and peer-to-content interaction about brands (Shao, 2009). This COBRA type does not include one's actual creation, however, consumers who contribute to brand-related content by participating in media that was previously created by either a company or another individual. Due to its interactive nature, this COBRA type has gained popularity across practitioners and brand researchers. Research on this type of COBRA can be traced back from studies of brand-related electronic word-of-mouth (eWOM) (*e.g.*, Chevalier and Mayzlin, 2006; Dellarocas *et al.*, 2007; Hennig-Thurau *et al.*, 2004; Hung and Li, 2007) and online customer reviews (OCR) (*e.g.*, Ho-Dac *et al.*, 2013; Zhu and Zhang, 2010), whereas more recently attention has been given specifically to consumers who "Like" brands (*e.g.*, Nelson-Field *et al.*, 2012; Wallace *et al.*, 2014) or share brand-related content on social media (*e.g.*, Belk, 2014; Shi *et al., 2014).*

Finally, the creating COBRA type involves the consumer's creation and online publication of brand-related content. Studies on consumers' involvement with the creation of brand-related content are grounded in the topics of co-creation (*e.g.*, Füller *et al.*, 2006, 2009; Prahalad and Ramaswamy, 2002) and consumer empowerment (*e.g.*, Pires *et al.*, 2006; Wathieu *et al.*, 2002; Wright *et al.*, 2006). More recent studies have focused on the topic of user-generated content (UGC) (*e.g.*, Berthon *et al*., 2008; Bruhn *et al.*, 2012; Christodoulides *et al.*, 2012; Daugherty *et al.*, 2008; Hautz *et al.*, 2013; Schivinski and Dabrowski, 2014).

Therefore, the creating COBRA type represents the strongest level of online brand-related engagement (Muntinga *et al.*, 2011) where the content generated by consumers, may be a stimulus for further consumption and/or contribution by other peers.

In fact, one should account that the same individual may act as a consumer/contributor/creator of content for the same brand concurrently or successively depending on situational factors. Likewise, the same consumer may choose to contribute for one brand but only consume content for another brand. Consequently, by enclosing the three dimensions (*i.e.*, consumption, contribution, and creation) into the COBRA framework researchers may gain a richer understanding of the consumer's engagement with social media brand-related content. In this context, the authors articulate COBRAs as a three-factor framework and expect its three constituent dimensions to be positively correlated.

RESEARCH METHODOLOGY

Following a multi-stage process of scale development and validation (*e.g.*, Churchill, 1979) both qualitative and quantitative studies were conducted. The qualitative studies were designed to extend the preliminary set of COBRAs reported in literature (see Li and Bernoff, 2011; Muntinga *et al.*, 2011), consequently aiming at a broader exploration of individual online brand-related activities. For such, the authors used online focus groups – bulletin board (Study 1), online depth interviews (Study 2), and netnography (Study 3). The outcomes of the qualitative studies served as a basis for the preparation of an initial pool of items that was used to further develop the measurement instrument to CESBC. The scale was calibrated and tested with confirmatory factor analyses (CFA) and further subjected to a *post-hoc* analysis to investigate if, indeed, there was a hierarchical relationship amongst the dimensions of COBRAs (Study 4). Finally, a further data collection with a new sample of

consumers verified the structure and psychometric properties of the scale and established the criterion related validity of the instrument (with brand equity and brand attitudes) (Study 5).

The samples used during each study are systematically reported in section 4 with the exception of the samples used in Study 4 and 5 that are summarized in Table A2 (Appendix). For reasons of space restrictions, the extensive list of activities pertinent to each COBRA dimension are reported in Table A1 (Appendix) and not after each qualitative study.

EXPLORATION OF COBRAs

Study 1: Online focus groups – bulletin board

The purpose of Study 1 was to elaborate on the social media brand-related activities previously reported in literature. To do so, two online bulletin boards were administrated using the service Google Groups for a period of two weeks. A total of 25 respondents participated in the study divided in two groups: 12 participants who passively consumed COBRAs (bulletin board 1: consumption), and 13 who created brand-related content (bulletin board 2: creation). Notice that activities pertinent to the contributing COBRA type should emerge spontaneously, as this dimension intermediates the consuming and creating COBRA types. The division of the participants considering their level of engagement with brands on social media makes it possible to better capture the content domain, serving to the primary purpose of the study *i.e.*, the widest possible exploration of COBRAs. For this exploratory step of the research, we used an asynchronous method, *i.e.*, online focus groups with bulletin boards (Fox *et al.*, 2007). A bulletin board is “an Internet site where users can post comments about a particular issue or topic and reply to other users' postings” (McKean, 2005).

Regarding the recruitment of the respondents to join the bulletin board 1, the participants needed to use the Internet daily and actively follow brands on social media. The same criteria were required for the recruitment of respondents to join the bulletin board 2,

with the addition that the participants needed to have created at least three pieces of content for at least one brand. The participants who did not fulfill the above criteria were not accepted to take part in the studies. The age of participants ranged from 18 to 34 years old. The respondents also affirmed to spend from 2 to 5 hours online daily. The majority of the respondents (47%) declared to use at least one social media channel, 33% frequently use two services, and the remaining use three or more services. The sample was evenly distributed according to gender.

Both bulletin boards were administered daily by one moderator. The role of the moderator was to post new entries and motivate the respondents to engage into the discussion. The moderator also provided explanation to the respondents in case of doubts, however, without solving any of the tasks. Throughout the study, the participants were asked exploratory questions such as "What sort of activities [things] you do on social media that involve brands?" or "Could you name activities that require the Internet users to be engaged with a brand?"

The outcomes of Study 1 included activities belonging to the three types of COBRAs. Brand-related activities such as following a brand on social media, watching brand-related videos, picture, and images, commenting on brand-related posts, and writing brand-related content on blogs are a few examples of COBRAs that were mentioned by the participants. Although the outcomes of the Study 1 closely matched the COBRAs previously reported in the literature, it seemed appropriate to the authors that the list of COBRAs should be confirmed and complemented by a synchronous data collection method.

Study 2: Online depth interviews

Throughout this stage, the goals of the study were twofold: (a) to confirm the previous list of COBRAs with a different sample of Internet users using a synchronous data collection

method; and (b) to discover COBRAs that remained undetected during Study 1. To reach the objectives of Study 2, the authors decided to use online depth interviews with consumers. Online depth interviews are a synchronous research method that allows researchers to broaden their understanding of what they observe on Internet (Fox *et al.*, 2007). Additionally, this methodology brings in detail the subjective understanding of the respondents about the topic; and it is effective to hear about their recollections and interpretations of events (Kozinets *et al.*, 2010).

A total of 32 consumers were interviewed using online instant messages (IM) based software. For the recruitment of respondents, similar criteria to Study 1 were employed. The sample also had a similar structure to the one used in Study 1.

Three interviewers received training and were explained about the research objectives and goals. During the interviews the respondents were asked to recall the brands they followed on social media and to give examples of activities they take or took part according to the given level of COBRA (*i.e.*, consumption, contribution, and creation). Examples of such activities were given when required.

The results generated from the second study enhanced the outcomes from Study 1. As expected, the online depth interviews uncovered COBRAs that were not previously detected when using the asynchronous research method (*e.g.*, subscribing to a brand-related video channel, commenting on a brand-related fan page, and publishing a brand-related picture exposing a product).

The results of both Studies 1 and 2 made up an extensive list of COBRAs that the respondents could recall from memory. Therefore, a third study was designed to cover possible mind gaps from the respondents using a less obtrusive research method.

Study 3: Netnography

The objectives of Study 3 were the following: (a) to verify whether the list of COBRAs obtained from literature and Studies 1 and 2 were commonly found across social media channels; and (b) to identify activities that the respondents could not recall from memory. To reach the given objectives we applied netnography, a technique far less obtrusive than the ones used previously, mainly because it is conducted using observations of the consumers' online behavior in a context that was not established by the researcher (Kozinets, 2002).

To perform the netnography, five investigators were trained and had no access to the outcomes of the first and second stage of the research. The investigators were instructed to perform observations on the Internet and to generate a list of COBRAs. The observations were held across social media channels that the consumers listened during the Studies 1 and 2. By the end of the procedures, the authors confronted the outcomes of the investigations and generated one single list.

As expected, the results of Study 3 rendered a more extensive list of COBRAs than the previous two studies. Activities such as downloading brand-related widgets, clicking on brand-related ads, and rating a branded product were included in the final COBRA typology. The outcomes of the three qualitative studies collectively made up an initial pool of 35 items to measure COBRA as follows. The consuming COBRA type was measured by 12 items. This scale measures the level of which internet users engage into a passive consumption of media by reading, watching, and following brands on social media. The contributing COBRA type was measured by 15 items. This scale captures the intermediary level of engagement of a consumer with a brand on social media. Activities that belong to this level require the consumer to interact with brand by using options such as 'Liking', sharing, and commenting. Finally, 8 items measured the creating COBRA type. This scale captures the highest level of

engagement of consumers with brands on social media by creating content in the form of text, image, and videos.

SCALE DEVELOPMENT

Study 4: Item reduction and reliability

A questionnaire was next developed from the initial item pool. Respondents were asked to indicate their level of agreement with each of the 35 statements using a seven-point Likert scale anchored at ‘not very often’ and ‘very often’. The respondents were also given the option ‘not at all’ (coded later as zero).

The questionnaire was pretested using a sample of 48 undergraduate business students. All the students declared to follow brands in different social media channels. Minor changes to the order and wording of questions were made following the pretest.

The main data collection was conducted online. Probability sampling was not used during the recruiting process. Rather, respondents were recruited by extending invitations in several social media channels, online forums, and discussion groups. The final sample was weighted demographically to ensure that its characteristics are representative of the national population (Fulgoni, 2014). The invitation to the survey consisted of an informative text highlighting the broad topic of the study. After clicking on the survey's link, the respondent was redirected to the questionnaire. The survey was divided in blocks. The introduction presented an explanatory text describing the general objectives of the study and distinguished between the three types of COBRAs. The second block consisted of demographic questions. For the next block, the respondents were asked to enter a brand they actively follow on social media. Examples of engagement with brands on social media were briefly described.

Additionally, the respondents were also informed that they would be using the chosen brand throughout the entire survey. For capturing CESBC dimensions, three additional blocks were individually presented to the respondents. Each block contained the scale for one single dimension. The order of the CESBC blocks and the scale within each block were randomized to avoid the systematic order effect.

A sample of 2578 consumers participated in the study. Invalid and incomplete questionnaires were rejected (12.65%), resulting in 2252 valid questionnaires (87.35%). The sample characteristics are summarized in Table A2. A total of 299 brands were analyzed spanning a range of industries including apparel and accessories, automotive, beverages, clothing, computer, food, hi-tech, and mobile operators.

The usable sample was randomly split into calibration and validation samples (Churchill, 1979; Cudeck and Browne, 1983; Gerbing and Anderson, 1988). Each sample consisted of 1126 consumers. The calibration sample was used to develop the scale, whereas the validation sample was used to verify CESBC's dimensionality and establish its psychometric properties.

The authors first performed an exploratory factor analysis (EFA) with maximum-likelihood extraction method and Promax orthogonal factor rotation using SPSS 21.0 software package. It was employed the factor extraction according to the MINEIGEN criterion (*i.e.*, all factors with Eigenvalues > 1). The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) value was 0.97 with a significant chi-square value for the Bartlett test for sphericity (χ^2 = 25243.07; $p < 0.001$) indicates that the sufficient correlations exist among the variables (Hair Jr. *et al.*, 2014). The exploratory factor analysis was appropriate for the data.

Four items demonstrated to have cross-loadings issues and failed to exhibit a simple factor structure. The problematic items were subsequently removed from the analysis. The

final structure of CESBC included 31 items, which reflected a three-factor solution, and accounted for 55.33% of the total variance. The internal consistency (Cronbach's alpha) of the CESBC follows: consumption $\alpha = 0.90$ (12 items), contribution $\alpha = 0.93$ (11 items), and creation $\alpha = 0.94$ (8 items). The Cronbach's alpha value for each of the three dimensions demonstrated the internal consistency of the scales (Nunnally, 1978). The correlations between the CESBC dimensions were positive and significant (Consumption−Creation, r = 0.72; Contribution−Creation, r = 0.65; Consumption−Contribution, r = 0.50). The next procedure was to check the hypothesized three-factor structure of the CESBC and to analyze the covariance matrix.

Confirmatory factor analysis (CFA)

Following with the analysis, all latent variables were included in one single multifactorial CFA model in M*plus* 7.2 software. The maximum-likelihood estimator (ML) was used, and the goodness-of-fit (GOF) of the model was evaluated using the chi-square test statistic, the comparative fit index (CFI), the Tucker-Lewis index (TLI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). Values larger than 0.90 for CFI and TLI, and 0.08 or lower for RMSEA or SRMR indicate good model fit (Hu and Bentler, 1999).

Results of the CFA suggested that the three-factor 31-item model had a poor fit to the data. The $\chi^2_{(430)}$ was 3643.40, the CFI was 0.87, the TLI was 0.86, the RMSEA was 0.08; 90% C.I. 0.08 0.09, and the SRMR was 0.06. The next step involved identifying the areas of misfit in the model. To assess the possible model misspecification the authors turned to examine the standardized loadings of the items and modification indices (MI) (Hair Jr. *et al.*, 2014). The authors proceeded with the elimination of items: (a) whose standard loadings were below the 0.5 cutoff; (b) which demonstrated cross-loadings issues that were not detected during the EFA; and (c) which yielded high MI values. After running the diagnostics

and eliminating the problematic items, the ensuing three-factor 17-item model yielded a good fit as indicated by the $\chi^2_{(115)}$ 859.257; CFI = 0.95, TLI = 0.94, RMSEA = 0.07; 90% 0.06 0.07, and SRMR = 0.06. Additionally, an alternative CFA was conducted using robust maximum-likelihood estimation (MLM) as the assumption of multivariate normality was violated - as is common with rating scales the data showed to be multivariate kurtotic (for the descriptive statistics see Table A4). The model yielded good GOF values: $\chi^2_{(115)}$ 557.467; CFI = 0.95, TLI = 0.94, RMSEA = 0.05; 90% 0.05 0.06, and SRMR = 0.06.

The next step was to calculate the construct reliabilities (CR) of the three dimensions of CESBC. The reliability for consumption was 0.85, for contribution was 0.91, whereas for creation was 0.93. The CR values exceeded the threshold of 0.7 (Hair Jr. *et al.*, 2014), thus demonstrating the internal consistency of the three subscales. All of the loadings estimates were statistically significant and greater than 0.63. The *t*-values ranged from 30.92 to 105.56 ($p < 0.001$). These results provide evidence of convergent validity (Hair Jr. *et al.*, 2014). In terms of discriminant validity, we calculated the average variance extracted (AVE) for each construct. The AVEs were 0.59 (consumption), 0.65 (contribution), and 0.68 (creation) respectively. The AVE values were later compared with the square of the estimated correlation between constructs (MSV) (Hair Jr. *et al.*, 2014). The AVE were greater than the MSV values, therefore discriminant validity was supported. Finally, the correlations between the COBRA dimensions were as follows: Contribution−Creation, r = 0.77; Consumption−Contribution, r = 0.65; and Consumption−Creation, r = 0.51. The correlations were positive and significant. The reliability and validity outcomes resulting from the CFA are presented in Table 1. The results of the analyses – a three-dimensional, 17-item CESBC scale are summarized in Figure 1.

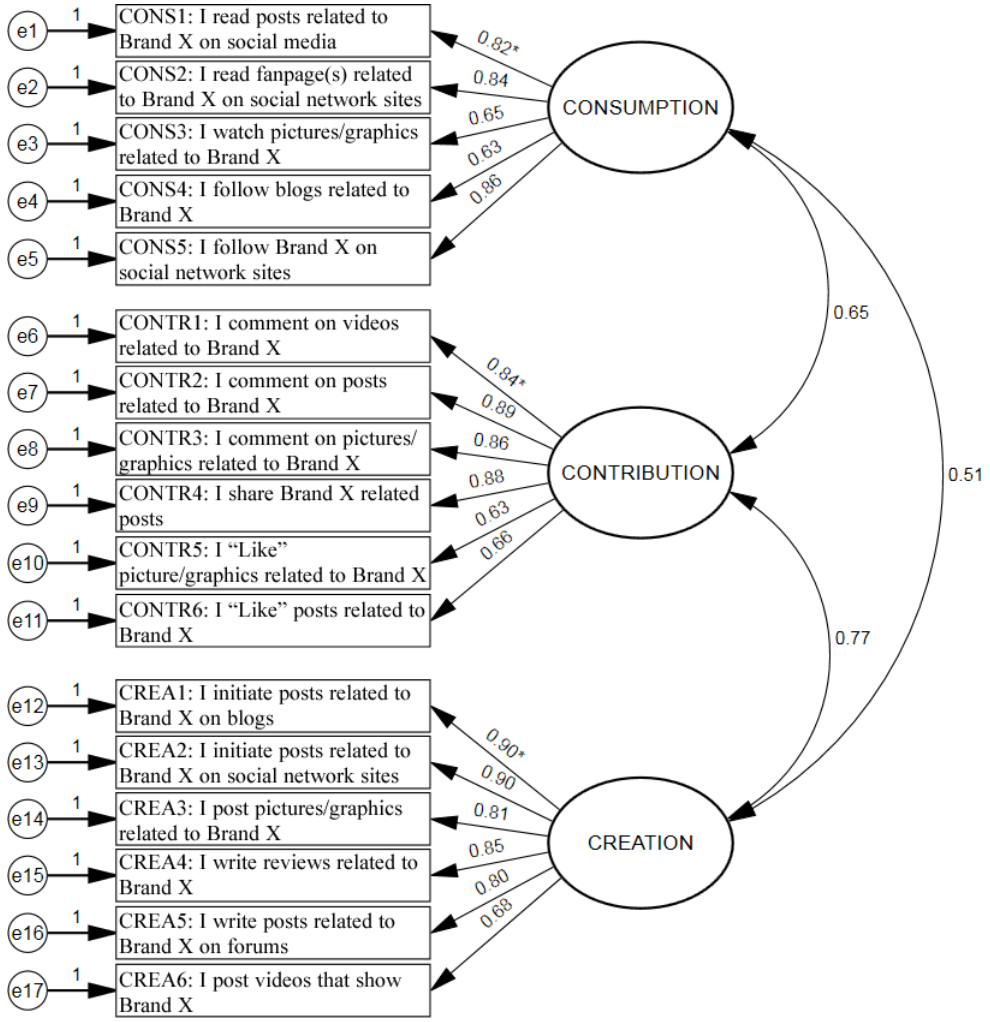
Table 1. Reliability and validity of the CESBC

	ALPHA	CR	AVE	MSV	Contribution	Consumption	Creation

Contribution	0.915	0.915	0.646	0.593	*0.804*		
Consumption	0.877	0.877	0.538	0.423	0.650	*0.769*	
Creation	0.929	0.928	0.684	0.593	0.770	0.510	*0.827*

Note: The square root of the AVE values are marked in italics.

Figure 1. Confirmatory factor analysis – three-factor CESBC



Notes: $\chi^2_{(115)}$ = 557.47, CFI = 0.95, TLI = 0.94, RMSEA = 0.05; 90% C.I. 0.05 0.06, SRMR = 0.06; Estimator = MLM; n = 1126; all standardized coefficients are significant ($p < 0.001$) and appear above the associated path; * path constrained to 1 for model identification.

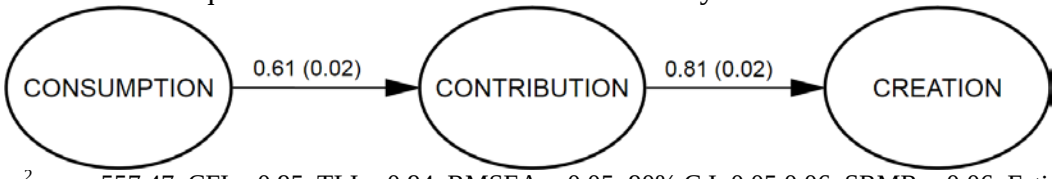
Post-hoc analysis: The Hierarchical Relationship of CESBC's Dimensions

The next stage of the analyses was to investigate whether there is a hierarchical relationship amongst the dimensions of the COBRA framework. The authors followed the

traditional hierarchy of effects model. Hence, the evolution of consumer's engagement with social media brand-related content can be described as a learning process whereby individuals' consumption of brand-related content leads to its contribution, which in turn leads to creation. The postulated structure of the tested model as well as its estimations are summarized in Figure 2.

All latent variables of CESBC were included in one single multifactorial structural equation model (SEM) in M*plus* 7.2 software with MLM estimator. Results of the SEM yielded that the model had a good fit to the data. The GOF values were as follows: $\chi^2_{(115)}$ = 557.47, CFI = 0.95, TLI = 0.94, RMSEA = 0.05; 90% C.I. 0.05 0.06, and SRMR = 0.06. Results show that there is a hierarchical relationship amongst the dimensions of the COBRA as evidenced by the relationship Consumption→Contribution (β = 0.61; *p*-value = 30.00) and Contribution→Creation (β = 0.81; *p*-value = 33.59). Additionally, the authors computed the indirect effects to test for the mediating effects of contribution COBRA type. To test for the inference of indirect effects it was applied a bias-corrected bootstrapping (5000) resampling procedure with 99% confidence interval (Hayes, 2013; Muthén and Muthén, 2012). Results show that the direct effect between consumption and creation drops out of significance when contribution is included in the model as mediator. The mediation estimates are summarized in Table 2.

Figure 2. Structural equation model – CESCB *Post-hoc* analysis



Notes: $\chi^2_{(115)}$ = 557.47, CFI = 0.95, TLI = 0.94, RMSEA = 0.05; 90% C.I. 0.05 0.06, SRMR = 0.06; Estimator = MLM; n = 1126 (validation sample); all standardized coefficients are significant ($p < 0.001$).

Table 2. Mediation analysis

Hypothesis	*Direct β without*	*Direct β with mediator*	*Indirect β*	*Mediation type observed*

	mediator			
Partial mediation consumption→contribution→creation	0.51***	0.02 (n.s)	0.49***	Full mediation

Notes: *** denotes p > 0.001; n.s. = non-significant; bootstrapping sample = 5000.

Study 5: CESBC validation

The last step of this research was to further validate CESBC by examining if this behaves as expected in relation to constructs in its nomological network. Therefore, in Study 5, the authors decided to explore the psychometric properties of CESBC with two important variables that capture the consumer's perceptions of brands *i.e.*, brand equity and brand attitudes. The consumer's engagement with a brand is likely to lead to better brand knowledge and consequently brand equity (Aaker, 1997; Keller, 1993). At the same time, the prospect of high equity brands will be more likely to engage consumers into online brand-related activities such as UGC (Christodoulides *et al.*, 2012). Furthermore, social media brand-related content from both consumers and firms positively influences the consumer's perception of brand equity and brand attitudes (Bruhn *et al.*, 2012; Schivinski and Dabrowski, 2014); It is therefore expected that the two constructs will be significantly and positively correlated with CESBC.

A sample of 416 consumers participated in Study 5. The structure of the sample closely matched the one used in Study 4 (see Table A2). The same recruitment techniques were employed. To capture brand equity we used 6 items adapted from Yoo and Donthu (2001). This scale measures the added value of a branded product in comparison with an unbranded product with the same characteristics. Brand attitudes was measured using 3 items adapted from the works of Low and Lamb Jr. (2000) and Villarejo-Ramos and Sánchez-Franco (2005).

All latent variables were included in one single multifactorial CFA model in M*plus* 7.2. The CFA was performed using the MLM estimation method. The model demonstrated a good fit as evidenced by following GOF heuristics: $\chi^2_{(288)}$ = 600.95, CFI = 0.96, TLI = 0.95, RMSEA = 0.05; 90% C.I. 0.04 0.05, and SRMR = 0.06.

The Cronbach's alpha values for each scale ranged from 0.87 to 0.94. Composite reliabilities ranged from 0.91 to 0.94. Those values exceeded the threshold of 0.07, therefore showing the internal consistency of the scales. All of the factor loadings estimates were statistically significant and ranged from 0.70 to 0.95 ($p < 0.001$). The AVE and MSV values were also calculated for each subscale. The AVEs values ranged from 0.65 to 0.83 and were greater than the MSV values. The results from the CFA analysis in Study 5 demonstrated that the CESBC is a reliable and robust measurement instrument. The CFA results are summarized in Table 3 and 4.

Table 3. Reliability and validity of the CESBC validation model

	ALPHA	CR	AVE	MSV	BEQ	CONS	CONTR	CREA	BA
BEQ	0.931	0.933	0.698	0.573	*0.835*				
CONS	0.879	0.919	0.655	0.424	0.403	*0.809*			
CONT	0.924	0.924	0.671	0.607	0.267	0.651	*0.819*		
CREA	0.947	0.948	0.753	0.607	0.229	0.504	0.779	*0.868*	
BA	0.938	0.939	0.838	0.573	0.757	0.371	0.197	0.142	*0.915*

Notes: The square root of the AVE values are marked in italics; CONS = consumption; CONTR = contribution; CREA = creation; BEQ = brand equity; BA = brand attitudes.

Table 4. Correlations between CESBC with Brand equity and Brand attitude

Correlated factors	*Estimate*	*S.E.*	*t-value*
Consumption−Contribution	0.65	0.02	27.75
Consumption–Creation	0.50	0.03	19.18
Contribution–Creation	0.78	0.01	53.58
Consumption–Brand equity	0.40	0.04	9.09
Contribution–Brand equity	0.27	0.04	6.27
Creation–Brand equity	0.23	0.04	5.41
Consumption–Brand attitude	0.37	0.03	9.69
Contribution–Brand attitude	0.20	0.04	5.22
Creation–Brand attitude	0.14	0.04	3.59
Brand equity–Brand attitude	0.76	0.03	25.32

Notes: $\chi^2_{(288)}$ = 600.95, CFI = 0.96, TLI = 0.95, RMSEA = 0.05; 90% C.I. 0.04 0.05, SRMR = 0.06; $p < 0.001$; Estimator = MLM; n = 416.

CONCLUSIONS

Theoretical contributions

The COBRA framework is a behavioral construct that comprises the consumer's engagement with brands on social media. This is the first study of its kind that has approached the scale development of the COBRA construct. In order to develop a parsimonious, valid, and reliable scale to measure the consumer's engagement with brands on social media the authors of the current study used a combination of qualitative and quantitative research methods. The results empirically demonstrate that CESBC is a three-factor framework that includes the consumption, contribution, and creation dimensions. These three dimensions cover from lower to higher levels of consumer's engagement with social media brand-related content. Furthermore, this high range of scope of the CESBC highlights the broad usability of the instrument to quantify and measure consumer's behavior *vis-à-vis* brands on social media.

The employment of CESBC by researchers can facilitate further theoretical development in the domains of marketing, advertising, branding, consumer behavior, and other research fields. The CESBC can be used to measure the construct's effects on a number of outcome variables such as brand extension, purchase intention, or price premium. Applying the scale in this way will generate knowledge about the influence of consumption, contribution, and creation of social media brand-related content on various consumer responses. On the other hand, the COBRA is a behavioral framework; thus the scales can also be implemented in structural models as dependent variables. Using this approach, scholars may test several variables to assess drivers of COBRA. This information will be of significant value to theory in the pursuit of answers to important questions such as: why consumers engage into social media brand-related activities, what types of brands are most

likely to engage consumers on social media; and what sort of marketing activities influence consumers' engagement with brand-related content on social media.

The results also suggested a hierarchical relationship amongst dimensions of CESBC. These findings contribute to the literature body in the field of online brand communication in three ways. First from a macro perspective by empirically evidencing consumers engage into higher levels of COBRAs as a result of a learning process. Second from a micro perspective by identifying the consumption COBRA type to be an antecedent of consumer's engagement with the contribution of social media brand-related content, and the contribution COBRA type to be an antecedent of UGC. Third, by indicating the role of the contribution COBRA type as a mediator between consumption and creation COBRA types.

In addition to calibrating and validating CESBC, the authors further tested the scale's construct validity *vis-à-vis* two nomological network variables, *i.e.*, brand equity and brand attitudes. The findings corroborate previous research in that brand equity and brand attitudes correlate positively and significantly with individual social media brand-related activities. However, this is the first piece of research that *holistically* examines consumption, contribution, and creation of brand-related social media content under a single framework. At first glance the data suggest that lower levels of engagement (*e.g.*, consumption) are associated with higher levels of brand equity or more favorable brand attitudes (*e.g.*, compared to creation). This finding, however, is likely to be caused by suppression effect given that the number of individuals who consume brand-related content on social media is significantly higher than the number of people who contribute and create (see table A4).

Managerial contributions

Although companies have been using social media channels as part of their marketing and advertising communication agenda, research on consumer behavior related to brands on

social media is still in its early stages (Burmann, 2010; Yadav and Pavlou, 2014). Before managers can more confidently employ on social media marketing and branding they need to understand how consumers behave and interact with brands on those channels. The CESBC scale should assist on this matter. This research provides clear guidance on what constitutes the COBRA construct (*i.e.*, the consuming, contributing, and creating dimensions) and what online activities define those dimensions. The dimensions of CESBC provide managers with the conceptual instrument to delineate the consumers' social media behavior pertinent to brands according to their level of engagement. On the other hand, the underlying subscales (in this case, each individual item within a dimension) provide managers with specific social media brand-related activities they could pursue.

While managing the presence of brands online and executing social media marketing strategies, managers can use the CESBC as an instrument for auditing and tracking the effectiveness of these programs. When using CESBC systematically managers, are able not only to evaluate the success of their social media marketing strategies, but also to take corrective action where necessary. The parsimony of CESBC is intended to facilitate such practical applications. As a characteristic of the COBRA to be a holistic framework, managers are advised to administer its three dimensions simultaneously. By using CESBC holistically, greater insights can be gleaned into consumers' social media behavior *vis-à-vis* brands. However, the subscales could also be used individually when, for example, researchers or practitioners wish to focus on a specific type of activity such as consumers' social media brand-related content creation.

Advertisers should closely monitor social media channels and activities consumers are more intensely engaging with their brands in each COBRA dimension, while try to stimulate the activities they would like consumers to be more active with. This point is consistent with the view that the full integration of the three levels of CESBC into social

media communications strategies will benefit brands. For instance, the consumption of firm-created and user-generated brand-related social media communication influences the consumer mindset and consequently behavior (Bruhn *et al.*, 2012; Schivinski and Dabrowski, 2014); the consumer's contribution of brand-related content is considered to be a key metric for evaluating the success of social media marketing efforts (Nelson-Field *et al.*, 2012) and plays an important role in the process of communication message acceptance (Coulter and Roggeveen, 2012); and the creation of UGC shapes traditional advertising policies (Krishnamurthy and Dou, 2008) and has been demonstrated to have positive consumer acceptance (Pornpitakpan, 2004).

Furthermore, the COBRA framework assumes a hierarchical structure. Practitioners are encouraged to continue their social media branding agenda by being present on social media channels and therefore, by continuously producing engaging brand-related content that their target online audiences are likely to consume. This is likely to lead consumers to engage further by commenting, "Liking", or even sharing the brand-related content consumed. By engaging into the contributing COBRA type, engaged consumers may successively start to create UGC by initiating posts, product reviews, or posting brand-related videos and pictures.

Limitations and further research

Although this research makes a significant contribution to the measurement of consumer's engagement with social media brand-related content, this study is not without limitations. Therefore, the restrictions of our research can provide guidelines for future studies. First, is necessary to address that the list of COBRAs (Table A1) presented in this study is not final. With the constant changes and adaptations of websites and Web 2.0 services, new activities pertinent to the three dimensions of CESBC are likely to emerge. Researchers should constantly search for new trends on social media and adjust CESBC in

line with technological changes. Second, this research was conducted in a single country. Although social media channels are similar across the globe, the authors encourage other researchers to undertake replication studies in other countries to assess the equivalence of CESBC across nations and cultures.

Researchers could also use a combination of CESBC with other behavioral variables on latent class analysis (LCA) (Goodman, 1974) to classify consumers who engage in social media brand-related activities into homogeneous subgroups and, therefore, explore a typology of individuals according to their level and type of engagement into COBRAs.

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APPENDIX

Table A1. Activities pertinent to each COBRA dimension

COBRA TYPE
Consumption
To download brand-related widgets/applications [d, e]
To follow a brand on social network sites [a, b, c, d]
To follow brand-related blogs [c, d, e]
To listen to brand-related audio [e, *]
To play brand-related games [d, e]
To read brand-related emails [c, ***]
To read brand-related fanpage(s) on social network sites [a, b, c, d]
To read brand-related posts on social media [a, b, c]
To read brand-related reviews [a, b, c, d, e, ***]
To read other people's comments about a brand on social media [a, b, c, d, e, ***]
To send brand-related virtual card [e, *]
To watch brand-related ads (*e.g.*, banners, YouTube ads) [d, ***]
To watch brand-related pictures/graphics [a, b, c, d, e]
To watch brand-related videos [b, c, e, ***]
Contribution
To add brand-related videos to favorites [c, d, ***]
To click on brand-related ads [d, ***]
To comment on brand-related pictures/graphics [a, b, c, d, e]
To comment on brand-related posts [c, d, e]
To comment on brand-related videos [a, b, c, d, e]
To engage in brand-related conversations [e, *]
To forward brand-related emails to my friends/family [c, **]
To join a brand-related profile on SNS [e, *]
To "Like" brand-related fanpages [a, b, c, d, ***]
To "Like" brand-related pictures/graphics [a, b, c, d]
To "Like" brand-related posts [b, c, d]
To "Like" brand-related videos [a, b, c, d, ***]
To participate in online contests/drawings sponsored by a brand [d, **]
To rate brand-related products [e, *]
To share brand-related pictures/graphics [a, b, c, d, ***]
To share brand-related post [a, b, c, d]
To share brand-related videos [a, b, c, d, **]
To take part in brand-related online events [b, d, **]
Creation
To create brand-related audio [e, *]
To create brand-related hashtags „#" on social network sites [c, ***]
To create brand-related posts [e, *]
To initiate brand-related posts on blogs [a, b, c, d, e]
To initiate brand-related posts on social network sites [a, b, c, d]

To post brand-related pictures/graphics [a, b, c, e]
To post brand-related videos [b, c, d, e]
To post pictures exposing self and a brand [b, c, d, ***]
To write brand-related posts on forums [c, d]
To write brand-related reviews [c, d, e]

[a] = activity detected during Study 1 (bulletin board – consumption); [b] = activity detected during Study 1 (bulletin board – creation); [c] = activity detected during Study 2 (in depth interviews); [d] = activity detected during Study 3 (netnography); [e] = indicates activity previously reported in literature; * = indicates item not identified during the qualitative procedures; ** = indicates item removed from the analysis during the EFA; *** = indicates item removed from the analysis during the CFA.

Table A2. Profile of survey respondents

Category	*Study 4: Calibration sample (n = 1126)*	*Study 4: Validation sample (n = 1126)*	*Study 4: Full dataset (n = 2252)*	*Study 5 sample (n = 416)*
Gender				
Male	38.8	41.9	40.4	49.7
Female	61.2	58.1	59.6	50.3
Age				
18 – 21	32.0	3.8	4.2	10.8
22 – 25	53.6	27.8	28.2	22.4
26 – 29	5.8	53.6	53.6	51.0
30 – 33	2.8	8.2	7.0	8.2
34 – 37	1.0	2.6	2.7	3.4
38 – 45	2.0	1.0	1.0	1.2
46 – 50	0.4	1.4	1.7	1.0
51 – 59	0.9	0.5	0.4	0.7
60 and older	0.4	0.9	0.9	0.7
Level of education				
Primary school	5.8	3.6	4.7	12.3
Vocational school	1.4	1.0	1.2	1.9
Secondary school	26.3	26.3	26.3	21.9
Post-secondary school	11.3	10.7	11.0	7.2
Some college education	24.3	25.4	24.9	22.8
Higher-education	30.5	32.7	31.6	32.7
Other	0.4	0.4	0.4	1.2
Daily Internet usage				
Up to 1 hour	14.5	11.7	13.1	16.8
1 – 2 hours	49.7	51.2	50.5	48.6
3 – 4 hours	30.0	29.0	29.5	26.9
5 – 6 hours	5.0	6.8	5.9	6.7
Above 6 hours	0.8	1.2	1.0	1.0

Table A3. Items of the CESBC and factor loadings (completely standardized lambda X) and explained variance on each item (R^2) for the final three-factor 17-item model

ITEM		*Calibration sample (n = 1126)*		*Validation sample (n = 1126)*		*Full dataset (n = 2252)*		*Study 5 sample (n = 416)*	
		$(\lambda_x)^b$	R^2	$(\lambda_x)^b$	R^2	$(\lambda_x)^b$	R^2	$(\lambda_x)^b$	R^2
Consumption									
Cons1	I read posts related to Brand X on social media	0.826	0.683	0.823	0.678	0.825	0.681	0.867	0.751
Cons2	I read fanpage(s) related to Brand X on social network sites	0.830	0.689	0.843	0.711	0.835	0.697	0.851	0.724
Cons3	I watch pictures/graphics related to Brand X	0.642	0.413	0.657	0.432	0.661	0.437	0.769	0.598
Cons4	I follow blogs related to Brand X	0.628	0.394	0.630	0.396	0.637	0.406	0.693	0.480
Cons5	I follow Brand X on social network sites	0.874	0.764	0.862	0.743	0.861	0.741	0.872	0.760
Contribution									
Contr1	I comment videos related to Brand X	0.852	0.725	0.844	0.713	0.848	0.719	0.831	0.690
Contr2	I comment posts related to Brand X	0.870	0.757	0.895	0.801	0.883	0.779	0.900	0.810
Contr3	I comment on pictures/graphics related to Brand X	0.866	0.751	0.863	0.744	0.865	0.748	0.858	0.736
Contr4	I share Brand X related posts	0.890	0.792	0.884	0.782	0.887	0.787	0.895	0.802
Contr5	I “Like” pictures/graphics related to Brand X	0.622	0.387	0.630	0.397	0.626	0.392	0.675	0.456
Contr6	I “Like” posts related to Brand X	0.670	0.449	0.665	0.442	0.667	0.444	0.726	0.526
Creation									
Creat1	I initiate posts related to Brand X on blogs	0.885	0.783	0.903	0.783	0.894	0.799	0.905	0.819
Creat2	I initiate posts related to Brand X on social network sites	0.869	0.755	0.903	0.755	0.887	0.787	0.889	0.790
Creat3	I post pictures/graphics related to Brand X	0.873	0.761	0.818	0.761	0.844	0.713	0.886	0.786
Creat4	I post videos that show Brand X	0.833	0.694	0.850	0.694	0.843	0.710	0.855	0.730
Creat5	I write posts related to Brand X on forums	0.803	0.645	0.800	0.645	0.802	0.644	0.850	0.722
Creat6	I write reviews related to Brand X	0.754	0.569	0.685	0.569	0.718	0.515	0.824	0.679

Note: Calibration sample $\chi^2_{(115)}$ 564.31, CFI = 0.95, TLI = 0.95, RMSEA = 0.05; 90% 0.05 0.06, SRMR = 0.06; Validation sample $\chi^2_{(115)}$ 557.47, CFI = 0.95, TLI = 0.94, RMSEA = 0.05; 90% 0.05 0.06, SRMR = 0.06; Full dataset $\chi^2_{(115)}$ 719.47, CFI = 0.93, TLI = 0.92, RMSEA = 0.05; 90% 0.04 0.05, SRMR = 0.05; Study 5 $\chi^2_{(313)}$ = 651.71, CFI = 0.95, TLI = 0.95, RMSEA = 0.05; 90% C.I. 0.04 0.05, SRMR = 0.06; $p < 0.001$; Estimator = MLM.

Table A4. Descriptive statistics for items from the consumer's engagement with social media brand-related content scale (CESBC)

Scale	*Range*	*M*	*SD*	*Skewness*	*S.E.*	*Kurtosis*	*S.E.*
Consumption							
Cons1	0-7	3.79	1.99	0.09	0.07	-1.21	0.15
Cons2	0-7	3.78	2.06	0.10	0.07	-1.30	0.15
Cons3	0-7	4.22	1.88	-0.17	0.07	-1.07	0.15
Cons4	0-7	2.70	1.88	0.88	0.07	-0.44	0.15
Cons5	0-7	3.66	2.04	0.18	0.07	-1.25	0.15
Contribution							
Contr1	0-7	2.16	1.63	1.36	0.07	0.90	0.15
Contr2	0-7	2.35	1.69	1.17	0.07	0.40	0.15
Contr3	0-7	2.17	1.68	1.40	0.07	0.99	0.15
Contr4	0-7	2.43	1.76	1.15	0.07	0.28	0.15
Contr5	0-7	3.34	2.00	0.39	0.07	-1.09	0.15
Contr6	0-7	3.20	1.97	0.48	0.07	-0.98	0.15
Creation							
Creat1	0-7	1.94	1.55	1.72	0.07	2.05	0.15
Creat2	0-7	2.01	1.58	1.63	0.07	1.71	0.15
Creat3	0-7	1.98	1.54	1.62	0.07	1.71	0.15
Creat4	0-7	1.96	1.52	1.63	0.07	1.78	0.15
Creat5	0-7	1.96	1.53	1.68	0.07	2.00	0.15
Creat6	0-7	1.91	1.52	1.75	0.07	2.18	0.15

Notes: Response scale ranged from 1 not very often to 7 very often (0 = not at all); n = 1126 (validation sample).