

EMOTIONS AND WOM

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Emotions as Proximal Causes of Word of Mouth: A Nonlinear Approach¹

Abstract

Service research tends to operationalize word of mouth (WOM) behavior as one of the many responses to service satisfaction. In this sense, little is known about its antecedents or moderators. The objective of this study was to investigate the role of customers' emotions during service experiences on WOM, applying nonlinear techniques and exploring the moderating role of customers' propensity for emotional contagion. Using the critical incidents technique, 122 customers recalled significant service experiences and the emotions they aroused, and reported if they shared said experiences with other individuals. We found that, whereas linear methods presented non-significant results in the relation emotions-WOM, nonlinear ones (Artificial Neural Networks) explained 46% of variance. Negative emotions were stronger predictors of WOM and the importance of emotions for WOM was significantly higher for individuals with high propensity for emotional contagion ($R^2 = .79$) than for those with lower levels ($R^2 = .48$). Theoretical and practical implications are discussed.

Keywords: Word of mouth, emotions, emotional contagion, nonlinear methods

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It is clear, to both practitioners and scholars, that word of mouth (WOM) communication is a strong component of a company's success. It reflects customers' willingness to share with others an exceedingly good or bad service experience with the purpose of exerting interpersonal influence. Although the organizational impacts of WOM are well established, including on customers' attitudinal (Bone, 1995), behavioral (Chevalier & Mayzlin, 2006), and cognitive responses (Ferguson, 2008), well-grounded models on its predictors are still scarce. In fact, a meta-analysis conducted by de Matos and Rossi (2008) demonstrated that little attention has been given to the antecedents and moderators of WOM when considering it as a central construct, as WOM has been mostly regarded as one of the many consequences of other factors, principally satisfaction (e.g., Mazzarol, Sweeney & Soutar, 2007). In this sense, the objective of this study is to propose a model of WOM behavior, inspired by the Affective Events Theory (AET, Weiss & Cropanzano, 1996) as the overarching theoretical framework. More specifically, the AET suggests (with consistent empirical support) that organizational related behaviors and attitudes are triggered by emotions, which are in turn caused by external events. We aim to operationalize WOM as an affect-driven behavior, resulting from the experienced emotions aroused by specific service encounters.

Moreover, although some very few studies have explored the influence of emotions in WOM, all did so resorting to linear methods, such as factorial analysis (e.g., White, 2010), neglecting a possible complex and nonlinear nature of emotions that might be easily uncovered resorting to tools such as artificial neural networks, agent based modeling, chaos models, dynamical models, among others. Among all the possible methods, we opted to use a Multilayer Perceptron ANN, which utilizes a backpropagation algorithm. It is one of the most prevalent types of ANN for several

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reasons: it serves different types of models, it is proficient at modeling complex functions, it is robust in terms of identifying and consequently disregarding irrelevant inputs, and it is flexible in adapting the weights to external changes.

Furthermore, the AET also suggests that certain dispositional traits may influence the way individuals emotionally respond to external experiences. In this sense, we propose that the influence of emotions on WOM will be related to customers' susceptibility for emotional contagion, a biological, rapid and involuntary mechanism of emotional exchange that is responsible for how individuals mimic and converge with the emotions passed by others (Hatfield, Cacioppo, & Rapson, 1994). To advance knowledge on the emotional nature of WOM is crucial for managers and frontline workers to design service training programs in order to promote service experiences that will result in positive WOM recommendations.

Word of Mouth

It is widely accepted that word of mouth (WOM) communication is an important component of customers' cognitions, attitudes and behavioral intentions towards an organization (Harrison-Walker, 2001). WOM refers to "*informal communications directed at other consumers about the ownership, usage, or characteristics of particular goods and services and/or their sellers*" (Westbrook, 1987, p. 261). WOM has repercussions in different dimension, including customers' attitudes, cognitions and behaviors such as brand evaluation and purchase probability (Laczniak, DeCarlo & Ramaswami, 2001). Several studies have supported that WOM is more effective to influence customers than, for example, direct selling or media advertising, and that it is crucial for shaping customers' expectations (e.g., Katz & Lazarsfeld, 1955; Zeithaml, Berry, & Parasuraman, 1993). Customers often trust on other customers' opinions since

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these are perceived as more reliable and impartial and as useful tools to save decision-making time/resources and to make superior purchasing decisions (e.g., Hennig-Thurau, Walsh, & Walsh, 2003; Murray, 1991). Moreover, research supports that WOM is perceived with less skepticism than institutional marketing strategies and that it takes only one single positive WOM recommendation to convince a customer to acquire a service or a product (e.g. Gremler, 1994; Herr, Kardes & Kim, 1991). A recent study conducted by Villanueva, Yoo, and Hanssens (2008) showed that customers acquired through WOM add nearly twice as much long-term value to the firm than marketing-induced customers.

Given the importance of WOM, several firms attempt to encourage it through “*bring-a-friend*” campaigns that work by providing some kind of economic-driven benefit to existing customers that acquire new ones. However, it is the effortless and economic free WOM that utterly provides larger financial gains, since marketing spending on customer acquisition represents, for many firms, is one of the most costly expenses (Villanueva et al., 2008).

Although multiple factors comprising the service experience have the potential to influence WOM, only few studies have focused on dissecting the multidimensional nature of its antecedents (Anderson, 1998; Gremler, Gwinner, & Brown, 2001). This is to say that WOM has been viewed as one of the many behavioral consequences of general states like satisfaction and, for that reason, other variables that can influence it have been barely explored. In fact, Mazzarol and colleagues (2007, p. 1478) stressed this fact by arguing that “little research (...) has addressed antecedents of WOM when considering WOM as a focal construct”. Several authors mentioned this gap in different decades (Arndt, 1967; Anderson, 1998; Brown, Barry, Dacin, & Gunst, 2005) and it urges to be filled both for knowledge advancement and for the fact that firms cannot

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simply rely on the assumption that satisfied/dissatisfied customers will engage in WOM as, in fact, research has shown that satisfaction, albeit important, is not decisive to predict WOM (Gremler et al, 2001).

Service Experience and Word of Mouth Communication

A service encounter is “*a period of time during which a consumer directly interacts with a service*” (Shostack, 1985, p. 243), and one of the most influential promoters/inhibitors of customer satisfaction are related to the quality of the exchange between customers and frontline workers (e.g., Bitner, 1990; Grove & Fisk, 1997). At this point, the role of frontline workers is pivotal to promote and increase chances of getting positive WOM recommendations, since they bridge customers with companies. Examples of efforts implemented by companies to increase customer perceptions through service experience include the AMWAY Corporation, which has a positive programming plan of constantly reminding employees to stay positive and to transfer such positivity to customers (Pratt, 2000); physicians, who are instructed to act neutrally by hiding emotions and to create empathy (Bell, 1984; Larson & Yao, 2005); Disney workers, who are carefully “*selected and supervised to be ideal clean-cut middle class American boy or girl next door*” and to induce joy to customers through constant smiling and uplifting words (Belk, 1996, p. 29); check-out clerks in supermarkets, who are regularly encouraged to act cheerfully upon the customer (Rafaeli & Sutton, 1989); or Harley-Davidson, which has very little advertising expenditures because it mostly invests in relationship marketing between its employees and its customers, by encouraging workers to treat customers in a close and personal manner, and even to become their friends (Gremler & colleagues, 2001). All this strategies are aimed at increasing customer satisfaction to promote its behavioral consequences, being the two

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most known repurchase intentions and WOM (Maxham & Netemeyer, 2002; Ranaweera & Prabhu, 2003).

Emotional Experience as Proximal Predictors of Word of Mouth Communication

Several authors postulate that although service relations are breeding grounds for emotions, the role of emotions in regard to the outcomes of service encounters has not been examined in sufficient detail (Lin & Lin, 2011). In the case of WOM, constructs as overall service satisfaction have received much more attention. Despite the evidence that satisfaction is the strongest predictor of WOM among other constructs such as loyalty and commitment (see for a meta-analysis, de Matos and Rossi, 2008), the term “satisfaction” has been used as an umbrella term, as it does not provide specific knowledge to understand the range of internal experiences and interpretations that truly influence on WOM.

In fact, many models have been used to define satisfaction, being the most preeminent approaches based on the expectancy disconfirmation theory (Oliver 1980, 1981); the cognitive approach, which operationalizes satisfaction as the product of customers’ evaluations of numerous experiences with the same product or service (Bolton & Drew, 1991); and finally, the emotion-based approach. So, there are different constructs included under this “satisfaction” umbrella. Regarding the last one, it is clear that the term *satisfaction* has been used interchangeably with the concept of emotional experience. For example, some authors describe *satisfaction* as the appraisal of the emotions arousing in response to products or services (Lang & Hyde, 2013), whereas others argue that it comprises both cognitive and affective elements that include emotions (e.g., Athanassopoulos, 2000; Yu & Dean, 2001). Authors like Fournier and Mick (1999) call for a change in the focus from the cognitive to the emotional components of service satisfaction, and recent studies have come supported that

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emotions are the strongest predictors of customers' behavioral intentions, instead of overall satisfaction evaluations (e.g., Martin, O'Neill, Hubbard, & Palmer, 2008; Zeelenberg & Pieters, 2004).

The important role of emotions as proximal causes of post-consumption behaviors, such as WOM, is aligned with the affective events theory (Weiss & Cropanzano, 1996), which was precisely developed to deter the general belief that job satisfaction was a direct response to external features of the job. The authors proposed that satisfaction was instead a product of emotional experiences, aroused as a response to specific external events. Analogously to this theory, we would suggest that WOM is an affect-driven behavior, prompted by the emotional response to specific service encounters. Based on these developments we hypothesize that:

Hypothesis 1: Emotions experiences in the service relationship will be predictors of WOM.

Although few studies have shown that emotions are indeed proximal predictors of WOM, many more have been focused on general affect valence to predict it (e.g., Söderlund & Rosengren, 2007). An interesting finding in some of these studies is that the relation between service evaluations and WOM form an asymmetric U-shape (e.g., Anderson, 1998), which indicates nonlinearity in said relations. This pattern has also been found in relation to other variables concerning service experience and customers' attitudes and behavioral intentions (e.g., Pan & Siemens, 2011). For these reasons, we aim to explore the relation between discrete emotions and WOM applying a nonlinear method. The advantage of exploring discrete emotions instead of core affect is that, whereas affect is diffuse and may arise with no connection to specific causes, emotions are multi-dimensional reactions to specific events (i.e., service experiences) and thus,

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can be directly linked to its causes and consequences, as they prepare individuals for action (Martinez, Zeelenberg & Rijsman, 2008; Warr, Bindl, Parker, & Inceoglu, 2013).

Moreover, there are several reasons besides the aforementioned U-shaped pattern found in the relation between evaluations-WOM behavior to explore the effect of emotions on WOM under a nonlinear approach. First, in dynamic systems the variables are correlated by nature and in some methods, like artificial neural networks (ANNs) there is no effect of multicollinearity between variables. This is a *sine qua non* condition to opt for nonlinear methods when the objects under scrutiny (i.e., emotions) are naturally correlated among them. And second, multiple types of emotions, even from different valences and in different levels of intensity, may appear as the *single* predictors of a certain variable. This phenomenon is related to one of the elementary fundamentals of nonlinear systems, which is the sensitive dependence of initial conditions (see, Lorenz, 1993). However, in linear methods there is a constant sensitivity to initial conditions that generates the same waveform in the dependent variable regardless of the predictors. At last, in linear methods, research “noise” is usually treated as an element to be discarded, whereas nonlinear analysis considers it as an element of interest that may aid to find possible hidden patterns on the relationships under study. Based on these propositions we hypothesize that:

Hypothesis 2: Considering the relationship between emotions and WOM, nonlinear methods will explain more variance in WOM than linear ones.

Research has consistently found, in many areas of knowledge, that negative emotions are stronger promoters of behavior than positive ones. Explanations for this phenomenon are various: (1) negative information has a superior impact on information processing (e.g., Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001); negative stimuli promotes a negativity bias in attention allocation (Smith, Cacioppo, Larsen &

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Chartrand, 2003); the amygdala is prepared to identify negative stimuli faster and with greater activity (e.g., LeDoux, 1996); and, from an evolutionary perspective, individuals are naturally prepared to weight negative information more heavily to increase chances of survival (e.g., Cacioppo, Gardner & Berntson, 1997).

In the field of WOM, there is a lack of studies contrasting the relevance of emotions from different valences, since most investigations tend to focus exclusively on positive or negative WOM as a general valence when relating it to emotional experience. Regarding the few ones that explored both simultaneously, we find contradictory results. For example, Sweeney, Soutar and Mazzarol (2007) propose that negative WOM is more emotional in nature, since customers who had a negative experience with a product/service are more prone to 'vent' their emotions than customers who did not. However, Söderlund & Rosengren (2007) found that whereas a positive emotional state experienced by the receiver of WOM was related to attitudes towards the firm, negative emotions were not. In this specific investigation, the authors did not consider discrete emotions, but rather general positive vs negative affect in a controlled laboratory setting. These contrasting results further support the pertinence of our study.

Based on the previously described evidence suggesting that negative external stimuli are stronger promoters of action, and on other well-known approaches such as the mobilization-minimization process, which establishes that negative stimuli tend to mobilize the individuals at various levels, from physiological to affective dimensions, whereas positive and neutral ones have less impact (Taylor, 1991), we hypothesize that:

Hypothesis 3: Negative emotions will be stronger predictors of WOM than positive emotions.

Customers' Susceptibility for Emotional Contagion and Word of Mouth

Following with the the AET framework, there are appraisal mechanisms and individual dispositional traits that moderate the way individuals emotionally respond to external events. We would suggest that emotional contagion will play an important role in the way customers emotionally respond to service experiences (Hatfield et al., 1994). Emotional contagion is broadly defined as a process whereby the nonverbal signs of emotions of an individual (facial, postural and vocal) are automatically mimicked by another one, due to the involuntary activation of mirror neurons. Then, through a process of afferent feedback, the *catcher* of the emotions converges emotionally with the *sender*, often without even noticing the phenomenon (e.g., Barsade, 2002).

We propose that emotional contagion can be a mechanism through which the behavior of frontline workers affects customers WOM intentions, drawing a direct link between employee behavior and customers' responses by the affective transfer during the service encounter (e.g. Homburg & Stock, 2004). As some studies have shown, emotions play a major role in service encounters. Since customers expect emotional inputs from service relations, employees' are trained to emotionally regulate in order to induce the desired emotional states in customers, through the so-called affective deliveries (e.g. Pugh, 2001). Such affective deliveries have been shown to impact several post-consumption behaviors and attitudes (e.g., Grandey, Goldberg & Pugh, 2011).

There is empirical evidence on the influence of emotional contagion on the spillover effect between workers and customers' attitudes and some field observational studies also attested the role of emotional contagion as a mechanism linking both (e.g., Bell & Menguc, 2002; Bowen, Gilliland, & Folger, 1999; Homburg & Stock, 2004). According to Grandey and colleagues (2011) this happens due to the physical and

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psychological proximity between customers and employees during the service encounter. In fact, there is evidence of emotional contagion occurring even in brief and non-personal service relations, sustaining the proposition that this process is automatic and independent of cognition (Mattila & Enz, 2002). Emotional contagion was found to influence distinct outcomes, including customers' affect, product appraisal and service quality evaluations (e.g., Howard & Gengler, 2001; Pugh, 2001).

Moreover, while all individuals have the potential to emotionally influence and become influenced through emotional contagion, research has shown that this potential varies and that some individuals are more susceptible to catch emotions than others (e.g., Doherty, 1997). These high susceptible individuals are said to have greater capabilities to read and feel others' emotions, to pay more attention to emotional cues and, consequently, are more likely to catch other's emotions (e.g., Johnson, 2008).

Besides the biological mechanisms that define the extent to which individuals are emotionally influenced by others, a complementary approach suggests that such differences are also related to emotional processing style. This is, on what type of information people rely on to interpret their feelings: self-produced cues or situational cues (see, e.g., Hatfield et al., 1994; Laird & Bresler, 1992). Those that are highly susceptible to emotional contagion tend to rely on self-produced cues, i.e., on their own bodily responses aroused by external stimuli. In contrast, those relying on situational cues (which best characterize the group with low propensity for emotional contagion) rely more on judgments than on sensations.

Therefore, we would suggest that customers' susceptibility for emotional contagion plays a role in the relation between the emotions aroused during service experience and WOM. More specifically, we hypothesize that:

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Hypothesis 4: For individuals with high propensity for emotional contagion, emotions will be stronger predictors of WOM than for individuals with low propensity for emotional contagion.

Method

Participants and Procedure

One hundred and twenty eight individuals voluntarily agreed to participate in the study, 71% were women, and 29% were men. The mean age was 43.16 years (SD = 13.85) and ranged from 18 to 74 years old. Regarding education, 78% had finished graduation and 22% higher general secondary education.

Participants were invited to participate in a study about “customers’ experience with frontline workers”. After voluntarily agreeing to participate, individuals received more specific information about the study, so informed consent could be provided. Participants were informed that the data would be treated confidentially. First, they were presented with a general questionnaire with socio-demographic information and secondly with a questionnaire with the measures of interest for our research question. They were specifically asked to report one positive event and one negative event during service encounters, and to rate each one using instruments that we will describe in the next section. In total, six questionnaires were delivered lacking events’ information and for that reason were discarded.

Measures

Demographic measures. Participants were asked to fill a brief questionnaire with demographic information including sex, age, and education.

Significant service experiences, emotions and WOM. We resorted to the Critical Incidents Technique (CIT) developed by Flanagan (1954) by asking participants to

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freely recall and report one significant positive service experience with a frontline worker and a negative one. We asked: “Please recall a service encounter in which a specific employee behavior made you feel particularly good/bad with the service experience”. According to the Cognitive Appraisal Theory (Lazarus, 1991), it is this primary appraisal that determines if an event is worthy of being reported, i.e., when it is appraised as beneficial or detrimental for individual’s goals and objectives (e.g., Ellsworth & Scherer, 2003). We also asked participants to rate these very same events in terms of the emotions they aroused, using the the Multi-Affect Indicator (Warr et al, 2013). This scale includes 16 items divided into two subscales. Eight items measure positive affect, and the other eight assess negative affect. Both subscales also assess affect activation/arousal (high versus low). Therefore, four items refer to high activation pleasant affect (HAPA; e.g., enthusiastic, excited, inspired and joyful), and four items are related to low activation pleasant affect (LAPA; e.g., at ease, calm, laid-back and relaxed). On the other hand, four items of the negative affect subscale refer to high activation unpleasant affect (HAUA; e.g., anxious, nervous, tense and worried), and the other four are related to low activation unpleasant affect (LAUA; e.g., dejected, depressed, despondent and hopeless). Responses to all items were given using a seven-point scale: 1 – not at all to 7 – extremely. The items were answered regarding the experience of each affective state during the interaction customer - employee. The scale presents a good reliability, with alpha coefficients of .87 (HAUA), .88 (HAPA), .85 (LAUA) and .94 (LAPA).

We then asked participants whether they shared that service experience with other people (word of mouth). Response was dichotomous (1 - “Yes”, 2 - “No”). Although we are aware that recalling methods may pose threats related to memory bias, we agree with Söderlund & Rosengren (2007, pp.125) who stated that recalling

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incidents awakes “memories of emotion-inducing incidents and brings back the emotions felt at the time of the original experience. That is to say, the “mere” talk of an emotion-creating incident from the past is inducing emotions in the present.

Susceptibility for emotional contagion. We measured customers’ susceptibility for emotional contagion with the Portuguese version of the Emotional Contagion Scale (ECS, Rueff-Lopes & Caetano, 2012). The ECS is a 15-item self-report scale ($\alpha = .90$) in which the items are grouped to represent the five basic categories of emotions: love, happiness, sadness, anger, and fear. Answers are scored on a frequency of occurrence scale that ranges from 1 “never” to 5 “always”. The original version of the scale was developed with robust methodologies. Apart from the traditional convergent / divergent validities and reliability analyzes, the author also tested for its stability over time (since emotional contagion is considered as a stable individual trait) and empirically validated its validity. In a laboratory experiment, Doherty (1997) showed that EC values, as measured by the scale, predicted biases in participants' assessments and were correlated with a measure of responsiveness to afferent feedback and self-reports of emotional experience, following exposure to emotional expressions

Data Analysis and Results

Classification of Incidents

Two hundred and twenty six events were reported. Although we asked participants to report one positive event and one negative event, not all participants reported negative ones. Of the overall reported critical incidents, 122 (54%) were positive reports, and 104 (46%) were negative. The valence of the events was determined by the participants, since there were specific sections for reporting positive and negative events. Overall, 82% of the incidents led to WOM. Only 11 (11%) of the negative incidents and 28 (24%) of the positive ones did not generate WOM.

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Hypotheses Testing

To test our hypotheses, we trained artificial neural networks (ANN) in the statistical program R (R Core Team, 2017) with the Neuralnet (Fritsch & Guenther, 2016) and NeuralNetTools (Beck, 2016) packages, applying a backpropagation algorithm. We started by training an ANN with all observations to test hypothesis 1 “*Emotions experiences in the service relationship will be predictors of WOM.*”, 2 “*Nonlinear methods will explain more variance in WOM than linear ones.*” and 3 “*Negative emotions will be stronger predictors of WOM than positive emotions*”.

The ANN structure included all 16 discrete emotions as inputs, the WOM variable as the output, and 4 hidden nodes, as no further interpretative power was obtained in adding more nodes. Architecturally, it had a 16-4-1 structure. To ascertain for the variance explained by the ANN, we correlated the observed and predicted values, obtaining very satisfactory results (CVR = 0.68, $p < .01$, $R^2 = .46$), meaning that emotions robustly predict WOM, thus supporting H1.

For exploring the effectiveness of linear methods in explaining the variance of WOM, we started by excluding problematic predictors due to the incapacity of linear methodologies in dealing with multicollinearity between predictors. We explored the correlations between emotions (see Table 1), the VIF and the tolerance values (O’Brien, 2007). Taking together the values obtained, we excluded from the analysis the variables calm, laid back, and relaxed (VIF values were: 4.93, 7.37, and 6.61, respectively; tolerance values were: 0,203, 0,136, and 0,151, respectively). We conducted a Multiple Linear Regression analysis using the standardized values of the remaining 13 emotions and WOM as dependent variable. Overall, emotions explained only 7.6% of the variance of WOM, however, the model was not statistically significant ($F_{(13, 214)} = 1.351$, $p < 0.18$). To further explore the robustness of linear methods in this model, we

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performed a stepwise regression. Of all negative emotions, only the negative emotion “sad” presented a significant, and negative relation to word of mouth ($B = -.213$, $p = .001$). In relation, to the influence of positive emotions on the word of mouth, the regression through the stepwise method did not yield significant results, as all variables were excluded from the model. Therefore, the linear methods appear to be insufficient to perform this kind of analysis. Therefore, we must conclude that nonlinear methods are obviously more suitable for this kind of analysis, supporting hypothesis 2 (“*Nonlinear methods will explain more variance in WOM than linear ones.*”).

To test for hypothesis 3 (“*Negative emotions will be stronger predictors of WOM than positive emotions*”), we computed predictors importance applying Olden, Joy and Death (2004) algorithm. The reason to select this algorithm over other more commonly used ones, such as Garson’s (Garson, 1991), is based on one of the main critiques to the ANNs model, i.e., that they have little explanatory power regarding the contributions of predictors. In 2004, Olden, Joy and Death compared different approaches used in ANNs, such as partial derivatives, input perturbation, and sensitivity analysis, with Monte Carlo simulations and showed that a connection weight approach using raw input-hidden and hidden-output connection weights was the best methodology for quantifying the importance of input (predictor) variables. The main advantages over other commonly used methods is that it was the only method to accurately predict the importance of all predictors, whereas other methods only predicted correctly the importance of the most important ones. Additionally, it also presents the direction of the contributions (positive or negative) whereas other methods fail to do so. Interesting to add is that Garson’s (1991) algorithm, the most commonly used in ANN research, was the poorest performing approach.

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As we can see in Figure 1 and Table 2, our hypothesis was partially supported. Although hopeless was the most important predictor (9.89), it was immediately followed by excited (8.29), an emotion that is more often attributable to positive internal states (although this result gives room for alternative interpretations, as it is also tightly connected to an activation state). Nervous (8.01) and tense (7.97) were the 3rd and 4th most important predictors (respectively).

To test for hypothesis 4 (*“For individuals with high propensity for emotional contagion, emotions will be stronger predictors of WOM than for individuals with low propensity for emotional contagion”*), we started by dividing the total sample of observations (N=226) in two groups defined by the levels of propensity for emotional contagion (high vs low) using the mean of the distribution. Given that some participants did not respond to the emotional contagion scale, we had a total of 92 observations in the high propensity for emotional contagion group, and 96 in the low propensity for emotional contagion group. Mean values of emotional contagion for both groups are statistically different (low emotional contagion: $M = 3.27$; $SD = .03$; high emotional contagion: $M = 4.14$; $SD = .03$; mean comparison: $t(91) = 134.11$, $p < .01$).

Architecturally, both ANNs yielded a 16-4-1 structure. We maintained 4 hidden layers as no extra interpretative power was obtained in adding more nodes. Both models presented very satisfactory results in the power of emotions to predict WOM, however for those individuals with high emotional contagion emotions explained more variance (CVR= .89, R2= 79%) than for those with low susceptibility for emotional contagion (CVR = .70, R2= 48%). This difference was statistically significant (Fisher $z = 3.87$, $p < .001$). This supports the hypothesis 4.

Discussion

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The objective of this study was three folded: first, to explore the role of discrete emotions in predicting WOM; second, to find support for the proposition that, when studying complex systems like emotions, the use of nonlinear methods is more appropriate in comparison to linear modeling; and third, to provide support for the role of susceptibility for emotional contagion in the relation between how emotions experienced during service encounters are linked to WOM as a post-consumption behavior.

Theoretical Contributions

Regarding the role of discrete emotions, most research in WOM has been focused on hedonic variables of pleasure/displeasure, satisfaction/dissatisfaction as proximal causes of WOM. Nevertheless, researchers are coming to agree that the affective dimension of service experience may be a more important predictor of this behavior. We opted to analyze the influence of discrete emotions in WOM, and found support for the proposition that discrete emotions could strongly predict WOM behavior. Ever more authors highlight that different emotional patterns develop to meet unique situations and challenges, and such emotions do not exist in a continuum of pleasure-displeasure (e.g., Ekman, Levenson & Friesen, 1983). Each emotion comprises unique arousal patterns, and there is also empirical support that different parts of the brain are responsible for the arousal of different emotions. Therefore, to classify emotions according to their hedonic nature is to miss important and complex information on the subjective internal states that mobilize individuals for action. This finding is also in line with our assumption that, analogously to the affective events theory, WOM can be considered as an affect-driven behavior, as our results shown that it may be caused by the emotional experiences occurring during service interactions.

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We found that feeling hopeless was the stronger predictor of WOM. To our knowledge there is no single study focusing on the role of this discrete emotion in the context of service encounters and/or WOM. Most studies approaching hopelessness were conducted in the field of mental and physical health (e.g. Argaman, Gidron & Ariad, 2005; Kuo, Gallo & Eaton, 2004). In the field of organizational psychology we only found a study that specifically investigated this emotion, but was related to hopelessness and hope among social workers (McCarter, 2008). This emotion is also recurrently operationalized as a component of emotional exhaustion and burnout (e.g., Sliter, Jex, Wolford & McInnerney, 2010) and also when qualifying emotions according to quadrant models of affect, where hopelessness is part of the range of emotions that comprise the low-arousal/negative valence quadrant. For example, a study conducted by Hirschman and Stern (1999) proposed a methodology to identify typologies of customers' responses to both major and minor personal events, based on a quadrant of affect comprising valence and intensity of emotions. In this case, the authors approached hopelessness together with other low-arousal and negative valenced emotions, and suggested that customers in this quadrant (named *Sad Customers*) were more risk averse, less prone to try new services or products and were also more pessimistic. Despite these few findings, we highlight that hopelessness as a discrete emotion is yet to be investigated in the field of service research.

Theoretically, hopelessness is defined as a state of discouragement and lack of energy or cognitive resources to draw plans and strategies to reach goals (Farran, Herth, & Popovich, 1995). It is related to low expectations, psychological discomfort, feeling overwhelmed and frustrated (e.g., McCarter, 2008). This emotion reflects a reduced or inexistent belief that plausible solutions to an existing problem or challenge might exist, and is also related to insufficient information and losses. In the context of service

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encounter, it is probably a reflection of lack of satisfaction with the solutions provided (or not provided) by the company and significantly reduced expectations about it. In this sense, we argue that companies may avoid this emotion by providing as many solutions as possible, to act creatively in the context of service failures and to go that extra-mile to provide customers' with solutions to their requests, even if said solutions are not part of existing policies and procedures. We also call on service researchers to explore further the role of hopelessness in WOM and post-consumption behaviors.

The second emotion that stronger predicted WOM was feeling excited. Although in the scale we used it is described as a positive emotion, and for that reason we deemed hypothesis 3 and partially supported, there is room for discussion regarding the interpretation of this term. Many authors report excitement, not as a discrete emotion, but rather as an indicator of the levels of arousal (calm/excited, e.g., Desmet, 2003). Consequently, results are dubious but we are inclined to assume that this results is more related to excitement levels as arousal, i.e., the physical activation resulting from the autonomic nervous system (ANS) that complements emotions. This is because "excitement" pairs in the same level of contribution with two negative and high arousal emotions (nervous and tense). Contrarily, hopelessness, whose contribution is far higher, is a negative low arousal emotion (hopelessness).

Regarding these last two emotions, nervous and tense, they are theoretically correlated. For example, in the development of the Brief Symptom Inventory (Petkus, Gum, Small, Malcarne, Stein & Wetherell, 2010), "nervousness" and "feeling tense" comprised the general anxiety factor, together with "feeling restless". Both may be considered as emotions resulting from stressful or threatening experiences either occurring in the internal or external environment that upset individuals' physical and psychological well-being (Mazo, 2015). Stress theories propose that situations are

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perceived as stressful when something significant is threatened (e.g., Hobfoll, 2001; Lazarus, 1999) whereas in the conservation of resources theory, threat is associated to a loss of resources (Hobfoll, 1989). Consequently, considering service experiences, situations that arouse the perception of loss, or endangerment of possessions (e.g., higher prices than expected meaning loosing of money, or waiting longer than expected to be served, meaning loosing time) should be avoided at all costs in order to refrain customers' to experience emotions that are strong in predicting WOM. Further support to the importance of losses for individuals can be found on the extremity bias approach (e.g., Miner, Glomb & Hulin, 2005) which states that, overall, individuals tend to dislike losses to a greater extent than they do like proportionally equal gains (Kahneman & Tversky, 1984).

We also found that nonlinear methods surpassed the linear ones in explaining the relationship studied. This finding was not a surprise to us, as emotions have all the aspects of dynamic systems, which are better analyzed under nonlinear methodologies. First, like *systems*, they are multidimensional. They comprise cognitive, behavioral, physiological and cognitive aspects that complement each other, and are all necessary for the formation and identification of emotional states. Nevertheless, emotion researchers are often divided in studying these dimensions separately, dividing knowledge and areas of expertise that should be viewed as complementary and mutually exclusive. As Rimé (1997, pp. 1) cleverly stated, emotion researchers are “the Lilliputian investigators studying the elephant. We are all there with our magnifying glasses, exploring some particular body part - specialists of the eye, the tail, the neck or the nail”. Given the multidimensional nature of emotions, to quantify them objectively is nearly an impossible task. In this sense, we opted to use subjective self-report measures since individuals' overall interpretations of their own internal experience often

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offer more valid information than objectively measured separate dimensions that are believed to characterize different emotions. An interesting analogy to this phenomenon was provided by Mayne and Ramsey (2001). These scholars stated that the measurement of complex systems, similarly to weather forecast, is more easily identified by naive observers than by scientific researchers. The authors illustrated this by comparing a complex system to a hurricane: “it is easy for non-meteorologists to identify a hurricane and from a satellite photo. It is far more difficult for meteorologists to quantify the complex atmospheric conditions that define a hurricane and to predict its path. Similarly, naive observers can readily identify emotions in themselves and others, whereas scientifically quantifying the phenomena is far more complex” (p. 7).

Furthermore, apart from systems, emotions are also dynamic. This means they do not have a static nature and do not necessarily produce the same response or are caused by the same event. Additionally, there are several emotions and when we use the same scale for measuring all, we cannot simply affirm that the scales are comparable. For example, a score of 2 in sadness is simply not correspondent to a score of 2 in hopelessness, since there is no scale developed to integrate the multidimensional characteristics of emotions (for example, indicators of heart rate, skin conductance, neurological activation) in a single instrument. As so, linear equations that require a point-slope are not suitable for this type of variables.

Another limitation of linear methods, as previously stated, is the presence of multicollinearity between variables, whereas in dynamic systems (like emotions) the variables are naturally correlated among them. This is to say that emotions do not occur isolatedly. Under a negative service experience it is normal for a customer to feel negative, frustrated and angry at the same point. In this case there is collinearity among variables and discard some of them for the sake of being able to conduct a statistical test

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means losing important and precious information inherent to the parallel experience of different emotions. For these reasons, our results validate the need to study emotions using nonlinear methods.

We also found that negative emotions were stronger predictors of WOM than positive ones. This result is consistent with different studies from diverse fields of knowledge that support that negative stimuli are stronger in catching individuals' attention (negativity bias in attention allocation; Smith et al, 2003) and have more influence on information processing (Baumeister et al., 2001). From an evolutionary perspective, simply put those individuals that are more attentive to negative stimuli have increased chances of survival (Cacioppo et al., 1997), and for this reason the human brain (i.e., the amygdala) is biologically prepared to process negative information more efficiently (e.g., LeDoux, 1996). It is important to explore the role that negative emotions play in predicting post-consumption behaviors as it allows managers and frontline workers to develop policies and procedures that avoid the arousal of said emotions.

At last, we proposed that customers' propensity for emotional contagion would interfere in the relation between emotions and WOM, in the sense that for customers with high levels of emotional contagion, emotions would explain more variance in WOM than for the ones with low levels of emotional contagion. Although several investigations have explored possible antecedents for WOM (for a meta-analysis see de Matos & Rossi, 2008), research on individual traits that may promote or inhibit this behavior is scarce. From a managerial standpoint it is important to know more about such variables which, albeit cannot be controlled by organizations, may be used in its favor when the objective is to increase WOM as they signal that different customers have different needs and may provide some cues as to what actions may be

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implemented to please each type of customer. Our results supporting the importance of emotional contagion indicate that the characteristics of the encounter that lead to WOM are holistic, comprising the interaction of cognitive appraisals and emotions aroused and exchanged during the encounter.

From a theoretical point of view, these findings add to existing knowledge as they suggest that more than emotions alone, there are individual characteristics that facilitate the connection between emotional experience and post-consumption behavior.

Practical implications

We believe that managers can learn two main lessons from our results: (1) emotions are a powerful tool for interpersonal persuasion, above and beyond a cognitive appraisal of the service experience quality; and (2) the nonverbal emotional displays that induce affect through emotional contagion are crucial to WOM and should therefore be fostered in the context of service relations.

Based on previous research on emotional contagion in the service encounter there are some guidelines managers can rely upon to foster the experience of positive emotions and emotional contagion in service contexts. For example, Pugh (2001) found that employee smiling was a tool to elicit customers' positive affect and boost positive appraisals of service quality. However, Hennig-Thurau, Groth, Paul, and Gremler (2006) revealed that it is the authenticity of the smile, rather than the extent of employee smiling, that influences customers' emotions. To display positive emotions authentically, managers should provide the appropriate training and work conditions so employees may be, indeed, ambassadors of the brand, bridging customers and organization in the more effective way. Nevertheless, humans experience inevitably daily fluctuations in the experienced emotions, not beings always able to express positive emotions, at least

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in an authentic way. In this sense, literature on deep vs surface acting (Grandey, 2003; Groth, Hennig-Thurau & Walsh, 2009) may be helpful for managers concerning the design of training programs to promote effective emotional exchanges at work. However, we reiterate that rather than molding employees' emotions, managers could endow employees' wellbeing by investing on a healthy and happy work context where positive emotions abound.

Limitations and Directions for Future Research

This paper has sought to explore the role of discrete emotions and emotional contagion as antecedents of WOM. Giving that we resorted to the Affective Events Theory, one fruitful addition to our work would be to classify the nature of events that lead to the emotions predicting WOM. Another limitation is the cross-sectional design. As dynamic systems, emotions evolve over time, and it could be fascinating to understand how they mutate and interact after the service experience and the WOM through a longitudinal study.

Future research could narrow down our findings, for example, by replicating this research in specific service contexts (e.g., services, hospitality) and in different types of service interaction (e.g., voice-to-voice, face-to-face). There is also a need for knowledge advancement in the role of hopelessness in post-consumption behaviors. We obviously call on researchers to consider analyzing any relation between emotions and post-consumption behaviors with nonlinear methods.

Conclusion

WOM is an important tool for building customers' relations and increasing a company's reputation. We found that affective states robustly influence a person's decision to engage in WOM, and that this relation is better modeled with nonlinear

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methods. We also found that individuals' level of susceptibility for emotional contagion links emotions to WOM behavior, suggesting that the emotional states experienced by customers during service encounters may be infused through nonverbal displays of emotions. As so, if organizations are willing to increase positive WOM, the heart is a good place to start. Avoiding situations that lead customers to lose hope in the organization is also decisive to avoid undesired WOM, as this emotions was shown to be the most important predictor of this post-consumption behavior.

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Table 1. *Correlation between predictors (emotions)*

<i>X</i> Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Anxious	1.00														
2 Nervous	.66*	1.00													
3 Tense	.73*	.77*	1.00												
4 Worried	.58*	.52*	.53*	1.00											
5 Enthusiastic	-.20*	-.37*	-.39*	-.2*	1.00										
6 Excited	-.07	-.2*	-.2*	-.05	.72*	1.00									
7 Inspired	-.21*	-.34*	-.36*	-.19*	.75*	.59*	1.00								
8 Joyful	-.3*	-.43*	-.45*	-.28*	.78*	.50*	.72*	1.00							
9 Down	.49*	.5*	.49*	.61*	-.15*	-.12	-.15*	-.22*	1.00						
10 Depressed	.46*	.45*	.46*	.56*	-.18*	-.12	-.16*	-.23*	.81*	1.00					
11 Sad	.53*	.54*	.56*	.6*	-.26*	-.12	-.26*	-.36*	.64*	.6*	1.00				
12 Hopeless	.51*	.47*	.48*	.48*	-.11	.04	-.08	-.18*	.45*	.46*	.58*	1.00			
13 Comfortable	-.21*	-.35*	-.36*	-.2*	.58*	.41*	.61*	.59*	-.21*	-.21*	-.27*	-.18*	1.0		
14 Calm	-.22*	-.36*	-.38*	-.23*	.58*	.4*	.55*	.56*	-.20*	-.21*	-.22*	-.14*	.68*	1.0	
15 Laid_Back	-.28*	-.39*	-.43*	-.3*	.63*	.44*	.64*	.62*	-.22*	-.24*	-.29*	-.16*	.72*	.9*	1.00
16 Relaxed	-.28*	-.40*	-.43*	-.29*	.63*	.45*	.62*	.63*	-.2*	-.24*	-.32*	-.19*	.7*	.86*	.9*

*p<0.05

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Table 2. *Importance of predictors with Olden and colleagues (2004) algorithm*

Emotions	Importance (general ANN)
Anxious	-11.948
Nervous	8.017
Tense	7.974
Worried	-5.911
Enthusiastic	6.085
Excited	8.296
Inspired	-10.142
Joyful	6.192
Down	-3.023
Depressed	-2.287
Sad	-4.264
Hopeless	9.890
Comfortable	6.823
Calm	3.370
Laid-back	-9.571
Relaxed	3.362

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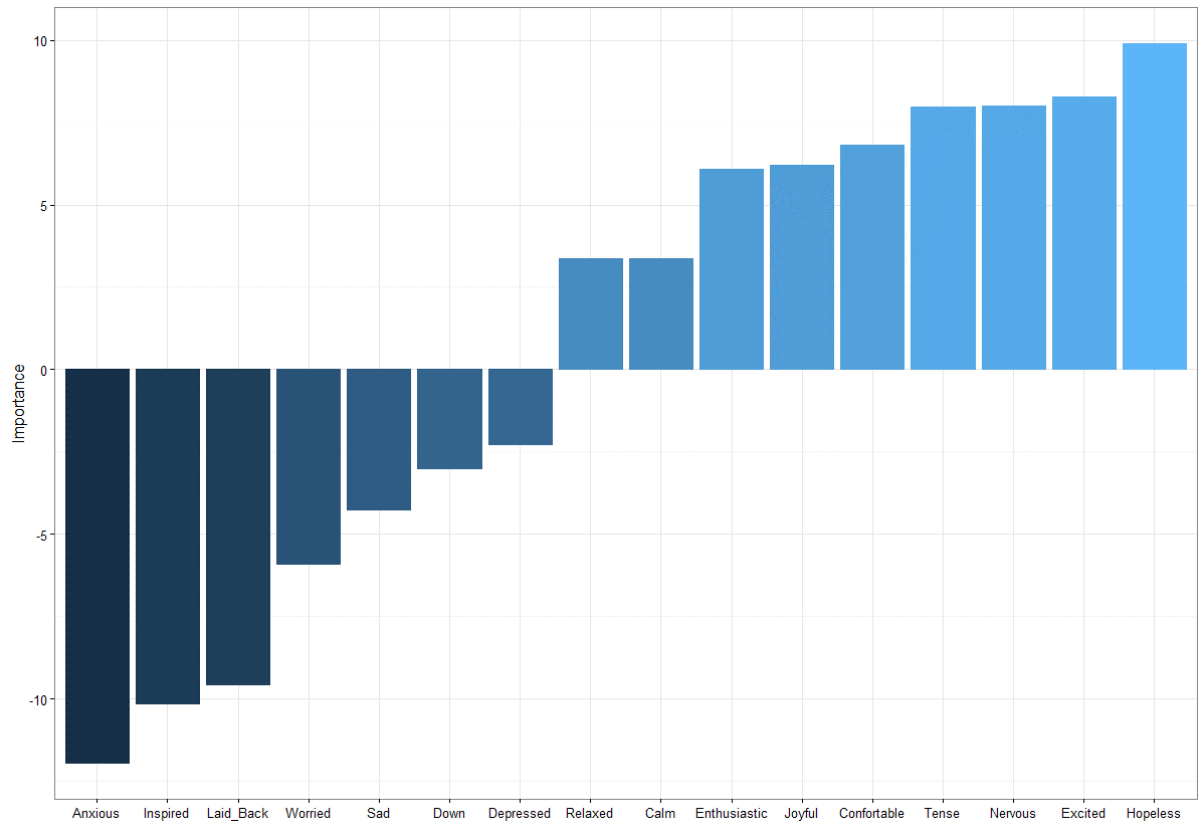


Figure 1. Contribution of emotions for WOM using Olden and colleagues' (2004) algorithm.