

The Buzz behind “the Buzz” Matters:
Energetic and Tense Arousal as Separate Predictors for Word of Mouth

Jacob D. Teeny, Xiaoyan Deng, & Rao Unnava

Hayes Graduate Forum

Section: Business

April 13th, 2017

Abstract

Consumer research on what motivates people to engage in word of mouth (WOM) is one of the fastest growing areas of focus because of WOM’s remarkable impact on a company’s success (Berger, 2014). In the present research, we examine a fundamental antecedent to WOM: the physiological arousal elicited by the consumer purchase/experience. Although previous research has also examined this relationship, it has failed to make the critical distinction between two types of arousal, energetic and tense. Across four studies, this research provides evidence of the discriminant predictive value of these arousals as well as the separate motivations that each one elicits. That is, this research provides convergent evidence that the amount of energetic (tense) arousal elicited by a positive (negative) consumer experience predicts the a consumer’s willingness to engage in positive (negative) word of mouth, a behavior that is motivated to increase (decrease) one’s extant energetic (tense) arousal.

The Buzz behind “the Buzz” Matters:

Energetic and Tense Arousal as Separate Predictors for Word of Mouth

These days, success in business often demands success at promoting word-of-mouth marketing: the informal advocacy and/or discussion of goods and services between individuals not affiliated with the company (Dichter, 1966; Berger, 2014). To highlight the significant impact and value of word of mouth, an economic analysis by Bughin, Doogan and Vetvik (2010) showed that word of mouth (WOM) is the primary factor behind 20 to 50% of all purchasing decisions; it generates more than 2x the sales of paid advertising; and it can increase a company’s market share by as much as 10%! In fact, according to the American Marketing Association, 64% of marketing executives assert that word of mouth is the most effective form of marketing (Morris, 2014). For in a society that eschews traditional advertising more than ever before (Bucklin & Sismeiro, 2009), research shows that consumers trust the recommendations of their peers more than that of self-interested companies (Godes & Mayzlin, 2004; Hautz, Füller, Hutter, & Thürridl, 2014). Thus, understanding when and why people actually engage in WOM is one of the most important questions that a marketer can ask.

Although there are numerous factors that have been studied as antecedents to WOM, the present research examined a foundational motivation to that consumer-to-consumer “buzz,” namely, *physiological arousal*. A recent literature review on the antecedents to WOM (Berger, 2014) organized the various factors around five categories: impression management, emotion regulation, information acquisition, social bonding, and persuading others. But across four of those five categories, one variable appeared throughout as a reliable index of WOM likelihood: the extent of arousal elicited by the product or experience.

Arousal on Word of Mouth

Physiological arousal is the “activation of the autonomic nervous system and the mobilization provided by this excitatory state” (Heilman, 1997). In regards to WOM, previous research has shown that the more arousal a product or experience elicits, the more likely the person is to engage in WOM about it (Berger & Milkman, 2012; Chitturi, Raghunathan, & Mahajan, 2008). For example, work has shown that more (vs. less) arousing commercials receive more comments (Siefert et al., 2009); memes that generate more (vs. less) arousing emotions are more likely to be shared (Heath et al., 2001); and New York Times articles that are rated as more (vs. less) arousing result in greater readership (Berger & Milkman, 2012). In fact, arousal can even have its effect as the result of an incidental occurrence (i.e., after jogging in place), where those who were physically aroused from this exercise reported greater WOM intentions for an unrelated topic than those who weren’t (Berger, 2011).

However, up to this point in the literature (not only in WOM research but the consumer domain more broadly), arousal has been treated as a uni-dimensional construct (Fan, Chang, & Wegener, 2015), when in fact, it is composed of two distinguishable dimensions: *energetic* and *tense* arousal (Kuppens, Tuerlinckx, Russel, & Barrett, 2013; Matthews, Jones, & Chamberlain, 1990; Thayer, 1990; Schimack & Reisenzein, 2002; Watson, Wiese, Vaidya, & Tellegen, 1999). Energetic arousal refers to one’s level of “excited” or physical energization, which is often associated with experientially pleasant states. Tense arousal, on the other hand, refers to a “preparatory” or anxious energization, which tends to be associated with experientially unpleasant states (Kuppens et al., 2013). Thus, by decoupling energetic and tense arousal from its previously assumed uni-dimensional construct, we can provide a more nuanced and complete framework of its influence on word of mouth. Specifically, by separating out these constructs,

we can examine the divergent factors that *elicit* energetic versus tense arousal, and subsequently, the divergent *motivations* they engender.

Eliciting Energetic and Tense Arousal

As mentioned above, energetic arousal is associated with heightened energization, or a feeling of physical activation that often derives from a positive outcome or expectation (Mano & Oliver, 1993). Typically, energetic arousal is captured in self-report measures with scales anchored at adjectives like “Drowsy” to “Wakeful,” where the low-arousal anchor is associated with displeasure and the high-arousal anchor is associated with pleasure (Fan, Chang, & Wegener, 2015; Russell, Weiss, & Mendelsohn, 1989). Tense arousal, on the other hand, usually emerges in states where physiological preparation comes as a response to an imminent threat or a negative outcome (Gold, MacLeod, Deary, & Frier, 1995). Here, self-report measures typically anchor at adjectives like “Calm” to “Anxious” (Watson et al., 1999), where the low-arousal anchor is now associated with pleasure and the high-arousal anchor is associated with displeasure. In predicting word of mouth likelihood, then, conflating these anchors (e.g., jointly using “Drowsy” and “Calm” to capture low-arousal states and “Wakeful” and “Anxious” to capture high-arousal states) may result in null effects that are actually false negatives.

Indeed, previous research has shown that energetic and tense arousal tend to weakly correlate (Barrett & Russell, 1998; Schimmack. & Grob, 2000), in which case, making a composite of these measures could “cancel out” their independent influences or ostensibly depict arousal predicting behaviors (i.e., WOM) in some cases but not others. Previous consumer research (albeit focused on product evaluation rather than word of mouth) has exemplified this issue with an uni-dimensional version of arousal. For example, with arousal as a singular

construct, some studies have shown that increasing it heightens consumers' overall positive evaluation of the product or experience (Ladhari, 2007), whereas other studies have shown heightened arousal actually decreases or reduces a consumer's positive evaluation (Massara, Liu, & Melara, 2009). Thus, for these reasons it is integral that arousal be treated as separate predictors in determining WOM likelihood (among other consumer behaviors).

From the prior research on energetic and tense arousal (e.g., Barret & Russel, 1998; Kuppens et al., 2013; Thayer, 1996), we should expect a correspondence between the type of arousal and the type of consumer experience in predicting WOM likelihood. That is, because energetic arousal (and not tense) is associated with positive outcomes, while tense arousal (and not energetic) is associated with negative outcomes, we should come to expect the following:

H1a: Consumers will be more likely to engage in WOM for positive purchases or experiences that elicit more (vs. less) energetic arousal, controlling for the amount of tense arousal that is elicited.

H1b: Consumers will be more likely to engage in WOM for negative purchases or experiences that elicit more (vs. less) tense arousal, controlling for the amount of energetic arousal that is elicited.

In order to most accurately predict who will engage in WOM, one needs to measure both the energetic and tense arousal that is elicited by the product or experience. Failing to do so, may result in null or inconsistent findings that a more comprehensive account would not have concluded. Moreover, treating both energetic and tense arousal as indices of the same construct

may also misguide marketing strategies when it comes to promoting positive WOM and limiting negative WOM. That is, by understanding which type of arousal influences which type of WOM, we can provide marketers with more nuanced advice on how to influence word of mouth:

H2a: Companies can increase the likelihood of positive WOM by enacting practices that increase energetic arousal following a positive consumer purchase or experience.

H2b: Companies can decrease the likelihood of negative WOM by enacting practices that decrease tense arousal following a negative consumer purchase or experience.

Nonetheless, merely understanding which type of arousal (energetic vs. tense) influences which type of WOM (positive vs. negative) does not explain *why* these specific constructs lead to the outcomes they do. Thus, in the next section we discuss the disparate *motivations* that are evoked by each subtype of arousal.

Motivations of Energetic and Tense Arousal

Research across a variety of domains shows that people intentionally act to influence their extant physiological arousal. For example, those high in *sensation seeking* (i.e., people who often seek out novel, varied, or even risky situations for the sake of the experience; Zuckerman, 1994) tend to engage in more high-arousal sports (e.g., parachuting, auto racing, etc.) compared to low arousal ones (e.g., cross-country running—which low sensation seekers tend to prefer; Rowland, Franken, & Harrison, 1986). In fact, awareness of how a situation may influence your

arousal has been shown to have a powerful effect on the extent to which a person engages in the activity (Apter & Batler, 1997; Legrand & Apter, 2004).

Research into arousal management posits that distinct mindsets emerge as a result of the type of arousal that is salient. That is, when energetic arousal is low, people will adopt an “arousal seeking” mindset, whereas when tense arousal is high, people adopt an “arousal avoidance” mindset (Apter, 2001; Hebb, 1955). Although one need not consciously acknowledge the arousal or its purported effects in order for it to influence one’s behavior (Eysenck & Eysenck, 1975; Zuckerman, 1991), the motivations to act will nonetheless differ as a result of the type of arousal elicited. Already, we’ve discussed how high energetic arousal is associated with pleasure, and high tense arousal is associated with displeasure (e.g., Matthews et al., 1990), in which case, people will be motivated to *enhance* one’s energetic arousal and *reduce* one’s tense arousal (Handley, Lassiter, Nickell, & Herchenroeder, 2003; Thorndike, 1898; Wegener & Petty, 1994).

Prior research has documented how people engage in behaviors to regulate these different states of arousal. For example, people will flirt with others to maintain or increase their levels of energetic arousal (Downey & Christensen, 2003), whereas people will go on walks to decrease or eliminate their levels of tense arousal (Thayer, 1987; Saklofske, Blomme, & Kelly, 1992). In some cases, however, the same activity can facilitate either goal depending on one’s motivation. For example, one may engage in sports to increase their energetic arousal (e.g., “I want to feel active right now!”) or decrease their tense arousal (e.g., “I need to get rid of this stress!”). Likewise, consumers can use WOM to regulate their arousal in response to purchases or consumer experiences. For example, if a consumer is selected for a unique promotional deal, such an outcome should elicit high energetic arousal. Thus, in order to maintain or increase that

energetic arousal, the consumer may engage in topic-relevant WOM. On the contrary, if a consumer experiences a particularly negative encounter with customer service, it will likely elicit high tense arousal. In order to reduce or eliminate this tense arousal, then, the consumer may engage in WOM about the experience. Thus, our hypotheses about the motivations evoked by each type of arousal are as follows:

H3a: After a positive consumer experience, consumers will be motivated to engage in WOM to maintain or increase their energetic arousal, evidenced by an increase in one's energetic arousal after sharing.

H3b: After a negative consumer experience, consumers will be motivated to engage in WOM to reduce or eliminate their tense arousal, evidenced by a decrease in one's tense arousal after sharing.

Whether consumers consciously or non-consciously engage in WOM to influence their arousal will likely vary by the circumstance. For example, after winning tickets to the premiere of a new action movie (which should elicit high energetic arousal), a consumer may consciously reach out to his or her friends to prolong or augment his/her own arousal. On the other hand, another person may simply see a great new action film (which would also elicit high energetic arousal); however, this consumer may hurriedly text his/her friend without consciously acknowledging that the WOM was done to maintain or increase one's arousal. Similar examples can be constructed for negative experiences that elicit high tense arousal, whereby a consumer either consciously or non-consciously engages in WOM to reduce their arousal. However,

regardless of whether the WOM was done intentionally or not influence their arousal (a question beyond the scope of this research) the motivation to share remains constant: those with high energetic arousal want to maintain or heighten their arousal, whereas those with high tense arousal want to reduce or eliminate it.

Importantly, though, before we move onto the studies testing the aforementioned hypotheses, it is worthwhile to discuss the theoretical and practical differences between the related constructs of arousal and mood.

Arousal and Mood

Although one may be tempted to conflate arousal with mood (i.e., a diffuse affective state; Handley et al., 2003), research notes that is important “not [to] claim valence can be reduced to energetic arousal and tense arousal” (Schimmack & Reisenzein, 2002; p 416). Much research has decoupled arousal from valence (e.g., Russell & Barrett, 1999; Russell, 2003; 2009), where one can have two different positive experiences that both generate positive moods, but where they vary in the amount of arousal that’s elicited (e.g., the high arousal excitement vs. the low arousal contentment). Conversely, a similar point can be made for negative mood states that likewise vary in the amount of arousal elicited (e.g., the high arousal anger vs. the low arousal sadness). In regards to WOM, this is a very important distinction.

WOM itself is an active behavior that relies on (to some extent) energization within the consumer. Indeed, arousal itself is present in the slang describing WOM (i.e., the “buzz”) and thus may be a prerequisite in some sense to actually engaging in it. Therefore, simply measuring one’s mood in response to a consumer experience (or even one’s attitude) would fail to capture the psychological component integral to taking action. For example, a company may discontinue

one's favorite line of products, producing sadness in the consumer (i.e., a negative mood). On the other hand, a company may discontinue customer service for one's favorite line of products, producing anger (i.e., also a negative mood). Although we may expect both scenarios to predict negative WOM, it is more likely that the angering scenario (i.e., the one with high tense arousal) will actually result in consumer word of mouth. Thus, although the valence of one's experience is important in predicting WOM likelihood, further measuring one's arousal (and specifically, the type of arousal) will provide a more tailored theoretical framework to interpret when and why people will engage in word of mouth.

The Current Research

Across four studies, we investigate the hypotheses that the more energetic (tense) arousal that a positive (negative) consumer purchase or experience elicits, the more positive (negative) WOM the consumer will intend to enact. Moreover, should companies enhance (reduce) one's energetic (tense) arousal following a positive (negative) consumer experience, the more (less) the consumer will report intentions to engage in positive (negative) WOM. Finally, we predict that participants will engage in this WOM to influence their extant arousal, where those experiencing high energetic (tense) arousal will be motivated to maintain or increase (reduce or eliminate) one's current arousal, evidenced by an increase (decrease) of one's current energetic (tense) arousal. Across both recall and hypothetical study designs, we present convergent evidence for these predictions and later discuss real world applicability for the findings.

Study 1: Energetic Versus Tense Arousal

Although prior studies have demonstrated that arousal increases WOM (e.g., Berger, 2011), Study 1 examines the two subsets of arousal, energetic and tense (Thayer, 1978; Apter, 2001), to determine how these separately influence WOM behavior in both positive and negative consumer experiences. Furthermore, we were interested in how these separate types of experiences may reflect sharing motivations as they relate to arousal. That is, if positive experiences increase one's energetic arousal (a pleasant experiential state), participants should be motivated to maintain that state. On the other hand, if negative experiences increase one's tense arousal (an unpleasant experiential state), participants should be motivated to alleviate it.

As an initial test for both of these predictions, participants recalled either a positive or negative consumer experience, reported both their energetic and tense arousal in response to the experience, provided their subsequent WOM behavior regarding it, and then responded to some corresponding questions about their motivations for sharing. Accordingly, we should expect energetic arousal to predict WOM intentions in positive consumer experiences, whereas tense arousal should predict WOM intentions in negative consumer experiences. Furthermore, people in a positive experience should be more likely to engage in WOM to maintain or increase that energetic arousal, whereas those in a negative experience should be more likely to engage in WOM to alleviate or decrease their tense arousal.

Methods

Two hundred and twelve undergraduates at the Fisher College of Business at The Ohio State University were randomly assigned to a 2-cell (consumer experience: positive vs. negative) design. Upon arrival at the laboratory, participants read an introduction about the general intent

of the study (i.e., research on better understanding consumer behavior) and were then randomly placed into either the positive or negative consumer experience recall condition.

For participants in the positive recall condition, they were asked “*to think of a time within the past two months* where you were at a restaurant, in a hotel, out purchasing consumer products, etc., when you were provided an extra positive or delightful experience.” For those in the negative recall condition, they, too, were asked to recall a consumer experience from the last two months; however, it was described to provide “an extra negative or unsatisfactory experience.” In a box below each condition’s instructions, the participants were then asked to describe the positive/negative consumer experience.

Immediately following their recollection and description of the consumer experience, participants responded to measures capturing both their energetic and tense arousal to the occurrence (Fan, Chang, & Wegener, 2015; Thayer, 1986). That is, to measure high energetic arousal, participants responded to three, 5-point unipolar scales (1 = Not at all; 5 = Extremely) for the following adjectives: Energized, Alert, and Wakeful. To measure low energetic arousal, participants responded to three, 5-point unipolar scales (1 = Not at all; 5 = Extremely) for the following adjectives: Sleepy, Tired, and Drowsy. For tense arousal, the same types of scales were used; however, the respective adjectives were changed. That is, to measure high tense arousal, participants responded to the following adjectives: Restless, Tense, and Jittery. To measure low tense arousal, they responded to the adjectives: At rest, Relaxed, and Calm. The presentation of these arousal measures was counterbalanced across conditions.

Participants then reported the extent to which they likely engaged in WOM about the experience both with friends and on social media (7-point scale; 1 = Not at all likely; 7 = Extremely likely). Finally, participants responded to measures tapping into general motivations

underlying the WOM behavior, namely, motivations to increase their state of arousal or reduce it. To capture desires to increase arousal, participants were asked to rate the extent to which they would tell their friends about this experience to “receive energetic feedback” (1 = Did not share for this reason at all; 7 = Almost entirely shared for this reason). In regards to reducing arousal, participants were asked to rate the extent they would tell their friends about this experience to “get the information off your chest” (1 = Did not share for this reason at all; 7 = Almost entirely shared for this reason).

Results

Energetic and Tense Predictors. First, all of the unipolar measures were converted into bipolar difference scores by subtracting the low-arousal measure from its high-arousal counterpart (Fan et al., 2015). For example, with energetic arousal, participants’ responses to the low-arousal, unipolar measure “Sleepy” was subtracted from its corresponding high-arousal, unipolar measure “Energized,” whereby higher scores indicate greater arousal. For the tense arousal measures, the same procedure was used (e.g., “At rest” was subtracted from “Restless”). Once the six unipolar energetic and the six unipolar tense arousal measures had been converted into their respective, three difference scores, they were separately combined to form composites of one’s energetic ($\alpha = .891$) and tense ($\alpha = .920$) arousal.

Prior WOM Behavior. To determine the relative influence of energetic and tense arousal on self-reported WOM behavior, the composite energetic and tense predictors were jointly entered into a linear regression predicting WOM behavior. For participants recalling a positive consumer experience, energetic arousal significantly predicted WOM behavior, $B = .24$ ($SE = .10$), $t(107) = 2.36$, $p < .02$, whereas tense arousal did not, $B = -.04$ ($SE = .10$), $t(107) = -.40$, $p < .69$. For participants recalling a negative consumer experience, tense arousal significantly

predicted WOM behavior, $B = .33$ ($SE = .10$), $t(99) = 3.46$, $p < .001$; however, energetic arousal did not, $B = .15$ ($SE = .10$), $t(99) = 1.59$, $p < .12$.

Motivations to Engage in WOM. In accord with how we calculated our predictor variables (i.e., creating relative difference scores by subtracting the low arousal measure from the high arousal one), we made a similar difference score out of one's intentions behind engaging in WOM. That is, by subtracting the arousal-reduction measure from the arousal-heightening measure, higher scores indicate a greater motivation to maintain or increase one's arousal, whereas lower scores indicate a greater motivation to reduce their arousal. Accordingly, when we examine this difference score in an independent samples t-test (i.e., the positive vs. negative recall conditions), we find those with a positive experience ($M = .77$; $SD = 2.13$) are significantly more likely to want to maintain or increase their arousal, whereas those with a negative experience ($M = -1.05$; $SD = 2.18$) are more likely to want to reduce it, $t(210) = 6.15$, $p < .001$.

Study 2: A Common Consumer Experience

The first study provides some initial evidence that energetic arousal underlies WOM in positive consumer experiences (as people want to maintain or increase that arousal), while tense arousal underlies WOM in negative consumer experiences (as people want to decrease or alleviate it). However, rather than having participants randomly generate a consumer experience, Study 2 provides a hypothetical scenario to test our hypotheses with greater experimental control. Furthermore, this second study allows us to more organically test our hypotheses regarding the motivations to engage in WOM as a result of arousal maintenance. That is, after sharing a positive experience, we should expect people's energetic arousal to increase, while after sharing a negative experience, we should expect people's tense arousal to decrease.

To test this, participants imagined that their previously booked seat on a commercial airplane was either upgraded to first class (positive consumer experience) or downgraded to the back of the plane (negative consumer experience). In addition to capturing participants' arousal immediately after this seating change—along with their WOM intentions—we also have participants imagine that they have shared their experience with friends, reporting this post-arousal for comparison to their initial states. Thus, the design of this study allows us to test both how initial arousal predicts WOM and how that arousal changes (or stays the same) after sharing the experience with others.

Methods

Fifty-four undergraduates¹ from the Fisher College of Business at The Ohio State University were randomly assigned to a 2-cell (airline experience: positive vs. negative) design.

For both conditions, participants are provided a detailed scenario which has them imagine they're in an airport, waiting for a commercial flight to take them to see friends in another state. However, when the participant hands his/her ticket over to the gate agent in order to board the plane, she informs the participant that his/her seat has been double booked. As such, the airline has provided a different seat on the same flight, which varies according to condition.

In the positive consumer experience, participants are told that the airline has upgraded them to first class, where *“your seat can recline fully into a bed; you have a personal touch screen television with movies and video games; and you receive free drinks and food for the duration of the flight.”* In the negative consumer experience, participants are told they've been

¹ This study was conducted at the end of spring semester when sign-ups were less robust, which accounts for our reduced participant numbers. Furthermore, because this is a narrative based study (where outcomes will be dependent on one's ability to immerse oneself in the scenario), we dropped all participants who weren't native English speakers (n = 34)—a practice we follow for the rest of the studies. Including these participants doesn't affect the direction of the effects; however, it does change significance levels.

downgraded to the back of the plane, where “*you are right against the bathrooms; you are in the middle seat between two passengers; and your chair is unable to recline at all.*”

After learning about this seating change, participants respond to the same energetic and tense arousal measures used in the prior study (counterbalanced in presentation) and then report their WOM likelihood about the experience (using the same measures as the prior study as well). After answering these and a few filler questions, the participants are then instructed to imagine that they are able to convey their current experience to friends. After which, participants once again rate both their energetic and tense arousal in response to having shared the information. Finally, participants answered a few demographics questions before dismissal from the study.

Results

Arousal on WOM Likelihood. To determine the relative influence of energetic and tense arousal on WOM likelihood of this consumer experience, the unipolar scales for energetic and tense arousal were once again transformed into bipolar composites as described in the previous study ($\alpha = .891$; $\alpha = .915$). Similarly, the composite energetic and tense predictors were jointly entered into a linear regression predicting intended WOM behavior. For participants imagining an upgrade (i.e., a positive consumer experience), energetic arousal significantly predicted WOM behavior, $B = .43$ ($SE = .14$), $t(25) = 2.40$, $p < .02$, whereas tense arousal did not, $B = .03$ ($SE = .13$), $t(25) = .18$, $p < .86$. For participants imagining a downgrade (i.e., a negative consumer experience), tense arousal significantly predicted WOM behavior, $B = .62$ ($SE = .19$), $t(23) = 2.79$, $p < .01$; however, energetic arousal did not, $B = -.17$ ($SE = .22$), $t(23) = -.80$, $p < .43$.

Changes in Arousal Post Sharing. To measure the extent to which participants’ energetic and tense arousal changed in response to sharing with others about their respective consumer

experience, a within-subjects t-test was employed to compare participants' pre-energetic and pre-tense arousal (i.e., the arousal manifested at learning about their seating change) with participants' post-energetic and post-tense arousal (i.e., one's arousal after imagining they had shared about the experience with friends).

For those who had imagined being upgraded, their post-sharing energetic arousal ($M = 2.14$; $SD = 1.43$) was significantly higher than their pre-sharing energetic arousal ($M = 1.50$; $SD = 1.50$), $t(27) = 2.17$, $p < .04$. However, their tense arousal did not significantly differ between pre- and post-sharing ($M = -1.90$ vs. -1.69), $t(27) = -.76$, $p < .45$. For those who had imagined being downgraded, on the other hand, their post-sharing tense arousal ($M = .50$; $SD = 1.38$) was significantly lower than their pre-sharing tense arousal ($M = 1.41$; $SD = 1.58$), $t(25) = 2.79$, $p < .01$. However, sharing did not appear to have an effect on their levels of pre- and post-energetic arousal ($M = 1.11$ vs. $M = .61$), $t(25) = 1.20$, $p < .24$.

Study 3: Increasing or Decreasing Arousal on WOM Intentions

Across two studies now, we have provided evidence that energetic arousal predicts WOM in positive experiences, while tense arousal predicts it in negative experiences. Furthermore, we have shown that the respective arousal predicts WOM for different, underlying motivations. That is, for positive experiences, a person engages in WOM to increase or maintain his/her energetic arousal, whereas for negative experiences, a person engages in WOM to decrease one's tense arousal. In the next study, we aim to experimentally manipulate one's arousal level to demonstrate its effect on one's likelihood of engaging in WOM. In other words, Study 3 focuses on providing convergent evidence for our first hypothesis that energetic arousal predicts WOM in positive consumer experiences, whereas tense arousal predicts it in negative ones.

Methods

One hundred and ninety-six² undergraduates from the Fisher College of Business at The Ohio State University were randomly assigned to a 2 (airline experience: positive vs. negative) x 2 (flight attendant: interaction vs. control) design.

Once again, participants were either put into the upgrade or downgrade condition from the prior study. However, after imagining themselves in this seating change, participants were provided with subsequent information about an interaction with a flight attendant. That is, for those in the interaction condition, participants imagined one of the flight attendants approaching them and remarking on their change in seating, whereas in the control condition, participants only received a brief description of the flight attendants preparing the plane for takeoff.

In the upgrade condition, the flight attendant expresses her delight that the participant was able to have this upgrade, commenting on the uniqueness of such an experience and the participant's luck for its occurrence. For those in the downgrade condition, the flight attendant expresses her condolences that the participant had to have this downgrade, commenting on the uniqueness of the situation and her wish that she could do something to change it. Again, for participants in the control condition, after receiving either the upgrade or the downgrade scenario, they were simply told that the flight attendants were readying the plane for departure.

After the flight attendant manipulation, participants responded to both their energetic and tense arousal in the situation, their attitude toward the flight attendant's remark (for those who received one; 7-point scale "How did you evaluate the flight attendant's remark about your seating change?" ; 1 = Very negative; 7 = Very positive), and the participant's likelihood to engage in WOM about this airline experience (with the same measures as the prior studies).

Results

² Again, non-native English speakers were dropped from the analysis (n = 42).

Arousal on WOM Likelihood. First, we once again examined the relative influence of energetic ($\alpha = .906$) and tense arousal ($\alpha = .925$) on WOM likelihood. Looking at energetic and tense arousal as predictors of WOM likelihood, irrespective of whether participants received a remark from the flight attendants or not, we replicated the prior studies. That is, in the upgrade condition, energetic arousal significantly predicted WOM intentions, $B = .29$ ($SE = .06$), $t(95) = 2.96$, $p < .004$, whereas tense arousal did not $B = -.14$ ($SE = .06$), $t(95) = -1.48$, $p < .14$. In the downgrade condition, however, tense arousal significantly predicted WOM intentions, $B = .40$ ($SE = .08$), $t(95) = 4.12$, $p < .001$, whereas energetic arousal did not $B = .09$ ($SE = .09$), $t(95) = .96$, $p < .34$.

Flight Attendant's Remark on Arousal and WOM Likelihood. In order for the flight attendant's remark to have a meaningful effect on the participants' levels of arousal, participants must have positively evaluated the comment. That is, if the primary goal of the flight attendant's remark was to either make people more excited in the upgrade condition (i.e., increase their energetic arousal) or make people less anxious in the downgrade condition (i.e., reduce their tense arousal), receiving a comment one is opposed to should have little effect on subsequent outcome variables. Just as an unconvincing argument won't change people's attitudes on a topic, so, too, would we expect a negative evaluation of the flight attendant's remark to be equally ineffective at influencing arousal.

Applying this logic, we could elect to analyze only the cases in which participants had unambiguously positive attitudes toward the remark; however, in both cases, it would reduce the number of participants in these conditions by close to half ($n_{\text{upgrade}} = 21$; $n_{\text{downgrade}} = 21$). Instead, we chose to exclude the lower quartile of responses to ensure we have participants with a generally positive attitude toward the flight attendant's remarks, while not halving the power of

the study. Under these conditions, 12 participants are dropped from analysis in the upgrade condition, while 16 are dropped in the downgrade condition ($n = 33$ and $n = 33$).

In the upgrade condition, participants who received (and positively evaluated) the remark from the flight attendants had significantly greater energetic arousal ($M = 2.63$; $SD = 1.34$) compared to those who didn't receive the remark ($M = 1.85$; $SD = 1.91$, $t(84) = 2.24$, $p < .03$). When looking at tense arousal, however, condition did not have an effect ($M_{\text{FA Remark}} = -1.76$ vs. $M_{\text{Control}} = -1.20$, $p < .14$). When examining the likelihood to engage in WOM about the experience, those in the flight attendant condition ($M = 6.73$; $SD = .57$) were significantly more likely than those in the control condition ($M = 6.34$; $SD = 1.02$) to report intentions of engaging in positive WOM, $t(84) = 2.26$, $p < .03$.

In the downgrade condition, participants who received (and positively evaluated) the remark from the flight attendants had significantly less tense arousal ($M = .79$; $SD = 1.56$) than those who hadn't received one ($M = 1.65$; $SD = 1.63$), $t(80) = 2.40$, $p < .02$. However, when looking at energetic arousal, there was no significant difference by condition ($M_{\text{FA Remark}} = .55$ vs. $M_{\text{Control}} = 1.0$, $p < .15$). In terms of WOM likelihood, participants in the flight attendant condition ($M = 5.00$; $SD = 1.41$) were marginally less likely to engage in negative WOM compared to the control condition ($M = 5.59$; $SD = 1.38$), $t(80) = 1.88$, $p < .06$.

Mediation of WOM through Arousal. To test whether the effect of the flight attendant's remark on WOM intentions was mediated through the respective arousal (i.e., energetic arousal in the upgrade condition and tense arousal in the downgrade condition), we submitted the data to a conditional process analysis using Model 4 in the PROCESS macro for SPSS (Hayes, 2013) with bootstrapping set to 10,000 iterations. The model was set up such that the flight attendant remark condition (i.e., received vs. absent) served as the a path to WOM intentions; the flight

attendant remark condition to arousal served as the *b* path; and arousal to WOM intentions served as the *c* path.

In the upgrade condition, the results showed that energetic arousal served as a mediator for the effect, 95% CI [.01, .16]. When energetic arousal is included in the model, the effect of the flight attendant's remark on WOM intentions drops from significance, $B = .14$, $t(84) = 1.44$, $p < .15$ (see Figure 1). In the downgrade condition, the results showed that tense arousal served as a mediator for the effect, 95% [-.31, -.02]. When tense arousal is included in the model, the effect of the flight attendant's remark on WOM intentions falls from marginal to non-significance, $B = -.17$, $t(80) = -1.88$, $p < .27$ (see Figure 2).

Figure 1

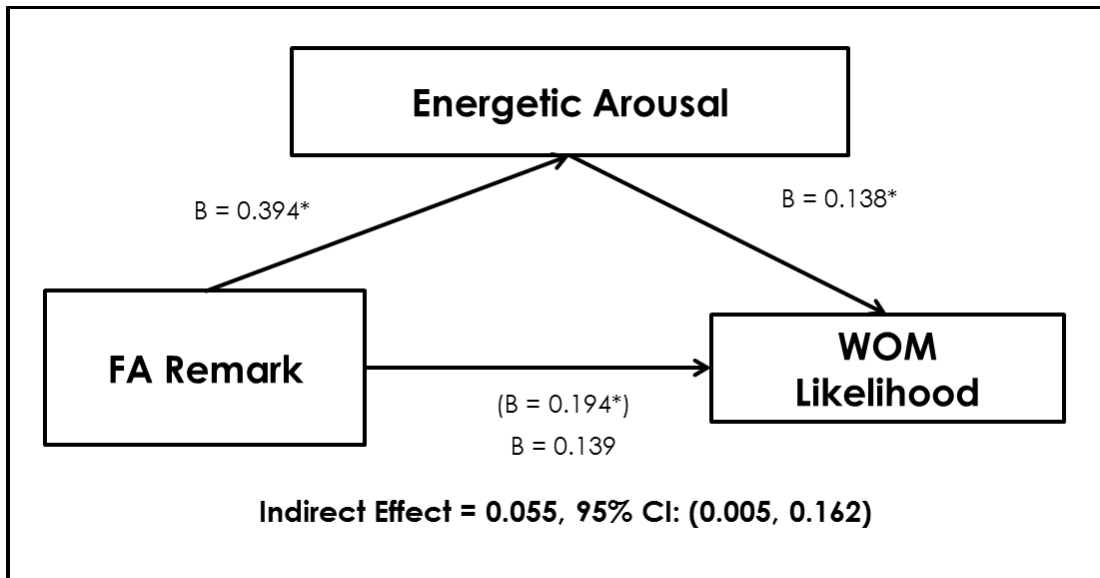
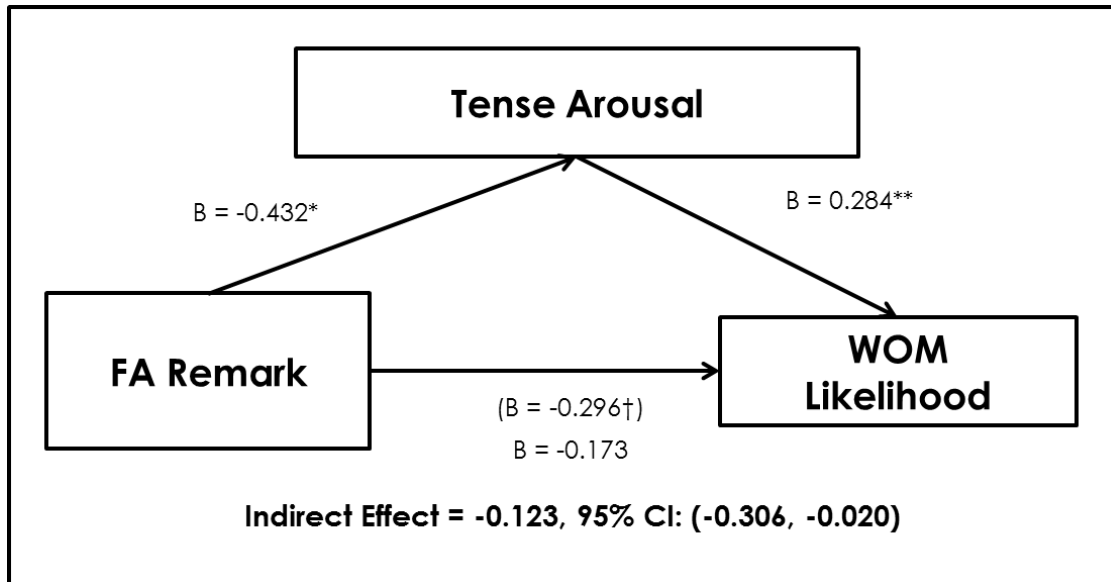


Figure 2



Study 4: Sharing vs. Not Sharing on Subsequent Arousal

With this third study, we were able to manipulate participants' arousal in response to the situation, subsequently influencing their likelihood of engaging in WOM. That is, those who were congratulated (vs. not) on their positive consumer experience felt greater energetic arousal, which led to a greater likelihood of engaging in positive WOM. As for those who were offered condolences (vs. not) for their negative consumer experience, the consolatory remarks reduced their tense arousal, and consequently, lowered their intentions to engage in negative WOM.

For our final study, we wanted to provide further experimental evidence for our second hypothesis that people engage in positive WOM to maintain or increase their energetic arousal, while they engage in negative WOM to decrease or alleviate their tense arousal. Accordingly, if people are allowed (vs. denied) the chance to share about their positive consumer experience, it should result in greater energetic arousal. On the other hand, if people are allowed (vs. denied) the chance to share about their negative consumer experience, it should result in reduced tense arousal. To test this, participants first reported their arousal in response to the airline seating

change scenario; however, subsequently, participants were either able or unable to share about the experience with friends. After which, both energetic and tense arousal were measured again.

As a secondary goal of this study, we also wanted to test two alternative accounts for our first hypothesis that energetic arousal leads to positive WOM and tense arousal leads to negative WOM. That is, rather than the respective arousal itself leading to these outcomes, it could be the consumer's general attitude (i.e., positive attitudes in the positive consumer experience and negative attitudes in the negative consumer experience) or the consumer's general mood (i.e., positive mood in the positive consumer experience or negative mood in the negative consumer experience) that predicts WOM intentions. To test for this, measures of both were included in addition to the arousal measures.

Method

One hundred and fifty-six³ undergraduates from the Fisher College of Business at The Ohio State University were randomly assigned to a 2 (airline experience: positive vs. negative) x 2 (sharing: able vs. unable) design.

To begin, participants imagined either the same positive or negative seating change as used in the prior studies. Immediately afterward, they provided their energetic and tense arousal in response to the situation, their attitude toward the experience (two, 7-point scales "How would you rate your attitude toward this change in seating?"; 1 = Very negative/Very unfavorable; 7 = Very positive/Very favorable), their mood in response to the seating change ("How would you rate your mood in the current situation?" 1 = Very bad; 7 = Very good), and their WOM intentions to a friend and on social media. Critically, after the participants responded to these measures, they either simulated being able to text a friend about the experience (i.e., text-able condition) or being unable to text a friend about it (i.e., text-unable condition).

³ Non-native English speakers (n = 44) were once again dropped.

For those in the text-able condition, they were asked to imagine that they decided to text their friend about this unexpected seating change, at which point, participants engaged in a texting simulation procedure. That is, interacting with buttons and images on the computer screen, participants went through a simulated, pre-written text conversation between the participant and their imagined friend.

In the upgrade text-able condition, participants first expressed their excitement over the seating change and then received the following remark⁴: “Are you serious?? That’s amazing! You’re so lucky :D Enjoy the luxury and drink for me too!!” In the downgrade text-able condition, participants expressed their frustration over the seating change and then received the following remark: “That really sucks. I’m so sorry to hear this :(Hopefully the flight will be over before you know it though.”

In the text-unable condition (which was the same in both the upgrade and downgrade conditions) participants were given a scenario in which they wanted to communicate about this seating change to a friend; however, due to their phone’s battery life, they were unable to send the text. At which point, the participant imagined putting their phone away before waiting for the rest of the flight to board the plane.

After participants either received the text from their friend or didn’t send a text at all, participants reported their current energetic and tense arousal in the situation along with general demographic measures.

Results

⁴ Unlike the prior study, where the research team generated the response for the flight attendant’s remark, for this study, we had another set of participants generate texts they would want to receive from a friend if the participant were in a similar seating change situation. From a qualitative analysis of these participant-generated texts, we created the following stimuli for this study.

Arousal, Attitudes, and Mood on WOM Likelihood. With our initial measures of energetic and tense arousal immediately after learning about the seating change, we are once again able to test whether or not energetic arousal ($\alpha = .902$) predicts WOM in the upgrade condition and tense arousal ($\alpha = .938$) predicts it in the downgrade condition. In replication of our prior studies, we once again find that energetic arousal predicts WOM likelihood in the upgrade condition, $B = .30$ ($SE = .10$), $t(74) = 2.76$, $p < .007$. Unlike the prior studies, however, tense arousal did marginally predict WOM intentions, $B = -.19$ ($SE = .08$), $t(74) = -1.79$, $p < .08$. In the downgrade condition, we once again find that tense arousal significantly predicted WOM intentions, $B = .46$ ($SE = .09$), $t(76) = 4.49$, $p < .001$; however, energetic arousal did not, $B = -.04$ ($SE = .09$), $t(76) = -.42$, $p < .68$.

Next, we tried including a composite of participants' attitudes ($\alpha = .990$) into the regression equation along with energetic and tense arousal to predict WOM intentions. In the upgrade condition, neither attitude ($p < .21$) nor tense arousal ($p < .43$) predicted WOM intentions, whereas energetic arousal remained significant, $B = .30$ ($SE = .10$), $t(73) = 2.77$, $p < .007$. In the downgrade condition, neither attitude ($p < .67$) nor energetic arousal ($p < .71$) predicted WOM intentions, whereas tense arousal remained significant, $B = .50$ ($SE = .12$), $t(75) = 3.83$, $p < .001$.

Replacing attitude with mood, we ran the same analyses on both the upgrade and downgrade conditions. In the upgrade condition, although tense arousal did not predict WOM intentions ($p < .69$), both mood, $B = .26$ ($SE = .14$) $t(75) = 2.05$, $p < .04$, and energetic arousal, $B = .28$ ($SE = .10$) $t(75) = 2.58$, $p < .01$, emerged as significant predictors. In the downgrade condition, although energetic arousal did not predict WOM intentions ($p < .56$), both mood, $B =$

-.33 (SE = .19) $t(73) = -2.62$, $p < .01$, and tense arousal, $B = .26$ (SE = .11) $t(73) = 2.00$, $p < .05$, emerged as significant predictors.

These analyses reveal that even alongside other conceptually similar predictors, arousal exerts its own unique effect in predicting people's WOM intentions.

Sharing on Subsequent Arousal. In line with our hypothesis that people share about positive (negative) experiences to increase (decrease) their energetic (tense) arousal, being able (vs. not able) to share about one's seating upgrade should increase one's energetic arousal, while being able (vs. not able) to share about one's seating downgrade should decrease one's tense arousal. Testing this hypothesis with an independent samples t-test, we find that in the upgrade condition, being able to text a friend ($M = 2.10$; $SD = 1.34$) versus not being able ($M = .68$; $SD = 1.44$) significantly increases your energetic arousal, $t(75) = 4.40$, $p < .001$. However, being able (vs. unable) to share about the experience had no significant effect on tense arousal ($M_{\text{able}} = -2.38$ vs. $M_{\text{unable}} = -2.00$, $p < .26$).

In the downgrade condition, we also confirm our hypothesis by showing that for those participants who were able to text a friend ($M = .49$; $SD = 1.56$) compared to those who were unable ($M = 1.35$; $SD = 1.67$), they had significantly less tense arousal, $t(77) = 2.36$, $p < .02$. However, there was no significant difference on energetic arousal as a function of being able versus unable to text a friend ($M_{\text{able}} = -.93$ vs. $M_{\text{unable}} = -.32$, $p < .24$).

General Discussion.

The likelihood for which someone will engage in word of mouth for a company is one of the greatest predictors of that company's success (Bughin, Doogan, & Vetvik; 2010; Reichheld, 2011). However, the current understanding of when and why people actually engage in WOM

still lacks the empirical research that other consumer behaviors have received (Berger, 2014). With the present research, then, we aimed to develop the extant literature by providing four studies that examine both positive and negative word of mouth and a distinct antecedent for each, namely, energetic and tense arousal respectively.

Although previous research has documented the influence of physiological arousal on word of mouth (e.g., Berger, 2011; Berger & Milkman, 2012), the current research provides important nuance for that finding along with a motivational account for why it occurs. That is, this research demonstrated that for positive purchases/experiences, it is the energetic (not tense) arousal that predicts willingness to engage in positive WOM, while with negative purchases/experiences, it is the tense (not energetic) arousal that predicts willingness to engage in negative WOM. Subsequently, energetic arousal motivates people to engage in WOM in order to maintain or increase their current energetic arousal, whereas for tense arousal, people are motivated to engage in WOM to reduce or eliminate their current tense arousal. Making this distinction provides a number of valuable theoretical and practical advances.

First, failing to distinguish between these constructs when predicting WOM likelihood could result in mixed or seemingly null results. For example, if research wants to know how a negative experience influences arousal and subsequent WOM likelihood, measuring anchors typically meant to capture energetic arousal (or even using a mix of both energetic and tense arousal) could then give the appearance that arousal has no role in motivating WOM. Moreover, there may be instances that produce both energetic and tense arousal (e.g., going skydiving; making a risky investment) where measuring only one type of arousal will give an incomplete account of what motivates subsequent WOM. Indeed, by conflating these constructs, it also belies the distinct motivations that result from each type of arousal.

Because energetic arousal is associated with pleasant states, consumers will be motivated to maintain or augment their level of energetic arousal. On the other hand, tense arousal is associated with unpleasant states, meaning that these consumers will be motivated to reduce or eliminate said tense arousal. As a result, this will likely influence the ways in which people engage in WOM, be that the channel for the word of mouth or the target of it. For example, if a consumer has a positive purchase/experience, and they want to maintain or exacerbate the energetic arousal elicited by the event, they will likely share about it with others who are likely to provide them with excited feedback. In which case, these consumers may be more likely to broadcast the information, as the more people who express excitement/congratulations, the more energetic arousal one can accumulate. With a negative consumer experience and the subsequent tense arousal, it may require more specific individuals to reduce the arousal. That is, in attempts to reduce one's tense arousal, a consumer may seek out a specific friend (e.g., one who is particularly supportive) who can provide the comfort or support the consumer requires to reduce their tense arousal. Although addressing these questions is beyond the scope of this paper, nonetheless, dividing arousal along its energetic and tense dimensions may provide further insight into how and for whom people will engage in word of mouth.

Using this novel framework, then, we can begin to see how arousal plays a much more significant role in WOM behavior than previously recognized. For example, whether you are engaging in WOM for self-enhancement purposes (e.g., sharing about a cool product to make yourself look cool) or for informative purposes (e.g., warning someone against a faulty brand), we can use one's respective energetic or tense arousal to predict WOM likelihood, allowing us to more accurately categorize WOM motivations by either an individual's desire to increase their arousal (e.g., receiving excited feedback after sharing about a cool product) or decrease it (e.g.,

venting about a product's faults to reduce tension). In sum, this research provides a novel perspective on how marketers can influence arguably one of the most important determinants of a company's success.

References

- Apter, M. J. (2001). *Motivational styles in everyday life: A guide to reversal theory*. American Psychological Association.
- Apter, M. J., & Batler, R. (1997). Gratuitous risk: a study of parachuting. In S. Svebak & M. J. Apter (Eds.), *Stress and health, a reversal theory perspective*. Washington, DC: Taylor & Francis. Pp. 119-129.
- Berger, J. (2011). Arousal increases social transmission of information. *Psychological science*, 22(7), 891-893.
- Berger, J. (2014). Word of mouth and interpersonal communication: A review and directions for future research. *Journal of Consumer Psychology*, 24(4), 586-607.
- Berger, J., & Milkman, K. L. (2012). What makes online content viral?. *Journal of marketing research*, 49(2), 192-205.
- Bucklin, R. E., & Sismeiro, C. (2009). Click here for Internet insight: Advances in clickstream data analysis in marketing. *Journal of Interactive Marketing*, 23(1), 35-48.
- Bughin, J., Doogan, J., & Vetvik, O. J. (2010). A new way to measure word-of-mouth marketing. *McKinsey Quarterly*, 2, 113-116.
- Chitturi, R., Raghunathan, R., & Mahajan, V. (2008). Delight by design: The role of hedonic versus utilitarian benefits. *Journal of Marketing*, 72(3), 48-63.
- Dichter, E. (1966). How word-of-mouth advertising works. *Harvard business review*, 44(6), 147-160.
- Downey, J. L., & Christensen, L. (2003). Flirting and energetic arousal. *Psychological reports*, 93(1), 239-240.
- Eaves, L., & Eysenck, H. (1975). The nature of extraversion: A genetical analysis. *Journal of Personality and Social Psychology*, 32(1), 102.
- Fan, X., Chang, E. C., & Wegener, D. T. (2015). Two-or one-dimensional view of arousal? Exploring tense and energetic arousal routes to consumer attitudes. *European Journal of Marketing*, 49(9/10), 1417-1435.
- Feldman Barrett, L., & Russell, J. A. (1998). Independence and bipolarity in the structure of current affect. *Journal of personality and social psychology*, 74(4), 967.
- Godes, D., & Mayzlin, D. (2004). Using online conversations to study word-of-mouth communication. *Marketing science*, 23(4), 545-560.
- Gold, A. E., MacLeod, K. M., Deary, I. J., & Frier, B. M. (1995). Changes in mood during acute hypoglycemia in healthy participants. *Journal of Personality and Social Psychology*, 68, 498-504.
- Handley, I. M., Lassiter, G. D., Nickell, E. F., & Herchenroeder, L. M. (2004). Affect and automatic mood maintenance. *Journal of Experimental Social Psychology*, 40(1), 106-112.
- Hautz, J., Füller, J., Hutter, K., & Thürridl, C. (2014). Let users generate your video ads? The impact of video source and quality on consumers' perceptions and intended behaviors. *Journal of Interactive Marketing*, 28(1), 1-15.
- Heath, C., Bell, C., & Sternberg, E. (2001). Emotional selection in memes: the case of urban legends. *Journal of personality and social psychology*, 81(6), 1028.
- Hebb, D. O. (1955). Drives and the CNS (conceptual nervous system). *Psychological review*, 62(4), 243.

- Heilman, K. H. (1997). The neurobiology of emotional experience. *The neuropsychiatry of limbic and subcortical disorders*, 133-142.
- Kuppens, P., Tuerlinckx, F., Russell, J. A., & Barrett, L. F. (2013). The relation between valence and arousal in subjective experience. *Psychological Bulletin*, 139(4), 917.
- Ladhari, R. (2007), "The effect of consumption emotions on satisfaction and word-of-mouth communications", *Psychology & Marketing*, Vol. 24 No. 12, pp. 1085-1108.
- Ladhari, R. (2007). The effect of consumption emotions on satisfaction and word-of-mouth communications. *Psychology & Marketing*, 24(12), 1085-1108.
- Legrand, F. D., & Apter, M. J. (2004). Why do people perform thrilling activities? A study based on reversal theory. *Psychological reports*, 94(1), 307-313.
- Mano, H., & Oliver, R. L. (1993). Assessing the dimensionality and structure of the consumption experience: evaluation, feeling, and satisfaction. *Journal of Consumer research*, 20(3), 451-466.
- Massara, F., Liu, S.S. and Melara, R.D. (2009), "Adapting to a retail environment: modeling consumer-environment interactions", *Journal of Business Research*, Vol. 63 No. 7,
- Matthews, G., Jones, D. M., & Chamberlain, A. G. (1990). Refining the measurement of mood: The UWIST mood adjective checklist. *British journal of psychology*, 81(1), 17-42.
- Morris, H. (2014). The State of WOMM 2014. WOMMA. (April 13, 2017).
<http://womma.org/the-state-of-womm-2014/>
- Reichheld, F. F., & Markey, R. (2011). *The Ultimate Question 2.0: How net promoter companies thrive in a customer-driven world*. Harvard Business Press.
- Rowland, G. L., Franken, R. E., & Harrison, K. (1986) Sensation seeking and participation in sporting activities. *Journal of Sport Psychology*, 8, 212-220.
- Russel, J. A., Weiss, A., & Mendelsohn, G. A. (1989). Affect grid: A single-item scale of pleasure and arousal. *Journal of Personality and Social Psychology*, 57(3), 493-502.
- Russell, J. A. (2009). Emotion, core affect, and psychological construction. *Cognition and Emotion*, 23(7), 1259-1283.
- Saklofske, D. H., Blomme, G. C., & Kelly, I. W. (1992). The effects of exercise and relaxation on energetic and tense arousal. *Personality and Individual Differences*, 13(5), 623-625.
- Schimmack, U., & Grob, A. (2000). Dimensional models of core affect: A quantitative comparison by means of structural equation modeling. *European Journal of Personality*, 14(4), 325-345.
- Schimmack, U., & Rainer, R. (2002). Experiencing activation: energetic arousal and tense arousal are not mixtures of valence and activation. *Emotion*, 2(4), 412.
- Schimmack, U., Böckenholt, U., & Reisenzein, R. (2002). Response styles in affect ratings: Making a mountain out of a molehill. *Journal of Personality Assessment*, 78(3), 461-483.
- Siefert, C. J., Kothuri, R., Jacobs, D. B., Levine, B., Plummer, J., & Marci, C. D. (2009). Winning the super "Buzz" bowl. *Journal of Advertising Research*, 49(3), 293-303.
- Thayer, R. E. (1978). Factor analytic and reliability studies on the Activation-Deactivation Adjective Check List. *Psychological Reports*, 42(3), 747-756.
- Thayer, R. E. (1987). Energy, tiredness, and tension effects of a sugar snack versus moderate exercise. *Journal of personality and social psychology*, 52(1), 119.
- Thayer, R. E. (1990). *The biopsychology of mood and arousal*. Oxford University Press.
- Thayer, R. E. (1997). *The origin of everyday moods: Managing energy, tension, and stress*. Oxford University Press, USA.

- Thorndike, E. L. (1898). Review of Animal Intelligence: An Experimental Study of the Associative Processes in Animals.
- Watson, D., Wiese, D., Vaidya, J., & Tellegen, A. (1999). The two general activation systems of affect: Structural findings, evolutionary considerations, and psychobiological evidence. *Journal of personality and social psychology*, 76(5), 820.
- Wegener, D. T., & Petty, R. E. (1994). Mood management across affective states: the hedonic contingency hypothesis. *Journal of personality and social psychology*, 66(6), 1034.
- Zuckerman, M. (1991). *Psychobiology of personality* (Vol. 10). Cambridge University Press.

References

- APTER, M. J., &BATLER, R. (1997) Gratuitous risk: a study of parachuting. In S. Svebak & M. J. Apter (Eds.), *Stress and health, a reversal theory perspective*. Washington, DC: Taylor & Francis. Pp. 119-129.
- Bucklin, R. E., & Sismeiro, C. (2009). Click here for Internet insight: Advances in clickstream data analysis in marketing. *Journal of Interactive Marketing*, 23(1), 35-48.
- Gold, A. E., MacLeod, K. M., Deary, I. J., & Frier, B. M. (1995). Changes in mood during acute hypoglycemia in healthy participants. *Journal of Personality and Social Psychology*, 68, 498–504.
- Kuppens, P., Tuerlinckx, F., Russell, J. A., & Barrett, L. F. (2013). The relation between valence and arousal in subjective experience. *Psychological Bulletin*, 139(4), 917.
- Ladhari, R. (2007), “The effect of consumption emotions on satisfaction and word-of-mouth communications”, *Psychology & Marketing*, Vol. 24 No. 12, pp. 1085-1108.
- Legrand, F. D., & Apter, M. J. (2004). Why do people perform thrilling activities? A study based on reversal theory. *Psychological reports*, 94(1), 307-313.
- Massara, F., Liu, S.S. and Melara, R.D. (2009), “Adapting to a retail environment: modeling consumer-environment interactions”, *Journal of Business Research*, Vol. 63 No. 7, pp. 673-681.
- Matthews, G., Jones, D. M., & Chamberlain, A. G. (1990). Refining the measurement of mood: The UWIST Mood Adjective Checklist. *British Journal of Psychology*, 81, 17–42.
- ROWLAND, G. L., FRANKEN, R. E., &HARRISON, K. (1986) Sensation seeking and participation in sporting activities. *Journal of Sport Psychology*, 8, 212-220.
- Russell, J. A., Weiss, A., & Mendelsohn, G. A. (1989). Affect Grid: A single-item scale of pleasure and arousal. *Journal Of Personality And Social Psychology*, 57(3), 493-502.
- Schimmack, U., & Grob, A. (2000). Dimensional models of core affect: A quantitative comparison by means of structural equation modeling. *European Journal of Personality*, 14, 325–345.
- Watson, D., Wiese, D., Vaidya, J., & Tellegen, A. (1999). The two general activation systems of affect: Structural findings, evolutionary considerations, and psychobiological evidence. *Journal of personality and social psychology*, 76(5), 820.