

The Enhancing vs. Backfiring Effects of Positive Emotion in Consumer Reviews

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ABSTRACT

Researchers, marketers, and consumers often believe that amplifying emotional content is impactful for the spread of information and purchasing decisions. However, there is little systematic investigation of when emotionality backfires. This research demonstrates *when* and *why* positive emotion can have enhancing versus backfiring effects. We find that reviewers who express greater positive emotion are indeed more positive toward their products, regardless of product type. This expressed emotion also has a positive impact when read by others for hedonic products, but backfires for utilitarian products, leading others to be less positive. We construct a conceptual model of these effects and show that violated expectations leading to decreased trust underlies this divergence between reviewers and readers. The effects occur in well-controlled experiments as well as computational linguistic analysis of 100,000 Amazon.com reviews across 500 products. Indeed, emotional reviews of utilitarian products are *less* likely to become popular and be displayed on the front page of those products on Amazon.com. This work also introduces a novel tool for quantifying natural language in marketing – the Evaluative Lexicon.

Keywords: online reviews, word of mouth, emotion, language, trust

Attesting to their expanding importance in the real world, consumer reviews, online word of mouth, and the research to understand them have shown considerable growth in the past decade (Berger 2014; King, Racherla, and Bush 2014). Amazon, TripAdvisor, and Yelp alone have grown to become repositories for over half a billion reviews. Moreover, the stakes are high in this domain. Research has demonstrated the causal impact of online reviews on consumer behavior (Chevalier and Mayzlin 2006), and, combined with face-to-face communication, online reviews and exchanges are estimated to generate \$6 trillion in sales annually (Word of Mouth Marketing Association 2014).

Consumers use online reviews not only to examine star ratings (Chen and Lurie 2013; de Langhe, Fernbach, and Lichtenstein 2016), but also to gain a more nuanced understanding of the product by reading the text of the reviews (*Online Shopping and E-Commerce* 2016; “Brightlocal Consumer Review Survey” 2017). Businesses that host online reviews have focused on providing high-quality content to encourage customers to first visit and then return to their websites. For example, the Yelp Vice President of Consumer and Mobile Products has said that if reviewers write short, low-quality reviews that would represent “failure for us...everything on the product design was based on mitigating that risk” (Baer 2014). And, speaking to its importance to their bottom line, the CEO of TripAdvisor, Steve Kaufer, has said that quality review content “is the currency used to connect with travelers at the right time, the place, and the right product” and thus “is second to none” in priority for the company (“Interview” 2017).

Mirroring this importance of content, researchers have increasingly sought to understand both what drives consumers to express their opinions and share content as well as the kind of content that is most impactful (King, Racherla, and Bush 2014; Moore 2015; Packard and Berger 2017; Schellekens, Verlegh, and Smidts 2010). In this regard, a primary interest has been in

emotion. Overviews of the literature have put forth emotion as a predominant component of online content and word of mouth (Berger 2014; Hennig-Thurau et al. 2004). For example, research has emphasized that sharing emotional experiences is common (see Rimé 2009 for a review) and that emotional content is more likely to become popular and spread (Berger and Milkman 2012).

Consumers themselves also believe greater emotionality in online reviews will have a greater impact on others and their purchasing decisions (Rocklage, Rucker, and Nordgren 2018b). When asked to write a maximally impactful review, consumers turned to emotionality in an attempt to persuade others to purchase a product. These results held across all types of products even if the products were not associated with emotional experiences. That is, reviewers used greater emotionality not only for hedonic but also utilitarian products.

Thus, there is a general belief that greater emotionality should be more impactful to consumers. Is this necessarily the case? As we detail subsequently, research concerning consumer reviews has largely not addressed this question. Moreover, the related literature on emotional content in advertising provides inconsistent results. The impact of emotional content in online reviews is therefore an open question.

To better understand the effect of emotionality in consumer reviews, the current research conducts a computational linguistic analysis of 100,000 real-world online product reviews in conjunction with in-laboratory experiments. In line with the predominant view of positive emotionality to date, we show that reviewers who are more emotional toward their products are themselves all the more favorable toward that product, regardless of the type of product. Moreover, when these emotional reactions are expected – as in the case of hedonic products – emotion enhances the review: readers find this emotion to be helpful for their purchasing

decisions and encourages their actual product choice. However, when it is relatively unexpected – as in the case of utilitarian products – that very same level of expressed emotion backfires: it is perceived as odd and surprising, is considered relatively unhelpful, and lowers choice for that product. To explain these effects, we then test a conceptual model showing they are explained by consumers' expectations and their resulting trust in the review.

PREVIOUS RESEARCH ON EMOTIONAL CONTENT

Table 1 provides an overview of the research on emotional content in consumer reviews. It also overviews work that utilizes hedonic versus utilitarian products, regardless of whether it includes emotional content (see Web Appendix for an extended table). We highlight research from this table that is most relevant to the current work.

Succinctly, research on consumer reviews has largely not explored the conditions in which emotional (vs. unemotional) reviews are more impactful versus when they might backfire. Research has instead focused on, for example, the impact of language that is more figurative (e.g., metaphorical) versus literal (Kronrod and Danziger 2013). This work found that figurative language is more impactful when used to describe hedonic products, but literal language is more impactful for utilitarian products. However, the emotion implied in a review and that review's figurativeness are different constructs. For example, one of the literal phrases used in this research, "the product arrangement is very organized," appears quite similar in its emotion compared to the figurative phrase, "the products...are ordered like soldiers in a military inspection." Perhaps just as important, this research also did not assess this impact in real-world reviews and thus its generalizability is unclear.

Closest to the current research, findings have indicated that greater implied energy levels of reviewers (their "arousal") – operationalized primarily through added exclamation points and

capitalization – generally predicts greater perceived helpfulness of a review and that this increasing arousal shows diminishing returns after a certain point (Yin, Bond, and Zhang 2017). However, this research did not offer consistent evidence for when these increases might backfire. Moreover, arousal and emotionality are distinct constructs. Arousal refers to energy level, whereas the emotionality of an opinion is the extent to which that opinion is based on emotions or feelings, which can be high or low in arousal (Rocklage, Rucker, and Nordgren 2018a; Russell and Barrett 1999). For example, the adjectives “exciting” and “lovable” imply very similar levels of emotionality, but imply higher versus lower levels of arousal, respectively. Research has directly shown the separability of emotionality from arousal in online reviews (see Rocklage, Rucker, and Nordgren 2018a). Thus, work on consumer reviews has yet to examine emotionality and when it produces enhancing versus backfiring effects.

[INSERT TABLE 1 HERE]

The persuasion literature also has the potential to shed light on the effect of emotional content. This research has focused on the efficacy of emotional advertisements. These results should be applied to consumer reviews with caution, however, given that consumers approach advertisements with a very different mindset compared to other forms of communication; moreover, research comparing advertising to other contexts (e.g., reviews) has shown that the same content can lead to different outcomes (Friestad and Wright 1994; Hung and Wyer 2008; Kirmani and Zhu 2007; Kronrod and Danziger 2013; Xu and Wyer 2010). Nevertheless, this literature has shown inconsistent effects of emotional content, though there is some indication that its efficacy is moderated by individual differences (e.g., age; see bottom portion of Table W1 in Web Appendix for literature review). Most important to the current aims, though it has long been hypothesized that the efficacy of emotional advertising differs by hedonic versus

utilitarian products (Vaughn 1980), two recent, large-scale studies indicate that more emotional advertisements show some tendency to be more persuasive regardless of product type (Geuens, De Pelsmacker, and Fasseur 2011; Pham, Geuens, and De Pelsmacker 2013).

Generally, then, previous work has hinted at the possibility that the impact of emotional content depends on different factors, but this has not been shown within consumer reviews. Moreover, though research within persuasion has hypothesized the effect of emotion is moderated by product type, there is conflicting evidence for this, perhaps due to the special context advertising provides. The current work seeks to demonstrate when emotional content in consumer reviews is more impactful, when it backfires, and to provide a conceptual framework for why this occurs. Pivotal to this understanding is a consideration of online reviews from the perspective of both the reviewer and the reader.

UNDERSTANDING EMOTIONALITY'S EFFECT IN CONSUMER REVIEWS: THEORETICAL BACKGROUND

Diverging Perspectives for Reviewers Versus Readers

Reviewers and readers inherently view products from two different perspectives (e.g., Moore 2015; Packard and Berger 2017). Reviewers write from the perspective of someone who has used the product. Given that emotionality is an integral part of the consumption experience, consumers naturally express emotion when describing their experience with products (Holbrook and Hirschman 1982; Havlena and Holbrook 1986). Research indicates that this emotion may be quite impactful to consumers when they themselves experience it (Pham 1998, 2007; Schwarz 2012; Shiv and Fedorikhin 1999). For example, online reviewers who express more emotional positive reactions provide a more positive star rating of their products (Rocklage and Fazio 2015; Rocklage, Rucker, and Nordgren 2018b). Thus, in the current research we predict that we will

replicate these findings and show that the more emotional reviewers are in their review, the more positive their final star rating, regardless of the type of product (H1).

H1: Greater positive emotionality expressed by the reviewer will predict a more positive summary judgment from that reviewer

In contrast, readers who are considering a purchase, and therefore have the perspective of a potential buyer, focus on the features of the product that are most important to them. One candidate for when these perspectives align versus diverge is the common division of products into those that are hedonic versus utilitarian (Hirschman and Holbrook 1982; Batra and Ahtola 1991; Voss, Spangenberg, and Grohmann 2003).

For hedonic products, reviewers' and readers' perspectives are likely to align. Hedonic products tend to elicit positive emotional reactions (Khan, Dhar, and Wertenbroch 2005) and are regularly described with words such as "enjoyable" and "exciting" (Voss, Spangenberg, and Grohmann 2003). Moreover, consumers' goal for seeking and using a hedonic product is often to evoke an emotional reaction in themselves (Batra and Ahtola 1991; Pham 1998). Any emotion reviewers encounter through their consumption experience is likely to be expected and desired information by readers. Thus, greater emotionality toward hedonic products is hypothesized to be in line with readers' expectations and therefore perceived as not all that odd or surprising.

Utilitarian products, on the other hand, provide a situation where reviewers' and readers' perspectives have an increased probability of misaligning. Through the course of the consumption experience, reviewers may truly find their blender to be "delightful" or even "amazing" – in other words, an experience that elicits an emotional, feelings-based reaction. Past work indicates that despite their utilitarian nature, such products have the ability to elicit emotional responses and that consumers' consumption experience is a pivotal elicitor of this

emotionality (Westbrook 1987; Pham 1998; Lakshmanan and Krishnan 2011; Norman 2004; Jordan 2000; Alba and Williams 2013). Nevertheless, utilitarian products are not predominantly associated with their ability to elicit emotion (Voss, Spangenberg, and Grohmann 2003) and readers are likely to enter the online review context expecting relatively low levels of emotionality for them (H2a). When reviewers provide emotional content, these expectations will be violated and lead readers to find their comments somewhat odd and surprising (H2b).

H_{2a}: Readers will *expect* less emotionality for utilitarian (vs. hedonic) products

H_{2b}: Readers will find greater emotionality *odder and more surprising* for utilitarian (vs. hedonic) products

Trust in the Review

Surprise toward a review has the potential to provoke negative reactions from readers (Van Kleef et al. 2011). Indeed, though there are contexts where defying consumers' expectations can be positive (Westbrook and Oliver 1991), these positive outcomes often stem from consumers' own experience with the product exceeding their expectations. With direct experience, the quality of the product is unlikely to be doubted (Fazio and Zanna 1981). Readers, however, must rely on an anonymous consumer's description of a product – a product which readers may know little about (*Online Shopping and E-Commerce* 2016). In this way, online reviews present a particularly challenging situation. Readers must use the content of the review to simultaneously discern the quality of the product as well as the extent to which they should rely on that review (King, Racherla, and Bush 2014; Ku, Wei, and Hsiao 2012). We argue that the emotional content of the review impacts the extent to which consumers believe they can trust

that review – in other words, the extent to which they believe they can rely on that review for decision making (Doney and Cannon 1997; Ganesan 1994).¹

Despite the important role trust plays in online reviews, little work systematically investigates its role in this domain, and there have been recent calls for a greater understanding of its role in online word of mouth (King, Racherla, and Bush 2014). Moreover, previous work has most often focused on whether consumers believe the platform that hosts the online reviews or the sellers of the product are trustworthy sources of information (e.g., Awad and Ragowsky 2008; Ba and Pavlou 2002; Sparks and Browning 2011). However, recent research has begun to identify antecedents of trust in online reviews based on content (e.g., through boasting, swear words; Racherla, Mandviwalla, and Connolly 2012; Packard, Gershoff, and Wooten 2016; Hair and Ozcan 2018). We build on this nascent work by providing an understanding of when and why emotional content can decrease trust.

Specifically, work on attribution has shown that when individuals' expectations are violated, they begin an inferential process to understand what caused the mismatch between their expectations and the new information (Hastie 1984; Jones and Nisbett 1972; Weiner 1985). In the case of online reviews, readers can attribute the mismatch largely either to the product or the review: either the product is truly capable of evoking an emotional reaction, or the review is so atypical that it should not be trusted. Rather than overturn their expectations for that category of products based on an atypical review, readers are instead likely to lose trust in the review. As a consequence, they are apt to find the review less helpful (H3a) and to be less favorable toward

¹ Though “trust” has also been used more narrowly to refer to perceptions of “honesty,” following past work we use the broader definition of trust as the belief that something, in this case a review, can be relied upon (Doney and Cannon 1997; Ganesan 1994). These beliefs may certainly be related to consumers' perceptions that a review is attempting to deceive them, but, as we demonstrate, they also are informed by the expertise of a reviewer or reviewers' explanations of their emotional reactions.

the product than if they had relied on the clearly positive information in the review (H3b; see Figure 2 for an illustration of the process).

H_{3a}: Greater emotionality for utilitarian (vs. hedonic) products will lead to *mistrust* of the review, which will then lead to decreased *review helpfulness*

H_{3b}: Greater emotionality for utilitarian (vs. hedonic) products will lead to *mistrust* of the review, which will then lead to decreased *favorability toward the product*

Based on this conceptual reasoning, any approach reviewers can take to increase readers' willingness to rely on (i.e., trust) their review should moderate these effects. For example, research on word of mouth and persuasion has shown that consumers are more willing to rely on individuals with greater expertise (Gilly et al. 1998; Petty and Wegener 1998). If trust is a pivotal mechanism, experimentally bolstering reviewers' perceived expertise should lead readers to be more likely to rely on even highly emotional reviews of utilitarian products (H4a). Furthermore, as readers begin their attribution process, they are likely to search for why reviewers had the reactions they did (Hastie 1984; Malle 2004). Thus, if reviewers provide an explanation of their reactions, the effects should be attenuated (H4b). In both cases, these characteristics should lead readers to have relatively greater difficulty in attributing the reviewer's reactions as unreliable.

H_{4a}: Expert (vs. anonymous) reviewers will lead readers to trust more emotional reviews for utilitarian (vs. hedonic) products

H_{4b}: Reviews that contain an explanation of reviewers' reactions will show less of an effect of emotional content on helpfulness judgments

*THE EVALUATIVE LEXICON:
MEASURING CONSUMERS' REACTIONS USING NATURAL LANGUAGE*

To test our hypotheses, the current studies make use of both laboratory experiments and computational linguistic analysis of real-world online reviews across 500 unique products. To do so, we use the Evaluative Lexicon (EL; Rocklage and Fazio 2015; Rocklage, Rucker, and Nordgren 2018a) – a recent methodological advance in quantifying natural language to measure

an opinion's valence (its positivity), extremity (the extent of this positivity), and emotionality (the extent to which it is an opinion based on emotions or feelings; software available at www.evaluativelexicon.com).

The EL has been validated both experimentally under well-controlled lab conditions as well as in natural, archival text. For instance, Rocklage and Fazio (2015, Study 2) created emotionally-based versus cognitively-based attitudes in the lab by exposing participants to different passages about a fictitious sea animal, similar to prior research (Crites, Fabrigar, and Petty 1994; Fabrigar and Petty 1999). The passages themselves were emotionally-evocative narratives of a swimmer's encounter with the animal (joyful or terrifying) or encyclopedic presentations of the attributes of the animal (largely positive or negative). Based on the adjectives individuals used, the EL successfully predicted which condition participants were in (e.g., emotional or cognitive) 88.2% of the time.

Moreover, using natural text from 1.1 million Amazon.com reviews, Rocklage and Fazio (2015) found that the more emotional an EL adjective, the more often it was accompanied by the verb "feel" (vs. "think"/"believe") within the reviews themselves. As the emotionality index is a continuum ranging from more emotional to more cognitive, this same association indicated that the more cognitive the adjective, the more it was accompanied by "think"/"believe." Indeed, past research has shown that there is a strong inverse relation between the emotion versus cognition an EL adjective implies ($r = -.75$; Rocklage and Fazio 2018).

The EL has also been shown to be distinct in its ability to measure the emotionality of evaluations relative to other commonly-used language analysis tools such as the Linguistic Inquiry and Word Count (LIWC; Pennebaker et al. 2015). Specifically, though LIWC appears to contain measures of positive and negative emotion, these measures include a number of words

that are relatively unemotional (e.g., “okay,” “inferior”). Indeed, research suggests that the LIWC emotion measure may capture valence (the text’s positivity), but not necessarily emotionality (Rocklage, Rucker, and Nordgren 2018a; see also Kross et al. 2019). Moreover, across 5 million Amazon reviews the correlation between LIWC emotion and EL emotion demonstrated little overlap ($r = .05$; Rocklage, Rucker, and Nordgren 2018a). Finally, the EL’s measure of emotionality is distinct from arousal (the energy level of the text) as indexed by Warriner and colleagues’ (2013) linguistic tool, showing a moderate but separable correlation ($r = .43$; Rocklage, Rucker, and Nordgren 2018a).

Important to the current aims, and illustrative of its unique value, the EL also makes a distinction between the emotionality and the extremity of individuals’ evaluations (i.e., the extent of its positivity). For example, whereas the word “exciting” is both extremely positive and emotional, the EL also includes words that differ along both of these dimensions. “Smart,” for instance, is just as extremely positive (3.34 out 4.50), but is quite low in emotionality (2.89 out of 9.00). Past research has shown that these are related but separable constructs – they demonstrate a moderately positive correlation ($r \sim .47$), but each often predicts unique variance (Rocklage and Fazio 2015; Rocklage, Rucker, and Nordgren 2018a). Thus, we assess the separable effects of both extremity and emotionality in order to examine the impact of emotionality per se.

STUDY 1

We begin by investigating the effects of emotionality in a real-world setting using online product reviews. These reviews allowed us to test whether emotionality predicts more favorable judgments from *reviewers* for their product (H1), and then the downstream consequences this emotional content has on how helpful *readers* found the review. Although the helpfulness of a

review does not directly indicate whether a consumer then went on to purchase the corresponding product, a favorable review that is perceived as particularly helpful is likely to influence readers to be more likely to purchase the product. Indeed, past research has demonstrated that the helpfulness of a review is linked to consumers' final purchase decisions on Amazon.com (Chen, Dhanasobhon, and Smith 2008).

Method

Data. We used a large database of 5.9 million Amazon.com product reviews that were originally extracted via an automated script from the Amazon.com website (see Jindal and Liu 2008). They represent the Amazon.com reviews written between the years of 1996 and 2006 and therefore encompass an extremely large range of products from those that are more hedonic in nature (e.g., movies, music, and novels) to those that are more utilitarian (e.g., software, textbooks, and electric shavers). Each review contained the text that consumers had written to express their evaluation of their product as well as their final favorability judgment of the product in the form of a star rating (1 to 5 stars).

These reviews were also judged by other potential customers who visited the Amazon.com webpages for that product. Specifically, these visitors have the opportunity to indicate how impactful they found the review by expressing whether they found it helpful or not ("Was this review helpful to you?" Yes or No).

Products. Given that the Amazon.com dataset did not identify specific product types, our first step was to use a systematic approach to identify those products that were relatively more hedonic versus utilitarian in nature. In line with past research on distinguishing hedonic versus utilitarian products at a normative level, we identified these products based on the average emotionality the products elicited from consumers. For example, past research has found that

hedonic products are more likely to be described using emotional descriptors (e.g., video games and vacation resorts as enjoyable and exciting) versus relatively unemotional descriptors for utilitarian products (e.g., batteries and diapers as helpful and effective; Voss, Spangenberg, and Grohmann 2003; Batra and Ahtola 1991). (As we demonstrate in subsequent studies in the current work, there is evidence that this is the case for the EL adjectives in particular).

Given that we were interested in the relative emotionality reviewers expressed for their product, we utilized those reviews where the consumer focused on discussing the positive aspects of the product – i.e., those reviews where the consumer used only positive EL adjectives ($N_{\text{reviews}} = 3.1$ million). Indeed, our previous analyses of Amazon.com reviews indicated that negative reviews are relatively rare; positive reviews account for 80% of online reviews (Jindal and Liu 2008) if not more (Filippas, Horton, and Golden 2018). Reviews typically range from weak to strong endorsements (Rocklage and Fazio 2015) and we therefore focused on those which were indeed endorsements, varying in their expressed emotionality.

To measure the emotionality each consumer expressed, we followed past research using the EL and calculated the weighted average emotionality for each review (see Rocklage and Fazio 2015). After creating this metric for each review, we averaged this index for all the reviews for each product. In order to obtain an accurate calculation of a product's average level of emotionality, we limited the analyses to those products that had at least 50 positive reviews ($N_{\text{products}} = 5,171$). Indeed, although many products have hundreds of reviews written about them, others have as few as one review and thus may not accurately reflect the nature of the product. From the resulting distribution of all positive reviews, we selected those products that were the top 5% most emotional in nature (emotionality of 5.71 or greater) versus those products that were the 5% least emotional in nature (emotionality of 4.97 or less).

Final details of the data. Using this approach, we were left with 23,452 reviews across 258 hedonic products, and 23,380 reviews across 258 utilitarian products ($N_{\text{reviews}} = 46,832$; $N_{\text{products}} = 516$) that had been judged as helpful or not by other consumers (see Web Appendix for a summary of the descriptive statistics).²

Importantly, though these products were normatively either hedonic ($M_{\text{emotionality}} = 5.81$, $SD_{\text{emotionality}} = .81$) or utilitarian ($M_{\text{emotionality}} = 4.81$, $SD_{\text{emotionality}} = .87$), the reviewers within each product type varied a great deal in their expressed emotionality. Indeed, though the products were chosen so as to maximize their hedonic versus utilitarian nature, the standard deviation for each product type indicates there is a great deal of overlap in expressed emotionality. Moreover, for both hedonic and utilitarian products, the emotionality of consumers' reviews ranged from 2.50 to 7.61, the full range possible for the positive EL adjectives. Thus, in line with past work (Westbrook 1987), consumers can express emotionality even toward utilitarian products, despite the clear difference in average emotionality for hedonic versus utilitarian products.³ The products within each category fit with expectations. Hedonic products included action and children's movies, music, fiction novels, memoirs, and interactive children's toys. Utilitarian products included software, textbooks, GPS units, headphones, power tools, and electric shavers.

Across these reviews there was a total of 555,508 helpfulness ratings ($M_{\text{per review}} = 10.68$, $SD = 32.67$) where visiting consumers had signified whether a review was helpful or not by

² For interested readers, there were 5,193 reviews that were not included as they had not been judged by consumers.

³ We supported the hedonic versus utilitarian nature of the products in two additional ways. First, we show that consumers used additional language that indicated they viewed each product type as more hedonic or utilitarian. If consumers assess hedonic products in terms of the feelings they evoke, they should be more likely to use the verb "feel" when describing their evaluation versus "think" or "believe." Conversely, if consumers assess utilitarian products based on their practical uses, they should use "feel" relatively less and verbs denoting a rational, cognitive assessment more – "think" and "believe." That is what we found (see Web Appendix). Second, we also supported the categorization via external ratings and replicate the findings when using the classification from these ratings (see Web Appendix).

clicking either a “yes” or “no” button after reading the review. To index the helpfulness of each review, we followed past research (e.g., Chen, Dhanasobhon, and Smith 2008; Danescu-Niculescu-Mizil et al. 2009; Mudambi and Schuff 2010) and calculated the proportion of visiting consumers who found that review helpful out of the total number of consumers who voted on that review ($M = .67, SD = .34$).

Results

Reviewers' evaluations. Urging others to purchase a product is associated with using greater emotionality (Rocklage, Rucker, and Nordgren 2018b). Moreover, research has indicated that the more emotional consumers are in their opinions, the more positive they are toward their product (Rocklage and Fazio 2015; Rocklage, Rucker, and Nordgren 2018a). Thus, an interesting added irony of our hypothesized results would be that although more emotional reviewers are also even more positive toward their product, this emotionality can backfire when expressed to others.

We used regression to examine whether the emotionality expressed by reviewers predicted how positive they were toward their product as indexed by their final star rating of their product. Following past work, to assess their emotionality per se we also controlled for how extremely positive their language was. We effects-coded product type as hedonic (coded as ‘1’) or utilitarian (‘-1’) and standardized the implied emotionality and positive extremity of the reviews. To test our hypothesis, we entered an emotionality by product type interaction as well as an extremity by product type interaction.

Replicating past research, greater implied positive extremity was related to a more positive final judgment, i.e., a higher star rating ($B = .24, t(46826) = 32.67, p < .001$; all zero-order correlations for all studies provided in Web Appendix). Most importantly, there was an

overall effect of emotionality, over-and-above extremity, indicating that more emotional reviews were related to more positive final judgments ($B = .04$, $t(46826) = 5.39$, $p < .001$), and this was *not* qualified by product type ($B = .01$, $t(46826) = 1.63$, $p = .104$). Regardless of whether reviewers wrote about a hedonic product such as a movie or a utilitarian product such as a blender, the more emotional their review, the more positive their star rating.

Primary analyses: Readers' evaluations. We used the very same model to assess whether this emotionality had a similar impact on readers in terms of the proportion who found the review helpful. We provide this as Model 1 in Table 2, which supported the hypotheses. However, if it is the case that the emotional content of the review was a determining factor in visiting consumers' judgments, this effect should persist even when controlling for other aspects of the review. One such aspect is the length of the review (number of words; $M = 172$; $SD = 148$), which has been shown to be an important determinant of review helpfulness given that it is likely to signal greater depth of the review (e.g., Mudambi and Schuff 2010). Given the importance of star ratings (Chevalier and Mayzlin 2006; de Langhe, Fernbach, and Lichtenstein 2016), we also sought to ensure that it was not the star rating itself that was having an effect on readers rather than the content of the review. Finally, to control for temporal aspects of each review, we controlled for how recently the review was written (order written, log transformed).

[INSERT TABLE 2 HERE]

The results of this model are reported in Table 2 (Model 2) and the results summarized here. Across both product types, we found that more extremely positive language was more impactful to consumers ($B = .017$, $t(46823) = 8.02$, $p < .001$). This effect makes sense as a more extremely positive review, regardless of product type, leaves less ambiguity about the merits of a

product and should therefore be more convincing.⁴ More importantly, there was a significant emotionality by product type interaction ($B = .017$, $t(46823) = 7.51$, $p < .001$; see Figure W1 in Web Appendix). For hedonic products, a greater proportion of consumers clicked “yes” they found a review to be helpful if the reviewer expressed greater emotionality ($B = .012$, $t(46823) = 3.62$, $p < .001$). However, this emotionality backfired for utilitarian products: a greater proportion of consumers clicked “no” they did not find the review helpful when it conveyed this same level of emotionality ($B = -.022$, $t(46823) = 7.05$, $p < .001$).⁵

The effect of emotionality also held when including fixed effects to control for the review’s final star rating as well as fixed effects to control for each of the 516 individual products the review came from (Table 2, Model 3). This indicates that the effect of emotionality was not driven by reviews of a specific star rating nor certain products. Furthermore, to provide additional evidence of the causal nature of emotionality, we used propensity score matching. This approach seeks to simulate an experiment by matching each high emotion review with an equivalent low emotion review and then assessing whether emotionality continues to impact helpfulness judgments. The results were again replicated (see Web Appendix).

Discussion

Despite more emotional reviewers being all the more favorable toward their product (H1), this emotionality did not always have a larger impact on readers. Whereas emotionality

⁴ Though the effect of positive extremity across these studies most often contributes to greater helpfulness, as demonstrated across analyses provided in the Web Appendix, the effect of extremity is also somewhat less consistent than that of emotionality. An interesting direction for future research would be to delineate when extremity has a helpful versus detrimental effect, similar to what we are doing in the current paper regarding emotionality.

⁵ We also investigated whether there were diminishing returns as emotionality increased similar to what Yin et al. (2017) found for arousal. We found no overall quadratic effect of emotionality ($B = -.001$, $t(46824) = .83$, $p = .41$) nor a quadratic emotionality by product type interaction ($B = .001$, $t(46824) = .79$, $p = .43$). Thus, the effects of emotionality were linear and positive for hedonic products and negative for utilitarian with no diminishing returns.

was more impactful to readers when communicated about hedonic products, that same level of emotionality backfired for utilitarian products. Moreover, these effects of emotionality held above-and-beyond additional important facets of the review such as its extremity, length, star rating, and when the review was written. Although this study had the advantage of investigating the effects of emotionality in a real-world environment, we sought to bring these effects into the laboratory under well-controlled conditions and extend their generalizability.

STUDY 2

A primary aim of the current study was to demonstrate that the emotionality of consumers' product descriptions has an impact on others' favorability toward the product itself. Succinctly, we reasoned that if readers find a positive review helpful, they should be more likely to integrate this information into their judgments of the product and thereby become more favorable toward that product. However, if readers discount a reviewer's positivity, they will be comparatively less favorable toward that product.

We also sought to rule out alternative explanations. Specifically, consumers enter the online review context with different vocabularies. It is possible that those with a more limited vocabulary turn to emotion when not knowing how else to describe their opinions. This would not be problematic for hedonic products given emotion is in line with their nature, but could backfire for utilitarian products. It could be this limited vocabulary, rather than emotion, that leads to less impactful reviews. Moreover, a limited vocabulary may also influence the length of reviews consumers write, which predicts the impact of the review. We control for these possibilities by providing all participants access to the same set of words and requiring they construct descriptions that are of the same length.

Finally, it is possible that only Amazon.com readers who were particularly impacted by a review – either positively or negatively – offered a judgment of the helpfulness of that review.

Thus, we randomly assign readers to assess a set of reviews, all of which they judge.

Method

To briefly overview, we randomly assigned a set of participants to review either a hedonic or utilitarian product using EL adjectives. We then recruited a second set of participants to assess how helpful each review was as well as their favorability toward the product.

Reviewers. Reviewers were recruited via Mechanical Turk ($N = 200$; $Range_{age} = 19$ to 71 years old, $M_{age} = 36$; 59% male, 41% female).

Readers. Readers were also recruited via Mechanical Turk ($N = 242$; $Range_{age} = 19$ to 71 years old, $M_{age} = 36$; 48% male, 51% female, 1% chose not to identify their gender). This number was recruited to provide an average of 25 judgments per review (see below for details).

Procedure: Reviewers. Reviewers were randomly assigned to identify either a hedonic product (one used to elicit a feeling) or utilitarian product (one used for a functional/practical purpose) toward which they were positive. They then wrote down the product they had thought of (e.g., music, blender, etc). To measure the positive extremity and emotionality of their opinions, reviewers were provided the full list of positive adjectives from the EL (49 adjectives) and asked to select three adjectives that would describe their opinion of their product. Reviewers then provided their final favorability judgment of their product on two five-point scales (1: very negative; 5: very positive and 1: I hate it; 5: I love it). These were averaged together to form an index of overall favorability ($r(198) = .77, p < .001; M = 4.63; SD = .55$).

Regarding the average emotionality expressed toward the products via the EL adjectives, as might be expected, reviewers tended to express greater emotionality toward hedonic products

($M = 5.64$; $SD = .91$) than utilitarian products ($M = 4.52$; $SD = .81$; $t(198) = 9.22$, $p < .001$).

Nevertheless, mirroring the results from Amazon.com, the standard deviations once again indicate there was a good degree of overlap in reviewers' emotionality for the two product types. Moreover, reviewers used nearly the full range of emotionality available for both hedonic (range: 3.19 to 7.40) and utilitarian products (range: 3.36 to 6.43). Even with a controlled list of adjectives, consumers used more emotional language, on average, for hedonic products, even though they did sometimes express emotional reactions toward utilitarian products.

Procedure: Readers. Readers were assigned to judge 20 randomly-selected reviews.⁶ They were provided with the type of product the reviewers wrote about (e.g., music, blender, etc) and then the three adjectives reviewers used to describe that product. Readers were then asked to judge how helpful each three-adjective description was for whether they would purchase the product or not (1: not at all helpful; 7: very helpful; $M = 4.51$; $SD = 1.52$).

To assess their favorability toward the product itself, they were then asked how positive they were toward that product (1: very negative; 7: very positive) and their likelihood of purchasing that particular product (1: not at all likely; 7: very likely). These items were combined into an index of product favorability ($r(4818) = .70$, $p < .001$; $M = 4.62$, $SD = 1.38$).⁷

Results

Reviewers' evaluations. As before, we sought to show that greater emotionality toward a product predicted all-the-more positivity toward the product from reviewers. We quantified the

⁶ Twelve reviews of the 200 solicited were not included as the type of product these reviewers provided did not, by normative standards, match the type of product they had been assigned to. For instance, one reviewer who was assigned to remember a hedonic product used a fitness tracker as his/her product. Although some individuals could view a fitness tracker as a hedonic product, it is more likely to be construed as a utilitarian product. The final sample included those products that fell clearly within the assigned product type.

⁷ Though helpfulness and favorability toward the product are associated ($r(4818) = .81$, $p < .001$), we report the effects on each variable so as to demonstrate that both effects occur.

positive extremity and emotionality of reviewers' adjectives by imputing the normative EL values as in Study 1. We predicted reviewers' final judgments of their products using the three adjectives they selected. Following Study 1, we effects-coded product type as hedonic ('1') or utilitarian ('-1'), standardized the implied extremity and emotionality of the adjectives, and entered an extremity by product type interaction and an emotionality by product type interaction.

As before, we found an effect of positive extremity such that more positive adjectives were related to more positive final judgments ($B = .15, t(194) = 3.52, p = .001$). Most importantly, above-and-beyond this effect, more emotional adjectives also predicted more positive final judgments ($B = .10, t(194) = 1.98, p = .05$). This effect was *not* moderated by product type ($B = .01, t(194) = .28, p = .78$). The more emotional reviewers were, the more favorable they were toward their product, regardless of product type.

Primary analyses: Readers' evaluations. Given that each reader judged multiple reviews, we used mixed modeling to analyze the data, treating readers and reviews as random factors. This approach allowed us to make full use of the data without averaging across responses and had the added benefit of providing greater confidence in the generalizability of the results to both readers and reviews not included in the current experiment (Baayen, Davidson, and Bates 2008; Judd, Westfall, and Kenny 2012). We used the same model terms as we just used for reviewers, with extremity and emotionality mean-centered.

We first assessed *helpfulness* to replicate those results from Amazon.com. There was an effect of positive extremity such that more positive reviews were more helpful ($\gamma = .49, t(180.87) = 6.35, p < .001$). Most importantly, above-and-beyond this effect, the impact of emotionality depended on product type ($\gamma = .13, t(181.29) = 3.56, p < .001$). Emotionality was more helpful

for the decision to purchase hedonic products ($\gamma = .13$, $t(181.93) = 2.57$, $p = .01$), but backfired and was less helpful for utilitarian products ($\gamma = -.14$, $t(180.79) = 2.47$, $p = .01$).

We found these same results with readers' *favorability toward the product itself*. Greater positive extremity led readers to be more favorable toward the product ($\gamma = .63$, $t(183.25) = 8.52$, $p < .001$). However, the impact of emotionality depended on product type ($\gamma = .15$, $t(183.61) = 4.18$, $p < .001$). Emotionality led readers to be more favorable toward hedonic products ($\gamma = .19$, $t(184.16) = 3.92$, $p < .001$), but backfired and led them to be less favorable toward utilitarian products ($\gamma = -.11$, $t(183.18) = 2.07$, $p = .04$).

Discussion

The current experiment replicated the effects of emotionality under well-controlled experimental conditions. We also demonstrated that emotionality led not only to differential judgments of the reviews, but to judgments of the product itself. Readers gave less credence to reviews that expressed emotionality toward a utilitarian product and were less likely to want to purchase that product. Finally, we also replicated the ironic effect that despite reviewers' being more favorable toward products when they were emotional (H1), this emotionality backfired when read by others.

STUDY 3

In Study 3 we sought to further bolster confidence that the effect we have seen thus far is due to the emotionality of the words used to describe the different types of products rather than some idiosyncratic difference between hedonic versus utilitarian products. To that end, and similar to past research (Pham 1998), we held the product constant while varying only the hedonic versus utilitarian motive for using the product.

We also sought to further generalize our results by using an alternative approach for showing reviewers' reactions to participants. Specifically, we manipulated emotionality by showing participants nearly the full range of positive EL adjectives and asking them to judge the helpfulness of each one. This allowed us to vary the emotionality of the descriptions across the entire emotionality continuum rather than relying on the idiosyncratic reactions of others.

Method

Participants. Participants were recruited via Mechanical Turk ($N = 200$; $Range_{age} = 20$ to 73 years old, $M_{age} = 34$; 61% male, 39% female).

Procedure. Participants were told they would read separate reactions to a hotel from anonymous online reviewers and that they should indicate the extent to which they found that reaction helpful and how likely they would be to stay in that hotel based on that reaction. Half were told that they were looking for a hotel that they would stay in to enjoy as their vacation destination (hedonic condition), whereas the other half were told they were on a car trip and were therefore looking for a convenient hotel to sleep in just for the night before continuing their car trip (utilitarian condition). Participants then judged each of 40 positive EL adjectives for the extent to which they found that description helpful to their decision to stay in the hotel (1: not at all helpful; 7: very helpful; $M = 5.06$, $SD = 1.44$) as well as how likely they would be to stay in that particular hotel based on that description (1: not at all; 7: very; $M = 4.96$, $SD = 1.43$).⁸

Results and Discussion

⁸ Based on pilot testing, we did not include seven adjectives that provided a very mild positive reaction ("okay," "adequate," "satisfactory," "neutral," "acceptable," "reasonable," and "agreeable") and tended to be generally unhelpful when describing different products. Indeed, given that participants were expecting rather positive reactions, these adjectives imply relatively little enthusiasm and thus led pilot participants to deduce that the reviewer was relatively less pleased with the products. The adjectives "pro" and "healthy" could not easily be applied to hotels and thus were also not included.

Given each participant judged multiple adjectives, we used mixed modeling to analyze the data and treated both participants and adjectives as random factors. We effects-coded the conditions such that participants were identified as being either in the hedonic (coded as '1') or utilitarian motive condition ('-1'). We then included the normative positive extremity and emotionality of each adjective (each mean-centered) and allowed these variables to interact with condition. These variables and their interactions were used to predict how helpful participants found each reaction and how likely they would be to stay in the hotel (each mean-centered).

Predicting the *helpfulness* of each description, as predicted, there was an emotionality by condition interaction ($\gamma = .04, t(7796) = 3.76, p < .001$). Greater emotionality predicted greater helpfulness for participants given the hedonic motive ($\gamma = .04, t(7796) = 2.62, p = .009$), but backfired for those given a utilitarian motive ($\gamma = -.04, t(7796) = 2.70, p = .007$).

These results were replicated when predicting the *likelihood of staying at the hotel*. There was an emotionality by condition interaction ($\gamma = .05, t(7796) = 4.64, p < .001$). Greater emotionality predicted greater likelihood for participants given the hedonic motive ($\gamma = .05, t(7796) = 3.23, p = .001$), but backfired for those given a utilitarian motive ($\gamma = -.05, t(7796) = 3.33, p = .001$). Together, we replicate the previous results while holding the product constant and manipulating only participants' hedonic versus utilitarian motive.

STUDY 4

Thus far we have established the effects of emotional content on judgments of the review and corresponding product. We now turn to testing the proposed conceptual model regarding the underlying mechanism. This model hypothesizes that 1) readers enter the review venue with specific expectations for the level of emotionality they will read about, and these expectations are likely to differ for hedonic versus utilitarian products (H2a). 2) Providing a level of

emotionality that violates these expectations is likely to elicit surprise and the impression that there is something unusual or odd about the review (H2b; Van Kleef et al. 2011). This experience is likely to prompt an attribution process whereby readers assess the extent to which the reviewers' unusual reactions reflect something about the product itself (Hastie 1984; Jones and Nisbett 1972; Weiner 1985). Rather than overturn their expectations for a product category based on a single review, we propose that this attribution process leads them to 3) put less trust in the review (H3a and H3b). This means readers will then 4a) find the review relatively unhelpful (H3a) and 4b) be less favorable toward the product itself (H3b; see Figure 2 for an illustration of the process). We test this model in the current experiment.

Method

Participants. Participants were recruited via Mechanical Turk (N = 298; $Range_{age} = 20$ to 73 years old, $M_{age} = 38$; 48% male, 52% female).

Procedure: Experimental manipulation. Participants were shown a single product review and asked to put themselves in the mindset of someone interested in buying the corresponding product. Four reviews were of hedonic products – two reviews of music and two of a movie – and four were of utilitarian products – two of a microwave and two of a blender.

To experimentally manipulate the emotionality of the review, we constructed a high and low emotionality review for each product ($M_{length} = 70$ words). For instance, whereas the high emotionality movie review began by stating, “This is an amazing movie and it was enjoyable to watch,” the low emotionality review began by stating, “This is a perfect movie and it was beneficial to watch.” Though these sentences are the same length and structure, they differ greatly in their emotionality (6.68 vs. 4.14 out of 9.00, respectively). We also ensured that the reviews were similar in positive extremity. The sentences above exemplify this as both imply a

very similar degree of positive extremity (3.50 vs. 3.60 out of 4.50, respectively). Paired *t*-tests demonstrated that the implied extremity did not differ between the hedonic ($M = 3.41$) versus utilitarian products ($M = 3.45$; $t(3) = .56$, $p = .62$), but the implied emotionality did for the hedonic ($M = 7.00$) versus utilitarian products ($M = 4.18$; $t(3) = 127.53$, $p < .001$).

Participants were shown one product review in a 2 [product type: hedonic or utilitarian] x 2 [review emotionality: high or low emotionality] fully between-subjects design. Results were similar when analyzing the different products separately (e.g., blenders vs. movies or blenders vs. music, etc) and thus we collapsed across the specific products.

Procedure: Reactions to reviews. After reading the review, participants indicated how *surprising and odd* they found the review (1: not at all; 7: very; $M = 3.11$; $SD = 1.87$). They were then asked the extent to which they *trusted the review*. Specifically, following the conceptualization of trust from past work (Doney and Cannon 1997; Ganesan 1994), participants indicated the extent to which they believed the opinion expressed in the review was one that they could rely on for their decision making (1: not at all; 7: very much so; $M = 4.72$; $SD = 1.38$). They then indicated how impactful the review was by answering how *helpful* the review was for deciding whether they would buy the product (1: not at all helpful; 7: very helpful; $M = 4.64$; $SD = 1.56$). We then assessed their favorability toward the product itself by asking them *how likely they would be to purchase that particular product* after reading the review (1: not at all likely; 7: very likely; $M = 4.31$; $SD = 1.65$). To assess the specificity of the effect of trust, we controlled for the possibility that consumers found a review less impactful simply because they developed a general negative disposition toward the reviewer (i.e., a halo effect; Thorndike 1920). We therefore asked participants how likable they thought the reviewer was (1: very dislikable; 7: very likable; $M = 5.03$; $SD = 1.31$).

Procedure – expectations manipulation check. To measure the level of emotion they had expected, we provided participants with a checklist of nearly all the positive EL adjectives and asked them to select two to four adjectives that they expected for a very good product of the type they read about (e.g., movie, blender).⁹ This provided a manipulation check for whether the reviews violated participants' expectations for the emotion they would read about. We hypothesized that participants would select more emotional adjectives for hedonic products but less emotional adjectives for utilitarian products. Most importantly, we hypothesized there would be a larger discrepancy between expected emotion and the actual emotion expressed in a review for those participants who received high (vs. low) emotion reviews for utilitarian products.

Results

Manipulation check. We conducted a 2 x 2 analysis of variance (ANOVA) predicting expectations. As anticipated, participants expected more emotional reviews for hedonic products ($M = 5.96$; $SD = .67$) and less emotional reviews for utilitarian products ($M = 4.61$; $SD = .78$; $F(1, 294) = 252.13, p < .001$). These expectations were not moderated by whether participants had received a high or low emotion review ($F(1, 294) = .48, p = .49$). These results also replicated in a separate study where participants did not see any reviews (see Web Appendix).

For each participant we then calculated a difference score between expected and actual emotion expressed in each review. As evidence that the reviews violated participants' expectations, there was a larger discrepancy between the expected and actual emotion for high emotion ($M = 2.45$; $SD = .77$) versus low emotion reviews ($M = -.33$; $SD = .80$) of utilitarian products (testing difference in magnitude (i.e., removing negative sign from low emotion

⁹ The term "very good" was removed from the list given that "very good" is the term we used to describe the kind of product they should think of. We did not want participants to simply restate this as their response.

reviews): $t(147) = 16.67, p < .001$). However, high emotion ($M = .89; SD = .61$) versus low ($M = -1.80; SD = .72$) was less discrepant for hedonic products ($t(147) = 8.34, p < .001$).¹⁰

Primary analyses. To further examine whether the reviews violated participants' expectations, we investigated whether the emotionality of the review was related to how *surprising and odd* consumers found the review. We used the same 2 x 2 ANOVA and, as hypothesized, there was a significant emotionality by product type interaction ($F(1, 294) = 33.93, p < .001$). For hedonic products, high emotion reviews were less surprising ($M = 2.67$) than low emotion reviews ($M = 3.82; F(1, 294) = 15.88, p < .001$). Conversely, high emotion reviews backfired for utilitarian products and were more surprising ($M = 3.59$) than low emotion reviews ($M = 2.36; F(1, 294) = 18.09, p < .001$).

We conducted this same ANOVA with *mistrust in the review* as the dependent variable (trust reverse-coded). There was a significant emotionality by product type interaction ($F(1, 294) = 12.09, p < .001$). For hedonic products, high emotion reviews led to less mistrust ($M = 3.09$) than low emotion reviews ($M = 3.61; F(1, 294) = 5.32, p = .02$). For utilitarian products, however, high emotion reviews led to greater mistrust ($M = 3.49$) than low emotion reviews ($M = 2.90; F(1, 294) = 6.82, p = .009$).

We found these same results predicting *review helpfulness*. There was a significant emotionality by product type interaction ($F(1, 294) = 9.85, p = .002$). For hedonic products, high emotion reviews were more helpful ($M = 4.81$) than low emotion reviews ($M = 4.27; F(1, 294) = 4.61, p = .03$). For utilitarian products, high emotion reviews backfired and were less helpful ($M = 4.45$) than low emotion reviews ($M = 5.03; F(1, 294) = 5.26, p = .02$).

¹⁰ For interested readers, using these discrepancy scores in the mediation models for this study replicates the results reported subsequently. We provide the results without the discrepancy scores given their ease of comprehension.

Finally, for *intentions for purchasing the product*, there was a significant emotionality by product type interaction ($F(1, 294) = 10.03, p = .002$; see Figure 1). For hedonic products, high emotion reviews led to higher intentions to purchase the product ($M = 4.43$) than low emotion reviews ($M = 3.81; F(1, 294) = 5.40, p = .02$). For utilitarian products, high emotion reviews backfired and led to lower intentions to purchase the product ($M = 4.22$) than low emotion reviews ($M = 4.80; F(1, 294) = 4.64, p = .03$).

[INSERT FIGURE 1 HERE]

Mediation. We tested the proposed conceptual model using the PROCESS package (Hayes 2017) and two moderated serial mediation models (Model 8; see Web Appendix for details). Specifically, the effect of emotionality on surprise should depend on whether the product is hedonic or utilitarian, which then leads readers to mistrust the review, which then leads to the judged helpfulness of the review and to purchase intentions. In the models we also controlled for liking of the reviewer (see Web Appendix for full results).

Predicting *review helpfulness*, using 5000 bootstrapped samples, a 95% confidence interval of the indirect effect did not include zero for either the hedonic [.03, .14] or the utilitarian products [-.15, -.03] (see Figure W2 in Web Appendix). Predicting participants' *intentions for purchasing the product*, using the same approach, a 95% confidence interval of the indirect effect did not include zero for either the hedonic [.03, .16] or the utilitarian products [-.16, -.03] (see Figure 2). We also report alternative model specifications in the Web Appendix, which indicate that the mediators cannot be reversed such that mistrust comes before surprise.

[INSERT FIGURE 2 HERE]

Discussion

This experiment provided evidence for our full conceptual model for when and why emotionality backfires. Readers enter the review context with specific expectations (H2a). When reviewers' emotionality is at odds with these expectations, readers are surprised and find the review odd (H2b), attribute the unusual reactions to the review and thereby discount the review's helpfulness (H3a). As a result, they express lower intentions to purchase the corresponding product (H3b).

STUDY 5

The previous studies demonstrate that emotional content is an important facet of a review due in part to its effect on readers' trust in a review. In the current experiment, we go a step further and manipulate the trust consumers can place in a review by increasing the credibility of the reviewer. Past research indicates that greater credibility of an individual is associated with others being more willing to rely on that person for information (Gilly et al. 1998; Petty and Wegener 1998). Succinctly, by manipulating the credibility of the reviewer, we are attempting to demonstrate the causal effect of trust by lessening consumers' ability to attribute the emotionality expressed in the review to the reviewer's strangeness.

Websites often establish reviewers' credentials by providing information that they are expert reviewers. Yelp, for instance, presents this expertise information as "a mark of trust" ("Yelp Elite Squad" n.d.). In order to establish the reviewer as a credible source and therefore one that can be relied upon, we manipulated the perceived expertise of the reviewer. In the language of previous research on trust (Doney and Cannon 1997; Ganesan 1994), we sought to increase trust in the review by enhancing the credibility of the reviewer (i.e., the reviewer's perceived effectiveness within the product domain).

To induce perceptions of expertise, we informed participants that the reactions they were reading came from highly-regarded experts. It is likely more difficult to make the attribution that the review is strange if the reviewer is perceived to have a great deal of expertise. Thus, we hypothesized that the backfiring effect of emotionality would be attenuated and the expert's reactions trusted to a greater extent (H4a). Take, for instance, the experienced carpenter who describes a hammer as “amazing” and “wonderful.” This expert's unusual emotionality may be justified as the expert having experienced a truly remarkable tool – one that clearly stands out above the others. Thus, we not only sought to increase the overall trust participants had in the review (i.e., a main effect of expertise), but also specifically bolster the trust readers have for an unexpected emotional reaction (i.e., an emotionality*product type*expertise interaction).

In the current experiment we also returned to the approach we utilized in Study 3 whereby we presented participants with one adjective at a time and asked them to judge the trustworthiness of each adjective. Thus, we did not need to rely on constructed reviews that bundled the adjectives together into an average, but instead could assess the effect of emotionality as a natural continuum across the adjectives.

Method

Participants. Participants were recruited via Mechanical Turk ($N = 202$; $Range_{age} = 19$ to 74 years old, $M_{age} = 36$; 44% male, 55% female; 1% chose not to identify their gender).

Procedure. Participants were instructed that they would see separate reactions to a product from a reviewer and that they should indicate the extent to which they trusted this reaction. Half of the participants were told the reactions were to a music album from the rock and roll genre (hedonic product condition) whereas the other half were told the reactions were to a book on how to program a computer (utilitarian product condition).

Before seeing the reviewer’s reactions, half of the participants were told the reactions came from an anonymous Amazon.com reviewer (unknown expertise condition) and the other half were told the reactions came from an expert reviewer (high expertise condition). Participants in the high expertise hedonic product condition (music album) were told that the reviewer was “an expert from the best-selling music magazine *Rolling Stone* who has written for that magazine for 20 years.” Those in the utilitarian product condition (computer programming book) were told that the reviewer was “an expert from the best-selling technology magazine *Wired* who has written for that magazine for 20 years.” The design was a 2 [product type: hedonic or utilitarian] x 2 [expertise: unknown or high] between-subjects design.

Participants were then instructed to judge the same positive EL adjectives from Study 3 for the extent to which they would “question or have doubts about – in other words *trust* – this reaction” (1: I would not question at all; 7: very questionable; $M = 3.41$; $SD = 1.88$).

Results and Discussion

We used mixed modeling and treated both participants and adjectives as random factors. We effects-coded the product conditions (hedonic: ‘1’; utilitarian: ‘-1’) and expertise conditions (expert: ‘1’; anonymous: ‘-1’). We then included the normative positive extremity and emotionality of each adjective (each mean-centered) and allowed these variables to interact with the condition variables. We predicted the extent to which participants trusted each reaction (how questionable they found each reaction reverse-coded; mean-centered).

The source manipulation was successful: participants trusted the reactions of experts more than those of anonymous reviewers ($\gamma = .26$, $t(198) = 2.88$, $p = .004$). Most important was the hypothesized three-way interaction between emotionality, product type, and reviewer expertise ($\gamma = -.04$, $t(7870) = 3.52$, $p < .001$; see Figure 3). For the unknown expertise condition,

we replicated the emotionality by product interaction ($\gamma = .24$, $t(7870) = 13.10$, $p < .001$). More emotional reactions to a hedonic product led to greater trust ($\gamma = .23$, $t(7870) = 9.38$, $p < .001$); for utilitarian products, however, greater emotionality was less trusted ($\gamma = -.24$, $t(7870) = 9.16$, $p < .001$). A similar pattern occurred for expert reviewers, but as indicated by the three-way interaction, the emotionality by product type interaction was significantly attenuated ($\gamma = .15$, $t(7870) = 8.59$, $p < .001$). Participants were relatively more trusting of the experts' reaction to a hedonic product if it was more emotional ($\gamma = .14$, $t(7870) = 5.74$, $p < .001$), but as the relatively smaller coefficient indicates, this was attenuated relative to the unknown expertise condition. There was a parallel attenuation for the utilitarian products ($\gamma = -.15$, $t(7870) = 6.39$, $p < .001$).

This study provided experimental evidence in support of our hypothesis regarding trust's role in accepting others' emotional reactions. Experts were more trusted and their emotional reactions more readily accepted, even when that emotionality was unexpected (H4a). Thus, a carpenter with 30 years of experience who expresses how "amazing" and "wonderful" a hammer is, despite the unusual nature of these reactions, will be trusted to a greater extent.

[INSERT FIGURE 3 HERE]

Though expertise is only one facet that can contribute to the perceptions of trustworthiness of a reviewer, it is one of particular interest for online reviews given that companies such as Yelp provide such information in order to establish trust in a reviewer ("Yelp Elite Squad" n.d.). Nevertheless, the expertise manipulation significantly attenuated but did not eliminate the effects of emotionality. Trust consists of credibility as well as benevolence (e.g., honesty). We directly manipulated credibility, but not benevolence; thus, it is possible that consumers had remaining reservations in completely trusting the expert's reactions as the reviewer's benevolence was unknown.

Given that an overwhelming majority of online reviews are anonymous, these results also indicate why emotionality can backfire with relative frequency in the real-world. However, reviewers may be able to take steps to counter this possibility – the very question we investigate in the next study by returning to the real-world online reviews from Study 1.

STUDY 6: FURTHER ANALYSIS OF AMAZON.COM REVIEWS

Having established the importance of expectations and trust, we returned to the real-world Amazon.com data and sought to demonstrate that conceptually similar results occur naturalistically. Specifically, any steps that reviewers can take to increase readers' willingness to rely on (i.e., trust) their review should attenuate the effects of unexpected emotionality.

One approach reviewers could use is to explain their reactions so as to improve readers' understanding (Malle 2004; Petty and Wegener 1991). A reviewer who simply described a printer as “amazing” without offering any reasoning for this claim is likely to be considered relatively unhelpful. Another reviewer, however, might state that a printer was “amazing” *because* of all the options it had. *Because* signals that reviewers are explaining their evaluation. Providing these more concrete reasons may help the reader understand the reaction and therefore dampen the backfiring effects of emotionality. Whereas past research has investigated whether explanations for reactions versus actions are relatively more helpful when reviewing hedonic versus utilitarian products (Moore 2015), this study investigates whether including an explanation (or not) helps to lessen the effect of discrepant emotionality (H4b).

Method

Data. Using the same 46,832 reviews from Study 1, we searched each review for the words “because,” “therefore,” “thus,” “hence,” “consequently,” “ergo”, and “as a result.” A

review was categorized as likely to have an explanation if it contained one of these words (9,905 reviews; 21% of the total) and less likely if it did not (36,927 reviews; 79%).

Results and Discussion

We used the same regression equation as Study 1, but also included the effects-coded explanation variable and all its interactions. As would be expected, there was an overall effect such that explaining one's reactions was more helpful ($B = .02$, $t(46820) = 7.65$, $p < .001$). There was also the predicted interaction between review emotionality, product type, and whether the review contained an explanation ($B = -.01$, $t(46820) = 2.96$, $p = .003$; see Figure W3 in Web Appendix). For reviews without an explanation, there was the emotionality by product type interaction ($B = .02$, $t(46820) = 8.28$, $p < .001$) such that emotional reactions were more helpful for hedonic products ($B = .02$, $t(46820) = 4.63$, $p < .001$), but backfired for utilitarian ($B = -.03$, $t(46820) = 7.07$, $p < .001$). For reviews with an explanation, however, this interaction was not significant ($B = .004$, $t(46820) = .72$, $p = .47$). Thus, unlike the manipulation of source expertise in the previous study, explanatory language eliminated the diverging effects of emotionality (H4b).

STUDY 7

The final two studies demonstrate additional consequences of discrepant emotionality in reviews. Study 7 demonstrates the consequences for actual product choice. We use the same reviews as Study 4, but generalize our findings to a within-subjects design where participants were required to choose a product in order to potentially win that product in a lottery.

Method

Participants. Participants were 209 undergraduate business students given class credit for their participation ($Range_{age} = 18$ to 28 years old, $M_{age} = 20$; 49% male, 51% female).

Procedure. Each participant came into the laboratory and read four reviews from Study 4 – two high emotional and two low emotional reviews, two of which were of hedonic products and two of utilitarian products. Which product – e.g., either the music or the movie – was high or low in emotionality for each product type differed between subjects. In other words, half of the participants received the high emotionality microwave and movie reviews, and low emotionality blender and music reviews. The other half received the opposite emotionality for those products. Reviews were presented in random order. Results were similar across counterbalancing conditions and therefore collapsed together. Thus, this was in a 2 [product type: hedonic or utilitarian] x 2 [review emotionality: high or low emotionality] design.

After each review, we again asked participants their surprise, trust in the review, the review's helpfulness, and their buying intentions. These results replicate those in Study 4 and are reported in the Web Appendix. Most importantly, after reading all the reviews, participants were asked to select one hedonic and one utilitarian product to have a chance to win in a lottery.

Results and Discussion

We used logistic mixed modeling with participants as random factors. We predicted whether participants chose the product reviewed with high emotion (coded as '1') or the product with low emotion ('0') when product type was set to 0 for either hedonic versus utilitarian products. We are interested in the intercept of the model when the product type variable is set at 0 for each product type as this indicates whether participants selected the product described with high (vs. low) emotion above chance levels. For hedonic products, participants were significantly more likely to choose the product described with high emotion compared to chance (65% chance; $Z = 3.77, p < .001$). For utilitarian, however, they were significantly less likely to choose the product described with high emotion compared to chance (38% chance; $Z = 3.03, p = .002$).

STUDY 8

Whereas Study 7 demonstrated additional consequences at the level of individual choices, Study 8 sought to demonstrate a real-world consequence at a more macro level. Word of mouth research has indicated that emotional content is more likely to become popular, spread, and garner greater attention compared to unemotional content (Berger and Milkman 2012). However, the current research suggests this may not always be the case. Emotionality backfires for utilitarian products and therefore may be less likely to become popular in an online review environment. As a result, fewer consumers may read a given review and in that way such information is less likely to spread to new people.

We returned to Amazon.com and analyzed those reviews that Amazon.com had identified to be particularly impactful and popular as indexed by their being featured on the front page of the product. Does the emotionality expressed in a review predict which reviews “catch on” and make it to a product’s front page?

Method

Data. The Amazon.com data we utilized in Study 1 did not signify the order in which the reviews appeared on the product pages, we therefore returned to Amazon.com and extracted the positive reviews and their order as ranked by Amazon.com for a random subset of about half of the products from Study 1. Beginning with the front page of each product, we extracted these reviews and the order in which they appeared in June of 2016 – 8 years after the last review was written in Study 1. This provided a snapshot of the most popular reviews as of that date. We were left with 109 utilitarian products ($N_{\text{reviews}} = 30,824$) and 125 hedonic products ($N_{\text{reviews}} = 98,114$) for a total of 128,938 reviews that had been judged a total of 548,355 times by visiting

consumers. Given that these reviews include those that had been written since 2006 there was a larger number of reviews in total compared to the sample from Study 1.

Results

Replicating Study 1 results. As we detail in the Web Appendix, we fully replicated the results of Study 1 using just those reviews written since the original sample was obtained (i.e., since 2006; $N = 29,323$): greater positive emotionality predicted all the more positive star ratings for *reviewers* regardless of product type, but this backfired for *readers* for utilitarian products ($p < .001$). This replicates the results from Study 1 with an entirely new sample of reviews, reviewers, and readers. It also replicates the findings after an 8-year-span, indicating that the results from Study 1 generalize across time.

Predicting the top reviews. We then turned to predicting the most popular reviews for each product for all 128,938 available reviews. When consumers ask Amazon.com to list the top reviews for a given product, Amazon.com provides ten reviews per page. Thus, we identified the most popular reviews as the ten reviews on this first page (coded as ‘1’) versus the reviews not on this first page (‘0’; the results also hold with alternate numbers of reviews – see Web Appendix). We used the same variables as in the above analyses, but using logistic regression to predict whether a review made it to the front page.

As hypothesized, there was an emotionality by product type interaction ($B = .15$, $\chi^2(1) = 17.34$, $p < .001$; see Figure W4 in Web Appendix). For hedonic products, the more emotional the review, the greater the probability it would rise to the top and be displayed on the product’s front page ($B = .15$, $\chi^2(1) = 10.19$, $p = .001$). However, for utilitarian products this emotionality backfired where these reviews were less likely to rise to the top and thus be displayed on the product’s front page ($B = -.16$, $\chi^2(1) = 7.64$, $p = .006$).

GENERAL DISCUSSION

Across five laboratory experiments and two field samples using 100,000 real-world reviews and 500 products, we examined the effects of emotional content in online reviews. This research sought to build on previous work in the consumer review and word of mouth domains to demonstrate *when* and *why* positive emotional content can backfire (see Table 3 for a summary of all results). This work contributes to the existing literature in three major ways.

First, whereas researchers, marketers, and consumers alike tend to believe that amplifying emotionality produces greater impact, we demonstrate the conditions under which this occurs versus when emotionality backfires. Indeed, work within online reviews has tended not to examine the possible backfiring of emotionality.

Second, we detail a novel process model for *why* this emotionality backfires. We propose a model whereby readers enter the review context with specific expectations for the emotional content of a review. When those expectations are violated, they find the review surprising and odd, which leads them to make an attribution that the review is untrustworthy. This leads readers to disregard the positivity of the review and thus become less favorable toward the product compared to if they had used that positivity for their product decision.

Third, in detailing this process, we highlight and systematically investigate a mediator that has been identified as pivotal but generally overlooked within the literature: trust. Despite its clear implications for online reviews, the trust readers have in a given review has been relatively understudied (King, Racherla, and Bush 2014; cf. Hair and Ozcan 2018; Packard, Gershoff, and Wooten 2016; Racherla, Mandviwalla, and Connolly 2012). We show that the content of a review in conjunction with the product being written about affects the trust readers have in a given review. This trust, in turn, affects the review's final impact. Moreover, we demonstrate the

causal effect of trust via its manipulation. As such, this research builds on the nascent literature on trust in consumer reviews and helps to answer the call to better understand its explicit role in the effectiveness of online word of mouth (King, Racherla, and Bush 2014).

Understanding when and why emotional content backfired also allowed us to predict which reviews became the most popular and “caught fire” in the online environment. Past research has demonstrated that more emotional content is more likely to spread (Berger and Milkman 2012). We investigate a distinct context, but nevertheless show conditions under which emotional content is not more likely to spread. Emotional content was *less* likely to become popular for utilitarian products. The anonymous nature of online reviews in conjunction with the explicit expectations readers have for a given product provide important differences from past work. Indeed, past work has focused on newspaper articles from a highly reputable source (The New York Times; Berger and Milkman 2012) where trust in the validity of emotional content is less likely to be an issue.

Past research has shown conditions where reviewers’ and readers’ perspectives appear to align with one another (Moore 2015), but also where they appear to be discrepant (Packard and Berger 2017). We demonstrate a situation where these perspectives diverge to negative ends. Past research on emotion indicates that consumers themselves believe that shifting toward greater emotionality should be more persuasive and that consumers actively use emotion to persuade others regardless of product type (Rocklage, Rucker, and Nordgren 2018b). Moreover, the current set of studies show that the more emotional reviewers were in their reviews, the more positive they were toward their product. Thus there is an intriguing irony: whereas reviewers’ own emotionality was related to greater support of a product and reviewers believe it should be more impactful to readers, this emotionality can backfire.

The current work focused on the effects of emotionality in positive reviews given that positive reviews make up somewhere around 80% of all reviews (Filippas, Horton, and Golden 2018; Jindal and Liu 2008). However, future research could also investigate emotionality in negative reviews. It is possible that a very different process occurs for these reviews. The conceptual model we tested involves consumers' expectations. Expressing how "delightful," "pleasant," or "amazing" blenders are, for instance, is rather unexpected and therefore surprising and odd for that product's nature. It is possible, though, that consumers expect a very bad utilitarian product to elicit language that indicates frustration, anger, or disappointment. Negative emotionality toward poor utilitarian products may be relatively expected – we can all remember how angering it is to purchase a product that breaks after just a short time or a computer that constantly crashes in the middle of our work. Thus, we do not believe it is straightforward to hypothesize that negative emotionality will produce the same outcomes. We do, however, find this to be an interesting line of future work.

From a managerial standpoint, although emotionality toward a product is something businesses may wish to encourage (Carroll and Ahuvia 2006; Batra, Ahuvia, and Bagozzi 2012), this emotionality may need to be tempered for certain products. For instance, businesses commonly ask consumers to tell others how much they "love" their product (e.g., Collins 2014). If that product is a blender, however, retailers may wish to spur consumers to instead express how "useful" they found the product. Or, based on our results from Study 6, they may want to additionally ask consumers to write a review that provides concrete explanations for their reactions. Such reviews can have a larger impact on readers and thereby affect sales.

This work also introduces the Evaluative Lexicon (EL; Rocklage and Fazio 2015; Rocklage, Rucker, and Nordgren 2018a) for the purpose of addressing questions of interest to the

marketing domain. The EL allows researchers to capture the valence, extremity, and emotionality of individuals' language in an objective and systematic fashion both under careful experimental control as well as from real-world sources "in the wild." Moreover, the EL is comparatively unique in its ability to measure the emotionality of consumers' evaluations per se. Past research has directly compared the EL to one of the more popular text analysis tools, LIWC (Pennebaker et al. 2015), and has shown that while LIWC measures the positivity of individuals' language, it appears not to capture its emotionality (Rocklage, Rucker, and Nordgren 2018a). Moreover, the EL measures have also been shown to be distinct from arousal (Rocklage, Rucker, and Nordgren 2018a). Given the EL's unique capability to measure emotionality and extremity, it is our hope that the current work encourages others to utilize the EL as well (software available at www.evaluativelexicon.com).

[INSERT TABLE 3 HERE]

TABLE 1. COMPARISON OF RELATED LITERATURE

<i>Paper</i>	<i>Construct(s) Studied</i>	<i>Primary Outcome(s)</i>	<i>Summary</i>	<i>Hedonic vs. Utilitarian?</i>	<i>Primary Mediator</i>	<i>Stimuli</i>
Schindler and Bickart 2012	“Strong emotion” (e.g., exclamation points, emotion words)	Helpfulness (dichotomous: most vs. least helpful)	“Strong emotion” did not predict which reviews were categorized as most vs. least helpful.	No	-	Reviews from various sources (selected by participants as the most vs. least helpful review they read)
Kronrod and Danziger 2013	Figurative language (e.g., metaphor, simile)	Attitude toward product; product choice	Figurative (vs. literal) language predicted greater favorability toward hedonic, but not utilitarian, products.	Yes	Language typicality	Constructed reviews
Ludwig et al. 2013	Valence ^a (positivity vs. negativity of aggregated reviews)	Conversion rate (% of consumers purchasing product)	Change in positivity and negativity of aggregated reviews predicted conversion rate.	No	-	Amazon reviews
Yin, Bond, and Zhang 2014	Anxiety vs. anger	Helpfulness (proportion); helpfulness (scale item)	Anxiety expressed toward merchant about purchase process considered more helpful than expressed anger.	No	Perceived reviewer effort	Yahoo! Shopping (reviews of merchants); constructed reviews
Moore 2015	Explained actions vs. explained reactions (“I bought because...” vs. “I like because...”)	Helpfulness (scale item); purchase intentions	Explained actions (reactions) more helpful for utilitarian (hedonic) products.	Yes	Readers’ ability to predict their future attitude	Amazon reviews (subset of 24 reviews selected by researcher); constructed reviews
Yin, Bond, and Zhang 2017	Arousal (“level of energy”)	Helpfulness (absolute #); helpfulness (scale item)	Greater arousal predicted greater helpfulness, but with diminishing returns. Inconsistent evidence this was particularly true of utilitarian apps.	Yes	Perceived reviewer effort	Apple app reviews; constructed reviews
Current paper	Emotionality (extent to which evaluation is based on feelings/emotional reactions)	Helpfulness (proportion); helpfulness (scale item); attitude toward product; purchase intentions; product choice	Emotionality is more helpful and leads to increased choice for hedonic products, but decreases choice for utilitarian.	Yes	Trust in review	Amazon reviews; constructed reviews

Notes. We include those papers that focus on emotional content, generally speaking, that features products. We also include work that utilizes hedonic versus utilitarian products, regardless of whether it includes emotional content. In the table itself, we focus on the aspects of each paper that are applicable to the aims of the current research. ^a Although Ludwig et al. (2013) used the Linguistic Inquiry and Word Count’s (LIWC; Pennebaker et al. 2015) positive and negative “emotion” dictionaries, we label this as valence given past findings that show that LIWC largely measures valence rather than emotionality (Rocklage, Rucker, and Nordgren 2018a).

TABLE 2
EFFECTS OF REVIEW ON CONSUMER HELPFULNESS JUDGMENTS AS A FUNCTION
OF REVIEW CONTENT AND CHARACTERISTICS, STUDY 1.

	<i>Primary Model (1)</i>	<i>With Controls (2)</i>	<i>With Fixed Effects (3)</i>
<i>Primary Predictors</i>			
Emotionality			
Emotionality (utilitarian)	-.023*** (.003)	-.022*** (.003)	-.008** (.003)
Emotionality (hedonic)	.012*** (.003)	.012*** (.003)	.006* (.003)
Extremity	.027*** (.002)	.017*** (.002)	.008*** (.002)
Product type	.026*** (.002)	.017*** (.002)	.128*** (.024)
Emotionality*Product type	.018*** (.002)	.017*** (.002)	.007*** (.002)
Extremity*Product type	-.001 (.002)	-.001 (.002)	.008*** (.002) ¹¹
<i>Additional Control Variables</i>			
Review final rating		.062*** (.002)	
Review length		.045*** (.002)	.060*** (.001)
Review order		-.020*** (.002)	-.004* (.002)
Review final rating fixed effects	No	No	Yes
Individual product fixed effects	No	No	Yes

Notes. * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$; Product type: -1 = utilitarian products, 1 = hedonic products; all other predictor variables are standardized. Review order: higher numbers indicate reviews written later. Standard errors in parentheses.

TABLE 3. EFFECTS OF EMOTIONALITY BY STUDY

Study 1: Reviewer and reader effects on Amazon.com (N = 46,832 reviews)	
<i>Final review rating (reviewers)</i>	
Emotionality*Product type	$B = .01, t(46826) = 1.63, p = .104$
Effect across all products	$B = .04, t(46826) = 5.39, p < .001$
<i>Proportion finding review helpful (readers)</i>	
Emotionality*Product type	$B = .02, t(46826) = 7.85, p < .001$
Hedonic products	$B = .01, t(46826) = 3.85, p < .001$
Utilitarian products	$B = -.02, t(46826) = 7.35, p < .001$
Study 2: Effects on product favorability (N = 200 reviewers; 242 readers)	
<i>Product favorability (reviewers)</i>	
Emotionality*Product type	$B = .01, t(194) = .28, p = .78$
Effect across product type	$B = .10, t(194) = 1.98, p = .05$
<i>Helpfulness (readers)</i>	

¹¹ For those who are interested, this interaction indicated that extremity continued to have an effect on helpfulness judgments for hedonic products ($B = .02, t(46306) = 5.23, p < .001$), but fell to non-significance for utilitarian products ($B = .0003, t(46306) = .11, p = .91$).

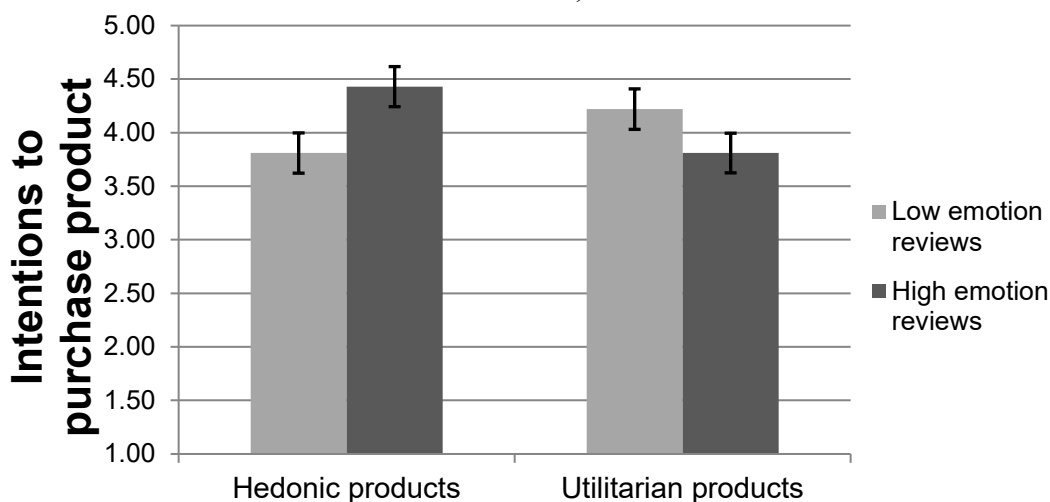
Emotionality*Product type	$\gamma = .13, t(181.29) = 3.56, p < .001$
Hedonic products	$\gamma = .13, t(181.93) = 2.57, p = .01$
Utilitarian products	$\gamma = -.14, t(180.79) = 2.47, p = .01$
<i>Product favorability (readers)</i>	
Emotionality*Product type	$\gamma = .63, t(183.25) = 8.52, p < .001$
Hedonic products	$\gamma = .19, t(184.16) = 3.92, p < .001$
Utilitarian products	$\gamma = -.11, t(183.18) = 2.07, p = .04$
<hr/> Study 3: Holding product constant but manipulating hedonic motive (N = 200 readers) <hr/>	
<i>Helpfulness</i>	
Emotionality*Motive	$\gamma = .04, t(7796) = 3.76, p < .001$
Hedonic products	$\gamma = .04, t(7796) = 2.62, p = .009$
Utilitarian products	$\gamma = -.04, t(7796) = 2.70, p = .007$
<i>Purchase intentions</i>	
Emotionality*Motive	$\gamma = .05, t(7796) = 4.64, p < .001$
Hedonic products	$\gamma = .05, t(7796) = 3.23, p = .001$
Utilitarian products	$\gamma = -.05, t(7796) = 3.33, p = .001$
<hr/> Study 4 pretest (Web Appendix): Expected level of emotion by product type (N = 55 readers) <hr/>	
<i>Expected level of emotion</i>	
Hedonic products	$M = 6.08$
Utilitarian products	$M = 4.34$
Test of difference	$t(54) = 19.83, p < .001$
<hr/> Study 4: Testing the full conceptual model (N = 298 readers) <hr/>	
<i>Expected level of emotion</i>	
Hedonic products	$M = 5.96$
Utilitarian products	$M = 4.61$
Test of difference	$F(1, 294) = 252.13, p < .001$
<i>Surprise/oddity (high vs. low emotion)</i>	
Emotionality*Product type	$F(1, 294) = 33.93, p < .001$
Hedonic products	$M = 2.67$ vs. 3.82 ; $F(1, 294) = 15.88, p < .001$
Utilitarian products	$M = 3.59$ vs. 2.36 ; $F(1, 294) = 18.09, p < .001$
<i>Mistrust (high vs. low emotion)</i>	
Emotionality*Product type	$F(1, 294) = 12.09, p < .001$
Hedonic products	$M = 3.09$ vs. 3.61 ; $F(1, 294) = 5.32, p = .02$
Utilitarian products	$M = 3.49$ vs. 2.90 ; $F(1, 294) = 6.82, p = .009$
<i>Helpfulness (high vs. low emotion)</i>	
Emotionality*Product type	$F(1, 294) = 9.85, p = .002$
Hedonic products	$M = 4.81$ vs. 4.27 ; $F(1, 294) = 4.61, p = .03$
Utilitarian products	$M = 4.45$ vs. 5.03 ; $F(1, 294) = 5.26, p = .02$
<i>Purchase intentions (high vs. low emotion)</i>	
Emotionality*Product type	$F(1, 294) = 10.03, p = .002$
Hedonic products	$M = 4.43$ vs. 3.81 ; $F(1, 294) = 5.40, p = .02$
Utilitarian products	$M = 4.22$ vs. 4.80 ; $F(1, 294) = 4.64, p = .03$

<i>Indirect effect on helpfulness [95% CIs]</i>	
Hedonic products	[.03, .14]
Utilitarian products	[-.15, -.03]
<i>Indirect effect on purchasing [95% CIs]</i>	
Hedonic products	[.03, .16]
Utilitarian products	[-.16, -.03]
<hr/>	
Study 5: Directly manipulating trust (N = 202 readers)	
<hr/>	
<i>Trust in review</i>	
Emotionality*Product type*Expertise	$\gamma = -.04, t(7870) = 3.52, p < .001$
Anonymous reviewer condition	
Emotionality*Product type	$\gamma = .24, t(7870) = 13.10, p < .001$
Hedonic products	$\gamma = .23, t(7870) = 9.38, p < .001$
Utilitarian products	$\gamma = -.24, t(7870) = 9.16, p < .001$
Expert reviewer condition	
Emotionality*Product type	$\gamma = .15, t(7870) = 8.59, p < .001$
Hedonic products	$\gamma = .14, t(7870) = 5.74, p < .001$
Utilitarian products	$\gamma = -.15, t(7870) = 6.39, p < .001$
<hr/>	
Study 6: Moderating by presence of explanation (N = 46,832 Amazon.com reviews)	
<hr/>	
<i>Proportion finding review helpful</i>	
Emotionality*Product type*Explanation	$B = -.01, t(46820) = 2.96, p = .003$
No explanation in review	
Emotionality*Product type	$B = .02, t(46820) = 8.28, p < .001$
Hedonic products	$B = .02, t(46820) = 4.63, p < .001$
Utilitarian products	$B = -.03, t(46820) = 7.07, p < .001$
Explanation in review	
Emotionality*Product type	$B = .004, t(46820) = .72, p = .47$
<hr/>	
Study 7: Predicting actual product choice (N = 209 readers)	
<hr/>	
<i>Surprise/oddity (high vs. low emotion)</i>	
Emotionality*Product type	$F(1, 208) = 115.69, p < .001$
Hedonic products	$M = 2.44$ vs. $3.58; F(1, 208) = 51.72, p < .001$
Utilitarian products	$M = 3.87$ vs. $2.58; F(1, 208) = 66.98, p < .001$
<i>Mistrust (high vs. low emotion)</i>	
Emotionality*Product type	$F(1, 208) = 48.96, p < .001$
Hedonic products	$M = 3.89$ vs. $4.40; F(1, 208) = 16.39, p < .001$
Utilitarian products	$M = 4.68$ vs. $3.86; F(1, 208) = 43.06, p < .001$
<i>Helpfulness (high vs. low emotion)</i>	
Emotionality*Product type	$F(1, 208) = 49.30, p < .001$
Hedonic products	$M = 3.91$ vs. $3.42; F(1, 208) = 11.52, p < .001$
Utilitarian products	$M = 3.66$ vs. $4.58; F(1, 208) = 49.12, p < .001$
<i>Purchase intentions (high vs. low emotion)</i>	
Emotionality*Product type	$F(1, 208) = 45.98, p < .001$
Hedonic products	$M = 3.79$ vs. $3.27; F(1, 208) = 15.60, p < .001$

Utilitarian products	$M = 3.69$ vs. 4.39 ; $F(1, 208) = 29.88, p < .001$
<i>Product choice (% choosing product that was reviewed with high (vs. low) emotion)</i>	
Hedonic products	65%; $Z = 3.77, p < .001$
Utilitarian products	38%; $Z = 3.03, p = .002$
<hr/>	
Study 8: Predicting front page Amazon.com reviews ($N = 128,938$ reviews)	
<hr/>	
<i>Final review rating (reviewers; $N = 29,323$ reviews)</i>	
Emotionality*Product type	$B = -.01, t(29317) = 1.25, p = .21$
Effect across all products	$B = .05, t(29317) = 6.68, p < .001$
<i>Proportion finding review helpful (readers; $N = 29,323$ reviews)</i>	
Emotionality*Product type	$B = .04, t(29317) = 10.31, p < .001$
Hedonic products	$B = .04, t(29317) = 10.56, p < .001$
Utilitarian products	$B = -.03, t(29317) = 5.48, p < .001$
<i>Probability of review reaching front page ($N = 128,938$ reviews)</i>	
Emotionality*Product type	$B = .15, \chi^2(1) = 17.34, p < .001$
Hedonic products	$B = .15, \chi^2(1) = 10.19, p = .001$
Utilitarian products	$B = -.16, \chi^2(1) = 7.64, p = .006$

FIGURE 1

INTENTIONS TO PURCHASE PRODUCT BASED ON PRODUCT TYPE AND REVIEW EMOTIONALITY, STUDY 4.



Note. Error bars represent ± 1 standard error of the mean (SEM).

FIGURE 2

MODERATED SERIAL MEDIATION MODEL SHOWING PATHWAY BETWEEN REVIEW EMOTIONALITY AND PURCHASE INTENTIONS, STUDY 4.

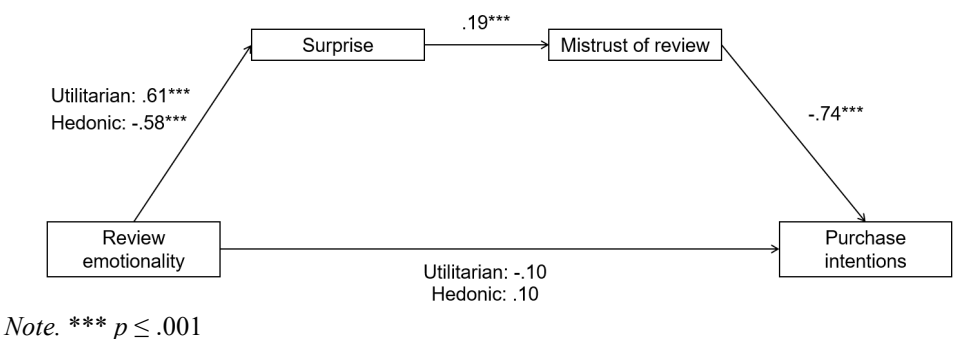
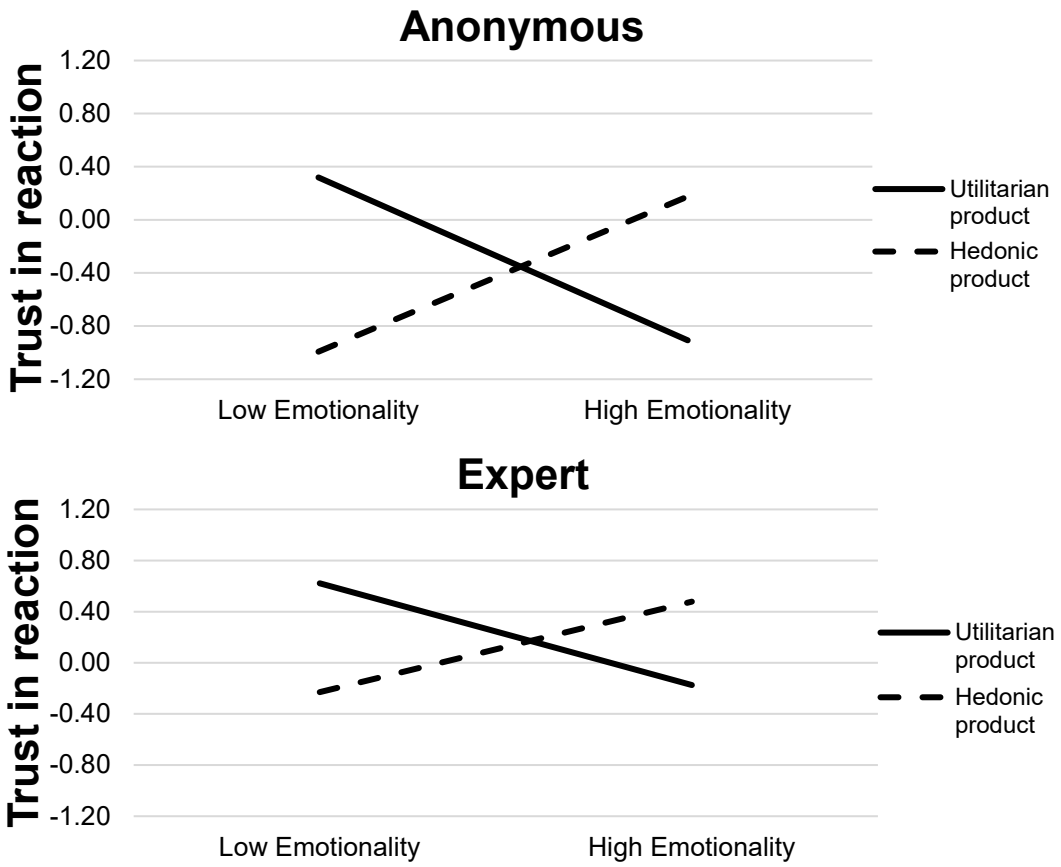


FIGURE 3

TRUST IN REACTION AS A FUNCTION OF ADJECTIVE EMOTIONALITY, PRODUCT TYPE, AND REVIEWER TRUSTWORTHINESS, STUDY 5.



Note. Values on the x-axis represent two standard deviations above and below the mean on emotionality.

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