

# Persuasion, Emotion, and Language: The Intent to Persuade Transforms Language via Emotionality



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## Abstract

Persuasion is a foundational topic within psychology, in which researchers have long investigated effective versus ineffective means to change other people's minds. Yet little is known about how individuals' communications are shaped by the intent to persuade others. This research examined the possibility that people possess a learned association between emotion and persuasion that spontaneously shifts their language toward more emotional appeals, even when such appeals may be suboptimal. We used a novel quantitative linguistic approach in conjunction with controlled laboratory experiments and real-world data. This work revealed that the intent to persuade other people spontaneously increases the emotionality of individuals' appeals via the words they use. Furthermore, in a preregistered experiment, the association between emotion and persuasion appeared sufficiently strong that people persisted in the use of more emotional appeals even when such appeals might backfire. Finally, direct evidence was provided for an association in memory between persuasion and emotionality.

## Keywords

attitudes, persuasion, emotion, language, preregistered

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Persuasion—the deliberate attempt to change the thoughts, feelings, or behavior of others—is a fundamental topic in psychology (Briñol & Petty, 2012; Petty & Briñol, 2015). Although prior work provides tremendous insight into how to persuade effectively, little is known about how people naturally attempt to persuade. Put simply, how does the intent to persuade affect individuals' communications? We advance the idea that because of a learned association between persuasion and emotion, the intent to persuade exerts subtle and spontaneous effects on the emotionality of individuals' language. When people intend to persuade others, they naturally increase the emotionality of their communications.

idea that persuasion benefited from, if not demanded, an audience be placed in the proper emotional state. Experimental research supports the notion that emotion facilitates persuasion. For example, the elicitation of fear can increase persuasion (Janis & Feshbach, 1953; Sternthal & Craig, 1974; Tannenbaum et al., 2015), and models of persuasion, such as the elaboration-likelihood model (Petty & Cacioppo, 1986), have been used to predict and demonstrate that both positive and negative emotions enhance persuasion under specific circumstances (see Wegener & Petty, 1994).

However, do people naturally use emotion when they have the intent to persuade? Although direct evidence to this point is absent, theoretical models of emotion

## Emotion as a Tool for Persuasion

In his classic treatise on persuasion, *On Rhetoric*, Aristotle (1991) used the term *pathos* to capture the

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suggest a link exists between emotion and persuasion. Specifically, social-functional approaches to emotion propose that emotions facilitate and direct social interactions between individuals (Keltner & Haidt, 1999) and that outward displays of emotions evolved largely to influence others (e.g., Frijda & Mesquita, 1994). Indeed, an emergent literature provides evidence that the use of emotion, such as anger, is a valuable means to impact and change the behaviors of others (Andrade & Ho, 2009; see also Clark, Pataki, & Carver, 1996; Van Kleef, 2009).

On the basis of this social-functional approach to emotion, we propose that as individuals navigate their world, they recognize and learn the influence emotion has on others. Consequently, they develop an association between persuasion and emotion, and thus an intent to persuade might naturally trigger the use of emotion. The idea that people might develop a learned association between persuasion and emotion is consistent with Friestad and Wright's (1994) persuasion-knowledge model (PKM). The PKM suggests people amass experience with persuasion across their lifetime. For example, people may gravitate toward a certain persuasive approach over time given their attempts to influence others or given what they have experienced from people attempting to persuade them. These experiences, in turn, can lead to a learned association that can then be triggered when individuals have the intent to persuade.

On the basis of a learned association between persuasion and emotion, we suggest that the intent to persuade can lead people to spontaneously communicate with greater emotion. Moreover, if this is a learned approach, it may be relatively automatic and spontaneous, and thus the use of emotion might persist under conditions of cognitive load and when the efficacy of emotion is sub-optimal. To test these predictions, we combined real-world archival data in the form of online reviews with controlled laboratory studies. Across four large-scale experiments, we found a causal relationship between participants' intent to persuade and the emotionality of their language: Participants with the intent to persuade used more emotional language (Experiments 1–4), did so under cognitive load (Experiments 2 and 3), and continued to do so even when emotionality might backfire (Experiment 4). Finally, direct evidence was provided for an association between persuasion and emotionality in memory (Experiment 5).

## Experiment 1: The Intent to Persuade

### *Method*

In Experiment 1, we tested our hypothesis that an intent to persuade can cause individuals to communicate with

greater emotionality. Given that no prior research exists on this topic, we sought to construct an initial well-powered experiment based on a small to moderate effect size ( $f = .10$ ). A power analysis indicated that we would require approximately 1,600 participants across our three conditions (Faul, Erdfelder, Buchner, & Lang, 2009). To that end, we randomly assigned each of 1,285 participants to one of two experimental conditions to write an online review for 1 of 20 diverse products (e.g., movies, music, toasters, printers) with either a low or high intent to persuade. In the third condition, to build ecological validity, we provided a real-world baseline condition from publically available reviews of the very same products on Amazon.com ( $n = 840$ ).

Participants in the two experimental conditions were instructed to write a single “5-star” review for a selected product. We asked for 5-star reviews to match those reviews we obtained in the laboratory to real-world reviews of comparable favorability. In the high-intent-to-persuade condition, participants were explicitly instructed that their goal was to persuade the reader to purchase the product. In the low-intent-to-persuade condition, participants were told their goal was to write a review about the product's positive aspects. In the real-world condition, we extracted all of the positive 5-star reviews for these same products from the Amazon .com website (we provide the details of this procedure in the next section).

To measure emotionality of each reviewer's language, we used the Evaluative Lexicon (Rocklage & Fazio, 2015). The Evaluative Lexicon is a tool that quantifies language in terms of its implied emotionality, valence, and extremity (i.e., the absolute deviation from the midpoint of the valence scale). To illustrate, the word “wonderful” has been judged by a large sample of participants as implying a great deal of positivity and emotionality (extremity = 3.91 out of 4.50, emotionality = 6.98 out of 9.00), whereas the word “perfect” has been judged as implying a great deal of positivity but not as much emotionality (extremity = 4.16, emotionality = 4.72). The Evaluative Lexicon has been validated through both in-laboratory experiments and natural, archival text (Rocklage & Fazio, 2015, 2016, 2018; Rocklage, Rucker, & Nordgren, 2017). This research has also demonstrated a natural association between the emotionality and extremity of individuals' language (e.g., Rocklage & Fazio, 2015). Thus, to assess differences in emotionality in and of itself, we controlled for the extremity of the words in subsequent analyses.

***Identifying products and extracting reviews from Amazon.com.*** To obtain a diverse set of products, we utilized a large existing database of 5.9 million Amazon .com product reviews (Jindal & Liu, 2008; Rocklage & Fazio, 2015). These reviews spanned from the very

beginning of Amazon.com's product review program in 1996 until 2006.

To select specific products, we considered those products that had at least 30 unambiguously positive reviews. This number was chosen to be consistent with the number of reviews elicited per product in the experimental conditions. Unambiguously positive reviews were identified as those reviews that issued a 5-star rating and used only positive adjectives as defined by the Evaluative Lexicon. Next, we randomly selected 20 products. These products encompassed books that would be characterized as more hedonic or utilitarian (e.g., fiction novels and how-to books) as well as non-books (e.g., a children's toy and a camera). We tested whether these categories moderated the results. Across the 20 products, there were a total of 840 reviews.

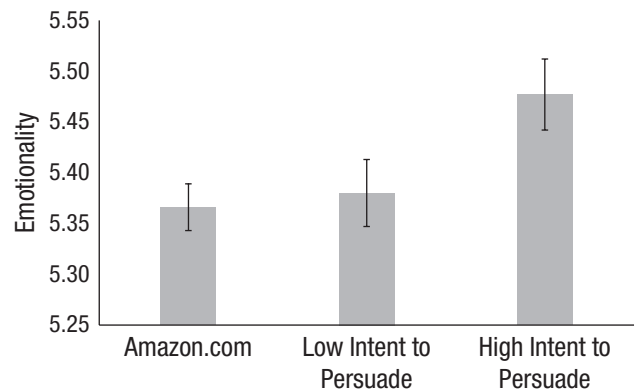
### **Obtaining reviews in the experimental conditions.**

Participants in our two experimental conditions—those instructed to write a review with or without the explicit intent to persuade—were randomly assigned to review 1 of the 20 products. They then continued to a new page where a picture and details of the product were presented, both of which were taken from the product's Amazon.com web page itself. The pictures as well as the product details were supplied to provide participants with an understanding of the product in the event they were unfamiliar with it. Evaluative language was removed from these descriptions to make the stimuli as neutral as possible. Underneath the picture and description, all participants were asked to write their positive 5-star review in a blank box that was provided on that same page.

To ensure individuals followed instructions and wrote a favorable review, we utilized those reviews in which individuals used only positive Evaluative Lexicon adjectives. We were left with a comparable number of reviews from each condition: 372 reviews in the high-intent-to-persuade condition (58% of the reviews from this condition) and 406 reviews in the low-intent-to-persuade condition (63% of the reviews from this condition), for a total of 778 reviews (61% of the total; age range: 18–83 years, mean age = 36 years; 47% male, 53% female). The final sample therefore consisted of 1,618 reviews in total when we combined these reviews with those from Amazon.com.

## **Results**

We first assessed differences in extremity controlling for emotionality. An analysis of covariance (ANCOVA) revealed no differences in extremity between the conditions,  $F(2, 1605) = 1.74, p = .18, \eta_p^2 = .002$ . This null effect of condition remained across product type, which was effects-coded as a book or nonbook and hedonic or utilitarian (all  $ps > .10$ ).



**Fig. 1.** Mean emotionality used by reviewers in each condition of Experiment 1, with Amazon.com reviews as a baseline comparison. Error bars represent  $\pm 1$  SEM.

As our primary analysis, we assessed the emotionality of reviewers' appeals above and beyond the extremity of the appeal. Using an ANCOVA to control for extremity, we observed an effect of condition,  $F(2, 1605) = 3.63, p = .027, \eta_p^2 = .004$ : Reviewers in the high-intent-to-persuade condition ( $M = 5.48, 95\%$  confidence interval, or CI = [5.41, 5.55]), shifted toward more emotional language compared with those in the low-intent-to-persuade condition ( $M = 5.38, 95\% \text{ CI} = [5.31, 5.45], p = .045$ ). Moreover, participants high in intent to persuade used more emotional language compared with the writers of the real-world 5-star Amazon.com reviews ( $M = 5.37, 95\% \text{ CI} = [5.32, 5.41], p = .008$ ; see Figure 1.<sup>1</sup> This effect of condition was not moderated by product ( $ps > .34$ ). No significant difference occurred between the low-intent-to-persuade condition and the Amazon.com baseline ( $p = .73$ ).

## **Discussion**

An intent to persuade led individuals to exhibit a subtle shift in their language toward greater emotionality compared with both individuals not induced to persuade and real-world reviews from Amazon.com. However, a limitation of this experiment is that reviews that did not contain an Evaluative Lexicon adjective could not be included. Indeed, the Evaluative Lexicon was designed to include adjectives applicable to a wide range of objects and products (e.g., "amazing" or "excellent") as opposed to more category-specific adjectives, such as a novel described as "well-written" or "gripping." We address this limitation in the next experiment.

## **Experiment 2: Deliberative Versus Automatic**

In Experiment 2, we tested whether the increase in emotional language brought on by the intent to persuade is

a relatively deliberative or automatic process. One possibility is that people consciously and deliberately shift their language to convey greater emotionality. Alternatively, it is possible that the shift in emotional language reflects a learned association between persuasion and emotionality that is more automatic. To test these competing hypotheses, we used a cognitive load procedure, which is an established means for building evidence for whether a process is more deliberative or automatic (e.g., Gilbert & Hixon, 1991). Experiment 2 was also designed to enhance the realism of individuals' intent to persuade others. Various organizations encourage people to share positive information through incentive programs. Consequently, we manipulated the intent to persuade via incentives. Finally, we considered and tested an alternative account that people simply use more unique adjectives, which happen to be more emotional.

## Method

**Participants.** As we detail subsequently, we utilized a more direct method to elicit individuals' reviews in this experiment and therefore calculated our required sample size for a small-to-moderate effect size ( $f = .20$ ). A power analysis indicated that we required approximately 300 participants for this  $2 \times 2$  between-subjects design (Faul et al., 2009). We obtained 292 individuals drawn from Amazon's Mechanical Turk. Four participants were excluded for not following instructions and using only negative adjectives. The final sample consisted of 288 participants (99% of the total; age: range = 18–70 years,  $M = 34$  years; 46% male, 54% female).

**Procedure.** To hold individuals' prior experience with the product constant, we selected a category of products—fiction novels—that all individuals have relative familiarity with and asked them to think of one they had read. Specifically, all participants were first asked to recall a 5-star fiction novel they had read.

Next, we manipulated participants' cognitive load via a standard load manipulation (Tormala & Petty, 2004; see also Gilbert & Hixon, 1991). Participants were told that we were interested in the effects of completing two tasks at once and that they would therefore memorize a passcode to be reported later in the experiment. Following past research, participants were given 20 s to memorize their passcode (Mann & Ferguson, 2015), and their ability to copy and paste was disabled via JavaScript. Half of the participants were randomly assigned to memorize a random two-digit number (low cognitive load), and the other half of participants were assigned to memorize a random eight-digit number (high cognitive load).

All participants were then asked to list three to five positive adjectives that described their opinion of their

book. They were informed that future participants would see their adjectives when making purchasing decisions regarding their book. Subsequently, each participant was randomly assigned to one of two additional conditions. To naturalistically incentivize participants to persuade, we informed those in the high-incentive-to-persuade condition that they would be paid \$1.00 for each future participant who selected their book. In the no-incentive condition (i.e., low intent to persuade), participants were simply told to write those positive adjectives that described their book. Thus, we utilized a  $2$  (cognitive load: low or high)  $\times$   $2$  (monetary incentive: absent or present) between-subjects design.

Finally, as manipulation checks, we asked participants at the end of the experiment how easy their task had been (1 = *very difficult*, 5 = *very easy*) and to what extent they chose the descriptors they did to persuade other people the book was positive (0 = *not at all*, 6 = *very much so*).

## Results

**Manipulation checks.** A two-way analysis of variance (ANOVA) revealed only the anticipated main effect of cognitive load: Individuals under high cognitive load reported greater difficulty in their task (how easy their task had been; reverse-coded;  $M = 3.46$ , 95% CI = [3.29, 3.63]), compared with those under low cognitive load ( $M = 1.26$ , 95% CI = [1.09, 1.43]),  $F(1, 284) = 323.53$ ,  $p < .001$ ,  $\eta_p^2 = .53$ . For participants' intent to persuade, the same two-way ANOVA revealed only the predicted main effect of incentive: Participants in the incentivized condition reported that they attempted to persuade other people to a greater extent ( $M = 4.20$ , 95% CI = [3.88, 4.52]), compared with participants who were not incentivized ( $M = 3.35$ , 95% CI = [3.03, 3.67]);  $F(1, 284) = 13.68$ ,  $p < .001$ ,  $\eta_p^2 = .05$ .

**Extremity and emotionality of the appeals.** To enhance our coverage of the adjectives that individuals listed, we obtained additional ratings for those adjectives that were specific to the domain of fiction books (e.g., "well-written") by eliciting extremity and emotionality ratings from a large number of external participants with a procedure similar to the one used to construct the Evaluative Lexicon (Rocklage & Fazio, 2015). Specifically, to obtain ratings for all the adjectives participants used, 818 native English-speaking participants from Mechanical Turk judged either the valence (0 = *very negative*, 9 = *very positive*) or emotionality (0 = *not at all emotional*, 9 = *very emotional*) of the 314 unique adjectives in the current experiment. Participants were assigned to judge a subset of these adjectives drawn at random. The original Evaluative Lexicon adjectives were included across these subsets to allow us to assess how

well the new ratings correlated with the original ratings. The correlations between the ratings were high for both extremity,  $r(92) = .89$ ,  $p < .001$ , and emotionality,  $r(92) = .91$ ,  $p < .001$ , which suggests that individuals judged them in a manner similar to judges from the original Evaluative Lexicon.

We first examined whether extremity differed between conditions. An ANCOVA was used to control for emotionality. Participants in the no-incentive condition used more extreme adjectives ( $M = 2.59$ , 95% CI = [2.52, 2.67]), than those in the incentivized condition ( $M = 2.44$ , 95% CI = [2.37, 2.52]),  $F(1, 283) = 7.05$ ,  $p = .008$ ,  $\eta_p^2 = .024$ . This outcome may be due to participants in the incentivized condition shifting more fully toward emotionality as their route to persuade other people as opposed to extremity. We observed no effect of cognitive load on the extremity of individuals' language,  $F(1, 283) = 0.69$ ,  $p = .41$ ,  $\eta_p^2 = .002$ , nor a cognitive-load-by-incentive interaction,  $F(1, 283) = 0.003$ ,  $p = .96$ ,  $\eta_p^2 = .00001$ .

Turning to our primary analysis, we used an ANCOVA to control for extremity and found that participants in the high-incentive-to-persuade condition used greater emotionality ( $M = 5.06$ , 95% CI = [4.91, 5.22]), compared with those in the no-incentive condition ( $M = 4.71$ , 95% CI = [4.56, 4.86]);  $F(1, 283) = 10.40$ ,  $p = .001$ ,  $\eta_p^2 = .035$ . In addition, we observed no effect of cognitive load on the emotionality of individuals' language,  $F(1, 283) = 1.54$ ,  $p = .22$ ,  $\eta_p^2 = .005$ , nor a cognitive-load-by-incentive interaction,  $F(1, 283) = 0.78$ ,  $p = .38$ ,  $\eta_p^2 = .003$ .

**Uniqueness of the appeals.** We quantified the uniqueness of participants' words with an existing database that contains information on how often each of 74,000 English words appeared in popular media, in this case across approximately 10,000 U.S. films and TV shows spanning from 1900 to 2007 (Brysbaert & New, 2009). Brysbaert and New quantified the rarity of these words on the basis of how often the word occurs for every million words of text. To index the rarity of individuals' words, we averaged together this frequency metric across each individual's adjectives. Across our 288 participants, we found no significant correlation between the average rarity of individuals' descriptions and their emotionality,  $r(286) = -.04$ ,  $p = .46$ . Moreover, even when we included the average rarity of the adjectives as a covariate, we found that individuals who were incentivized to persuade used more emotional language,  $F(1, 282) = 8.40$ ,  $p = .004$ ,  $\eta_p^2 = .03$ , above and beyond the rarity of this language,  $F(1, 282) = 2.48$ ,  $p = .12$ ,  $\eta_p^2 = .009$ .

## Discussion

Manipulated naturalistically by means of an incentive, the intent to persuade again transformed language via

emotionality. This result also occurred for an item that all participants had experience with. This pattern persisted under a common manipulation of cognitive load, which suggests that individuals use emotional appeals spontaneously and with relatively little effort. Finally, these results could not be accounted for by the uniqueness of individuals' adjectives.

## Experiment 3: The Intent to Dissuade

### Method

Experiment 3 was designed to examine the generality of the effects we saw in Experiment 2. Specifically, one might wonder whether the effects are constrained to situations where people employ positive language. However, according to our theoretical perspective, an associative link between persuasion and emotion should also be present when people attempt to dissuade others. Thus, we tested whether people use greater emotionality when they attempt to influence others to avoid selecting an object. In addition, we also utilized an alternative procedure to place participants under cognitive load. Finally, we assessed alternative hypotheses with respect to motivation and individuals' use of emotional language.

**Participants.** Given the similarities with Experiment 2, the current experiment attempted to recruit a sample of approximately 300 participants. We obtained data from 332 individuals drawn from Mechanical Turk who had a negative evaluation of their book. The final sample consisted of 296 participants who used at least one negative adjective from the expanded Evaluative Lexicon wordlist (90% of the total; age: range = 19–71 years,  $M = 36$  years; 43% male, 57% female).

**Procedure.** The same procedure was used as in Experiment 2, with two changes. First, because we sought to instill an intent to dissuade, participants were asked to remember a book they were unfavorable toward. Second, we did not ask individuals to remember a maximally negative book, but instead allowed the extremity of their negativity to vary naturally. In doing so, we allowed participants to enhance the extremity of the words they used. In fact, a pilot test of this paradigm found initial evidence consistent with this possibility. Specifically, given the shared variance between emotionality and extremity (e.g., Rocklage & Fazio, 2015, 2016), the intent to persuade showed a significant difference for both emotionality and, to a lesser extent, extremity when each facet was analyzed separately, but no significant differences for either when one controlled for the effects of the other. These pilot results reaffirmed that the intent to

persuade affects emotionality but that it can also have an impact on extremity under certain conditions. On the basis of these pilot results, we examined the effects of the intent to persuade on both emotionality and extremity separately.

Second, we used an alternative approach to place participants under cognitive load. Following past work, we used a dot-memory task in which participants were shown either a simple or complex dot pattern and given approximately 1 s to memorize this pattern (see Bonnefon, Hopfensitz, & De Neys, 2013; De Neys, 2006).

As in Experiment 2, participants were then asked to list three to five adjectives. Participants in the dissuade condition were told that their goal was to convince other people to select their book as one to avoid and would be paid \$1.00 each time it was selected by future participants as a book they would avoid. Participants in the control condition were asked to write those evaluative adjectives that described their book. The final experiment had a 2 (cognitive load: low or high)  $\times$  2 (intent to dissuade: low or high) between-subjects design.

In addition to the manipulation-check items we used in Experiment 2, we also utilized items to test alternative hypotheses. First, given that one condition is incentivized to dissuade and the other is not incentivized, it could be the case that payment itself leads individuals to increase the emotionality of their appeals. To test whether differences in motivation accounted for our results, we measured the extent to which individuals reported feeling motivated by the experiment (0 = *not at all*, 6 = *very much so*).

We also investigated whether the emotionality of individuals' language was a by-product of other facets of persuasive appeals. Specifically, we asked participants four separate questions with respect to the extent to which the language they used was meant to convey facets often associated with persuasiveness (Petty & Krosnick, 1995): certainty, importance of their evaluation, sincerity, and knowledge (each scale: 0 = *not at all*, 6 = *very much so*).

## Results

**Manipulation checks.** For cognitive load, we observed only a main effect. Participants in the high-cognitive-load condition reported greater difficulty (how easy their task had been; reverse-coded;  $M = 2.69$ , 95% CI = [2.53, 2.84]), than those in the low-cognitive-load condition ( $M = 1.13$ , 95% CI = [0.97, 1.29]);  $F(1, 292) = 187.61$ ,  $p < .001$ ,  $\eta_p^2 = .39$ . For intent to persuade, only a main effect of intent was present. Those in the high-intent condition reported that they attempted to persuade others to a greater extent ( $M = 5.06$ , 95% CI = [4.77, 5.35]), compared with those in the

low-intent condition ( $M = 2.64$ , 95% CI = [2.35, 2.92]);  $F(1, 292) = 139.82$ ,  $p < .001$ ,  $\eta_p^2 = .32$ .

**Extremity and emotionality of the appeals.** We used an ANOVA to test for differences in extremity across the conditions. Participants in the high-intent-to-persuade condition expressed greater extremity ( $M = 2.38$ , 95% CI = [2.24, 2.51]), compared with those in the low-intent-to-persuade condition ( $M = 1.99$ , 95% CI = [1.86, 2.13]);  $F(1, 292) = 15.94$ ,  $p < .001$ ,  $\eta_p^2 = .05$ . This effect was not moderated by cognitive load,  $F(1, 292) = 0.98$ ,  $p = .32$ ,  $\eta_p^2 = .003$ , nor a cognitive-load-by-intent-to-persuade interaction,  $F(1, 292) = 0.03$ ,  $p = .86$ ,  $\eta_p^2 = .0001$ .

Most importantly, using an ANOVA to predict differences in emotionality, we found that participants in the high-intent-to-persuade condition used greater emotionality ( $M = 4.45$ , 95% CI = [4.23, 4.68]), compared with those in the low-intent-to-persuade condition ( $M = 3.84$ , 95% CI = [3.62, 4.06]);  $F(1, 292) = 14.89$ ,  $p < .001$ ,  $\eta_p^2 = .05$ . This effect was not moderated by cognitive load,  $F(1, 292) = 0.11$ ,  $p = .75$ ,  $\eta_p^2 = .0004$ , nor a cognitive-load-by-intent-to-persuade interaction,  $F(1, 292) = 0.03$ ,  $p = .87$ ,  $\eta_p^2 = .0001$  (see Note 2).

**Motivation.** We examined whether participants in the high-intent-to-persuade condition—those who had been incentivized—reported feeling more motivated than those in the low-intent-to-persuade condition and whether this motivation was related to the emotionality of individuals' appeals. Using an ANOVA with intent to persuade and cognitive load as factors, we observed an effect only of intent to persuade,  $F(1, 292) = 8.80$ ,  $p = .003$ ,  $\eta_p^2 = .03$ . Participants in the high-intent-to-persuade condition felt more motivated ( $M = 5.25$ , 95% CI = [5.06, 5.44]), than those in the low-intent-to-persuade condition ( $M = 4.86$ , 95% CI = [4.67, 5.04]). However, we found no correlation between motivation and emotionality when examining all participants together,  $r(294) = -.001$ ,  $p = .98$ , 95% CI = [-.12, .11], as well as examining just participants within the high-intent-to-persuade condition,  $r(142) = -.11$ ,  $p = .20$ , 95% CI = [-.27, .06], and low-intent-to-persuade condition,  $r(150) = .008$ ,  $p = .92$ , 95% CI = [-.15, .17]. Moreover, when using an ANCOVA to control for motivation, we found that the effect of the intent to persuade on emotionality remained significant,  $F(1, 291) = 15.32$ ,  $p < .001$ ,  $\eta_p^2 = .05$ .

**Additional facets of persuasion.** Finally, we examined whether the four facets related to persuasion were associated with individuals' emotionality. The emotionality of individuals' appeals was significantly correlated with their attempts to convey certainty,  $r(294) = .19$ ,  $p = .001$ , 95% CI = [.07, .30]; the importance of their evaluation,  $r(294) = .19$ ,  $p = .001$ , 95% CI = [.08, .30]; and

sincerity,  $r(294) = .15$ ,  $p = .009$ , 95% CI = [.04, .27]; and marginally correlated with their attempt to convey their knowledge of the book,  $r(294) = .10$ ,  $p = .09$ , 95% CI = [−.02, .21]. However, when using an ANCOVA to control for these facets, we found that the effect of the intent to persuade on emotionality remained significant,  $F(1, 288) = 10.73$ ,  $p = .001$ ,  $\eta_p^2 = .04$ .

## Discussion

In Experiment 3, we found that individuals shifted the emotionality of their appeals when they attempted to dissuade others. Moreover, this effect was found under an alternative form of cognitive load and was not accounted for by individuals' motivation. Finally, this effect persisted above and beyond individuals' attempts to convey other facets related to persuasion; shifts in emotionality do not appear to be a by-product of individuals' efforts to accentuate these other facets.

## Experiment 4: Emotional Appeals and Audience

In Experiment 4, we sought to assess the strength of the effect observed in the prior experiments, increase the generalizability of the effect, and provide a preregistered conceptual replication. First, we examined whether the intent to persuade influences emotionality even when it may be a suboptimal approach for persuasion. Prior work suggests that it is more effective to use cognitive, as opposed to emotional, appeals when audiences hold more cognitively based attitudes (Fabrigar & Petty, 1999). In fact, when audiences prefer cognitive information, emotional appeals can even backfire (Haddock, Maio, Arnold, & Huskinson, 2008). If the process is deliberative, people may adjust their appeals to be more cognitive. However, if the process is more automatic, as suggested by our cognitive load experiments, people may persist in emotional appeals even with full knowledge that an audience is more cognitive. To test this idea, we manipulated the audience that participants were incentivized to persuade.

Second, we used a new topic in this experiment: restaurants. Specifically, we asked participants to write a review about the last restaurant they visited. Similar to Experiment 3, by focusing participants on their last restaurant, as opposed to a 5-star restaurant, individuals could also increase the extremity of their reviews. On the basis of our previous results, we again examined the effects of the intent to persuade on both emotionality and extremity separately. Finally, we preregistered our experiment and analysis plan (<https://osf.io/vbuqn/>).

## Method

**Participants.** As detailed in the preregistration, a previous pilot test demonstrated a small to moderate effect size ( $f = .13$ ). A power analysis indicated that based on this effect size, we required approximately 800 participants across the conditions (Faul et al., 2009). To that end, we recruited 800 individuals from Mechanical Turk and randomly assigned each of them to one of four conditions. As specified in the preregistration, we excluded participants who did not follow instructions and used only negative descriptors. The final sample consisted of 781 individuals (98% of the total; age: range = 18–74 years,  $M = 36$  years; 45% male, 54% female, 1% other).

**Procedure.** Each participant was assigned to one of four conditions. In all four conditions, participants were asked to recall the last sit-down restaurant they ate at and were then informed they would describe their restaurant to future participants using three to five positive adjectives. In three of the conditions—the “persuade” conditions—participants were incentivized to persuade by being told they would be paid \$1.00 each time a future participant selected their restaurant and were also given explicit instructions to persuade future participants to select their restaurant. We then provided individuals with information (or not) about whom they would be persuading.

In the no-group persuade condition, participants received no information about the audience they would be persuading. In the emotionalists persuade condition, participants were told that we had paired with a group of artists, dancers, and musicians named “The Emotionalists” and that their descriptions would be shared with members of this group. In the rationalists persuade condition, participants were told that we had paired them with a group of scientists, mathematicians, and economic analysts named “The Society for Applied Rationality and Mathematics.”

These two groups were chosen on the basis of pretests indicating that participants believed these groups would be likely to favor emotional versus cognitive appeals, respectively. Specifically, pretest participants ( $n = 50$ ) were asked to think about which type of appeal would be most effective in persuading each group of individuals on a 5-point scale (1 = *cognitive, rational appeals would be more persuasive*, 5 = *emotional, feeling-based appeals would be more persuasive*). A paired-samples  $t$  test indicated that participants believed that the group of scientists, mathematicians, and economic analysts would be more likely to be persuaded by cognitive appeals ( $M = 1.26$ , 95% CI = [1.16, 1.36]), whereas the group of artists, dancers, and musicians were thought to be more likely to be persuaded by emotional appeals

( $M = 4.46$ , 95% CI = [4.31, 4.61]);  $t(49) = 15.24$ ,  $p < .001$ ,  $d = 2.16$ . Thus, at least when asked to think about each group of individuals, participants reported that the type of appeal should be adjusted to match the group.

The fourth condition—the low-intent-to-persuade condition—served as a baseline comparison. In this condition, participants were asked to focus on the positive aspects of their restaurant and list three to five adjectives that described these positive aspects to future participants; they were given no further instructions.

To assess the success of our persuasion manipulation, we asked participants to indicate the extent to which they chose the descriptors they did to persuade other people that the restaurant was positive (0 = *not at all*, 6 = *very much so*). We also asked participants the extent to which they chose the descriptors they did to appeal to others' emotions (0 = *not at all*, 6 = *very much so*) and the extent to which they chose their descriptors to provide more cognitive, rational reasoning (0 = *not at all*, 6 = *very much so*).

## Results

**Manipulation checks.** An ANOVA revealed a significant effect of condition,  $F(3, 777) = 65.37$ ,  $p < .001$ ,  $\eta_p^2 = .20$ , that indicated that participants in the persuade conditions (no group:  $M = 5.18$ , 95% CI = [4.98, 5.38]; emotionalists:  $M = 5.21$ , 95% CI = [5.01, 5.41]; rationalists:  $M = 5.03$ , 95% CI = [4.83, 5.23]), reported greater persuasive intent compared with those in the low-intent-to-persuade condition ( $M = 3.47$ , 95% CI = [3.26, 3.68]),  $ps < .001$ . The persuade conditions did not differ from one another ( $ps > .19$ ).

As a manipulation check for the specific audiences that participants were asked to persuade, we analyzed their self-reported use of emotional versus rational appeals via a difference score (i.e., reported use of emotional minus rational appeals). Using an ANOVA, we found an effect of condition,  $F(3, 777) = 46.59$ ,  $p < .001$ ,  $\eta_p^2 = .15$ ; across all of the persuade conditions, participants reported using more emotional appeals (no group:  $M = 0.40$ , 95% CI = [0.10, 0.70]; emotionalists:  $M = 1.09$ , 95% CI = [0.79, 1.39]; rationalists:  $M = 0.04$ , 95% CI = [-0.25, 0.34], compared with the baseline condition ( $M = -1.45$ ), 95% CI = [-1.76, -1.14];  $ps < .001$ . Emotionalists reported using significantly greater emotionality compared with all other conditions ( $ps < .001$ ). Foreshadowing our findings that individuals tend to rely on emotional appeals even for audiences that have a cognitive disposition, results showed that participants in the rationalists condition did not differ from those in the no-group condition, though there was some indication that they reported tending toward slightly more rational appeals ( $p = .10$ ). In sum, these results indicated that our manipulations were successful: Participants in the persuade conditions reported

attempting to persuade others and that the different conditions were relatively responsive to their audiences, at least when self-reporting their persuasive appeals.<sup>3</sup>

**Extremity and emotionality of appeals.** We imputed the Evaluative Lexicon values for each descriptor individuals used (Rocklage & Fazio, 2015; Rocklage et al., 2017). As put forth in our preregistered analysis plan, we then separately assessed the effects of extremity and emotionality. To begin, we used an ANOVA to predict differences in extremity across the conditions,  $F(3, 777) = 2.89$ ,  $p = .035$ ,  $\eta_p^2 = .01$ . This effect indicated that participants in the persuade conditions had a tendency to express greater extremity (no group:  $M = 2.93$ , 95% CI = [2.86, 3.00]; emotionalists:  $M = 2.95$ , 95% CI = [2.89, 3.02]; rationalists:  $M = 2.91$ , 95% CI = [2.85, 2.98],  $ps \leq .05$ ) compared with those in the low-intent-to-persuade condition ( $M = 2.82$ , 95% CI = [2.75, 2.89]). No differences emerged between the persuade conditions ( $ps > .40$ ).

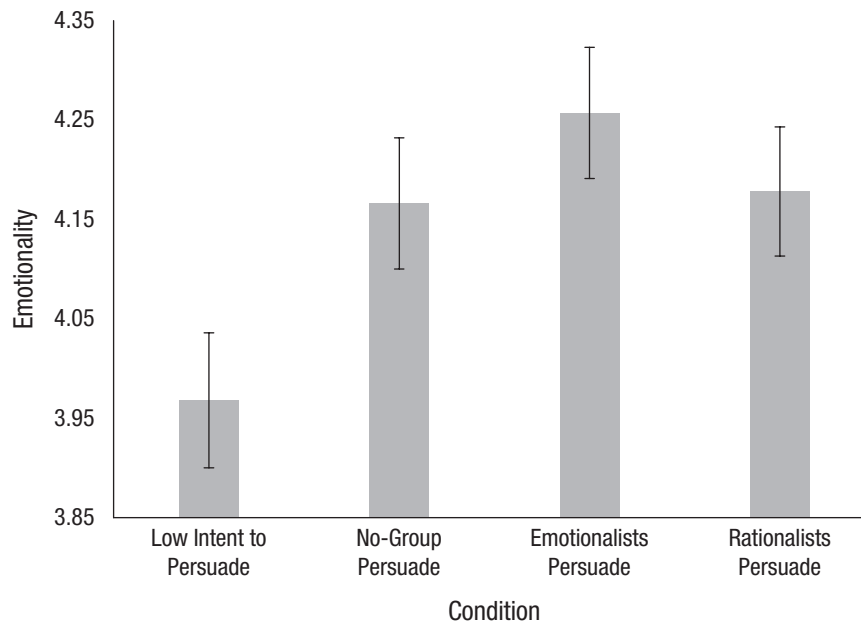
We then turned to our primary analyses of interest regarding emotionality. Given that we hypothesized a directional effect in our preregistration, such that those in the no-group persuade condition would use more emotional appeals compared with the low-intent-to-persuade condition, we conducted a one-tailed  $t$  test of the difference between these two conditions. As hypothesized, we found that those in the no-group persuade condition used greater emotionality ( $M = 4.17$ , 95% CI = [4.05, 4.28]), compared with those in the low-intent-to-persuade condition ( $M = 3.97$ , 95% CI = [3.83, 4.11]),  $t(378) = 2.18$ , one-tailed  $p = .015$ , two-tailed  $p = .03$ ,  $d = 0.11$ .

We then used an ANOVA to assess the differences in the emotionality of participants' appeals across all conditions. A significant effect of condition emerged,  $F(3, 777) = 3.33$ ,  $p = .019$ ,  $\eta_p^2 = .013$  (see Fig. 2). In line with having taken their audience into consideration, participants in the emotionalists condition used an even greater degree of emotionality ( $M = 4.26$ , 95% CI = [4.13, 4.39]) than did those in the low-intent-to-persuade condition ( $p = .002$ ). However, as importantly, participants in the rationalists condition also used more emotional appeals than did those in the low-intent-to-persuade condition ( $M = 4.18$ , 95% CI = [4.05, 4.31]),  $p = .026$ , and did not differ in emotionality from those in the no-group condition ( $p = .90$ ). Indeed, the persuade conditions did not differ from each other in their use of emotional appeals ( $ps > .33$ ).<sup>4</sup>

## Discussion

As in prior experiments, individuals with an intent to persuade used greater emotionality in their language. Moreover, individuals continued to infuse their language





**Fig. 2.** Mean emotionality used by reviewers in each condition of Experiment 4. Error bars represent  $\pm 1$  SEM.

with emotionality even when they were told that their goal was to persuade individuals who would be more likely to be persuaded by cognitive information.

## Experiment 5: Evidence for an Association

### Method

Our theoretical framework suggests the hypothesis that the intent to persuade increases the emotionality of individuals' appeals because of a learned association. To provide direct evidence for this link in memory, we measured this association via how quickly individuals were able to categorize words that varied in their emotionality as being associated with persuasion or not.

**Participants.** Given that the analyses used mixed modeling and were all within subjects, we set the goal of acquiring a sample of 150 participants to achieve adequate power. We obtained 149 individuals from Mechanical Turk (age: range = 19–68 years,  $M = 35$  years; 58% male, 41% female, 1% other).

**Procedure.** To provide words that varied in their emotionality, we again utilized the Evaluative Lexicon (Rocklage & Fazio, 2015). If a learned association exists between persuasion and emotion, we anticipated that the more emotional the word, the more strongly it would be associated with persuasion. We asked participants to categorize each

positive Evaluative Lexicon word (e.g., “enjoyable,” “amazing,” “useful,” “healthy”;  $n = 49$ ) for whether it is a word they would associate with persuading other people (by pressing the “1” key) or not (pressing “0”). Participants were provided instructions to respond as quickly and as accurately as possible (Fazio, 1990). The primary dependent measures were whether individuals associated the word with persuasion or not and, most importantly, how quickly they were to make this association.

We used mixed modeling for the subsequent analyses to model variance across both participants and stimuli (Baayen, Davidson, & Bates, 2008; Judd, Westfall, & Kenny, 2012). On the basis of prior work, we also log-transformed individuals' response times (Fazio, 1990) and filtered out those responses that were either too quick to be valid (less than 300 ms) or too slow to be valid ( $> 10,000$  ms; Greenwald, Nosek, & Banaji, 2003). All results were similar when these recommended steps were not taken.

### Results

Using logistic mixed modeling to predict individuals' final dichotomous decisions, we found that the more extremely positive the word, the greater the probability individuals were to associate that word with persuasion ( $\gamma = 1.28$ ),  $t(6937) = 9.63$ ,  $p < .001$ , 95% CI = [1.02, 1.54]. More importantly, however, above and beyond this effect of extremity, we also found that the more emotional the word was, the greater the probability individuals

associated it with persuasion ( $\gamma = 0.152$ ),  $t(6937) = 1.99$ ,  $p = .047$ , 95% CI = [0.002, 0.301].

Turning to our primary analysis, we assessed the associative strength between persuasion and emotion by predicting how quickly participants categorized a word if they associated it with persuasion. To that end, we focused on responses where individuals associated the word with persuasion. Using linear mixed modeling to predict log response time, we found that individuals were quicker to associate more extremely positive words with persuasion ( $\gamma = -0.014$ ),  $t(50.32) = 2.47$ ,  $p = .017$ , 95% CI = [-0.026, -0.003]. Most importantly, over and above this effect, we found that individuals were quicker to associate more emotional words with persuasion ( $\gamma = -0.015$ ),  $t(44.37) = 4.69$ ,  $p < .001$ , 95% CI = [-0.021, -0.009].<sup>5</sup>

Are individuals simply quicker to recognize and categorize more extreme and emotional Evaluative Lexicon words along any dimension? To test this possibility, we used existing response time data from the English Lexicon Project (Balota et al., 2007) for how quickly individuals are able to identify each of the Evaluative Lexicon items as a word or a nonword. For positive Evaluative Lexicon words included in the English Lexicon Project ( $n = 48$ ; 98% of the total), a regression equation showed no relationship between the extremity,  $\beta = -0.006$ ,  $t(45) = 0.77$ ,  $p = .45$ , 95% CI = [-0.022, 0.01], nor emotionality,  $\beta = -0.002$ ,  $t(45) = .27$ ,  $p = .79$ , 95% CI = [-0.018, 0.014], of the words and the log response time needed to categorize each of these words as words versus nonwords. This result further suggests there is a specific association between persuasion and emotion.

## General Discussion

Despite the rich lineage of persuasion research, little is known about how the intent to persuade affects individuals' communications. We found that the intent to persuade shifts individuals' language toward greater emotionality (Experiments 1–4), does so relatively spontaneously (Experiments 2 and 3), and occurs even when emotion may be detrimental to persuasion (Experiment 4). In addition, we provided evidence of an association between persuasion and emotion in memory (Experiment 5).

The current findings build on the social-functional perspective of emotion as a natural tool for communication and social influence (e.g., Frijda & Mesquita, 1994; Keltner & Haidt, 1999; Van Kleef, 2009). In this literature, researchers have long argued that emotion is a pivotal tool to influence other people. The current work extends past findings by demonstrating that the link between persuasion and emotion is such that

individuals spontaneously turn to emotion to persuade. Moreover, this relationship appears to be engrained within the minds of individuals as they hold an association between persuasion and emotion. This association likely develops over time and thus can be viewed as learned in nature (see Friestad & Wright, 1994). As people navigate their worlds, they may come to realize the power of their emotions on others' behavior and thus spontaneously rely on emotion in their own persuasive attempts.

Regarding the efficacy of individuals' attempts to persuade, the goal of the current work was to understand what individuals do when they possess persuasive intent as opposed to the effectiveness of their communications. However, given prior literature (Fabrigar & Petty, 1999; Haddock et al., 2008), it is reasonable to hypothesize an ironic effect of the intent to persuade: When individuals attempt to persuade a more emotional audience, they may be relatively persuasive, but such attempts may be relatively ineffective and even backfire when an audience is more cognitive. This represents a potential direction for future research.

Though we obtained robust results indicating that the intent to persuade shifts individuals toward emotionality, future research has the opportunity to test the limits of this link. For instance, it is possible that the context to which individuals persuade may moderate their use of emotionality. In some situations, such as informal word-of-mouth communications used in the current work, relatively few constraints are placed on the appropriateness of emotional expressions. However, in other contexts, such as a business boardroom meeting or a formal letter of recommendation, emotion might not be viewed as appropriate. In these contexts, it is possible that individuals might learn to avoid the use of emotion. Whether or not this affects the link between an intent to persuade an emotionality represents an interesting question for future research.

To summarize, we have demonstrated that the intent to persuade leads individuals to shift toward greater emotionality. These experiments are the first to directly and systematically manipulate the intent to persuade and then measure how individuals alter their communications. We hope that these endeavors encourage other researchers to begin to uncover the multitude of ways individuals attempt to persuade others. In essence, although a wealth of past work has investigated how we can best persuade other people, we have now turned the tables and asked the reverse: How do other people try to persuade us?

## Action Editor

Eddie Harmon-Jones served as action editor for this article.

## Author Contributions

All authors contributed to the development and design of the experiments. Data were collected by M. D. Rocklage. M. D. Rocklage analyzed and interpreted the data with input and feedback from D. D. Rucker and L. F. Nordgren. All authors contributed to the writing and editing of the manuscript. All authors approved the final version of the manuscript for submission.

## Declaration of Conflicting Interests

The author(s) declared that there were no conflicts of interest with respect to the authorship or the publication of this article.

## Supplemental Material

Additional supporting information can be found at <http://journals.sagepub.com/doi/suppl/10.1177/0956797617744797>

## Open Practices



The design and analysis plans for Experiment 4 were preregistered at the Open Science Framework and can be found at <https://osf.io/vbuqn/>. The complete Open Practices Disclosure for this article can be found at <http://journals.sagepub.com/doi/suppl/10.1177/0956797617744797>. This article has received the badge for Preregistration. More information about the Open Practices badges can be found at <http://www.psychologicalscience.org/publications/badges>.

## Notes

1. For Experiments 1 and 2, we also conducted analyses without controlling for extremity. The obtained results were similar and are provided in the Supplementary Materials available online.
2. See the Supplemental Material available online for analyses controlling for extremity for Experiments 3 and 4.
3. As further evidence of the validity of individuals' self-reported persuasive approaches, the more emotional individuals reported their appeals were (the difference score standardized), the more emotional their actual appeals,  $\beta = 0.22$ ,  $t(779) = 6.69$ ,  $p < .001$ .
4. Participants also reported the audience they had been asked to persuade. They were generally accurate in their recollection (88% correct), and results were stronger for participants who correctly identified their audience (see the Supplemental Material).
5. In an additional study, we also found a link between the words "persuade" and "emotion." Participants ( $N = 93$ ) were more likely to associate "persuade" and "emotion" compared with "inform" and "emotion" ( $\gamma = 1.27$ ),  $t(339) = 4.62$ ,  $p < .001$ , 95% CI = [0.73, 1.81].

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