

**Expression Modalities:
How Speaking Versus Writing Shapes What Consumers Say, and Its Impact**

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CONTRIBUTION

This work makes three main contributions. First, it contributes to the burgeoning literature on psychological drivers of word of mouth. While more and more research has begun to examine why consumers talk about some things rather than others (Moore 2012; Moore, and Lafreniere 2020; Dubois, Bonezzi, and De Angelis 2016), there has been less attention to how communication mode might impact what consumers share. We demonstrate one way that speaking versus writing can shape word of mouth, and the consequences of this for word of mouth recipients.

Second, this work deepens understanding around the role of language in consumer behavior. While language plays a role in almost everything consumers do, until recently it has been relatively understudied. We contribute to the growing literature on consumer language (Moore and McFerran, 2017), showing that how consumers communicate impacts the emotionality of the language they use.

Third, our findings contribute to explaining why online and offline word of mouth may differ. Research has found large differences between the content of online and offline word of mouth (Fay and Larkin 2017) and suggests that offline word of mouth is more impactful (Keller and Fay 2009). While these effects are likely multiply determined, communication modality may be a contributing factor. Most online word of mouth is written, but a much larger chunk of offline word of mouth is spoken. Our results suggest this may not only change the content of conversations, but also their impact.

ABSTRACT

Word of mouth is both frequent and important. But might the way consumers communicate (i.e., speaking versus writing) shape the language they use? And, as a result, the impact of what they share? While a great deal of research has begun to examine the behavioral drivers of word of mouth, there has been less attention to how communication modality might shape what consumers share. Five studies demonstrate that compared to writing, speaking increases the emotionality of communication. Speaking often involves less time to deliberate about what to say, so consumers use more emotional language. This difference in language produced, in turn, can lead to greater persuasion. This work sheds light on drivers of word of mouth, effects of communication modality, and role of language in communication.

Keywords: Word of Mouth, Communication Modality, Speaking, Writing, Text Analysis,

Word of mouth and interpersonal communication are integral parts of everyday life. Consumers tell their friends about new shoes, talk to colleagues about the best software, and converse with family members about movies, shows, and vacation destinations. Indeed, Americans have over 2.4 billion brand-related conversations per day.

Not surprisingly, such word of mouth has a huge impact on consumer behavior. Word of mouth shapes decisions, speeds adoption, and boosts sales (Chevalier and Mayzlin, 2006; Herr, Kardes, and Kim, 1991; Iyengar, Van den Bulte, and Valente, 2010). Consequently, more and more organizations are shifting resources from traditional advertising to driving consumer conversations (Berger, 2013).

But while it's clear that word of mouth is both frequent and important, might the way consumers communicate (i.e., speaking versus writing) shape the language they use? And, as a result, the impact of what they share?

Communication occurs through two primary modes or modalities—speaking and writing (Chafe and Tannen 1987). Consumers speak face-to-face, talk on the phone, and video chat. They also write emails, texts, and even letters. Might speaking versus writing shape what consumers share, and thus the impact of their communication? Could speaking rather than writing about a restaurant, for example, change the way consumers talk about it, and, as a result, their audience's interest in eating there?

While communication mode may seem inconsequential, we suggest it can have an important impact on word of mouth. Because speaking often involves less deliberation than writing, we suggest that it can encourage more emotional language. As a result, communication modality can spillover to impact the persuasiveness of communication. Five studies test these possibilities. They demonstrate how modality impacts emotionality, document the underlying

process by which this occurs, and illustrate the downstream effect on the communication audience.

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Third, our findings contribute to explaining why online and offline word of mouth may differ. Research has found large differences between the content of online and offline word of mouth (Fay and Larkin 2017) and suggests that offline word of mouth is more impactful (Keller and Fay 2009). While these effects are likely multiply determined, communication modality may be a contributing factor. Most online word of mouth is written, but a much larger chunk of offline word of mouth is spoken. Our results suggest this may not only change the content of conversations, but also their impact.

WORD OF MOUTH

A growing stream of research has started to examine what consumers share and why (for reviews see Chen and Yuan, 2020; Berger, 2014). Consumers share word of mouth to self-enhance (De Angelis, Bonezzi, Peluso, Rucker, and Costabile, 2012), express emotion (Rime, 2009), and connect with others (Chen 2017). Consumers with high needs for uniqueness, for example, are less willing to generate positive word of mouth for publicly consumer products they own, because they want to retain their distinction (Cheema and Kaikati, 2010). Other work finds that more surprising or useful information is more likely to be shared (Berger and Milkman 2012) and that consumers share more positive things with more distant others to look good to consumers that may not know them as well (Dubois, Bonezzi, and De Angelis 2016).

This work has provided important insights into the behavioral drivers of word of mouth, but there has been less attention to whether communication channels (e.g., texting vs. email) or modalities (i.e., speaking vs. writing) shape sharing. That is, whether how consumers communicate might impact what they end up sharing.

Some work has begun to look at how the device consumers use to share (e.g., smartphone or desktop) shapes word of mouth. Smartphones physically constrained nature, for example, leads consumers to generate briefer content, which encourages them to focus on the gist of their experiences (Melumad, Inman, and Pham, 2019). Other work finds that reviews created on mobile devices tends to be more concrete and less extreme (Ransbotham, Lurie, and Liu, 2019) and that reviews posted from a mobile device can increase purchase intentions because they seem more effortful to produce (Grewal and Stephen, 2019).

Beyond specific devices though, an even more fundamental difference is whether communication is spoken or written (Chafe 1982; Chafe and Danielewicz 1987; Shen and Sengupta 2018). Face-to-face communication, phone calls, and video chats involve spoken or oral communication, while email, texting, and social media usually involve written communication.¹

While this difference might seem rather minor, as noted by Rubin (1987), “writing is not merely speech set down in print.” Consequently, might speaking versus writing shape what consumers share, and if so, how?

EMOTIONALITY

Emotion is central to how people communicate with others (Ekman 1982). Indeed, the social-functional approach to emotion suggests that a major purpose of emotion is to convey information about people’s attitudes and internal state (Frijda and Mesquita 1994; Keltner and Haidt 1999; van Kleef 2009). People use anger to signal negative attitudes toward a negotiation offer (Andrade and Ho 2009; van Kleef, De Dreu, and Manstead 2004), for example, and use more emotional language when trying to persuade (Rocklage, Rucker, and Nordgren 2018a).

These emotional displays, in turn, affect others’ behavior. Customer service representatives who express greater emotional warmth at the beginning and end of conversations are seen as more helpful (Li, Packard, and Berger 2020), and consumers are more likely to purchase hedonic products described in emotional terms (Rocklage and Fazio 2020). Similarly,

¹ Recent technological advances have enabled voice to text communication, so that people can write an email though speaking. This would still be spoken communication though, as the content is produced orally, and we discuss these potentially blended methods in more detail in the general discussion.

restaurant reviews created by smartphone are both more emotional and more impactful (Melumad, et al. 2019) and swearwords boost purchase, in part because they communicate reviewer's feelings toward the product (Lafreniere and Moore 2018).

But while people often use emotion to communicate with others, and emotional language impacts behavior, attitudes vary in the degree to which they are based on more or less emotion (Abelson, Kinder, Peters, and Fiske 1982; Zanna and Rempel 1988). Someone's attitude towards a restaurant, for example, could be based heavily on how they feel about it. They might like the place because they love smell of the food or the smile of a friendly waiter. Alternatively, their attitude could be based less on how they feel about it. They might like the restaurant because it is well-priced or is located close to their home. Thus even when considering the same attitude object (e.g., a restaurant), attitudes can vary on the extent to which they are based on consumer's feelings.

Building on this, recent work demonstrates that attitude emotionality can be reflected in communication (Rocklage and Fazio 2015). When expressing a positive attitude towards something a movie, for example, there are numerous words consumers could use. They could say the movie was "amazing" or "excellent." Both words are positive, and equally so, but the word "amazing" indicates that the consumer's attitude is based more on an emotional, feelings-based reaction (Rocklage and Fazio 2015). Similarly, saying something is "perfect" or "superb" signals very positive, but low emotionality attitudes, while saying something is "delightful" or "fantastic" signals high emotionality. In fact, all these words express a similar degree of positivity (i.e., the same *extremity*), but with different levels of feeling (i.e., *emotionality*).

Might speaking versus writing shape the emotionality of what consumers share? And if so, how?

HOW MODALITY SHAPES EMOTIONALITY

One possibility is that speaking decreases emotional language. When writing, the main way consumers have to express emotion is the words themselves.² Consequently, if they want to express more emotion, they have to use more emotional words. Rather than saying a restaurant is “excellent,” for example, they might say it is “amazing,” something equally positive but more emotionally laden. When speaking, however, consumers have additional ways to express emotion. Not only can they use emotional words (e.g., “I love that place”), they can use non-verbal aspects or paralinguistics (e.g., pitch or tone) to convey emotion as well. When people are happy, for example, they tend to speak in a higher pitched voice (Laukka et al, 2016; Keltner Sauter, Tracy, and Cowen, 2019). Consequently, one possibility is substitution. Because consumers can use pitch, tone, and other non-verbal means to communicate emotion when speaking, they may be less likely to use emotional language.

In contrast, however, we predict the opposite. We suggest that speaking may lead consumers to use *more* emotional language, not less. Further, we suggest that this is driven, in part, by the fact that speaking involves less deliberation.

A great deal of work notes that communication modalities differ in their deliberativeness (Akinlase 1982; Chafe 1982; Clark and Brennan 1991; DeVito 1966; Morris and Ogan 1996). Most oral conversations, for example, tend to be rather synchronous. When talking on a friend on the phone or in person, one person says something, and the other person responds relatively quickly. Consequently, there is not a lot of time to deliberate on what to say, and what consumers share is often more stream of consciousness. Written communication, however, tends

² People also sometimes use emojis, emoticons, and other forms of textual paralinguistics (Luangrath, Peck, and Barger 2017).

to involve more deliberation. People don't usually expect an immediate response to an email, for example, and as a result, communicators have more time to construct and refine what to say (e.g., Horowitz and Newman 1964).³

Note that this modality difference holds even outside of back-and-forth conversations. When leaving a voicemail, for example, no one is waiting for a response, or even listening on the other end of the line, yet people tend to speak relatively continuously, without stopping to think about what to say along the way. This can be contrasted with writing an online review, where the communication mode allows communicators to pause and deliberate about what to write (both before they start communicating, and at any point during content creation). Overall then, while writing is more deliberative in nature (Stanovich and West 2000), speaking tends to be more spontaneous, with the expression of thought being almost simultaneous with its formulation (Horowitz and Newman 1964; Rapp et al. 2015; Chafe 1982).

We suggest that these differences in deliberation, in turn, should impact emotional language. A variety of literatures support this suggestion. For decades, behavioral scientists have distinguished between two mental systems (Stanovich and West 2000; Kahneman 2011; Kahneman & Frederick, 2002; Sloman, 1996; Mischel and Shoda 1995). “System 1” is relatively quick, automatic, and intuitive and “System 2” is more analytical and effortful. A great deal of research finds that the automatic system is more affective in nature. When required to make quick judgments, for example, people are more likely to rely on their emotions (Rocklage and Fazio 2016). Similarly, work on decision making suggests that when processing resources

³ Rather than being a simple dichotomy, this distinction is certainly more of a continuum. Speaking tends to be stream of consciousness, and writing tends to involve more deliberation, but there is variation. Compared to writing an online review, for example, written interactions that involve an expectation of a quick response (e.g., texting back and forth), may provide less time for deliberation. That said, it is still likely more than in spoken communication.

are not available, affect plays a larger role (Shiv and Fedorikhin 1999; Small, Loewenstein, and Slovic 2007).

This suggestion is also consistent with work on preference expression (Klesse, Levav, and Goukens 2015). Building on neuroscientific evidence and studies of the Stroop task, the authors suggest that speaking is less likely to evoke self-control because emotion plays a larger role. Speaking is associated with greater activation of affective/rostral areas of the anterior cingulate cortex (Paus et al. 1993, 2001), which may lead emotional responses, rather than cognitions, to drive behavior.

THE CURRENT RESEARCH

Taken together, we suggest that speaking may increase emotionality. Further, we suggest that this is driven, at least in part, by the fact that speaking usually involves less deliberation. Deliberation engages a more thoughtful, analytical mindset, which often blunts emotionality. Four experiments test these possibilities.

Experiment 1 examines both positive and negative experiences, testing whether, compared to writing, speaking leads to greater emotionality. Experiment 2 further investigates the impact of communication mode, and begins to test the underlying process, examining whether deliberation mediates the effects. Experiment 3 begins to test the process through moderation. If modality's effects are driven by deliberation, as we suggest, then they should be stronger among people who have a tendency to spontaneously express themselves emotionally. Experiment 4 more directly tests the hypothesized role of deliberation through moderation, examining whether a manipulation that encourages people to deliberate mitigates the effects.

While the first four experiments focus on how modality shapes language production, our final study examines a potential downstream consequence of this effect. If speaking changes the language people use when communicating, it may also change the impact of their communication. Using more emotional language when talking about a restaurant, for example, may shape the audience's likelihood of going there. Experiment 5 tests this possibility, examining how, by shaping the emotionality of language, modality may influence persuasion.

Note that while we are not aware of research testing how communication modality shapes emotionality, one prior paper examined how writing leads people to talk about more interesting products and brands (Berger and Iyengar, 2013). Our work differs in two important ways. First, rather than examining interesting products and brands, we examine emotionality. Second, and more importantly, rather than examining *what* people talk about (i.e., an interesting product or a boring one), we examine *how* people talk, or the language they use. Said another way, while Berger and Iyengar (2013) demonstrate that writing may lead people to choose *different* products or brands to talk about, we examine a more foundational question: whether modality may shape the language people use even when talking about *the same thing*. Consequently, we not only examine a different dependent variable (i.e., emotionality rather than interestingness), but focus on language more specifically.⁴

EXPERIMENT 1: POSITIVE AND NEGATIVE EXPERIENCES

Experiment 1 provides a preliminary test of our theorizing. People were asked to share their opinion about a restaurant, and we manipulate whether they expressed that opinion orally or

⁴ While it does not focus on word of mouth, or language, Shen and Sengupta (2018) finds that compared to writing, speaking about a brand produces more self-relevant brand thoughts, increasing the speaker's connection to the brand

in writing. To test whether the effect holds for both positive and negative attitudes, we also manipulated whether they talked about a restaurant they loved or hated. We predict that regardless of opinion valence, speaking should increase the emotionality of the language used.

Method

Participants (N = 172, recruited through a behavioral lab) completed a “Restaurant Review Study” online for payment. They were told the experimenters were interested in people’s opinions of different experiences and were randomly assigned to condition in a 2 (expression modality: spoken vs. written) x 2 (opinion valence: positive vs. negative) between subjects design.

To ensure that expression modality didn’t change whether people reviewed something they liked more or less, we manipulated opinion valence first. Participants were asked to think about a restaurant they went to recently that they either liked a lot (positive condition) or didn’t like very much (negative condition) and write it down. They generated places like Olive Garden, Chipotle, and Popeyes.

Next, we manipulated expression modality. In the written (spoken) condition, participants were asked to write (record) their opinion of the restaurant, as if they were talking about it to one of their good friends. Written condition participants wrote their review in a text box, while spoken participants spoke into a microphone in front of them on the table.

Finally, after the study ended, we measured the emotionality of the language produced in each condition. A professional transcription company turned the audio files into text, and language from both the written and audio condition was run through the Evaluative Lexicon (Rocklage, Rucker, and Nordgren 2018b) to score the emotionality of each opinion (i.e., max

emotionality, following Rocklage, et al., 2018b; Rocklage and Luttrell 2021).⁵ Following past work (Rocklage and Fazio 2015; Rocklage, et al. 2018a, 2018b), the analysis controls for how positive or negative the reviews were (their extremity)⁶ so that the main results isolate emotionality. Our key results persist, however, even when not controlling for this variable.

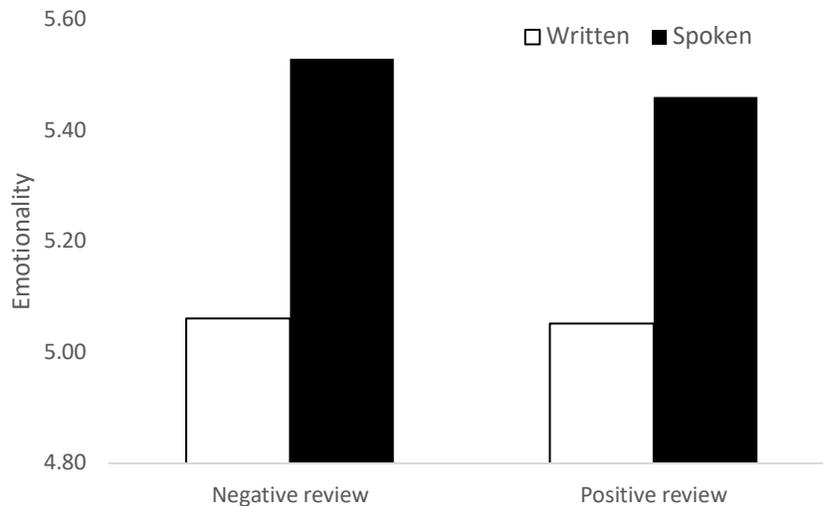
Results

As predicted, a 2 (expression modality) x 2 (opinion valence) analysis of covariance found only a main effect of expression modality (Figure 1). Compared to people who expressed their opinion in writing ($M = 5.06$), those who expressed their opinion orally used more emotional language ($M = 5.50$; $F(1, 167) = 4.83, p = .029, \eta^2_p = .03$). While participants in the negative written condition said things like the service was “lousy” and the restaurant was “mediocre,” for example, participants in the negative spoken condition used more emotional language, saying the food was “nasty” and the restaurant was “awful.” The effect was not moderated by opinion valence ($F(1, 167) = .02, p = .88, \eta^2_p = .0002$), indicating that speaking (vs. writing) led participants to be more emotional in both positive and negative reviews.

⁵ While LIWC (Pennebaker et al. 2015) has been used to measure valence, it seems to tap the degree to which someone is evaluating something, rather than emotionality per se (Rocklage, et al., 2018b). In fact, the correlation of LIWC’s dictionaries with emotionality is quite low (i.e., $r = .05$). Further, because LIWC focuses on the proportion of all words in a text that fall in particular categories, results may be biased by the fact that speaking produces more content (and thus the denominator is larger). As a validity check, Study 5 shows that the measure used tracks perceived emotion but LIWC affect does not ($\gamma = -.018, t(387.36) = .84, p = .40$).

⁶ There is no significant main effect of modality ($F(1, 167) = .88, p = .35, \eta^2_p = .005$) nor a valence by modality interaction ($F(1, 167) = .13, p = .72, \eta^2_p = .001$) on max extremity.

FIGURE 1: THE EFFECT OF MODALITY ON EMOTIONALITY FOR BOTH POSITIVE AND NEGATIVE REVIEWS



Discussion

Experiment 1 provides preliminary support for our theorizing. Expressing an opinion orally, rather than in writing, led people to use more emotional language. Demonstrating the effect for both positive and negative opinions speaks to the generalizability of the effect.

Alternative explanations. The results also cast doubt on a number of alternative explanations. First, one could wonder whether the results are driven by social presence. While people often speak face-to-face, writing usually involves communicating with someone who is not present. Consequently, people are less likely to see their audience's reaction when writing, which might make them less emotional. That said, oral communication does not always involve social presence. Phone calls and voicemails involve speaking to someone who is not physically there, just like emails and texts. Further, this explanation cannot explain the results of the current study, where social presence was the same across conditions (i.e., both spoken and written communication involved communicating with someone who was not present).

Second, one could wonder whether the results are driven by audience size. While phone calls usually involve only one other person, for example, written social media posts are often seen by a much larger audience, and maybe people tend to express less emotion to larger groups. Such an explanation, however, has trouble explaining the results of the current study where participants in both conditions thought about sharing their opinion with the same sized audience (i.e., a single close other).

Third, one could wonder whether the results are driven by ephemerality. While written communication usually creates a permanent record, oral communication usually disappears right after it occurs. Consequently, maybe people use less emotional language when writing because they are concerned there will be a record of what they said. This alternative, however, cannot explain the results of the current study where ephemerality was the same across conditions (i.e., participants knew they were being recorded in both conditions).

Fourth, one could wonder whether the results are driven by synchronicity. Synchronous communication involves information exchange in real time, while asynchronous communication does not. In a phone call, for example, the two parties talk back and forth synchronously, while in email, one person may write and the other may respond hours later. Oral communication tends to be more synchronous, and one could argue this increased social pressure might increase emotional language. This alternative cannot explain the results of the current study, however, where synchronicity was the same across conditions. Neither modality involved a conversation partner waiting for a response.

Fifth, one could wonder whether the results are driven by production time. Because it takes longer to write than speak, people usually produce less content when writing (Chafe and Tannen 1987). This, in turn, might lead them to cut anything extraneous, which one could argue

might reduce emotional language. Note, however, that some prior work finds the exact opposite. In the context of smartphone usage, for example, Melumad, et al. (2019) found that generating briefer content encourages people to focus on the gist of their experience, which in turn leads people to use *more* emotional language (not less). If anything, then, the fact that people produce fewer words when writing should work against our hypothesis as it should make them more likely to use emotional language.

Along these lines, we specifically choose an outcome variable to avoid potential confounds with content length. While some work has used the percentage of emotional words in a passage as a measure of emotion, this approach can be biased by word count (Garten et al. 2018; Rocklage and Rucker 2019; Sterling, Jost, and Bonneau 2020). The gist tends to focus on emotion (Melumad et al. 2019), but things beyond that may just involve filling in less important or less emotional details. Consequently, using a measure that involves length might lead to the erroneous conclusion that speaking leads to less emotionality (in this case, a smaller percentage of emotional words) simply because more content was created. By focusing on maximum emotionality, however, we avoid this potential concern, which is one of several reasons this measure is preferred to approximate an individual's emotional expression (Rocklage, et al. 2018b; Rocklage and Luttrell 2021). Note that our results also hold controlling for word count.⁷

⁷ Word count (log transformed to correct for skewness) is not significantly related to emotionality ($F(1, 166) = .193$, $p = .66$, $\eta^2_p = .001$), and even when it is included in the analysis, the effect of modality persists ($F(1, 166) = 3.066$, $p = .08$, $\eta^2_p = .02$).

EXPERIMENT 2: TESTING THE ROLE OF DELIBERATION

Experiment 2 has two main goals. First, we better control for the communication audience. In Experiment 1, one could argue that speaking somehow led people to think about a closer other to express their opinion to, which led them to use more emotional language. While this seems unlikely, to rule out this possibility, Experiment 2 has participants write down a specific target they would share the opinion with before being assigned to condition.

Second, we begin to test the hypothesized process. We measure how much participants deliberated about what to say and test whether it mediates the effect of expression mode on emotionality.

Method

Participants (N = 60, recruited through Mechanical Turk) completed a “Restaurant Review Study” online for payment. They were told that the experimenters were interested in people’s opinions of restaurants and asked to respond to a variety of questions. Given Experiment 1 found no moderating effect of attitude valence, Experiment 2 and subsequent studies focus on positive attitudes for simplicity and because they are far more prevalent in word of mouth (East, Hammond and Wright 2007).

First, participants were asked to provide two sit-down restaurants that they like a lot. Then, for each restaurant, they listed the initials of a close other (i.e., friend or family member) who didn’t know about that restaurant and who they might tell about it. This information was collected before random assignment to expression mode to ensure that condition did not impact the nature of the restaurants or communication audience listed.

Second, participants shared their opinions about the restaurants. The only difference between conditions was expression mode. In the written condition, participants were shown the name of a restaurant they listed, and the initials of the corresponding person, and asked to imagine they wanted to tell that person about the restaurant. They were then asked to write a message to them (see Appendix for more detail). Instructions were identical in the *audio* condition, except that participants recorded an audio message. All participants completed both modality conditions, and everything was randomized including which modality was completed first and which restaurant was associated with which modality.

Finally, we measured the hypothesized underlying process (i.e., deliberation). Participants were asked how much they deliberated about what to say (1 = didn't deliberate at all, 7 = deliberated a great deal).

Emotionality was measured using the same approach as Experiment 1. Given each participant both spoke and wrote a review, we used mixed-effects modeling to account for the multiple reviews per participant (reviewer random effect) and participant mean-centered the continuous variables (Hamaker and Muthen 2020). As in Experiment 1, we controlled for attitude extremity to assess the effects on emotionality per se.

Results

As predicted, and consistent with Experiment 1, modality influenced emotionality. Compared to writing ($M = 5.89$), speaking increased emotional language ($M = 6.52$; $\gamma = .32$, $t(58) = 2.74$, $p = .008$). In the written condition, for example, participants tended to express how “excellent” the restaurant was and how it was one of their “favorite” places to go. In the oral

condition, on the other hand, participants used more emotional language, expressing how “enjoyable” and “amazing” the restaurant was.

Further, expression modality also influences deliberation. Participants reported deliberating less about what to say when speaking ($M = 3.48$ vs. 3.88 ; $\gamma = -.20$, $t(59) = 1.78$, $p = .08$).

Finally, there was some evidence that the effect of expression modality on emotionality was influenced by deliberation. Speaking led participants to deliberate less about what to say, which in turn led to more emotional language in what they shared ($\gamma = -.23$, $t(57) = 1.72$, $p = .09$; indirect effect: $\alpha = .84$ CI: [.0001, .1064]).

Discussion

Experiment 2 replicates the findings of Experiment 1 and provides preliminary evidence for the underlying process behind the effect. First, as predicted, expression modality influenced what people shared. Consistent with our theorizing, speaking led people to use more emotional language than writing. Second, as predicted, deliberation seemed to play a role in these effects. Speaking led participants to deliberate less about what to say, which in turn, led them to use more emotional language.

Fixing both the attitude object, and the communication audience, casts doubt on the possibility that these factors could drive the effects. While one could argue that speaking or writing might encourage people to think about different restaurants (Berger and Iyengar 2013), or different people to tell about those restaurants, fixing those dimensions before asking people to write or speak rules out these alternatives.

Ancillary analyses also cast doubt on other alternative explanations. First, one could wonder whether using a within subjects design somehow drove the effects. The fact that Experiment 1 found the same results using a between subjects design casts doubt on this possibility, but to test it even further, we examine whether the effects in Experiment 2 are moderated by whether a review appears first or second. They are not, casting further doubt on the notion that something about a within subjects design drove the effect.

Second, one could wonder whether the effects are driven by the specific dependent variable used. Maybe there is something unusual about maximum emotionality which led to the effect. While a great deal of prior work has used this measure to capture emotionality (Rocklage, et al., 2018b; Rocklage and Luttrell 2021), to further test this possibility, we use an alternate measure of emotionality. In addition to the main measure used, some work has also measured emotionality through its average, so we reanalyze Experiment 2 using this alternate approach. Results remain the same. Oral expression significantly increased emotionality compared to writing ($\gamma = .15$, $t(58) = 2.02$, $p = .048$). This casts doubt on the notion that the dependent measure is driving the effect.

EXPERIMENT 3: FURTHER PROCESS TESTS

Experiment 3 uses moderation to test the underlying process. If speaking increase emotionality because it decreases deliberation, as we suggest, then the effects should be moderated by individual differences in the degree to which people spontaneously express emotion (i.e., emotional expressivity, Kring, Smith, and Neale 1994). Speaking, which involves

less deliberation and thus more spontaneity, should be particularly likely to boost emotionality among individuals high in emotional expressivity.

In addition, we use an alternate method of collecting spoken opinions. While speaking into a microphone controls for some things, one could argue that it may seem artificial. To test the generalizability of the effect, Experiment 3 has participants leave a voicemail in spoken condition and write an email in the written condition, just as people often do in everyday life.

Method

Methods were similar to those used in Experiment 2. Participants (N = 175, recruited through a behavioral lab) completed an online study for payment. They wrote down two restaurants they like a lot, a person they might tell about each, and shared thoughts about each restaurant, either through speaking or writing.

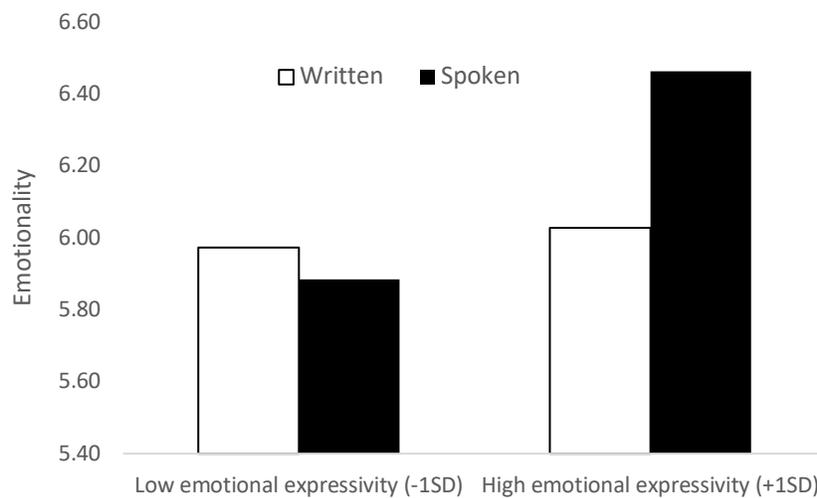
In the speaking condition, participants called a specific phone number (set up by a 3rd party vendor) and left a voicemail message, as they might for a friend. In the writing condition, participants wrote in a text box, just as they would when emailing a friend. As in Experiment 2, all participants spoke about one restaurant and wrote about the other, in randomized order.

Participants also completed a measure of emotional expressivity (adapted from Kring, et al., 1994). They provided the degree to which six different statements described them (e.g., “I think of myself as emotionally expressive” and “I hold my feelings in” reverse coded, 1 = Never True, 6 = Always True). Emotionality was measured using the same approach as the first two studies, and we used the same mixed-effects approach from Experiment 2 to analyze the data.

Results

Analysis revealed the predicted Modality x Emotional Expressivity interaction ($\gamma = .13$, $t(172) = 2.29$, $p = .02$, Figure 2). Consistent with our theorizing, compared to writing, speaking led emotionally expressive participants (+1 SD) to use more emotion ($\gamma = .21$, $t(172) = 2.68$, $p = .008$). This difference was mitigated, however, among participants low in emotional expressivity (-1 SD; $\gamma = -.04$, $t(172) = .55$, $p = .58$).⁸

FIGURE 2: EMOTIONAL EXPRESSIVITY MODERATES THE EFFECT OF MODALITY ON EMOTIONALITY



Discussion

Experiment 3 provides further evidence for the impact of expression mode and the underlying process behind this effect. Consistent with the first two studies, expression mode shaped what people shared, but as predicted, this was moderated by individual differences in emotional expressivity. Consistent with the notion that the effects are driven by deliberation, they were stronger among people who are more likely to spontaneously express emotion.

⁸ Results remain the same controlling for whether participants completed the voice or written condition first.

Showing the effects are robust to an alternate method of collecting spoken opinions (i.e., voicemail) speaks to the generalizability of the effect.

EXPERIMENT 4: MODERATING ROLE OF DELIBERATION

Experiment 4 further tests the underlying role of deliberation through moderation. If communication mode's influence on emotionality is driven by deliberation, as suggested, then encouraging deliberation should mitigate the effect. Encouraging speakers to take time to think about what to say should make them look more like writers and decrease the emotionality of what they share. Experiment 4 tests this possibility.

The study also tests additional alternative explanations. While the results so far cast doubt on numerous alternatives (e.g., social presence, audience size, ephemerality, synchronicity, and production time), one could still wonder whether they might be driven by norms, associations, or goals. If people think that writing should be more formal or professional, and if emotional language is seen as less professional, then maybe people use less emotional language when writing not because of deliberation, but because of these norms of the mode. Similarly, maybe there is no conscious norm, but people associate writing with fact-based appeals and so use less emotion. Along these lines, maybe writing or speaking is associated with particular goals (e.g., to persuade) and this shapes emotionality.

Alternatively, one could wonder whether the effect is driven by the opportunity for revision. Writing can be more easily revised before sharing than spoken content, so rather than it being about content production, maybe the effect is driven by participants revising the written content they produced to remove emotional language before sharing.

The mediation by deliberation in Experiment 2 (and moderation in Experiment 3) casts doubt on these alternatives, but Experiment 4 tests them even further. The norms, associations, and goals associated with speaking should be the same, for example, whether people deliberate before speaking or not. The same is true for the ability to revise written content. Consequently, if encouraging deliberation moderates the effect, it makes it even less likely that these alternatives can explain the results.

Method

Methods were similar to Experiment 2. Participants ($N = 204$, from Mechanical Turk) completed an online study for payment in a 2(expression mode: speaking vs. writing) \times 2(control vs. deliberation) mixed design. They were asked to list two restaurants they like, a person they might tell about each, and then shared thoughts about each restaurant by writing or speaking.

Beyond manipulating communication mode, we also manipulated deliberation. For half the participants (control condition), there were no additional instructions, but for the other half of participants (deliberation condition), we increased deliberation. Before being asked to share their thoughts about each restaurant, they were asked to “take a few moments to organize your thoughts.” Emotionality was measured using the same approach as in the other studies and we used the same analysis approach as Experiments 2 and 3.

Results

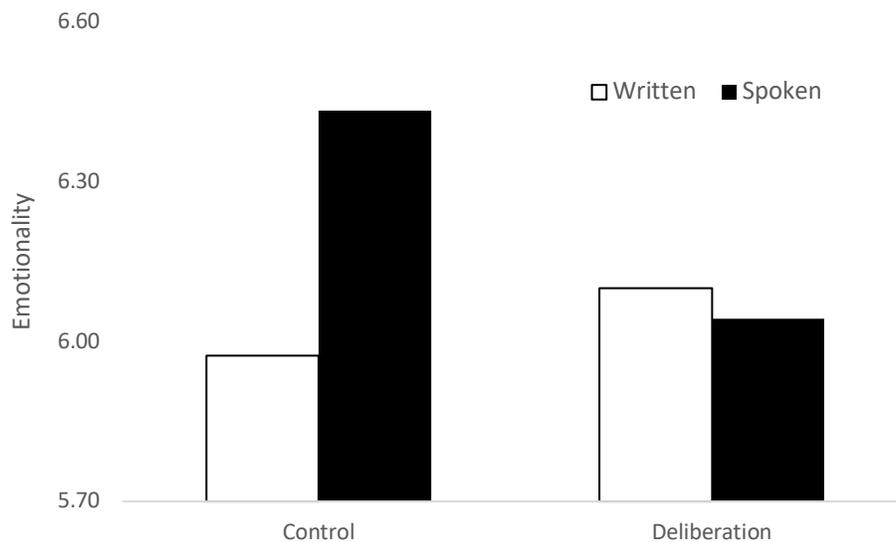
Results revealed the predicted expression modality by deliberation interaction ($\gamma = -.13$, $t(201) = 2.13$, $p = .03$, see Figure 3). In the control condition, results replicated those found in the first three studies. Compared to writing ($M = 5.97$), speaking increased emotionality ($M =$

6.43; $\gamma = .23$, $t(201) = 2.90$, $p = .004$). Increasing deliberation, however, mitigated this effect.

Taking a moment to think before sharing recued the difference between the speaking and writing conditions ($M = 6.10$ vs. 6.04 ; $\gamma = -.03$, $t(201) = .31$, $p = .76$).

Further, consistent with our theorizing, this mitigation in emotionality was driven by how increasing deliberation changed spoken communication. While deliberation had no effect on writer's use of emotional language ($M = 5.97$ vs. 6.10 ; $\gamma = .06$, $t(379.61) = .64$, $p = .52$), taking a moment to think before sharing led speakers to use less emotional language ($M = 6.43$ vs. 6.04 ; $\gamma = -.20$, $t(379.61) = 1.97$, $p = .05$).

FIGURE 3: DELIBERATION MODERATES MODALITY'S EFFECT ON EMOTIONALITY



Discussion

Experiment 4 underscores the role of deliberation through moderation. As shown in the first three experiments, speaking led to more emotional language than writing because it is naturally less deliberative. Encouraging deliberation, however, mitigated the impact of

communication mode and led speaking to look more like writing. People are less likely to rely on emotions when making more deliberative judgments, so encouraging speakers to deliberate more before speaking reduced the emotionality expressed. Deliberation engages a more thoughtful, analytical mindset, which often blunts emotionality

These findings also cast further doubt on alternative explanations. While one could argue that the effects are driven by speaking and writing having different norms, associations or goals, or that they occur because writing provides the opportunity to revise content once it is produced, these alternatives cannot explain why increasing deliberation would mitigate the effect.⁹

EXPERIMENT 5: IMPACT ON WORD OF MOUTH RECIPIENTS

The final study tests whether expression mode's impact on emotional language spills over to shape the attitudes of word of mouth recipients. Imagine a friend told you about a movie. Could the fact that they spoke to you, rather than wrote to you, change the emotionality of the language they use to talk about the film, and thus your interest in going to see it? Experiment 5 tests this possibility.

Importantly, while we are interested in emotional language, note that this is not the only way expression mode might impact observer attitudes. Speaking also often involves less formal language, more words produced, paralinguistic cues, and other aspects (Chafe and Tannen 1987; Schroeder and Epley, 2015; Schroeder, Kardas, and Epley, 2017; Van Zant and Berger 2020), all of which might independently impact observer attitudes. Consumers are more likely to follow

⁹ One could also wonder whether speaking increased arousal (e.g., nervousness) and this drove the shift in emotionality. Neither nervousness while sharing (1 = Not at all nervous, 7 = Extremely nervous) nor jitteriness (1 = Not at all jittery, 7 = Extremely jittery), however, predicted emotionality ($p = .97$ and $p = .45$, respectively). Note that due to a Qualtrics error, not all participants completed this measure.

spoken recommendations, for example, because it is more difficult to process auditory information so heuristics like recommendations have a bigger impact (Munz and Morowitz 2020)

Consequently, given our theory focuses specifically on emotionality, our key theoretical test focuses on this as well. Rather than examining the overall direct effect of expression modality on observer attitudes, which should depend on the confluence of many factors, our theory makes a more nuanced prediction: that there should be an indirect effect of expression mode through emotional language. Consequently, we test whether, by increasing emotional language, and thus observer perceptions of expressed emotion, expressing positive opinions orally will increase observer attitudes.

Method

Participants (N = 201, from Mechanical Turk) completed a “Restaurant Study.” They were asked to imagine that someone they know told them about a restaurant and asked to answer some questions based on what that person shared.

Participants were randomly assigned the language from one of the opinions expressed by a participant from Experiment 2, and based on it, completed the dependent measure: how interested they would be in trying the restaurant (1 = not at all interested; 7 = Extremely interested).¹⁰ In addition, to capture the underlying process, they rated how emotional the description of the restaurant was (1 = Not at all emotional; 7 = Extremely emotional). Participant completed this process multiple times, each for another randomly selected participant from

¹⁰ Speaking and writing can have a number of effects on downstream behavior outside of differences in the language produced (e.g., Schroeder and Epley, 2015). Consequently, to avoid the potentially confounding impact of modality itself, Study 5 focused just on language. This is similar to reading the transcriptions of a friend’s voicemail or an email from that same friend.

Experiment 2. To avoid the name of the restaurant biasing responses, they were removed, as were any greetings (e.g., “Hi Susan”).

Given each participant rated multiple reviews, and each reviewer (from Experiment 2) wrote multiple reviews, we mean-centered the continuous variables (Hamaker and Muthen 2020) and extend the mixed-effects modeling approach from Experiments 2-4 to account for both sources of variance. Specifically, we used random effects to capture the variance attributable to the reader and reviewer.

Results

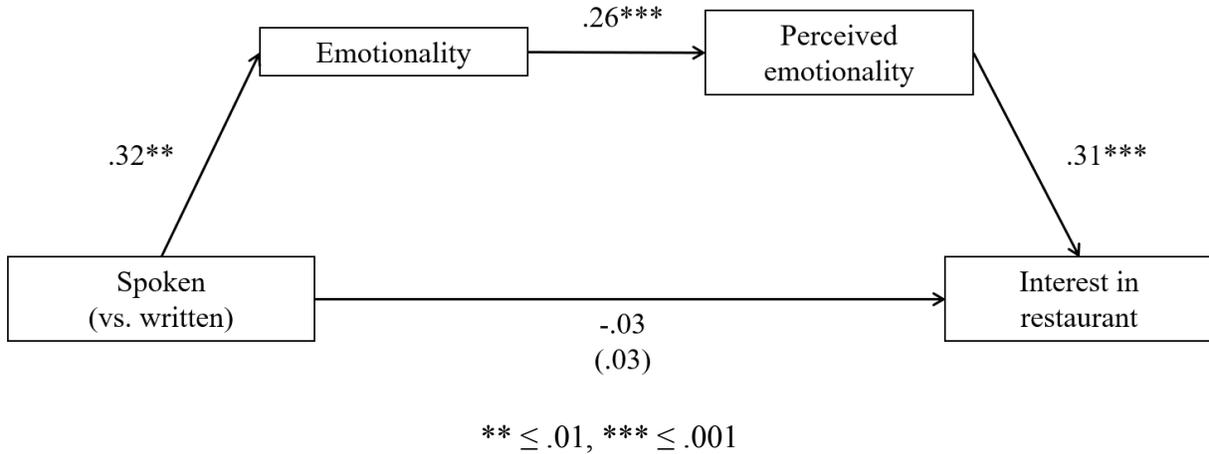
As predicted, expression mode influenced observer attitudes through emotional language. Following prior work on mediation in mixed-effects models (Bauer, Preacher, and Gil 2006; MacKinnon, Lockwood, and Williams 2004), we used 20,000 Monte Carlo simulations to calculate the 95% confidence interval of the indirect effect. The resulting 95% confidence interval did not include 0, indicating a significant indirect effect (95% CI: [.006, .050]).

More specifically, as shown in our prior studies, speaking (vs. writing) led reviewers to use more emotional language ($\gamma = .32, t(58) = 2.74, p = .008$). Replicating these findings, word of mouth recipients in the current study perceived spoken (vs. written) reviews to be significantly more emotional ($\gamma = .16, t(550.71) = 2.71, p = .007$). Moreover, increases in emotionality led receivers to perceive the review as more emotional ($\gamma = .26, t(272.10) = 4.62, p < .001$).¹¹ Greater perceived emotion, in turn, predicted greater interest in dining at the reviewer’s restaurant ($\gamma = .31, t(447.77) = 6.88, p < .001$; see Figure 4).

¹¹ Note that while our linguistic measure (i.e., max emotionality) was well correlated with perceived emotion, LIWC’s affect measure was not emotion ($\gamma = -.018, t(387.36) = .84, p = .40$). This underscores the correctness of Evaluative Lexicon in this context.

Note that the indirect path also holds if perceived emotionality is removed (95% CI: [.003, .091]). Compared to writing, speaking led observers to be more interested in trying the restaurant because it used more emotional language ($\gamma = .12, t(291.02) = 2.26, p = .025$).

Figure 4: Speaking Increases Interest by Boosting Emotionality



Discussion

Experiment 5 demonstrates the downstream effects of communication modality on observers. Not only does speaking lead to more emotional language (Experiments 2-4), but this, in turn, increased word of mouth recipients interest in trying the liked product. In this case, people were more interested in trying a restaurant when someone spoke rather than wrote about it, because speaking led the communicator to use more emotional language.

GENERAL DISCUSSION

Word of mouth is an integral part of consumer behavior. Consumers chat about movies, recommend restaurants, and complain about poor service and such interpersonal communication

has an important impact on what people choose and buy. Consequently, companies are investing more and more resources in driving and managing word of mouth.

But while it is clear that word of mouth is both frequent, and important, less is known about whether the mode consumers use to communicate might shape both what they share, and the impact of their communication. Might speaking versus writing shape the language consumers use, and its impact?

Five experiments test these questions. First, consistent with our theorizing, compared to writing, speaking leads people to use more emotional language (Experiment 1-4). In the context of restaurants, for example, it leads consumers to be more likely to say that they “enjoy” a restaurant and find it “amazing,” rather than that it is among the “best” they have eaten at. This fact that this effect replicates in both between and within subjects designs, and across multiple methods of collecting spoken opinions (e.g., phone messages and recordings), speaks to its robustness.

The studies rule out numerous alternative explanations. Beyond deliberation, everyday instances of speaking and writing often vary on dimensions like social presence, audience size and closeness, ephemerality, synchronicity, norms, associations, goals, production time, and the amount of content produced. Similarly, consumers may be more likely to talk about different types of products and experiences across different modalities (Berger and Iyengar 2013). While these aspects may also play a role in shaping emotional language, they have trouble explaining the effects observed here. Even when controlling for these additional differences, speaking still boosts emotional expression.

Second, the studies demonstrate the mechanism underlying this effect. Speaking tends to involve less deliberation than writing, which, in turn, leads to more emotional language.¹²

Demonstrating these effects through both mediation (Experiments 2) and moderation (Experiments 3 and 4) underscores the generalizability of these effects. Speaking is associated with greater activation of brain regions associated with affect, rather than cognition, and deliberation engages a more thoughtful, analytical mindset, which often blunts emotionality.

Third, these effects have downstream consequences for word of mouth recipients. Compared to writing, content produced through oral communication led participants to be more interested in trying a liked product because more emotional language was used (Experiment 5).

Contributions and Implications

These findings make several contributions. First, they deepen understanding around psychological drivers of word of mouth. A burgeoning stream of work has begun to examine why consumers share some things rather than others, but there has been less attention to how communication mode might impact what people share. We demonstrate one way that speaking versus writing can shape word of mouth (e.g., emotionality), and the consequences of this linguistic change for word of mouth recipients.

Second, these findings shed light on the role of language in consumer behavior. Language plays an important role in almost everything consumers do but has been relatively understudied. We contribute to the growing literature on consumer language, showing that how consumers communicate (i.e., the mode) impacts the language they use.

¹² Note that an extremely large amount of deliberation (i.e., thinking about something for hours or weeks) might have differing effects by changing people's overall attitudes. Thinking a lot about climate change, for example, may make people feel more strongly about it, and thus change the emotionality of the language they use when talking about it.

Third, this work may help explain some of the differences between online and offline word of mouth. Research has found large differences between the content of online and offline word of mouth (e.g., the valence and what is discussed, Fay and Larkin 2017) and suggests that offline word of mouth has a bigger impact on behavior (Keller and Fay 2009). Some of this may be driven by differences in the relationship between the recommender and audience, or the likelihood of back and forth conversation, but our results suggest that communication modality may also play an important role. While online word of mouth tends to be written, most offline word of mouth occurs face-to-face or on phone calls, which involve speaking rather than writing. Our results suggest this may not only lead offline word of mouth to be more emotional, but also to potentially have more impact on recipients.

Fourth, the findings have implications for various stakeholders. In some cases, marketers might want to encourage consumers to write about how they “feel” rather than what they “think” about products to enhance word of mouth persuasion in text messages, social media, and online reviews. Consumers may benefit from the knowledge that they tend to be less emotionally expressive in texts or emails, and that by doing so, may limit their own persuasiveness. Similarly, while prior work demonstrates the mental health benefits of written emotional expression (e.g., diaries or journaling, Pennebaker 1997; Pennebaker and Chung 2011), given speaking may be better suited to facilitate emotional language, recording a voice note may have greater benefits than writing.

Directions for Future Research

There are a number of interesting potential direction for future research. One promising areas is the role of communication goals. While writing tends to involve more deliberation,

people tend to deliberate less when they vent, or are already emotional (Stanovich and West 2000). Consequently, it may be interesting to examine how venting and writing combine to shape emotionality. Someone who already has the goal of venting their negative opinion, for example, may be less likely to deliberate and thus more likely to use emotional language. That said, controlling for the fact that someone is venting, oral expression may still lead to more emotionality than written. Venting on a phone call, for example, should likely produce more emotional language than venting through writing.

Audience characteristics also deserves further attention. By keeping things like audience size and social closeness constant across conditions, these alternatives cannot explain our results. That said, these factors may still shape emotionality in the field (Berger 2014). People may be more likely to use emotional language when communicating with close others, for example, because they know them well. Audience size may also have an effect (Barasch and Berger 2014). Compared to communicating with one person, people may share less emotion with larger groups because they are more careful about what they say.

How people write may also have an impact. Today, most writing is done on a keyboard or smartphone, and prior work demonstrates how smartphones' physically constrained nature may encourage emotional expression (Melumad et al., 2019). But how might writing by hand impact emotionality? While it is hard to say for sure, if writing by hand encourages more fluid thought or imagination, it may boost emotional language.

It's also interesting to consider how speech to text technologies might shape emotionality. While these tools allow people to easily turn their voice into written form, they also subtly shift the process of content creation. Because one often has to speak slowly, or take

breaks between sentences, this may encourage more deliberation than is common for oral communication. This, in turn, may decrease emotionality.

Textual paralanguage (e.g., Luangrath, et al. 2017) could also be examined. We did not observe the use of emojis or emoticons in our studies, but more people have started to use these features when communicating online or via text. Young people may be particularly likely to use such features, thus future work might examine how people convey emotion through both language and textual paralanguage.

Individual differences may also play a role. Things like need for cognition or education may shape how much people deliberate in general, and when writing. Younger people, who are used to communicating quickly through chat and apps, may not deliberate as much about their messages and therefore show somewhat different effects on emotionality

Future work might also explore whether different types of deliberation have different effects. Time to construct and refine what to say can occur before content production (e.g., pausing before starting to write or speak), during content production (e.g., pausing between sentences), or both. When writing an email, for example, someone can pause before they start writing, as well as during the writing process, and both provide time to deliberate. When someone runs into a friend unexpectedly, however, there is little opportunity for deliberation before production. The synchronicity of the interaction means that interaction partners have little time to think about what to say once the conversation starts, and the fact that the interaction was a surprise means that it is unlikely that people deliberated about what to say in advance. Voicemail, however, splits the difference. People can plan what to say in advance, but once they start speaking, it is hard to pause and deliberate.

Deliberation before sharing might be particularly important because it shapes what comes after. Once people start speaking, for example, we find that they naturally shift toward emotionality. As a result, if people are then given the chance to deliberate *during* their speaking, this may have less of an impact because they have already selected topics, trains of thought, or directions that are shifted toward emotion. Consequently, deliberation prior to speaking is likely to be particularly effective because it leads individuals away from this tendency from the outset.

While we focused on observer attitudes, expression modality could also affect producer attitudes as well. Most word of mouth research focuses on how what people share shapes the attitudes of others, but word of mouth can also impact the sharer, affecting their evaluations of what they talked about (Moore 2012) or their connections with brands (Shen and Sengupta 2018). In this case, sharing an opinion should highlight whatever was discussed in that opinion. Consequently, similar to the observer effects, using more emotional language to talk about a product or experience might lead producers to like it more as well.

One could also examine moderators of the effect of emotional language on observers. While we found that emotional language led observers to be more interested in a restaurant, things like the product category or the consumption modality might shift the outcome. Emotional language can increase persuasion, for example, but for more utilitarian product categories (e.g., a printer) the effects may reverse (Rocklage and Fazio 2020). Similarly, whether observers are listening or reading could also play a role. Not only should the effects of listening depend on producer vocal features, but the same language may also have different effects depending on whether it is consumed visually or auditorily.

We focused on how expression mode impacts observers through emotionality, but it might also have other direct effects. Prior work, for example, finds that consumers are more

likely to follow spoken recommendations because it is more difficult to process auditory information which leads people to rely on heuristics to make decisions (Munz and Morowitz 2020). Hearing someone speak can also make them appear more thoughtful (Schroeder and Epley, 2016; Schroeder et al, 2017) which might boost persuasion. Expression mode may also impact how confident someone seems, and while it is easy to go back and re-read what someone wrote, this is harder to do for spoken opinions, which should have a variety of downstream consequences.

While most of our studies focused language production, future research might also examine emotionality in language consumption. Prior work on bilinguals, for example, finds that the same words tend to be perceived as more emotional when they are expressed in consumers' native language (Putoni, De Langhe, and Van Osselaer, 2009). Similar notions might apply to communication modality. The same words, for example, might vary in how emotional they seem when they are spoken rather than written. The effect of emotional language on audiences could also depend on culture. While emotional expression is looked on positively in places like the U.S. and Europe, Chinese and Japanese cultures place a premium on being solemn and reserved.

Conclusion

In conclusion, while word of mouth is both frequent and important, there has been less attention to how different communication modalities might shape what people share, and thus its influence on an audience. Hopefully understanding more about different communication modes, channels, and audience factors, can shed light on both the language underlying word of mouth, and its impact.

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