

# Communication Channels and Word of Mouth: How the Medium Shapes the Message

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Consumers share word of mouth face to face, over social media, and through a host of other communication channels. But do these channels affect what people talk about and, if so, how? Laboratory experiments, as well as analysis of almost 20,000 everyday conversations, demonstrate that communicating via oral versus written communication affects the products and brands consumers discuss. Compared to oral communication, written communication leads people to mention more interesting products and brands. Further, this effect is driven by communication asynchrony and self-enhancement concerns. Written communication gives people more time to construct and refine what to say, and self-enhancement motives lead people to use this opportunity to mention more interesting things. These findings shed light on how communication channels shape interpersonal communication and the psychological drivers of word of mouth more broadly.

Consumers communicate through a variety of different channels. They talk face to face, chat over the phone, and text back and forth. Further, the advent of social media has led more and more people to communicate with others via Facebook, Twitter, blogs, and other online channels.

But while it is clear that people communicate frequently with others, and that such communication has important implications for consumer behavior, less is known about how the medium might shape the message. Does the particular channel consumers communicate through affect what they talk about and share, and if so, how?

Seemingly conflicting prior research findings suggest an intriguing possibility. Intuition, as well as some prior work,

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suggests that interesting things (e.g., iPhones) should be talked about more than boring ones (e.g., dish soap). More interesting *New York Times* articles were more likely to make the *Times* Most E-mailed list (Berger and Milkman 2012), for example, and more interesting URLs were tweeted more (Bakshy et al. 2011). At the same time, however, other research finds that more interesting products do not get talked about more frequently than mundane ones (Berger and Schwartz 2011). What might account for these seemingly inconsistent findings?

One reason may be the word-of-mouth channel examined. Research using online word-of-mouth data (Bakshy et al. 2011; Berger and Milkman 2012) found that interesting things get talked about more, but research using face-to-face word-of-mouth data (Berger and Schwartz 2011) failed to find such effects. Might these different results hint at how communication channels affect what people talk about and share?

While some work has examined the behavioral drivers of word of mouth (Berger 2011; Berger and Milkman 2012; Berger and Schwartz 2011; Cheema and Kaikati 2010; Dubois, Rucker, and Tormala 2011; Packard and Wooten 2012; see Berger [2013] for a review), there has been less attention paid to how communication channels affect what people discuss. Further, most papers rely on data from only one channel (e.g., online reviews: Chevalier and Mayzlin 2006; e-mail: Berger and Milkman 2012; or face-to-face communication: Berger and Schwartz 2011; Godes and Mayzlin

2009), making it difficult to say much about how the channel itself has an impact on word of mouth.

This paper investigates how the medium shapes the message and how the channel consumers communicate through affects the products and brands they discuss. In particular, we suggest that compared to oral communication, written communication (e.g., texting, instant messaging, or posting online) leads people to bring up more interesting products and brands. One reason is that written communication is more asynchronous (i.e., it provides more time to construct and refine what to say). People have a natural tendency to self-enhance, but selecting the right thing to say requires time. Written communication thus provides the opportunity to polish communication, and self-enhancement concerns lead people to use that opportunity to talk about more interesting products and brands.

We test these ideas in two ways. First, three experiments test the causal impact of communication mode as well as the underlying roles of asynchrony and self-enhancement. Second, two unique data sets containing thousands of everyday conversations provide evidence for our perspective in the field. Taken together, our results shed light on how communication channels affect word of mouth and illuminate the underlying drivers of interpersonal communication more generally.

## WORD OF MOUTH

A great deal of research has demonstrated that word of mouth affects choice, diffusion, and sales. Consumers are more likely to buy DVDs their friends recommend (Leskovec, Adamic, and Huberman 2007), and doctors are more likely to prescribe prescription drugs that other doctors whom they know have prescribed previously (Iyengar, Van den Bulte, and Valente 2011). Similarly, word of mouth and online reviews have been shown to foster the spread of information (Goldenberg, Libai, and Muller 2001), boost new customer acquisitions (Schmitt, Skiera, and Van den Bulte 2011), and increase sales in various product categories (Chevalier and Mayzlin 2006; Godes and Mayzlin 2009).

Practitioners often argue that products need to be interesting to be talked about (Dye 2000; Hughes 2005). In his popular book on word-of-mouth marketing, for example, Sernovitz (2006, 6) argues that the most important way to generate word of mouth is to “be interesting” and that “nobody talks about boring companies, boring products, or boring ads.”

Things can be interesting because they are novel, exciting, or surprising or because they violate expectations in some way (Berlyne 1960; Silvia 2006, 2008). Interest is a source of intrinsic emotion and often involves two components: novelty and comprehensibility (Silvia 2008). Novelty refers to things that are new, surprising, exciting, or complex (Berlyne 1960). Comprehensibility refers to the fact that the novelty must be understandable. Things that are novel and comprehensible are interesting, while things that are novel and incomprehensible are confusing (Silvia 2008).

While there is certainly some variation across individuals

in what people find interesting, there is also a great deal of agreement. Most consumers see iPhones as more interesting to talk about than ketchup, or Nike as more interesting to talk about than Tide. Indeed, prior research finds high interrater reliability when groups of people are asked to rate how interesting they find different products or news articles (Berger and Milkman 2012; Berger and Schwartz 2011).

As noted previously, however, research testing how interest affects transmission has found differing results. Bakshy et al. (2011) attempted to quantify individual influence on Twitter and, as an ancillary analysis, examined the interestingness of content users shared. Online content rated as more interesting was shared across more people. Berger and Milkman (2012) directly examined the virality of online content, and while their analyses focused on how emotions affect sharing, they also measured interest as a covariate. They found that more interesting news articles were more likely to be highly shared. Berger and Schwartz (2011, 873), however, examined predominantly face-to-face word of mouth about products and brands. In addition to examining public visibility and accessibility, they found that “more interesting products . . . did not receive more overall WOM.”

## THE CURRENT RESEARCH

We examine whether different communication channels might help explain these seemingly conflicting findings. In particular, we suggest that communication modality (i.e., oral vs. written communication) should affect whether people mention more or less interesting products and brands. Further, we suggest that these effects are driven by the synchronicity of the communication channel, or how much the channel provides people the time to construct and refine communication.

One basic difference between different communication channels is their modality (i.e., spoken or written; see Chafe and Tannen [1987] for a review). Face-to-face or phone conversations involve spoken or oral communication. Texting, messaging, tweeting, and most online conversations, however, involve written communication.

Different modalities differ in their synchronicity (Clark and Brennan 1991; Morris and Ogan 1996). Oral conversation tends to be rather synchronous: people interact in real time, and there is relatively little delay between one conversation partner’s utterances and another’s response. Written conversations, however, tend to be more asynchronous. One person sends an e-mail and the other responds hours or days later. Even texting or online chat, which allows people to interact in closer to real time, is usually somewhat asynchronous, with people taking breaks between responding to chats or replying to a text hours later. Thus, asynchrony is a continuum. Written communication is generally more asynchronous than oral communication, but different types of written communication vary in their asynchrony (e.g., letters are more asynchronous than texting).

Asynchrony provides time to construct and refine communication. Rather than saying whatever comes to mind, or speaking off the cuff, people can take the time to formulate

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what to say or edit their communication until it is polished (Chafe and Danielewicz 1987; Redeker 1984; Walther 2007, 2011). Horowitz and Newman (1964), for example, found that written communication generated less repetition (of words, as measured by type-token ratio, as well as phrases and whole parts of sentences), more ideas per word, and fewer peripheral or irrelevant ideas (also see Horowitz and Berkowitz 1967). Rettie (2009, 1143) examined text messages and argued that “its asynchrony provides thinking time, enabling interactants to choose their words carefully rather than responding impetuously.” Note that this deliberation occurs not only between conversational turns but also when conversations start. Blass and Siegman (1975) looked at the amount of time that elapsed between the end of an interviewer’s question and the beginning of the interviewee’s response and found that the initial utterance was significantly delayed in written compared to oral communication (6.6 vs. 2.3 seconds).

As a result, asynchrony should allow people greater opportunity to engage in selective self-presentation (McKenna and Bargh 2000; Walther 2011; Walther and Burgoon 1992). Most research in this area has been theoretical in nature, but there are some empirical results that support this claim. Walther (2007), for example, looked at how long people spent editing computer-mediated messages depending on whom they were talking to. He found that men spent more time editing messages when they were talking to attractive others (i.e., women of the same age). Similarly, research suggests that online dating leads people to self-present more because they have the time to massage and manage their profiles (Toma and Hancock 2010). Further, requests made by e-mail were seen as more polite than those made by voice mail (Duthler 2006). As Toma, Hancock, and Ellison (2008, 3) note, “asynchronicity . . . allows people to formulate their ideas into more composed and thoughtful messages. They can plan, create, and edit their self-presentation.”

Taken to a word-of-mouth context, we suggest that the asynchrony written communication provides should have an impact on the products and brands people mention. One reason people share word of mouth is to self-enhance (Dichter 1966; Packard and Wooten 2012; Wojnicki and Godes 2010), and talking about interesting things should make someone look better than talking about mundane ones (Berger and Schwartz 2011). If asynchrony truly allows for more opportunity for self-enhancement, it should lead people to talk about more interesting things. As a result, compared to oral communication, written communication should lead people to talk about more interesting products and brands because it provides more time to construct and refine what to say.

We test this idea using both laboratory experiments and field data. Studies 1 and 2 manipulate communication modality to see whether it leads people to talk about more interesting products. The studies also test the underlying role of asynchrony, examining whether it mediates the effects, and whether pausing before communication mitigates

the effect of modality. Study 3 examines the hypothesized role of self-enhancement, examining whether boosting self-enhancement motives has a greater impact on written communication because it provides more opportunity to refine communication. Studies 4 and 5 use actual word-of-mouth data from over 7,000 consumers about more than 20,000 products and brands. They examine what people talk about in written (i.e., online, text, and e-mail) and oral (i.e., face-to-face and phone) communication to see whether interest has a greater impact on what people discuss in more asynchronous communication channels.

Note that synchronicity is not the only difference between written and oral communication (see Chafe and Tannen [1987] for a discussion of some other differences). Writing is more permanent (i.e., generates a written record) and formal, requires more effort, involves less social presence, and can provide heightened anonymity (at least compared to face-to-face oral communication). Although these factors may also shape what people share (something we elaborate on in the General Discussion), we control for them in our experiments to isolate the causal impact of synchronicity. In one condition in study 1, for example, we add a pause to oral communication to test the role of asynchrony. Permanence, effort required, formality, social presence, and anonymity should all be the same when people communicate orally, regardless of whether they pause or not, but adding the pause directly tests the impact of asynchrony.

## STUDY 1: ORAL VERSUS WRITTEN COMMUNICATION

Study 1 provides a preliminary test of whether communication modality influences whether people talk about more interesting products and brands. We simply manipulate whether participants had a product-related conversation using oral or written communication and measure the interestingness of the products and brands they discuss. If our theory is correct, written communication should lead people to mention more interesting products and brands.

We also add a third condition (oral + asynchrony) to shed light on the process behind these effects. Manipulating communication modality tests how communication channel affects word of mouth, but to more directly examine why, we keep the channel itself constant and manipulate communication asynchrony. Participants in this condition used oral communication but paused briefly before communicating, allowing us to examine how asynchrony affects which products and brands people mention.

### Method

One hundred and seventy-eight undergraduates at the University of Pennsylvania engaged in a conversation task. They were paired together and asked to have a short conversation about products and brands. They were told they could talk about any product or brand they wanted but that the conversation should focus on products and brands. Participants

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were randomly assigned to use oral (i.e., face-to-face) or written (i.e., instant messenger) communication.

In a third condition (oral + asynchrony), participants used oral communication but paused before speaking. They were told that research on conversation styles has shown that some people tend to pause more during conversations than others, and they were asked to adopt this style of conversation. They were told that they should speak at a regular pace when talking, but that they should wait 10 seconds at the beginning of the conversation and at least 5 seconds before responding to what the other person said. Pilot data confirm that the manipulation had its intended effect. Compared to regular face-to-face interaction, people who were asked to pause before talking reported having more time to think about what to say ( $1 = \text{no time at all}$ ,  $7 = \text{a great deal of time}$ ;  $M = 3.96$  vs.  $2.61$ ;  $F(1, 40) = 5.69$ ,  $p < .03$ ).

We collected the first product or brand each participant discussed, and outside raters (undergraduates from the same university as the study participants) coded how interesting they thought most students would find each product or brand to talk about ( $1 = \text{not at all}$ ,  $7 = \text{a great deal}$ ;  $M = 5.03$ ,  $SD = 1.57$ ; adapted from Bakshy et al. 2011). Products like Apple's iPhone, augmented reality glasses, and laptops were rated as highly interesting to talk about while products like fingernail polish, chairs, and toothpaste were rated as not very interesting to talk about. Consistent with prior work examining interest (Berger and Milkman 2012; Berger and Schwartz 2011) there was reasonably high reliability ( $\alpha = .83$ ) across the raters, suggesting that there is good agreement across people regarding what products are seen as more interesting.

Finally, we tested an alternative explanation. One could argue that encouraging participants to pause was unnatural, which might increase discomfort and lead people to talk about more interesting things. To test this possibility we measured discomfort ("How comfortable were you talking with your conversation partner?"  $1 = \text{not at all}$ ,  $7 = \text{extremely}$ ) after participants finished talking.

## Results

A one-way ANOVA found that communication modality influences whether people talk about more or less interesting products and brands ( $F(2, 176) = 4.34$ ,  $p = .01$ ). People talked about more interesting products and brands when they used written ( $M = 5.25$ ) as opposed to oral communication ( $M = 4.34$ ;  $t(176) = 2.94$ ,  $p < .005$ ). Further, comparing the two oral conditions, pausing briefly before communicating led people to talk about more interesting products ( $M_{\text{Oral+Asynchrony}} = 5.02$  vs.  $M_{\text{Oral}} = 4.34$ ;  $t(176) = 1.84$ ,  $p < .07$ ). There was no difference between the written and oral + asynchrony conditions ( $t < .80$ ,  $p > .40$ ).

*Alternative Explanations.* Discomfort has difficulty explaining the pattern of results. Pausing before speaking did not make oral communication participants any less comfortable ( $M_{\text{Oral+Asynchrony}} = 4.92$  vs.  $M_{\text{Oral}} = 4.94$ ;  $t < 1$ ,  $p > .9$ ). Further, reported comfort was not correlated with the

interestingness of the products and brands discussed ( $r = .07$ ,  $p > .34$ ).

## Discussion

The results of study 1 provide preliminary support for our theorizing. Merely using written rather than oral communication led people to mention more interesting products and brands.

These results also shed light on the underlying role of communication asynchrony. Having some people pause before oral communication led them to mention more interesting products and brands. This suggests that it is not oral versus written communication, per se, that drives the effects, but the extra time to think about what to say that writing naturally provides. Even when the audience and method of communication were identical, simply having more time to think about what to say led people to mention more interesting products and brands.

As noted previously, this comparison also casts doubt on a number of alternative explanations. One could argue that social presence, heightened anonymity, effort required, or any number of other factors might explain the difference between oral and written communication. The social presence of others in face-to-face interaction might require cognitive resources to attend to (e.g., noting body language; Walther 2007), for example, or make people nervous. Alternatively, one could argue that communicating online provides heightened anonymity so people care less about what they say or that written communication is more effortful so people leave out trivialities. One could even argue that somehow people talking over the computer were primed by technology to talk about more innovative, and thus more interesting, topics.

But such factors do not explain why merely adding a pause to oral communication has the observed effects. Social presence, anonymity, and effort required should all be the same across both oral conditions, yet merely adding a pause led people to mention more interesting products and brands. Further, while one could argue that conversations start with a warm-up phase of less interesting or important topics, this explanation does not explain why communication modality, or adding a pause to oral communication, would have the observed effects.

## STUDY 2: THE MEDIATING ROLE OF ASYNCHRONY

Study 2 further tests the underlying mechanism in two key ways. First, we manipulate both communication modality and pre-communication delay to examine their independent effects on the products and brands mentioned. People communicated either orally or in writing and were asked to either start communicating right away or pause briefly before communicating.

If communication asynchrony is really driving these effects, then we should find a modality  $\times$  pausing interaction, whereby pausing before communicating should have a greater

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impact on oral communication. Oral communication tends to be synchronous, so asking people to pause should give them more time to think and thus increase the chance that interesting products are discussed (as shown in study 1). Pausing before sharing should have less of an impact on written communication, in contrast, because it is already naturally asynchronous.

Second, we further test the hypothesized process using mediation. We measure how long participants felt they had to construct and refine what to say (i.e., asynchrony) and examine whether it mediates the effects.

Finally, we also provide a preliminary test of whether accessibility plays a larger role in oral communication. Interest may play more of a role in written communication, but then what drives oral communication? If people have less time to think about what to say in oral communication, they should be more likely to talk about things that are top of mind.

## Method

One hundred and twenty undergraduates at the University of Pennsylvania completed a short experiment. They were asked to imagine communicating with someone about products and were randomly assigned to a condition in a 2 (communication modality)  $\times$  2 (pause) between-subjects design.

We manipulated communication modality by having participants communicate orally or in writing. Those in the oral condition spoke into a microphone while those in the written condition typed on a keyboard.

We manipulated pre-communication delay through a version of the manipulation used in study 1. In the immediate (pause) condition, participants were told that research on conversation styles has shown that some people tend to pause less (more) during conversations than others, and they were asked to adopt this style of conversation. They were told that once they were given the conversation topic (which was products) they should start speaking or writing right away (wait 10 seconds before speaking or writing).

After participants finished speaking or writing, they reported how much time they felt they "had to think about what to talk about" (1 = no time at all, 7 = a great deal of time). We also collected accessibility measures for the first product discussed ("How recently did you purchase this product" and "How popular is this product"; 1 = not at all, 7 = extremely, averaged to form an accessibility index).

The main dependent variable was the interest level of the product or brand mentioned. Following study 1, we recorded the first product or brand participants mentioned, and outside raters coded how interesting they thought most students would find it to talk about (1 = not at all, 7 = a great deal;  $M = 4.47$ ,  $SD = 1.68$ ). Again, there was a reasonably high level of agreement across raters ( $\alpha = .86$ ). Products like Apple's iPhone and brands like Nike and American Apparel were rated as highly interesting to talk about. Toothpaste, toilet paper, and Kleenex were rated as not very interesting to talk about.

## Results

*Products and Brands Mentioned.* In addition to a main effect of pausing ( $F(1, 119) = 5.23$ ,  $p < .03$ ), a 2 (communication modality)  $\times$  2 (pausing) ANOVA revealed the predicted communication modality  $\times$  pausing interaction ( $F(1, 119) = 3.34$ ,  $p < .07$ ; see fig. 1).

Among people who communicated orally, pausing before sharing led them to talk about more interesting products ( $M = 4.83$  vs. 3.31;  $F(1, 119) = 5.39$ ,  $p < .03$ ). There was no corresponding effect among people who engaged in written communication ( $M = 4.67$  vs. 4.51;  $F < .2$ ,  $p > .60$ ).

Looked at another way, among people who did not pause before sharing, written communication led them to talk about more interesting products than oral communication ( $M = 4.51$  vs. 3.31;  $F(1, 119) = 5.51$ ,  $p < .03$ ). There was no corresponding effect for people who paused before they communicated ( $M = 4.67$  vs. 4.83;  $F < .1$ ,  $p > .75$ ).

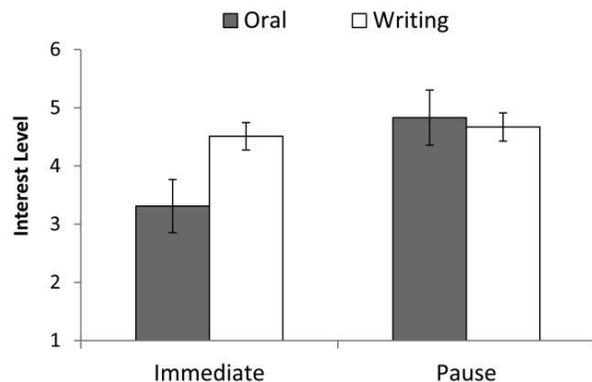
*Underlying Process.* The effects were similar for how much time participants felt they had to construct and refine what they would say. A main effect of pausing ( $F(1, 119) = 12.15$ ,  $p < .001$ ) was qualified by the predicted communication modality  $\times$  pausing interaction ( $F(1, 119) = 4.50$ ,  $p < .04$ ).

Among people who communicated orally, pausing gave people more time to think about what they wanted to talk about ( $M = 4.83$  vs. 2.54;  $F(1, 119) = 9.92$ ,  $p < .005$ ). In contrast, supporting the notion that writing naturally gives people more time to think about what to say, there was no corresponding effect of pausing among people who engaged in written communication ( $M = 4.13$  vs. 3.57;  $F < 2.5$ ,  $p > .14$ ).

Looked at another way, among people who did not pause before sharing, written communication led them to feel they

FIGURE 1

### IMPACT OF COMMUNICATION MODALITY AND PAUSING



NOTE.—Error bars represent standard errors of the mean.

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had more time to think about what to talk about than oral communication ( $M = 3.57$  vs.  $2.54$ ;  $F(1, 119) = 3.31$ ,  $p < .07$ ). There was no corresponding effect for people who paused before they communicated ( $M = 4.13$  vs.  $4.83$ ;  $F < 1.5$ ,  $p > .20$ ). In sum, compared to speaking, writing naturally provides more time to think about what to say, but pausing before communicating wiped out this difference.

We also tested whether the effects of modality were driven by communication asynchrony, and whether these effects were moderated by encouraging participants to pause. We used biased-corrected bootstrapping ( $n = 5,000$ ; see Preacher and Hayes 2008) to generate a 95% confidence interval (CI) around the indirect effect, where successful mediation occurs if the confidence interval doesn't include zero (Hayes 2009).

As predicted, the effect of modality is driven by communication asynchrony. Specifically, time to construct and refine communication mediates the effect of modality in the baseline condition (95% CI: .01 to .35) but not when people paused before they started communicating (95% CI:  $-.34$  to .10).

Taken together, these results support our suggestion that written communication leads people to mention more interesting products and brands because it provides more time to construct and refine communication. Pausing before communicating, however, reduces this difference because it reduces the difference in asynchrony across modalities.

## Discussion

Study 2 provides further evidence for the role of communication asynchrony in these effects. Compared to oral communication, written communication naturally provides more time to construct and refine what to say. Consequently, writing led people to mention more interesting products and brands. Making oral communication more asynchronous, however, by having people pause before communicating, led them to mention more interesting products and brands because they had more time to construct and refine what to say. Further, perceived time to construct and refine what to say mediated the effects.

The findings also cast doubt on an alternative explanation. One could argue that rather than being driven by time availability, writing leads people to share more interesting things because it changes beliefs about receiver expectations. Sharers might worry that their audience will expect them to communicate more interesting things because their audience knows they have had more time to think. But study 2 shows that the results of study 1 even extend to situations where people are not directly sharing with another person. The fact that the same pattern of results is found even when people are just speaking into a microphone or writing down what they would say suggests that something beyond conversational norms is at play.

*The Role of Accessibility.* Ancillary analyses also examined the importance of accessibility across the various conditions. If there is less time to think about what to say

in oral communication, accessibility should play a larger role, and people should be more likely to talk about whatever products and brands are top of mind.

Consistent with this perspective, accessibility seemed to play a larger role in synchronous conversations. Results indicated a communication modality  $\times$  pausing interaction ( $F(1, 119) = 3.75$ ,  $p = .055$ ). In the absence of pausing, oral communication led people to mention more accessible products than written communication ( $M = 5.46$  vs.  $4.19$ ;  $F(1, 119) = 7.14$ ,  $p < .01$ ). There was no corresponding effect for people who paused before they communicated ( $F < .05$ ,  $p > .90$ ). Looked at another way, among people who used oral communication, pausing led them to mention less accessible products ( $M = 4.33$  vs.  $5.46$ ;  $F(1, 119) = 3.43$ ,  $p < .07$ ). There was no corresponding effect among people who engaged in written communication ( $F < .40$ ,  $p > .50$ ).

Combined with the main results, these ancillary data suggest how synchrony shapes conversation. When people communicate through synchronous channels (e.g., oral communication), accessibility drives what gets mentioned, even if it is not the most interesting thing that could have been discussed (also see Berger and Schwartz 2011). When communicating through asynchronous channels (e.g., writing), however, or in situations that involve asynchrony (e.g., pausing before talking), people have more time to construct and refine what to say. This leads them to mention more interesting products and brands and rely less on what happens to be accessible.

## STUDY 3: THE ROLE OF SELF-PRESENTATION

Study 3 tests the role of self-presentation in these effects. We have suggested that written communication's asynchrony leads people to talk about more interesting products because it provides an opportunity for self-enhancement. To test this possibility, people again used oral or written communication, but we also manipulated self-enhancement by telling people that they would be evaluated at the end of the conversation. Self-enhancement should lead people to talk about more interesting products and brands, but if our theorizing is correct, these effects should be stronger in written communication, whose asynchrony provides more opportunity to construct and refine communication.

### Method

Two hundred and eighteen undergraduates at the University of Pennsylvania were randomly assigned to a condition in a 2 (communication modality: oral vs. written)  $\times$  2 (self-enhancement: control vs. enhanced) between-subjects design. Similar to study 1, they were paired together and asked to have a short conversation about products and brands.

As in study 1, we manipulated communication modality by having participants use oral (i.e., face-to-face) or written (i.e., instant messenger) communication. We manipulated self-enhancement by telling half the participants (self-enhancement enhanced condition) that they were being eval-

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uated. They were told that at the end of the conversation, their partner would rate them on how cool they are and whether they think other people would want to be friends with them. Participants in the control condition received no such instructions. As in study 1, our dependent variable was the interest level of the product or brand mentioned.

## Results

In addition to main effects of modality ( $F(1, 217) = 23.76$ ,  $p < .001$ ) and self-enhancement ( $F(1, 217) = 13.37$ ,  $p < .001$ ), a 2 (communication modality)  $\times$  2 (self-enhancement) ANOVA revealed the predicted interaction ( $F(1, 217) = 4.75$ ,  $p < .03$ ; see fig. 2).

As expected, while self-enhancement led written communicators to talk about more interesting products and brands ( $M_{\text{Self-Enhance}} = 5.88$  vs.  $M_{\text{Control}} = 4.79$ ;  $F(1, 214) = 22.44$ ,  $p < .001$ ), it had less of an impact on oral communication ( $M_{\text{Self-Enhance}} = 4.56$  vs.  $M_{\text{Control}} = 4.28$ ;  $F(1, 214) = 1.59$ ,  $p = .88$ ).

Looked at another way, consistent with the first two studies, written communication led participants in the control condition to talk about more interesting products and brands ( $M_{\text{Written}} = 4.79$  vs.  $M_{\text{Oral}} = 4.28$ ;  $F(1, 214) = 3.80$ ,  $p = .05$ ). The effect of modality was even stronger, however, among participants in the self-enhancement condition ( $M_{\text{Written}} = 5.88$  vs.  $M_{\text{Oral}} = 4.56$ ;  $F(1, 214) = 23.82$ ,  $p < .001$ ).

## Discussion

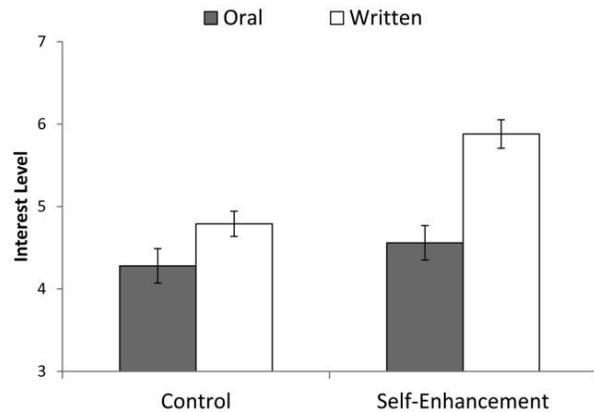
The results of study 3 underscore the findings from the first two studies and illustrate the role of self-presentation in these effects. Compared to oral communication, written communication again led participants to talk about more interesting products and brands, but these effects were stronger among participants whose self-enhancement concerns were greater.

Looked at another way, while self-enhancement not surprisingly encouraged people to talk about more interesting products and brands, this effect was significantly stronger in written communication, whose asynchrony allows time to construct and refine communication. Thus, self-enhancement plays an important role in these effects. Written communication provides the opportunity to refine communication, and self-enhancement concerns drive people to use that opportunity to talk about more interesting products and brands.

Self-enhancement may not have led oral communicators to talk about more interesting products and brands in this study because participants were not given any advance notice about the conversation topic. They were given the topic while already seated in front of the other participant, and thus may have felt a strong need to begin the conversation rather than sit in silence. This is similar to a situation where someone walks up to you and asks your opinion on a topic. In situations where there is more advance notice (e.g., someone knows they are going into a job interview), however, we

FIGURE 2

### IMPACT OF COMMUNICATION MODALITY AND SELF-ENHANCEMENT



would expect self-enhancement to lead even oral communicators to talk about more interesting products and brands.

Note that boosting self-enhancement concerns affects what people talk about even in written communication because it bolsters a naturally occurring motive. One could argue that boosting self-enhancement should have no effect on written communication because people are already self-enhancing, but this assumes that control participants have already reached a ceiling of self-enhancement. This is unlikely. People naturally eat more at a buffet (rather than single serve restaurants), but increasing hunger should exacerbate this effect even further. In this instance, the results indicate that written communication is more amenable to self-enhancement motivations, and as such, we see a larger variation in response accordingly.

## STUDY 4: FIELD DATA

The first three studies used laboratory experiments to cleanly demonstrate the causal impact of communication modality and the underlying role of communication asynchrony. The next two studies extend this research to the field. If our theorizing is correct, then, compared to their less interesting counterparts, the boost in mentions that more interesting products and brands receive should be greater in written (asynchronous) than oral (synchronous) communication.

## Method

Data were provided by the Keller Fay Group, a marketing research firm that specializes in word of mouth. Throughout the year, the company surveys a large, nationally representative sample of Americans about their daily conversations. The sample is acquired using weekly quotas for age, gender, education, race, ethnicity, and region based on the Census and then is weighted by these factors to ensure that it reflects

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the population as a whole. Each respondent keeps a diary and records what products and brands they talked about over a 24-hour period.

Study 4 analyzes aggregate data on how frequently 5,960 consumers mentioned 1,212 products and brands via oral and written communication. The data set includes everything from large brands like Coca-Cola and Walmart to smaller brands like Jack's Links and Toll House. In addition to reporting which products and brands they talked about over the survey period, consumers also reported whether they mentioned it in oral (face-to-face) or written (online, e.g., through social media) communication.

The mean number of times a product or brand was mentioned in oral (written) communication was 33.26 (9.83). The distribution of word of mouth was highly skewed (skewness > 5.40, kurtosis > 34.97) so we took the log. A small number of products received no word of mouth, and because the log of 0 is undefined, we took the log of (number of mention + 1) to retain these products in our analyses.

In addition to collecting data on how frequently different products and brands were mentioned, we also coded how interesting each would be to discuss. Two coders rated each product or brand based on "how interesting it would be to talk about" (1 = not at all, 7 = a great deal;  $M = 2.91$ ,  $SD = 1.70$ ,  $r = .74$ , averaged to an interest score). Things like the iPad and Facebook were scored as highly interesting, while things like Windex and Wells Fargo were scored as not very interesting.

We also collected some ancillary measures. To further test the role of accessibility, independent coders rated cue frequency ("How frequently might the surrounding environment cue or remind people to think about the product?" 1 = very infrequently, 7 = very frequently,  $\alpha = .86$ ). To test whether our results persist controlling for other factors shown to drive word of mouth (Berger and Schwartz 2011), separate independent coders also rated public visibility ("How publicly visible is this product or brand?" 1 = not at all, 7 = extremely,  $\alpha = .83$ ).

## Results

*Interest.* Our main analyses focus on interest. We regress word of mouth on modality (dummy coded, 0 = written, 1 = oral), interest (mean centered), and their interaction. This allows us to examine whether more interesting products and brands receive more mentions and whether this relationship varies across conversation modalities.

Consistent with prior work (Keller and Libai 2009), there was more word of mouth through oral than written communication at the mean level of interest ( $B = 1.08$ ,  $t = 19.84$ ,  $p < .001$ ).

More importantly, as predicted, there was a significant interest  $\times$  modality interaction ( $B = -.09$ ,  $t = -2.93$ ,  $p < .005$ ). The simple effect of interest was positive in written communication ( $B = .09$ ,  $t = 4.19$ ,  $p < .001$ ), but this relationship was reduced in oral communication ( $B = .01$ ,  $t < 1$ ,  $p > .95$ ). Simply put, compared to their less interesting counterparts, the boost in mentions that more interesting

products and brands received was greater in written communication.

It is worth noting that these results are not driven by certain brands never being mentioned online. The difference between oral and written communication actually becomes sharper when dropping infrequently mentioned brands. Looking only at the 500 most frequently discussed brands (i.e., those mentioned most often across both channels), for example, shows a similar interaction ( $B = -.09$ ,  $t = -2.85$ ,  $p < .005$ ). Compared to their less interesting counterparts, the boost in mentions that more interesting products and brands received was greater in written communication. Results are also robust to looking only at less frequently discussed brands.

*Ancillary Analyses.* Additional analyses (including accessibility, visibility, and their interactions with modality) underscore the role of accessibility in oral communication and demonstrate that our results persist controlling for other factors shown to drive word of mouth (see the appendix, available online, for a full results table).

In addition to the overall effect of modality ( $B = 1.08$ ,  $t = 19.84$ ,  $p < .001$ ), results again revealed a significant interest  $\times$  modality interaction ( $B = -.10$ ,  $t = -3.75$ ,  $p < .001$ ), indicating that the boost in mentions that more interesting products and brands received was greater in written communication. Further, replicating prior work, more publicly visible products ( $B = .11$ ,  $t = 4.66$ ,  $p < .001$ ) and products that were cued more frequently by the environment ( $B = .50$ ,  $t = 18.26$ ,  $p < .001$ ) were more likely to be mentioned. Finally, underscoring study 2, accessibility (i.e., cue frequency) had a stronger impact on whether products and brands were mentioned in oral communication ( $B = .06$ ,  $t = -1.66$ ,  $p < .10$ ). This suggests that while more accessible things are more likely to be discussed regardless of the channel, this effect is stronger in oral communication where synchrony is high.

## Discussion

Actual word of mouth in the field by thousands of people across hundreds of brands is consistent with the results of our laboratory experiments and bolsters our theoretical perspective. The relationship between interest and word of mouth differed by communication modality. Compared to their less interesting counterparts, the boost in mentions that more interesting products and brands received was greater in written than oral communication. The fact that a nationally representative sample of individuals having regular everyday conversations shows the same effects as our experiments speaks to the generalizability of the effects.

Further, consistent with the ancillary results of study 2, we again find that accessibility plays a greater role on oral communication. In synchronous communication channels, people have less time to think about what to say and are more likely to mention products and brands that are cued by the environment.

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### STUDY 5: INDIVIDUAL-LEVEL FIELD DATA

Our last study uses a richer, individual-level word-of-mouth data set to provide an additional test of our theoretical perspective. This data set has three benefits.

First, this data set allows us to examine a broader set of oral (i.e., face-to-face and phone) and written (i.e., online, text, and e-mail) communication channels. While phone is a relatively synchronous mode of communication, text and e-mail are more asynchronous. Consequently, if our theorizing is correct, the relationship between interest and word of mouth over these various channels should differ. Again, the boost in mentions that more interesting products and brands receive should be greater in written (than oral) communication. Second, examining individual-level data allows us to cast doubt on the possibility that our results are driven by different people (e.g., those who talk about more interesting products or brands) being more likely to talk over certain channels. Third, this data set includes a larger set of over 8,000 products and brands, which allows us to speak to the generalizability of the effects.

#### Data

Study 5 uses a different data set from the Keller Fay Group, cataloging individual-level word of mouth from 1,727 individuals and almost 20,000 conversations. For each individual, the data include what products or brands that person talked about during the day they were surveyed, as well as whether they talked about them face to face, over the phone, online, or over e-mail or text. Each person only talked about a given product or brand once and mentioned 9.25 brands on average. In the main analyses below, we combine channels to compare oral (face-to-face or phone conversations) and written (online, e-mail, or text) communication. In an ancillary analysis, we consider all five channels separately.

Coders ( $N = 4$ ) rated each product or brand based on how interesting it would be to talk about ( $M = 3.03$ ,  $SD = 1.67$ ). Given the huge number of items, it was prohibitive to have every coder rate each item, but for brands rated by multiple coders the reliability was reasonably high ( $r = .74$ ). Results are similar when interest ratings from a broader set of coders are used (see the online appendix). Brands like Christian Dior and products like the Audi A6 were scored as highly interesting, while brands like Ross and products like insurance were scored as not at all interesting.

#### Results

*Aggregate Analysis.* First, we perform a similar aggregate analysis to study 4. The distribution of word of mouth was highly skewed (skewness  $> 16$ , kurtosis  $> 300$ ), so we took the log for our analyses. A small number of products received no word of mouth, and because the log of 0 is undefined, we took the log of (number of mention + 1) to retain these products in our analyses. For the analysis, we mean center interest and use dummy variable coding for

modality (0 = written communication, 1 = oral communication).

In addition to a simple effect of modality at the mean level of interest ( $B = .52$ ,  $t = 77.48$ ,  $p < .001$ ), results again revealed a modality  $\times$  interest interaction ( $B = -.02$ ,  $t = -4.44$ ,  $p < .001$ ). As in study 4, the simple effect of interest was positive in written communication ( $B = .01$ ,  $t = 4.43$ ,  $p < .001$ ), but this relationship was reduced in oral communication ( $B = -.01$ ,  $t = -1.85$ ,  $p > .06$ ). Compared to their less interesting counterparts, the boost in mentions that more interesting products and brands received was greater in written communication.

*Individual-Level Analysis.* Next, we incorporate the individual-level data. As each individual mentions a brand only once, we cannot estimate an individual-level model with the number of mentions of a specific brand as the dependent variable. Thus, we investigate how many conversations people have at different interest levels and how that varies by communication modality. For the analysis below, we specified a conversation to have an interest level of 1, 2 . . . 6 if the coders gave it an average rating between 1 and 2, 2 and 3 . . . 6 and 7, respectively. Results are the same if we round instead (i.e., a conversation is specified to have an interest level of 1, 2, . . . , 6 if the coders gave it an average rating between 1–1.5, 1.5–2.5, and so on). We use a Poisson model to accommodate the count nature of the data.

Let  $Y_{ij}^w$  and  $Y_{ij}^o$  be the number of conversations that individual  $i$  has with interest level  $j$  ( $j = 1, . . . , 6$ ) in written and oral channels. Then, we specify the following model for the number of conversations in each modality:

$$P(Y_{ij}^o = y^o) = \frac{(\lambda_{ij}^o)^{y^o} e^{-\lambda_{ij}^o}}{y^o!},$$

$$\log(\lambda_{ij}^o) = \alpha_i^o + \beta_1 j.$$

$$P(Y_{ij}^w = y^w) = \frac{(\lambda_{ij}^w)^{y^w} e^{-\lambda_{ij}^w}}{y^w!},$$

$$\log(\lambda_{ij}^w) = \alpha_i^w + (\beta_1 + \beta_2)j.$$

Here the parameters  $\alpha_i^w$  and  $\alpha_i^o$  are individual-specific random effects, which allow for people to have a differential tendency to have conversations in the written and oral modality, respectively. Let  $\alpha_i = (\alpha_i^w, \alpha_i^o)'$  be the joint vector of parameters. We assume that these parameters are normally distributed across people and allow them to be correlated, which captures that the differential tendency to talk across the two different modalities may be correlated. Thus,  $\alpha_i \sim N(\mu, \Sigma)$ , where  $\mu$  and  $\Sigma$  are the population level parameters to be estimated. Here,  $\mu^o$  ( $\mu^w$ ) is the average tendency in the population to have conversation in the oral (written) modality. In addition,  $\Sigma^{oo}$  ( $\Sigma^{ww}$ ) is the heterogeneity across individuals in parameter  $\alpha_i^o$  ( $\alpha_i^w$ ), while  $\Sigma^{ow}$  captures the correlation in the two parameters. The parameter  $\beta_1$  captures the impact of interest on the expected number of conversations in the oral channel. The parameter  $\beta_2$  captures

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whether the impact of interest level on the expected number of conversations is different in written versus oral communication.

As predicted, results indicate a positive modality  $\times$  interest interaction ( $\beta_2 = 0.09, t = 7.93, p < .001$ ). Compared to their less interesting counterparts, the boost in mentions that more interesting products and brands received was greater in written than in oral communication. See the online appendix for the full model results.

Results remain the same if we consider all five channels separately. Compared to face-to-face conversations, the other oral communication channel (phone) shows a nonsignificant interaction (phone coefficient = 0.02,  $p > .05$ ). This indicates that interest has a similar impact on face-to-face and phone conversations. The interaction is significantly positive, however, when comparing face-to-face with any of the written channels (online: coefficient = 0.06,  $p < .001$ ; e-mail: coefficient = 0.08,  $p < .001$ ; text: coefficient = 0.06,  $p < .001$ ). This suggests that all three written channels are different from the face-to-face channel in how interest affects conversations (results are similar when phone is used as the baseline; see the appendix). Compared to their less interesting counterparts, the boost in mentions that more interesting products and brands received was greater in all forms of written communication than in face-to-face communication.

## Discussion

The results of study 5 underscore our broader theoretical perspective. Communication modality moderated whether more interesting products were talked about more than less interesting ones. Looking across a variety of oral (i.e., face-to-face and phone) and written (i.e., online, text, and e-mail) communication channels, the boost in mentions that more interesting products and brands received was greater in written communication. The fact that these effects persist using individual-level data casts doubt on the possibility that they are due to the type of people who tend to talk over certain channels. The fact that they persist across (1) a larger variety of communication channels as well as (2) a broader set of products and brands also speaks to the generalizability of the effects.

## GENERAL DISCUSSION

Consumers share word of mouth through various communication channels (e.g., face to face, phone calls, e-mails, and texts). But while it is clear that word of mouth is frequent and has an important impact on consumer behavior, little is known about how the medium consumers communicate through affects the products and brands they mention.

Five studies address this issue. First, they demonstrate that communication modality influences what gets discussed. Simply having people communicate using written rather than oral communication led them to mention more interesting products and brands (studies 1–3). Field data are consistent with these findings. Compared to their less interesting counter-

parts, the boost in mentions that more interesting products and brands received was greater in written than in oral communication (study 4). Similar results were found across a wide variety of written (online, e-mail, and text) and oral (face-to-face and phone) communication channels (study 5).

Second, the studies illustrate that communication asynchrony plays an important role in these effects. Written communication is more asynchronous, which allows greater time to construct and refine communication. This simple difference has an important impact on word of mouth. Merely having people pause before they communicate orally led them to talk about more interesting products and brands (studies 1 and 2). Pausing did not have the same effect on written communication because it is already asynchronous in nature (study 2). Perceived asynchrony also mediated the effect of communication modality (study 2).

Third, the studies demonstrate the important role of self-enhancement in these effects (study 3). While asynchrony allows time to construct and refine communication, self-enhancement concerns lead people to use this time to pick more interesting products and brands to talk about. Thus asynchrony provides the opportunity to self-enhance, and self-enhancement concerns then contribute to topic selection.

What drives word of mouth when consumers lack the ability or motivation to self-present? Ancillary results from studies 2 and 4 provide some insight. When consumers have less time to construct and refine what to say (e.g., in oral communication) or are not as motivated to self-present, accessibility drives what gets mentioned. People are more likely to talk about whatever products and brands are top of mind, even if those things are not the most interesting (also see Berger and Schwartz 2011). When communication is more asynchronous, however, people have more time to construct and refine what to say which leads them to mention more interesting products and brands and rely less on what happens to be accessible (also see Berger 2013).

By showing these effects in more than 20,000 real-world conversations, as well as tightly controlled laboratory experiments, we illustrate both the causal mechanism behind these effects and their generalizability to actual word of mouth in the field.

## Implications

While our results indicate that oral communication reduces the impact of interest on what people talk about, there are certainly some oral communication situations where interest matters. When people are out on a date, for example, or talking to a prospective employer, they may be particularly motivated to self-enhance and may thus search for the most interesting topics to bring up.

Not all oral communication occasions, however, involve such explicit self-enhancement goals. In fact, most day-to-day conversations with colleagues, friends, or family members seem more like idle chitchat, talking about anything that happens to be going on rather than trying to pick the most interesting thing to discuss (also see Berger and Schwartz

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2011). While it is difficult to assess what percentage of conversations are motivated by self-enhancement, the results of our field data suggest that, at least for oral communication, interest may not play as large a role in topic selection as one might think.

Along these lines, while people could self-enhance in oral communication by planning what to say in advance, this does not seem to happen most of the time. This likely occurs for a number of reasons. First, many face-to-face conversations are rather spontaneous (e.g., bumping into someone at the office), and it is tough to plan for this serendipity. Second, even if one could plan ahead it requires the motivation to do so. Third, while people could plan their first conversational utterance, it is harder to know how one's conversation partner(s) will respond, and thus tough to plan the rest of the conversation. Indeed, rather than being preformed, however, most of what people talk about is emergent from the interaction context (Schegloff 1997).

### Limitations and Directions for Future Research

While this work provides some preliminary insight into how communication channels shape conversation, much more remains to be done. Most research on word of mouth has used online data, presumably because it is more available and easier to collect. However, given that over 75% of word of mouth occurs face to face (Keller and Libai 2009), greater attention to offline word of mouth seems warranted. There may even be important differences between various online channels. Although they were grouped together in our field data, sharing on Facebook is not the same as sharing on Twitter, which is not the same as sharing on a blog. The way communication channels are designed has important implications for the conversations that evolve over them and—our results imply—the brands and products that get discussed. Although there are many valuable directions that future research could take, here is a sampling of a few potential areas.

First, asynchrony likely shapes what people share in a variety of other ways beyond just interest. Consumers may be less likely to share embarrassing things in written communication because they have time to reflect on what they are saying. Other factors that require deliberation should also play a larger role in asynchronous channels. Writing may encourage people to share more useful content, for example. On a different note, emotion may have a larger impact on synchronous conversations because there is no break for them to dissipate.

Second, beyond asynchrony, communication channels also differ on a host of other dimensions. Written communication, for example, tends to be more permanent, formal, effortful (takes longer to produce), and goal directed and to involve less social presence. Compared to offline interactions, online communication tends to involve larger audiences (e.g., Facebook status updates) and weaker social ties. While our experiments show effects of modality even when these factors are silent, how might they shape communication?

One might imagine that the more permanent nature of writing might encourage self-presentation (e.g., discourage people from sharing embarrassing things). One might also imagine that the more effortful (and formal) nature of writing should create a small barrier to communication and thus discourage people from sharing trivial matters. Writing's more goal-directed nature may have similar effects. The lack of social presence, however, may have the opposite effect. Compared to oral communication, others are much less likely to be present during written communication. Rather than seeing someone face to face, or even hearing their voice over the phone, written communication often involves people in the privacy of their own homes staring at the computer. Lack of social presence should not only lead communicators to think less about their audience but also weaken self-presentation concerns (because it feels more private). This opposing effect may help explain why people often tweet about mundane details (e.g., "having salad for lunch") or post embarrassing status updates. While online posts involve written communication, the lack of a proximate social presence may seduce people into feeling like they are writing in an anonymous, private diary, even though they are online for everyone to see.

Audience size and type should also have interesting effects. While some work has examined how audience type (i.e., strong vs. weak ties; Chen and Berger 2013; Frenzen and Nakamoto 1993) affects what people share, there has been less attention to whether mere audience size might affect communication. Preliminary findings, however, suggest that communicating with just one other person may reduce self-presentation concerns and lead people to share more useful information because it encourages communicators to focus on their audience (Barasch and Berger 2013). Oral communication may show similar effects because it tends to involve smaller audiences. Regardless, the complex and multifaceted ways in which communication channels might shape what people share deserve further attention.

Third, research might examine how communication channels affect other aspects of interpersonal communication. Similar to other research on drivers of word of mouth (Berger 2011; Berger and Milkman 2012; Berger and Schwartz 2011; Cheema and Kaikati 2010), we focused on word-of-mouth volume because it sheds light on what people talk about, whether people talk about something, or how willing they are to mention that thing. But communication channels may also affect other dimensions of interpersonal communication (e.g., how long people talk about something or the words they use to describe that topic).

Fourth, more could be done to understand the evolution of conversation. In the case of communication channels, for example, do different modalities affect the first, second, etc. conversational utterance equally? Asynchrony should allow more time to construct and refine communication at any point in the conversation, so written channels might always encourage more interesting products and brands to be mentioned. That said, one could also argue that social constraints, as well as accessibility, drive latter conversational

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utterances to be heavily dependent on earlier ones. People tend to talk about things that relate to what they, and their conversation partners, have said already. This might drastically restrict what people can (and do) talk about in latter conversational utterances, and thus reduce or even mitigate any effect of communication channel.

## Marketing Implications

These results have implications for marketers and policy makers interested in generating word of mouth. Different products may be better suited for generating word of mouth over different channels. Further, marketing campaigns may want to focus on different aspects depending on the particular channel where marketers are hoping to generate discussion. If the goal is to get more online discussion, framing the product in an interesting or surprising way should help. Ads or online content that surprise people, violate expectations, or evoke interest should be more likely to be shared.

If the goal is to get more face-to-face word of mouth, however, then other factors may be more important than evoking interest. Making the product accessible in consumer minds, or publicly visible, may be more important. Indeed, while it is probably not the most interesting topic, data on mostly face-to-face word of mouth find that food and dining is the most frequently discussed product category, even more than media and entertainment or technology (Keller and Libai 2009). Thus, for face-to-face word of mouth, considering how to trigger people to think about the product or brand may be a helpful approach to generating discussion.

In conclusion, while a great deal of work has examined how word of mouth affects consumer behavior, there is much more to learn about what drives conversation in the first place. By examining how communication modality shapes interpersonal communication, greater insight into the behavioral process behind word of mouth can be obtained. In this instance, our findings underscore the old maxim of thinking twice before you open your mouth. By influencing the time people have to construct and refine communication, the medium shapes the message. Communication modality affects which products and brands get discussed.

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