Fired Up for the Future: How Time Shapes Sharing

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How does something's temporal location—that is, whether it occurred in the past or will occur in the future—affect whether people talk about it? Seven studies demonstrate that two factors, affective arousal and self-presentation, interact to shape time's impact on word of mouth. Future experiences are more affectively arousing than equivalent past ones. Whether this heightened arousal increases or decreases sharing, however, depends on how the topic potentially being discussed reflects on the sharer. For topics that reflect well on the sharer, arousal increases sharing such that people are more likely to talk if the event is happening in the future (vs. the past). When topics make the sharer look bad, however, this is no longer the case. These findings shed light on when people talk about and deepen understanding of the psychological drivers of word of mouth.

Keywords: word of mouth, arousal, sharing, time, social media

Consumers often share stories, news, and information with others. They talk about products they've bought and movies they want to see. Such person-to-person communication is more than just idle chatter. Word of mouth affects consumer choice, drives product adoption, and boosts sales (Chevalier and Mayzlin 2006; Iyengar, Van den Bulte, and Valente 2011; WOMMA 2014).

Some research has begun to shed light on *what* people talk about (Berger 2014, 2015), but there has been less attention to *when* people talk about—that is, whether people talk about the past or future. People can talk about places they've been, things they've bought, and experiences they've had in the past. They can also talk about places they're going, things they'll buy, and experiences they'll have in the future.

Does time influence talking, and if so, how? That is, does whether something happened in the past or is coming up in the future influence whether people talk about it? Are people more likely to discuss a vacation that is happening in the future or happened in the past? What about an awkward situation they faced or are worried about facing?

We investigate how something's temporal location (i.e., whether it is in the past or future) shapes whether people talk about it. Specifically, we suggest that time affects word of mouth through affective arousal. The same event is more arousing when it is happening in the future, as opposed to the past, and this asymmetry shapes sharing.

In addition to studying time, this work helps provide an important corrective to existing research on arousal and social transmission. While an ongoing literature suggests

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that arousal increases sharing (Berger 2011; Berger and Milkman 2012), we show that this is not always the case. In fact, in some situations arousal may actually decrease sharing. By examining a broader range of potential topics to talk about (i.e., topics that make people look bad in addition to good), we demonstrate that whether arousal increases or decreases sharing depends on how self-presentational concerns affect dominant responses. Thus, beyond just examining the impact of prospection and retrospection on word of mouth, we provide a broader, more nuanced account of how and why arousal impacts sharing.

Seven studies support our theorizing and rule out a variety of alternative explanations. In addition to shedding light on psychological drivers of word of mouth, and the underlying role of arousal, the findings provide insight into how two drivers of word of mouth, arousal and self-presentation, interact. While research has shown that emotions (Berger 2011; Heath, Bell, and Sternberg 2001) and self-presentation (Cheema and Kaikati 2010; De Angelis et al. 2012) individually impact transmission, there has been less attention to how such factors combine. These aspects do not exist in isolation, and we demonstrate how their confluence can sometimes change the direction of previously observed effects, deepening understanding around why consumers share word of mouth in the first place.

TIME AND WORD OF MOUTH

Humans can mentally time-travel, or think about times other than now. They frequently recall past experiences and imagine future events (D'Argembeau and Van der Linden 2004; D'Argembeau, Renaud, and Van der Linden 2011; Ettlin and Hertwig 2012; Tulving 2002). Consumers think about what they did last week (e.g., attended a concert) and what they will do in the week ahead (e.g., spend a night with friends).

Thinking about something in the past versus future can shape how people perceive and judge it. Researchers have investigated how people think about past and future events (Kane, Van Boven, and McGraw 2012), and how temporal location influences visual perspective (Pronin and Ross 2006), creativity (Van Boven, Kane, and McGraw 2008; Weick 1979), and attention to information (Grant and Tybout 2008). Even thinking about time can impact perceptions and choice (Mogilner and Aaker 2009).

Particularly relevant to this context, future events and experiences are more affectively arousing than equivalent past ones (Caruso 2010; Caruso, Gilbert, and Wilson 2008; Van Boven and Ashworth 2007). Thinking about a hypothetical ski vacation evokes more arousal when it is going to happen than when it already occurred (Van Boven and Ashworth 2007). Similar results have been found for negative or aversive events. Thinking about listening to an unpleasant noise, for example, evokes more arousal when people are anticipating rather than recalling that noise (Van Boven and Ashworth 2007).

Future events evoke more arousal for multiple reasons. Since it requires greater action readiness, the future encourages mental simulation. Mental simulation increases arousal because mental imagery has a robust tie to emotions (Frijda 1988; Holmes and Mathews 2005; Lazarus 1991; Van Boven and Ashworth 2007). The future is also more indeterminate. Compared to the past, what is going to happen in the future is not decided, and so people become more emotionally invested (Vosgerau, Wertenbroch, and Carmon 2006). Overall, thinking about an event in the future versus past increases how affectively arousing it feels.

We suggest that the future's increased affective arousal should impact word of mouth. People report greater sharing of arousing personal experiences (Rime et al. 1998; Rime 2009), and are more likely to share emotional stories and movies (Luminet et al. 2000; Peters, Kashima, and Clark 2009). News articles that evoke high-arousal emotions (e.g., anger or inspiration) are more likely to go viral (Berger and Milkman 2012), and even incidental arousal can increase social transmission (Berger 2011). The arousal produced by running in place, for example, boosted sharing of an unrelated news article.

Consequently, one could argue that people should be more likely to talk about an event or experience if it is happening in the future compared to the past. Future events evoke greater affective arousal, and arousal, in turn, increases social transmission.

However, does arousal always increase sharing? In contrast to prior literature that suggests arousal generally boosts sharing (Berger 2011; Berger and Milkman 2012), we suggest that arousal's impact on sharing, and thus how past versus future impacts talking, will depend on how the thing being discussed reflects on the sharer.

AROUSAL, SELF-PRESENTATION, AND DOMINANT RESPONSES

Prior word-of-mouth research on arousal argues for an activation or mobilization account (Berger 2011; Berger and Milkman 2011). Physiological arousal is characterized by autonomic nervous system activation, and this research suggests that the mobilization provided by this excitatory state should increase sharing. According to this account, because future events evoke greater arousal, they should be more likely to be shared.

In contrast, we suggest that arousal's impact on sharing should depend on dominant responses. A great deal of research demonstrates that arousal heightens dominant responses (Hull 1943; Zajonc 1965). For example, people have a tendency to stereotype, and arousal magnifies this dominant response, causing people to stereotype more (Lambert et al. 2003). Similarly, people tend to think of

common words in word association tasks, and arousal magnifies this tendency, leading people to provide more common words in such tasks (Matlin and Zajonc 1968). Other research further examines the precise mechanisms underlying arousal's effects on behavior (Conrey et al. 2005; Lambert et al. 2003). Overall, though, this literature demonstrates that arousal magnifies people's typical or learned responses in a given situation.

Applied to sharing, this account suggests that arousal's impact may depend on the dominant tendency in a given situation. Arousal should increase sharing for events, information, or audiences where people's tendency is to share. For events, information, or audiences where people's tendency is not to share, however, arousal should increase that tendency, and decrease sharing instead.

Consequently, our dominant response approach to arousal and sharing makes more nuanced predictions than the prior activation account. Previous research on word of mouth and arousal has focused on situations where sharing makes someone look good (or at least not bad). Sharing news articles or jokes makes people seem smart, helpful, and in the know (Berger 2011, 2014; Berger and Milkman 2012). Sharing emotional video clips or stories about others can deepen social bonds and facilitate social connections (Peters and Kashima 2007). Not surprisingly, then, because sharing such things is self-enhancing, and people like to look good to others (Baumeister, Hutton, and Tice 1989), the dominant tendency in these situations should be to share.

What about things that make someone look bad rather than good? Just as talking about passing a test or making a smart decision can make people look good, talking about failing a test or making a horrible decision can make people look bad.

While activation-based arousal theories of word of mouth would argue that arousal should increase sharing in such situations, as it does generally, our dominant response account suggests the opposite. People have a tendency to behave in self-enhancing ways, and arousal should increase that. However, for situations that reflect negatively on the sharer, sharing is unlikely to be the dominant response. In fact, not sharing is more likely to be the reaction. People often avoid sharing things that make them look bad (Finkenauer and Rime 1998) and lie rather than share things that cast them in a negative light (Argo, White, and Dahl 2006). If someone got in trouble for drunk driving or behaved embarrassingly at an office party, the dominant response would be not to tell most people. In these situations, we suggest arousal should reduce, rather than increase, sharing.

THE CURRENT RESEARCH

We suggest that the relationship between temporal location (i.e., past vs. future) and word of mouth will depend on arousal and how sharing makes the sharer look. The same event or experience should generally be more arousing if it is happening in the future, rather than the past. Whether that affective arousal increases or decreases sharing, however, will depend on whether sharing makes the potential sharer look good or bad. When something makes someone look good, or at least not bad, people's dominant tendency should be to share since talking about the self is intrinsically rewarding (Tamir and Mitchell 2012). Thus, arousal will increase sharing and things will be talked about more if they are in the future than in the past.

However, for things that make the sharer look bad (e.g., continual late rent payments), the effect should differ. Stated differently, the effect of temporal location on word of mouth should be driven by arousal, but whether arousal increases or decreases sharing will depend on how the thing potentially being discussed reflects on the sharer.

Seven studies test this theorizing. First, for situations that do not make someone look bad, we examine how temporal location impacts both sharing and the underlying role of arousal (studies 1A, 1B, and 2). Along the way, we rule out alternative explanations based on predicted versus actual enjoyment, novelty, usefulness, discrete emotions, and bragging. Second, we examine whether these effects are moderated by how what is being discussed makes the sharer look (studies 3, 4, and 5) through changing the direction of arousal's impact on sharing (studies 4 and 5).

The last two studies use the sharing target—that is, whom people are sharing with—to further test our conceptualization. The first five studies use an unspecified, general audience for sharing. In addition to the nature of what is being shared, however, our theorizing suggests the sharing target should sometimes play a role. People tend not to share things that make them look bad with most others, but that tendency is reduced for close others (e.g., because people want to vent or seek social support; Berger 2014). These different dominant responses should lead the sharing target to moderate the relationship between temporal location and sharing for things that make the sharer look bad. However, for things that do not make someone look bad, the dominant response should be similar (i.e., to share) for both stronger and weaker ties. Studies 5 and 6 test these predictions by manipulating whether people are sharing with strong or weak ties.

Note, we are not suggesting that arousal is the only factor driving whether people talk about the past or future. It might be more useful to discuss the future than the past because the former contains more informational value (Frenzen and Nakamoto 1993). People may expect some events to be more enjoyable or exciting in prospect than they are in retrospect (Gilbert, Driver-Linn, and Wilson 2002; Wilson and Gilbert 2003), which may increase sharing. Future events may be more novel and receive more attention. However, even beyond these aspects, we argue that arousal plays an important role. We show that even

controlling for these factors, or examining situations where they do not play a role, arousal shapes when people talk about.

STUDY 1A: ST. PATRICK'S DAY

Study 1A provides a preliminary test of our theorizing and the underlying process. We contacted people either before or after St. Patrick's Day. We predicted that people would be more willing to talk about the event if it was coming up in the future, and that this would be mediated by arousal.

Method

Participants ($N = 383$, average age = 32.88, 40% female) from Amazon Mechanical Turk completed the study either eight days before (Future condition) or seven days after (Past condition) St. Patrick's Day. Following Caruso et al. (2013), we collected the Past condition one day closer to the event to rule out the possibility that people talked more about the future because it was temporally closer.

After writing about how they will or did spend St. Patrick's Day, participants completed a sharing measure and an arousal scale. Participants were told the experimenter was bringing people together to have conversations and were asked whether they wanted to converse with a partner about St. Patrick's Day. Participants expressed their willingness by clicking Yes and writing an opening message to their partner, or selecting No and moving on. Participants then provided how much affective arousal they felt about St. Patrick's Day using six nine-point bipolar items (e.g., Calm-Excited; Relaxed-Stimulated; Sleepy–Wide Awake; and Unaroused-Aroused; $\alpha = .91$) from Mehrabian and Russell (1974).

Results

Sharing. As predicted, temporal location influenced word of mouth. Compared to when it was in the past (53%), more people chose to have an actual conversation about St. Patrick's Day when it was in the future (64%; $B = .452$, SE = .21, Wald $\chi^2 = 4.65$, $p = .031$).

Arousal. Temporal location also influenced arousal. Compared to if St. Patrick's Day was in the past ($M = 4.37$, SD = 1.79), it generated more affective arousal when it was in the future ($M = 4.74$, SD = 1.81; $F(1, 381) = 3.96$, $p = .047$).

Mediation. Consistent with our theorizing, arousal mediated the effect on sharing (indirect effect = .06, SE = .038, 95% CI [.01, .16], model 4). Web appendix A provides the correlation between arousal and sharing, indirect effect (b), and direct effect (c') for all studies.

Discussion

Study 1A provides an initial demonstration of how temporal location influences talking and the underlying role of arousal. Participants were more willing to talk about St. Patrick's Day if it was coming up in the future (rather than had occurred in the past), which was driven by increased arousal.

Ancillary analyses cast doubt on alternative explanations based on novelty. One could argue that future events might seem more novel, which could increase sharing, but this was not the case. Participants rated how novel St. Patrick's Day was (1 = Not at all, 7 = Extremely), but temporal location did not affect perceived novelty ($M_{Past} = 3.73$, SD = 1.76 vs. $M_{Future} = 3.90$, SD = 1.82; $F(1, 381) = 0.87$, $p = .351$).

STUDY 1B: SHARING CONSUMPTION EXPERIENCES

Study 1B uses a different arousal measure and extends our investigation to talking about consumption experiences. Companies often ask consumers to consider sharing their past or upcoming brand experiences. Toyota, for example, asks its social media followers to "Look back at our trip to the nation's capital" or consider "Where will you go in your #RAV4 this summer?" (Priority Toyota Richmond 2015; Toyota USA 2016). To test how these different approaches might impact word of mouth, we asked participants to think about where they could have gone (past) or could go (future) in a car. We predicted that people would be more willing to talk about the trip if it was in the future, driven by increased affective arousal.

We also examine additional potential alternative explanations. One reason people share is to give others useful information (Dichter 1966). Frenzen and Nakamoto (1993), for example, find that higher information value (e.g., a larger discount at a store) causes people to factor in the opportunity cost of sharing to weak ties. Building on this, one could argue that people are more willing to talk about something if it is in the future (vs. past) because it is more useful (i.e., helps others plan). Alternatively, one could argue that people talk more about future experiences because they think they will be more enjoyable (Gilbert et al. 2002; Kahneman and Snell 1992). We measure both perceived usefulness and remembered or anticipated enjoyment and test whether these factors can explain our results.

Method

Participants ($N = 178$, average age = 32.03, 36% female) from Mechanical Turk were randomized into one of two conditions (Past or Future) in a between-subject design.

Participants first indicated which car brand they liked the most. They then imagined either an upcoming or past

car trip in the brand they selected, and wrote briefly where they could go (or could have gone).

Participants next completed the main dependent measures on sharing and arousal. Participants first indicated how likely they would be to discuss the trip if they ran into somebody they knew (1 = Not at all, 7 = Extremely). They then rated arousal using the measures from Berger (2011; 1–7; e.g., Very Passive–Very Active; Very Mellow–Very Fired Up; $\alpha = .91$).

We also measured two alternative explanations: usefulness and enjoyment. We asked participants how useful it would be to discuss the trip (1 = Not at all, 7 = Extremely) and how much they thought they would remember (or anticipate) enjoying the trip (1 = Not at all, 7 = Extremely). Additionally, we had participants indicate how many days away their trip was in the future or in the past. Although future trips were temporally closer (in days) than the past trips ($F(1, 176) = 14.10$, $p < .001$), controlling for temporal distance does not affect our results.

Results

As predicted, compared to the past ($M = 4.86$, $SD = 1.71$), envisioning an upcoming trip increased likelihood of sharing ($M = 5.59$, $SD = 1.58$; $F(1, 176) = 8.75$, $p = .004$). Further, considering a future trip increased affective arousal ($M = 5.76$, $SD = 1.13$ vs. $M = 5.05$, $SD = 1.51$; $F(1, 176) = 12.91$, $p < .001$), and arousal mediated the effect of temporal location on sharing (indirect effect = .57, SE = .18, 95% CI [.25, .96], model 4).

Alternative Explanations. While future trips ($M = 4.23$, $SD = 1.86$) were seen as directionally more useful than past ones ($M = 3.86$, $SD = 1.80$; $F < 2$, $p = .17$), usefulness did not mediate the effect of temporal location on sharing (indirect effect = .18, SE = .14, 95% CI [–.09, .46]). Temporal location influenced enjoyment ($M_{Past} = 5.64$, $SD = 1.36$ vs. $M_{Future} = 6.16$, $SD = 1.13$; $F(1, 176) = 7.67$, $p = .006$), but when both enjoyment and arousal were included in a simultaneous mediation model (model 4), arousal remained significant (indirect effect = .49, SE = .16, 95% CI [.21, .88]) while enjoyment did not (indirect effect = .11, SE = .07, 95% CI [–.01, .30]).

Discussion

Using a marketing-relevant setting, study 1B provides further evidence of both our effect and underlying process. People were more willing to talk about a car trip if it was in the future versus in the past, and this was driven by increased arousal. Further, while usefulness and enjoyment certainly impact sharing in some instances (as we show in study 6), additional analyses show that they cannot explain the effects observed here.

Additional Studies 1C–1G

Five additional studies (see web appendix B) demonstrate that the results from studies 1A and 1B are robust to a variety of other events and arousal measures. Whether considering a fancy meal (study 1C), a get-together with an out-of-town friend (study 1D), a concert (study 1E), Halloween (study 1F), or New Years' Eve (study 1G), people were more willing to talk about the same event if it was coming up in the future, as opposed to happened in the past. These effects were driven by affective arousal, and ancillary data casts doubt on a variety of alternative explanations.

STUDY 2: MANIPULATING AROUSAL

To further test the hypothesized role of affective arousal, study 2 manipulates rather than measures arousal. Prior work demonstrates that past-future asymmetries are more likely to emerge for more emotional events. In prior literature, a donation was rated as more generous (and evoked more emotion) if it was in the future than the past, but only if the donation was not trivial (Caruso 2010). When the donation was small, and therefore less evocative, the past-future asymmetry was weakened. Thus, future events or experiences can evoke greater emotional responses, but more so when the nature of that event or experience evokes more emotion to start.

Following this logic, in addition to temporal location, study 2 manipulated whether an event was more or less emotional, and measured the impact on sharing. Getting together with a best friend evokes more emotion than getting together with an acquaintance. Building on this, we had participants imagine they were getting together with either their best friend (which should evoke a good amount of emotion) or an acquaintance (which evokes less emotion). If arousal drives temporal location's impact on sharing, as we suggest, then its effect should be weakened (and may even disappear) when the get-together is with an acquaintance.

We also test two alternative explanations. First, we again test whether novelty can explain the effects. Second, given that talking about something good that happened in the past may seem like bragging, which could reduce sharing (Berger 2014), we examine whether bragging can explain the pattern of results.

Pretest

We pretested whether a get-together with a friend is more affectively arousing than a get-together with an acquaintance. After listing initials of a best friend and an acquaintance, Mechanical Turk participants ($N = 85$, average age = 32.21, 49% female) rated how affectively

arousing it would be to hang out with each (randomized order, using arousal measures from study 1B, αs > .80).

As expected, hanging out with their best friend ($M = 5.70$, SD = 1.39) evoked more arousal than hanging out with an acquaintance ($M = 4.11$, SD = 1.74; $F(1, 84) = 46.85$, $p < .001$). Further, while hanging out with a best friend evoked a moderate amount of arousal (greater than the scale midpoint, $t(84) = 11.28$, $p < .001$), hanging out with an acquaintance did not ($t = 0.56$, $p = .576$).

Main Study Method

Participants ($N = 143$, average age = 21.15, 70% female) at an East Coast university were randomly assigned to condition in a 2 (Temporal Location: Past or Future) × 2 (Interaction Partner: Best Friend or Acquaintance) between-subject design.

First, participants listed the initials of their best friend and an acquaintance (order randomized), after which they imagined having a day to hang out with either their best friend or the acquaintance. We also manipulated the get-together's temporal location to be in the past (i.e., seven days ago) or future (i.e., seven days from now). Participants listed what they might have done or would do with this person. Thus, the only differences between conditions were when the get-together would be (past or future) and with whom it would be (best friend or an acquaintance).

Participants then provided their likelihood of discussing the get-together with others (1 = Not at all, 7 = Extremely). Note, we did not manipulate with whom participants imagined talking (e.g., sharing target); we only manipulated with whom they imagined spending the day. We also measured arousal by asking participants how they felt about the get-together using arousal measures from study 1B (α = .93).

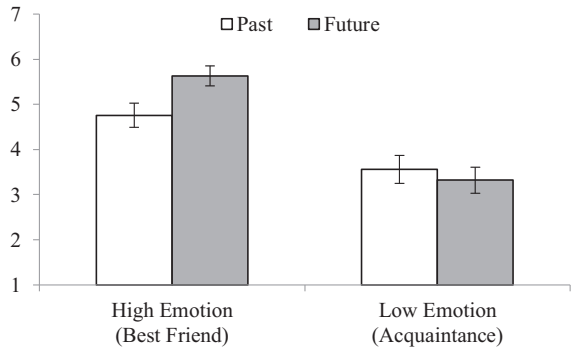
Finally, we also assessed two alternative explanations: novelty and bragging. We asked participants to what extent the experience felt novel (1 = Not at all, 7 = Extremely) and discussing the experience felt like bragging (1 = Not at all, 7 = Extremely).

Results

Sharing. In addition to a main effect of Interaction Partner ($F(1, 139) = 40.99$, $p < .001$), a two-way ANOVA yielded the predicted interaction ($F(1, 139) = 4.00$, $p = .047$; see figure 1). Consistent with our prior studies, when the event should evoke affective arousal (i.e., they were seeing their best friend), considering a get-together in the future (vs. past) increased the likelihood of discussion ($M = 5.63$, SD = 1.31 vs. $M = 4.76$, SD = 1.65; $F(1, 139) = 5.08$, $p = .026$). When the event should evoke little to no arousal (i.e., they were seeing an acquaintance), however, the difference disappeared ($M = 3.32$, SD = 1.68 vs. $M = 3.55$, SD = 1.86; $F(1, 139) = 0.35$, $p = .56$).

FIGURE 1

EVENT EMOTIONALITY MODERATES TIME'S IMPACT ON SHARING



Arousal. Consistent with our pretest, a 2 (Temporal Location) × 2 (Interaction Partner) ANOVA revealed a main effect of interaction partner. Compared to hanging out with an acquaintance ($M = 3.47$, SD = 1.78), hanging out with one's best friend evoked more affective arousal ($M = 5.51$, SD = 1.22; $F(1, 139) = 67.58$, $p < .001$). This confirms that our manipulation of emotional response was effective such that the best friend hangout was more arousing than the acquaintance hangout.

More importantly, as predicted, this was qualified by a significant interaction ($F(1, 139) = 5.31$, $p = .023$). When the interaction partner was a best friend, participants reported higher arousal when thinking of the get-together in the future than in the past ($M = 5.94$, SD = 1.09 vs. $M = 5.11$, SD = 1.21; $F(1, 139) = 5.72$, $p = .018$). This was no longer the case, however, when the interaction partner was an acquaintance ($M = 3.31$, SD = 1.78 vs. $M = 3.63$, SD = 1.79; $F(1, 139) = 0.78$, $p = .38$).

Mediation. The effect of time on talking was driven by arousal. Model 8 from Hayes (2013) reveals a significant moderated mediation (index = –.79, SE = .35, 95% CI [–1.52, –.15]). When the interaction partner was one's best friend, arousal mediated the effect of time on talking (indirect effect = .571, SE = .18, 95% CI [.26, .95]). When the interaction partner was an acquaintance, however, this effect dissipated (indirect effect = –.22, SE = .29, 95% CI [–.83, .32]).

Alternative Explanations. Ancillary analyses cast doubt on the possibility that novelty or bragging can explain the results. A 2 × 2 ANOVA on novelty revealed only a main effect of Interaction Partner ($M_{\text{Acquaintance}} = 4.10$ vs. $M_{\text{Best Friend}} = 3.38$; $F(1, 139) = 5.72$, $p = .018$). There was no interaction

($F < 0.2$, $p = .68$), and novelty did not mediate the observed effects (index of moderated mediation = .04, SE = .12, 95% CI [–.12, .39]). A similar ANOVA on bragging shows no main effects or interactions ($Fs < 1.8$, $ps > .19$), and bragging did not mediate the observed effects (index of moderated mediation = –.04, SE = .20, 95% CI [–.43, .33]).

Discussion

Study 2 provides evidence for the underlying role of arousal in these effects. Consistent with the first two studies, when the event evoked at least some emotion (i.e., hanging out with one's best friend), people were more willing to talk about it if it was in the future. When the event evoked less emotion (i.e., hanging out with an acquaintance), however, as predicted, the effect of time on talking dissipated. Further, this interaction was driven by affective arousal.

The results also cast doubt on several alternative explanations. Neither novelty nor bragging mediated the effects. Further, while it is possible that people talked about future events more in study 1B because they wanted to find someone to bring along on their trip, that cannot explain the effects here, where the person with whom the potential sharer is getting together is already specified.

Finally, one might wonder whether the effect could be driven by people thinking about different activities for friends versus acquaintances, but our results persist even when we control for this possibility. Two independent coders (overall coding agreement within each activity 82.5% or higher) rated whether participants mentioned various activities (e.g., eating, exploring downtown, and watching television). Most activities did not differ between friend and acquaintance conditions, but even when we controlled for those that did, our effects still persist.

STUDY 3: MODERATING ROLE OF IMPRESSION CREATED

The first three studies demonstrate that, consistent with our theorizing, when something does not make them look bad, people are more likely to talk about it if it is in the future than the past, because it is more arousing. But what about when sharing the event would make them look bad?

Study 3 begins to examine this question. Participants read about a past or upcoming fee from a landlord that either did or did not make them look bad. Our dominant-response-based perspective suggests that temporal location's effect on talking will be moderated by how the fee makes someone look. Specifically, when the fee does not make them look bad, people should be more likely to talk about it when it is in the future as opposed to past. This will not be the case, however, when the fee makes them look bad.

Method

Participants ($N = 245$, average age = 32.12, 38% female) from Mechanical Turk were randomly assigned to condition in a 2 (Temporal Location: Past vs. Future) × 2 (Impression Generated: Negative or Non-Negative) between-subject design.

All participants imagined incurring a several-hundred-dollar fee from their landlord. We manipulated temporal location by suggesting that the fee was incurred seven days ago (Past condition) or would be incurred in seven days (Future condition). We also manipulated how the fee made participants look by suggesting that it was caused either by their continued late rent payments (Negative condition) or maintenance costs on heating (Non-Negative condition). A manipulation check confirmed this manipulation was effective.[1]

Our dependent measure was again sharing likelihood. Participants provided their likelihood of discussing this fee if they ran into somebody they knew (1 = Not at all, 7 = Extremely).

Results

In addition to a main effect of Impression Generated ($F(1, 241) = 46.03$, $p < .001$), a 2 × 2 ANOVA revealed the predicted interaction ($F(1, 241) = 8.59$, $p = .004$; figure 2). When the fee did not make them look bad, people were more willing to talk about it when it was in the future versus past ($M = 5.24$, SD = 1.45 vs. $M = 4.50$, SD = 1.84; $F(1, 241) = 4.77$, $p = .03$). When the fee did make them look bad, however, the pattern reversed. People were more likely to discuss the fee if it happened in the past ($M = 3.58$, SD = 2.04 vs. $M = 2.93$, SD = 2.01; $F(1, 241) = 3.84$, $p = .05$).

Discussion

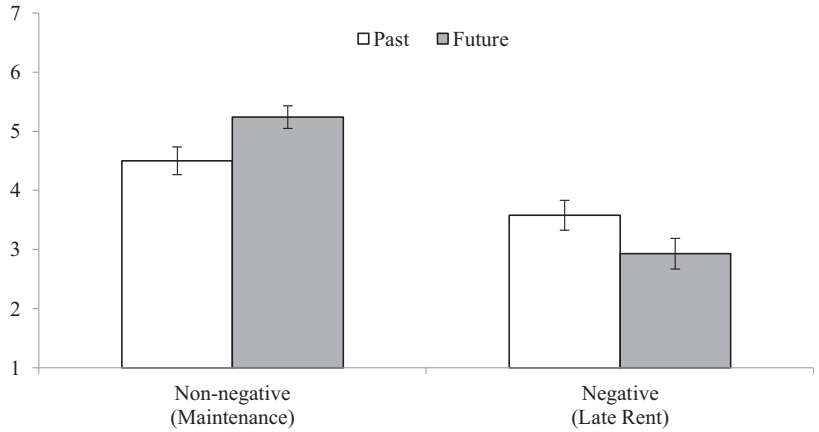
Consistent with our dominant-response-based perspective, study 3 demonstrates that the effect of time on talking is moderated by self-presentation. Whether people were more likely to discuss the same past or future event depended on whether the event made them look bad. Consistent with the first three studies, when sharing the event would not make them look bad, people were more likely to talk about it if it was in the future than in the past. When sharing would make them look bad, however, this pattern reversed.

Ancillary analyses also cast doubt on a number of alternative explanations. One could argue that our results are driven solely by self-presentation rather than by arousal

[1] Participants rated the degree to which the fee reflected badly on them and was their fault. People who read about having late rent payments thought it would reflect worse on them ($M = 5.74$, SD = 1.25) than did those who read about the heating maintenance ($M = 2.96$, SD = 1.56; $F(1, 243) = 239.28$, $p < .001$).

FIGURE 2

SELF-PRESENTATION MODERATES TIME'S IMPACT ON SHARING



and dominant responses. If positive events somehow reflect better on the sharer in the future, and negative events somehow reflect worse, maybe this could potentially drive sharing. However, this was not the case. We measured how badly people thought the event reflected on them, but this did not mediate the effect in either condition (model 15, Hayes 2013, 95% CIs [–.03, .13] and [–.26, .02]).

Alternatively, one could argue that people simply like to talk about positive things in the future. However, while such a simple story could explain the results of the first three studies, it alone cannot explain the results of study 3.

STUDY 4: UNDERLYING ROLE OF AROUSAL

Study 4 examines whether arousal underlies self-presentation's moderating effect on the relationship between time and talking. Participants read about a day in court, either in the past or future, that would either make them look bad or not. Consistent with dominant responses, we predict that self-presentation should moderate the effect of time on talking, and that this should be driven by arousal. When the day in court does not make them look bad, we should replicate studies 1–3: people should be more willing to talk when the court date is in the future. This should not be the case, however, when the court date makes them look bad.

To test the robustness of our process, we also use a different arousal measure. A great deal of prior work has measured arousal through emotional amplitude (Storbeck and Clore 2008; Van Boven and Ashworth 2007). As in our previous studies, we expect to see a main effect of temporal location on arousal but no interaction. The future should be more arousing than the past at each level of the moderator because the event is sufficiently arousing whether it generates a negative impression or not.

Method

Participants ($N = 603$, average age = 31.10, 40% female) from Amazon Mechanical Turk were randomly assigned to condition in a 2 (Temporal Location: Past or Future) × 2 (Impression Generated: Negative or Non-Negative) between-subject design.

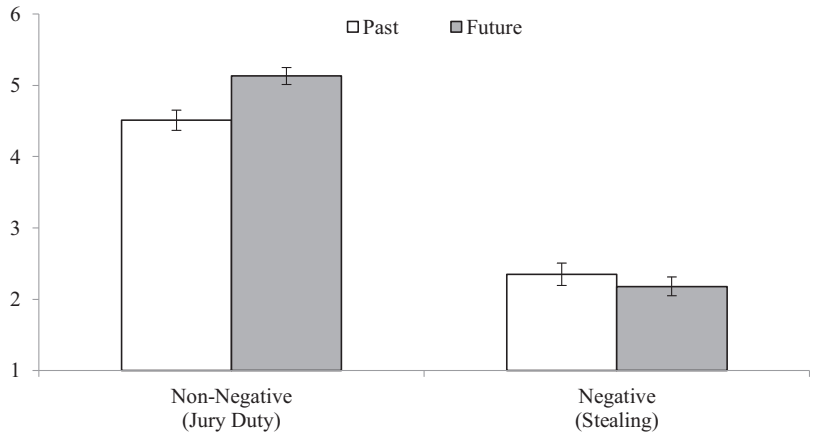
Participants were asked to think about spending a day in court. We manipulated temporal location by whether the day in court was a week ago (Past condition) or a week from now (Future condition). We also manipulated how the event made participants look by whether the day in court was due to them stealing from a local shop (negative impression) or jury duty (non-negative impression). A manipulation check confirmed this manipulation was effective.[2]

Participants then completed the primary dependent measures: sharing and arousal. They first rated how likely they would be to talk about the day in court (1 = Not at all, 7 = Extremely). Then, participants reported affective arousal, or how much thinking about the day in court influenced emotional amplitude (adapted from Van Boven and Ashworth 2007, 1 = Has no effect, 7 = Substantially worsens current mood).

[2] Using the measure from study 3, a single-factor ANOVA (Impression Generated: Negative or Non-Negative) confirmed participants felt the situation reflected worse on them when they were in court for stealing ($M = 6.45$, SD = 0.98) as opposed to jury duty ($M = 1.88$, SD = 1.23; $F(1, 601) = 2481.55$, $p < .001$).

FIGURE 3

SELF-PRESENTATION MODERATES TIME'S IMPACT ON SHARING



Results

Sharing. In addition to an effect of Impression Generated ($F(1, 599) = 342.49$, $p < .001$), a 2×2 ANOVA revealed the predicted interaction ($F(1, 599) = 8.20$, $p = .004$; figure 3). Consistent with the other studies, when court date did not make them look bad, thinking about it as in the future increased people's willingness to talk about it ($M_{Future} = 5.13$, SD = 1.47 vs. $M_{Past} = 4.51$, SD = 1.84; $F(1, 599) = 10.75$, $p = .001$). The relationship between temporal location and talking disappeared, however, when the court date made them look bad ($M_{Past} = 2.35$, SD = 1.70 vs. $M_{Future} = 2.18$, SD = 1.62; $F(1, 599) = 0.73$, *ns*).

Arousal. In addition to a main effect of impression generated ($M_{Negative} = 5.86$, SD = 1.50 vs. $M_{Non\text{-}Negative} = 3.81$, SD = 1.94; $F(1, 599) = 204.73$, $p < .001$), a similar 2×2 ANOVA revealed only the predicted main effect of time ($F(1, 599) = 23.19$, $p < .001$). The court date evoked more arousal when it was in the future ($M = 5.16$, SD = 2.01 vs. $M = 4.37$, SD = 1.97). There was no interaction ($F(1, 599) = .03$, $p = .87$).

Mediation. The effect of time on talking was driven by arousal. Model 15 from Hayes (2013) revealed the predicted moderated mediation (index = –.31, SE = .10, 95% CI [–.57, –.15]), indicating that the mediating role of arousal in driving the effect of time on talking is moderated by how the event makes the person look.

When the event did not make the person look bad, consistent with studies 1–3, arousal mediated the effect of time on talking (indirect effect = .13, SE = .05, 95% CI [.06, .25]). The event evoked more affective arousal when it was happening in the future, and this increased arousal boosted sharing. When the event made the person look bad, however, the effect of arousal on sharing was reversed (indirect effect = –.18, SE = .07, 95% CI [–.37, –.06]). The event still evoked more affective arousal when it was happening in the future, but this increased arousal decreased sharing.

Discussion

Study 4 further illustrates that time's effect on talking depends on how the event makes the person look. Whether people were more likely to discuss the same event in the past or future depended on whether or not the event made them look bad.

The results also demonstrate the process behind these effects (i.e., affective arousal and dominant responses). Importantly, while the future was always more affectively arousing, whether arousal increased or decreased sharing depended on how the event reflected on the sharer. In contrast to findings from prior work (Berger 2011; Berger and Milkman 2012), arousal actually decreased sharing when the event made the sharer look bad.

STUDY 5: THE MODERATING ROLE OF SHARING TARGET

The first five studies provide consistent evidence about how temporal location and self-presentation interact to shape word of mouth. However, if our broader theoretical perspective is correct, sharing target should also play a role.

If dominant responses are driving our results, as we suggest, then for events that make a person look bad, sharing target should moderate the effect of temporal location on sharing. When talking to someone you know well (e.g., strong ties), the tendency should be to share almost anything, and thus even things that make you look bad should be talked about more if they are in the future. When talking to someone you are just starting to get to know

(e.g., weak ties), however, the tendency should be not to share events that make you look bad, in order to maintain a positive impression. Thus, for weak ties, the relationship between arousal and sharing should reverse, and events should not be more likely to be talked about if they are in the future. Indeed, prior work suggests that while people's dominant response among weaker ties is to self-enhance, this is not the case for stronger ties (Baumeister et al. 1989; Tice et al. 1995; Vohs, Baumeister, and Ciarocco 2005).

Study 5 tests this possibility. While the first five studies kept the target vague (e.g., someone the participants knew), here we directly manipulate both the sharing target (strong or weak ties) and the temporal location of something that reflects badly on the sharer. We predict that for close ties, participants will be more likely to share the event if it is in the future, but that this will not be the case for someone they are just starting to get to know. Further, this result will be driven by arousal.

Finally, to further test alternative explanations, we measure a variety of specific emotions to examine whether discrete negative emotions (e.g., sadness or guilt; Smith and Ellsworth 1985), rather than arousal, can explain our results.

Method

Participants ($N = 229$, average age = 36.38, 51% female) from Amazon Mechanical Turk were randomly assigned to a condition in a 2 (Temporal Location: Past vs. Future) × 2 (Target of Sharing: Strong Tie vs. Weak Tie) between-subject design.

First, they wrote down the initials of a friend who knows them well and somebody they did not know well but were starting to get to know better (randomized order).[3] Participants then imagined they had accrued a few thousand dollars in credit card debt from unnecessary expenditures and had to go to the bank for a loan.[4] We manipulated whether this bank trip was seven days ago (Past condition) or in seven days (Future condition). Participants were asked to describe this trip in an empathic manner to ensure they were engaged in the task (Van Boven et al. 2010).

We manipulated the sharing target by having participants imagine running into the friend (Strong Tie) or the person they were just starting to get to know and wanted to know better (Weak Tie). Note, unlike in study 2 where the person with whom people spent the day influenced arousal, here we are using tie strength only to manipulate the sharing audience. We do not expect, or find, that this influences arousal.

Participants then completed the primary dependent measures: sharing and arousal. Participants provided their willingness to talk about the bank trip (1 = Not at all, 7 = Extremely), and indicated arousal using the measures from study 1A ($\alpha = .77$), except for the "Calm-Excited" item, which was not applicable for this negative scenario.

Finally, we assessed the validity of an alternative explanation of our results: specific emotions accounting for the results more precisely than arousal. Participants indicated the extent to which they felt each of seven emotions (Happy, Sad, Angry, Afraid, Ashamed, Anxious, Guilty) on a Likert scale (1 = Not at all, 9 = Extremely).

Results

Sharing. In addition to an effect of sharing target ($F(1, 225) = 133.97$, $p < .001$), results revealed the predicted interaction ($F(1, 225) = 5.15$, $p = .024$). When sharing with a strong tie, people were more willing to talk about the event if it was in the future ($M = 5.46$, SD = 1.85 vs. past $M = 4.73$, SD = 1.88; $F(1, 225) = 5.04$, $p = .026$). The effect reversed, however, for weak ties, and people were directionally more willing to talk about the event if it was in the past ($M = 2.58$, SD = 1.69) compared to the future ($M = 2.26$, SD = 1.48; $F(1, 225) = 0.94$, $p = .334$; see figure 4).

Arousal. Relative to the past bank trip ($M = 6.87$, SD = 1.25), the future bank trip elicited more arousal ($M = 7.23$, SD = 1.37; $F(1, 225) = 4.20$, $p = .042$). There was no effect of target ($F(1, 225) = 0.27$, $p = .607$) or interaction ($F(1, 225) = 0.10$, $p = .757$).

Mediation. Arousal mediated the impact of temporal location on talking. Model 15 from Hayes (2013) demonstrated moderated mediation (index = .15, SE = .10, 95% CI [.01, .46]). Specifically, for weak ties, arousal was negatively related to sharing (indirect effect = –.10, SE = .06, 95% CI [–.27, –.01]), while for strong ties this was not the case (indirect effect = .05, SE = .06, 95% CI [–.03, .25]).

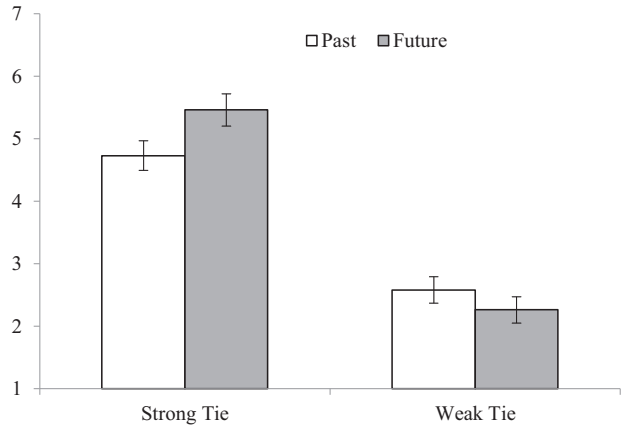
Alternative Explanations. Similar to study 3, sharing was not mediated by how well the scenario reflected on the individual overall (index of moderated mediation = –.01, SE = .06, 95% CI [–.20, .07]). Further, while temporal location did influence certain specific emotions, none of those emotions mediated the effect of location on sharing. Sadness, happiness, shame, and guilt did not differ across temporal location ($ps > .48$), but the past trip did stir up more anger ($M_{Past} = 5.75$, SD = 2.55 vs. $M_{Future} = 5.07$, SD = 2.51; $F(1, 225) = 4.01$, $p = .047$) and the future trip elicited more fear ($M_{Future} = 6.62$, SD = 2.21 vs. $M_{Past} = 5.72$, SD = 2.73; $F(1, 225) = 7.34$, $p = .007$) and

[3] A check confirmed the effectiveness of this tie strength manipulation: at the end of the study participants completed three items from Argo et al. (2006) about how strong their relationship with their sharing target was, how important their sharing target was to them, and how central their sharing target was in their life ($\alpha = .95$). People in the Strong Tie condition ($M = 6.20$, SD = 0.79) felt the relationship was closer than people in the Weak Tie condition ($M = 3.14$, SD = 1.16; $F(1, 227) = 547.07$, $p < .001$).

[4] A manipulation check on how the bank trip reflected on them confirmed that people viewed the bank trip as not reflecting well on them compared to scale midpoint ($M = 2.14$, SD = 1.25, $t(228) = –22.62$, $p < .001$).

FIGURE 4

SHARING TARGET MODERATES TIME'S IMPACT ON SHARING FOR EVENTS THAT MAKE THE SHARER LOOK BAD



directionally more anxiety ($M_{Future} = 7.61$, SD = 2.05 vs. $M_{Past} = 7.06$, SD = 2.20; $F(1, 225) = 3.73$, $p = .055$). That said, none of these specific emotions mediated the observed effects (see web appendix B).

Discussion

Study 5 supports our theoretical perspective by demonstrating the moderating role of sharing target. When sharing with a strong tie (e.g., a friend), people were more willing to discuss an event that reflects poorly on them if it was in the future, but this pattern directionally reversed when they were sharing with a weak tie. Further, a moderated mediation shows arousal drove these effects. The future always increased arousal, but whether that increased or decreased sharing something that reflected badly on the sharer depended on the sharing target.

The data also bolster our suggestion that even for things that make them look bad, the tendency when people are talking to strong ties is to share. The means for sharing in the strong tie condition are above the scale midpoint, supporting our argument that the dominant response in such situations is to share.

Finally, ancillary analyses show that specific emotions cannot explain the effect. While some specific emotions varied across past and future, none mediated the effect of temporal position on sharing. This result is consistent with a great deal of work distinguishing specific emotions from arousal (Russell 1980; Smith and Ellsworth 1985), and it underscores our suggestion that arousal, not specific emotions, is driving our effects.

STUDY 6: TARGET OF SHARING FOR EVENTS THAT DO NOT GENERATE NEGATIVE IMPRESSIONS

Study 5 found that sharing target moderated the effect of temporal location on sharing, but our theory does not always predict such moderation. With respect to weak ties, the tendency not to share should mainly hold for things that make the potential sharer look bad. However, for things that do not make the potential sharer look bad, weak ties should behave more like strong ties, with the dominant tendency being to share (rather than not share). As a result, for events that do not make the potential sharer look bad, the sharing target should be less likely to moderate our effect.

Study 6 tests this possibility. Participants provided their willingness to discuss something that did not generate a negative impression (i.e., Christmas Day) with either a friend or acquaintance, either before or after it occurred. If our theory is correct, people should be more willing to talk about the event if it is in the future (relative to the past), regardless of sharing target. Further, this should be driven by increased arousal.

Finally, we also test a variety of alternative explanations. While study 1B already casts doubt on the possibility, study 6 further tests whether asymmetries in anticipated versus retrospective enjoyment or usefulness can explain the effect. We also examine whether discrete positive emotions (e.g., hope and pride) can explain the results.

Method

Participants ($N = 355$, average age = 33.68, 48% female) from Amazon Mechanical Turk were surveyed either eight days before (December 17) or seven days after (January 1) Christmas Day. Participants were further randomized into either the Strong or Weak Tie condition.

Participants first listed what they would be doing (Future condition) or did (Past condition) for Christmas Day, depending on condition, after which they filled out the sharing and arousal measures. Participants indicated their likelihood of discussing Christmas Day (1 = Not at all likely, 7 = Extremely likely) with a friend who knows them very well (Strong Tie condition) or an acquaintance who does not (Weak Tie condition). Participants also completed the arousal measures from Study 1B ($\alpha = .94$).

We also had participants respond to measures assessing three alternative explanations: specific emotions, usefulness, and enjoyment. Participants first indicated to what extent they felt the following specific emotions (1 = Not at all, 7 = Extremely): Happy, Sad, Hopeful, Proud, Angry, Fearful, Disgusted, and Ashamed. Participants also rated how useful it would be to discuss Christmas Day (1 = Not at all, 7 = Extremely), and to what extent they believed

they would enjoy or enjoyed Christmas Day (1 = Not at all, 7 = Extremely).

Results

Sharing. In addition to a main effect of target ($M_{Strong} = 5.26$, SD = 1.60 vs. $M_{Weak} = 3.98$, SD = 1.76; $F(1, 351) = 50.11$, $p < .001$), as predicted, there was only a main effect of temporal location whereby people were more likely to talk about Christmas Day if it was in the future ($M = 4.90$, SD = 1.74 vs. $M = 4.41$, SD = 1.81; $F(1, 351) = 6.63$, $p = .01$). As predicted, there was no interaction ($F(1, 351) = 0.16$, $p = .69$).

Arousal. Similarly, in addition to a main effect of target ($M_{Strong} = 4.75$, SD = 1.64 vs. $M_{Weak} = 4.36$, SD = 1.69; $F(1, 351) = 4.87$, $p = .028$), as predicted, there was only a main effect of temporal location whereby people felt more arousal if Christmas Day was in the future ($M = 4.88$, SD = 1.69 vs. 4.33, SD = 1.63; $F(1, 351) = 9.29$, $p = .002$). As predicted, there was no interaction ($F(1, 351) = 0.06$, $p = .80$).

Mediation. As predicted, model 4 of Hayes (2013) demonstrates that arousal mediated the sharing effect (indirect effect = .23, SE = .08, 95% CI [.10, .42]). This effect held both when the sharing target was friends (indirect = .26, SE = .09, 95% CI [.11, .47]; direct = .26, SE = .24, $t = 1.06$, $p = .288$) or acquaintances (indirect = .171, SE = .07, 95% CI [.06, .37]; direct = .24, SE = .24, $t = 1.02$, $p = .31$). There was no moderated mediation (index = .09, SE = .07, 95% CI [–.005, .259]) of arousal by sharing target from model 15 of Hayes (2013).

Alternative Explanations. First, the effect of arousal persists even when we control for usefulness and enjoyment. While temporal location influenced perceived usefulness ($F(1, 351) = 8.12$, $p = .005$) and marginally influenced enjoyment ($F(1, 351) = 2.86$, $p = .092$), the mediating role of arousal holds (indirect effect = .12, SE = .06, 95% CI [.03, .28]) even when usefulness and enjoyment are included in a simultaneous mediation (Hayes 2013, model 4; usefulness indirect effect = .15, SE = .06, 95% CI [.05, .32]; enjoyment indirect effect = .04, SE = .03, 95% CI [.002, .14]). Second, specific emotions cannot explain the effect. There was no effect of temporal location on a variety of specific emotions, including happiness ($p = .378$), sadness ($p = .887$), hopefulness ($p = .575$), pride ($p = .229$), anger ($p = .600$), fearfulness ($p = .768$), disgust ($p = .525$), or shame ($p = .668$).

Discussion

Study 6 further supports our theorizing. Consistent with our theoretical perspective, when the event did not make the potential sharer look bad, the target of sharing did not moderate the effect. Whether talking to a strong or weak tie, people were more likely to talk about Christmas Day when it was coming in the future rather than had occurred in the past. Further, these effects were again driven by arousal.

Ancillary analyses also cast additional doubt on alternative explanations based on usefulness, expected versus remembered enjoyment, and specific emotions. Further, consistent with prior work (Kuppens et al. 2013; Russell 1980), arousal is distinct from emotional valence. Summing the positive and negative emotions and taking their difference shows that while arousal and valence are correlated, even controlling for emotional valence, the effects of arousal still persist (i.e., model 4 indirect effect = .22, SE = .08, 95% CI [.08, .41]).

GENERAL DISCUSSION

People often share news and information with others. While it's clear that word of mouth is frequent and important, less is known about how time impacts talking. Does whether something happened in the past or future influence people's likelihood of talking about it, and if so, how and why?

Seven studies shed light on this question (see table 1). People were more willing to talk about a wide variety of topics (e.g., a fancy dinner, holiday, or concert) if those events and experiences were in the future as opposed to the past (studies 1–4). However, as predicted, when the topic being discussed reflected badly on the sharer, the relationship between time and talking changed (studies 3, 4, and 5) and people were no longer more likely to talk about the events or experiences if they were in the future.

The studies also demonstrate the underlying process behind the effects (i.e., affective arousal). Future events and experiences were more affectively arousing than equivalent past ones, but arousal's impact on sharing depended on how the event potentially being discussed reflected on the sharer. When the thing did not reflect badly on the sharer, arousal increased sharing. When it did reflect badly, however, arousal decreased sharing (except when the sharer was sharing with strong ties).

Further, consistent with our theorizing about dominant responses, the sharing target also played a role. When the event in question reflected badly on the sharer, the person to whom people were talking moderated the temporal asymmetry in sharing (study 5). When the thing being shared did not make the sharer look bad, however, that moderation disappeared (study 6).

Ancillary analyses cast doubt on a variety of alternative explanations, including usefulness (studies 1B and 6), predicted enjoyment (studies 1B and 6), novelty (studies 1A and 2), bragging (study 2), discrete negative emotions (study 5), and emotional valence (study 6). Finally, the fact that we find consistent results across various situations,

TABLE 1

SUMMARY OF STUDY RESULTS

Study	Moderator	Result on sharing[a]	Sharing target	Impression generated	Alternate accounts ruled out
1A (St. Patrick's Day)	–	F > P	Unspecified	Non-negative	Novelty
1B (Toyota)	–	F > P	Unspecified	Non-negative	Usefulness, enjoyment
2 (Get-together)	Partner				novelty, bragging
2 (Get-together)	Best friend	F > P	Unspecified	Non-negative	
2 (Get-together)	Acquaintance	F < P	Unspecified	Non-negative	
3 (Fee)	Impression generated				Self-presentation alone
3 (Fee)	Non-negative	F > P	Unspecified	Non-negative	
3 (Fee)	Negative	F < P	Unspecified	Negative	
4 (Court)	Impression generated				–
4 (Court)	Non-negative	F > P	Unspecified	Non-negative	
4 (Court)	Negative	F < P	Unspecified	Negative	
5 (Bank)	Sharing target				Self-presentation alone, specific emotions
5 (Bank)	Strong tie	F > P	Strong Tie	Negative	
5 (Bank)	Weak tie	F < P	Weak Tie	Negative	
6 (Christmas Day)	Sharing target				Specific emotions, enjoyment, valence, usefulness
6 (Christmas Day)	Strong tie	F > P	Strong Tie	Non-negative	
6 (Christmas Day)	Weak tie	F > P	Weak Tie	Non-negative	

[a] F = Future, P = Past.

real-world events, and measures of affective arousal speaks to the effect's generalizability.

Theoretical Contributions and Implications

This work makes a number of contributions. First, it deepens understanding of psychological drivers of social transmission. While recent work on word of mouth has begun to examine what people talk about (Berger 2014; Dubois, Rucker, and Tormala 2011; Moore 2012; Packard and Wooten 2013), there has been less attention to when people discuss, or whether people talk about the past, present, or future. We shed light on when people may be more likely to talk about the future than the past, and why.

Second, this work provides an important correction to research suggesting that arousal always increases sharing. While prior work finds that arousal boosts transmission (Berger 2011; Berger and Milkman 2012), we demonstrate that this is not always the case. Further, we provide insight into why: whether arousal increases or decreases sharing depends on how what is being discussed reflects on the sharer. In so doing, we enhance understanding of how self-presentation shapes word of mouth (Cheema and Kaikati 2010; De Angelis et al. 2012).

Third, this research contributes to literature on past-future asymmetries. Prior research has focused on main effects or attenuations (Burns, Caruso, and Bartels 2012; Caruso et al. 2008). In contrast, we show that effects of time can sometimes even reverse depending on the presence of a second factor. In this case, how time affects transmission depends on how the topic reflects on the sharer. Similar factors may also influence other past-future asymmetries. As an example, while future events have been shown to elicit higher pay rates than past ones due to the greater affect they produce (Caruso et al. 2008), this may reverse when arousal leads people to infer they should be cautious about spending.

These findings also have important practical implications. Companies and organizations trying to increase word of mouth should encourage people to think about the future to boost buzz. Simple shifts in language, or even changing verb tense, can help reframe the same content to make it more effective (Hart 2013). As study 1B demonstrates, rather than asking "Where have you gone in a Toyota?" asking "Where *could* you go in a Toyota?" should boost transmission.

Further, the findings suggest that upcoming events should get shared more. Consequently, managers may need to invest more effort in getting people to pass on things that have already occurred. Using pictures or evocative wording may help boost arousal and thus facilitate sharing.

Boundary Conditions and Future Research

A few boundary conditions and open questions are worth noting. First, even if something reflects negatively on them, people may share it anyway if they can reframe it to be positive (Barasch and Berger 2014). Imagine going to the motor vehicle association to reapply for a license after losing it due to repeated speeding violations. While that may sound as though it would reflect badly on a person, someone could potentially reframe it in a way that makes him/her seem like a daredevil. Consequently, future work should take mutability into account (Kahneman and Miller 1986).

Second, research might examine how temporal location shapes the content of sharing. Given our findings, one might assume that talking about future events would contain more affectively laden words. However, because past events are more concrete, they may include more sensory detail, which may lead to more affective words being used (D'Argembeau and Van der Linden 2004). Ancillary results are consistent with this possibility. We asked participants in Studies 1B and 6 to write what they would say if they shared, and we processed these messages using the Linguistic Inquiry Word Count, or LIWC (Mehl 2006; Pennebaker et al. 2007). Across studies, compared to posts about the past, posts about the future included more emotionally positive words (study 1B $F(1, 176) = 4.08$, $p = .045$; study 6 ($F(1, 351) = 3.45$, $p = .064$). Subsequent research might imagine this and other linguistic differences in more detail to understand how various drivers interact to shape linguistic content.

Third, future work might more deeply examine drivers of past-future arousal asymmetries. Consistent with prior work, ancillary data demonstrates that mental simulation is one contributor (Van Boven and Ashworth 2007). In study 1B we adapted four measures from Van Boven and Ashworth (2007): "When I think about the past [upcoming] trip, I imagine what it was [will be] like" and "It feels as though I am actually on the trip right now" (1 = Strongly disagree, 7 = Strongly agree; $\alpha = .73$). Compared to a past trip ($M = 4.65$, SD = 1.12), a future trip elicited more mental simulation ($M = 5.04$, SD = 1.16; $F(1, 176) = 5.26$, $p = .023$). Further, results indicate a serial mediation (model 6 of Hayes 2013): sharing is mediated through mental simulation (M_1) leading into arousal (M_2; indirect effect = .17, SE = .09, 95% CI [.03, .39]). Other factors may also contribute to the temporal asymmetry (e.g., indeterminacy; Vosgerau et al. 2006), and future work may examine how these different aspects combine, or other possible drivers of past-future arousal asymmetries.

This article provides a preliminary investigation into how time shapes word of mouth, but more work is necessary. How do other factors beyond arousal impact whether people talk about the past and future? Might aspects of the audience (e.g., size) and communication channel (e.g., online vs. offline) moderate these effects? Does talking about the past versus the future have different impacts on the sharer? These are only a few questions that deserve further attention.

Temporal distance may also be particularly interesting to study. We examined past and future, but how might whether something is closer or further from now temporally impact whether it gets discussed? Are people more likely to talk about things that are temporally nearby (i.e., happened recently vs. a while ago)?

Accessibility may play an important role. Compared to things that are further away, temporally near things should be more accessible. More accessible things are talked about more (Berger and Schwartz 2011), and as a result, people may be particularly likely to talk about things that are temporally near. That said, the past may be more accessible than the future, so things that just happened may be talked about more than things that are about to happen.

Self-presentational concerns likely also matter. Bringing up a party you went to months ago, for example, may make listeners wonder why you do not have any more recent things to bring up. Thus, self-presentation may encourage talking about near things over far ones because they make people seem more active and interesting.

More generally, it's important to begin to understand how various word-of-mouth motivations interact to drive discussion. Research often examines individual motivations in isolation, such as how arousal (Berger and Milkman 2012) or self-presentation (Wojnicki and Godes 2008) shape what people discuss. However, to truly understand word of mouth, it's important to examine how these various motivations interact. This article examined the intersection of arousal and self-presentation, but many more interesting questions remain. People may want to share negative experiences to vent or seek social support, but how do they balance those motives with the desire to present the self in a positive light? One possibility, also suggested from the present and other research, is strategically selecting the audience to achieve support while minimizing damage to self-image.

In conclusion, this research illustrates one manner by which time shapes talking. Hopefully, it will encourage more researchers to examine this interesting area, and to deepen understanding around not only what people talk about, but *when*.

DATA COLLECTION INFORMATION

The first author conducted studies 1A and 1B on Amazon Mechanical Turk in March 2016 and February 2016, respectively; study 2 under the supervision of lab personnel in the Wharton Behavioral Lab in spring 2015; the study mentioned in the introduction to this study on Amazon Mechanical Turk in summer 2015; study 3 on Amazon Mechanical Turk in winter 2015; study 4 on Amazon Mechanical Turk in winter 2014; study 5 on Amazon Mechanical Turk in winter 2016; and study 6 on Amazon Mechanical Turk in December 2015/January 2016. The first author analyzed these data with help from the second author.

Appendix B studies: The first author conducted study 1C under the supervision of lab personnel in the Wharton Behavioral Lab in December 2014; study 1D on Amazon Mechanical Turk in March 2016; study 1E in the Wharton Behavioral Laboratory in spring 2015; study 1F on Amazon Mechanical Turk in October–November 2015; study 1G on Amazon Mechanical Turk in December 2014/January 2015; and study 4B on Amazon Mechanical Turk

in November 2015. The first author analyzed these data with help from the second author.

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