Perceived Social Presence Reduces Fact-Checking
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The dissemination of unverified content (e.g., “fake” news) can often acquire tremendous reach through social networks. We test how consuming information in social (vs. individual) settings affects fact-checking. Across seven incentivized experiments, people fact-checked less when they perceived the presence of others. Encouraging momentary vigilance reduced this tendency.

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SESSION OVERVIEW

The company of others often shapes how we process information and act accordingly. In an increasingly connected world, a fundamental question is to understand the varied instantiations of social influence and their accompanying consequences for reasoning and behavior. This session discusses how individual judgment and decisions change as a function of others’ presence (Papers 1-2), their attitudes (Paper 3), and their behaviors (Paper 4). Collectively, the selected research illuminate contexts under which social influence can aid as well as harm well-being, while featuring a broad array of human cognition and behavior: reacting to information (Papers 1 and 3), changing experiences (Paper 2) and attitudes (Paper 3), and engaging in repeated actions (Papers 2 and 4).

Youjung Jun, Meng, and Johar (Paper 1) begin by examining the effect of evaluating information in a social context on fact-checking. Across a series of incentivized tasks, people fact-checked statements less frequently when they perceived the presence of others (e.g., in group settings or on social media) than when they evaluated the same statements alone. Next, Tu, Yang, and Fishbach (Paper 2) expand on the effects of social presence and highlight one benefit of interpersonal involvement in the form of combating satiation. Specifically, re-consumption familiar activities with those new to that stimuli can restore novelty to otherwise mundane experiences. Kupor and Tormala (Paper 3) turn to the role of others’ attitudes by identifying when information is more persuasive in a consumer recommendation context. When the perceived default evaluation is extremely positive, people tend to be more persuaded by moderately positive reviews that deviate from that default. Finally, using large-scale observational data on running activity, Eckles, Nicolaides, and Aral (Paper 4) bring the forces of social influence to the behavioral sphere with an analysis of how habits and disruptions to a performance environment moderate susceptibility to peer effects.

In concert, the above papers call attention to the far-reaching effects of social influence on how people process information, form attitudes, and change behavior. These consequences may manifest themselves in ways both beneficial and detrimental. On one hand, individuals may derive considerable utility from others’ company, as when they re-consume experiences with friends who have not done so (Tu, Yang, and Fishbach) and use peers’ behavior to reinforce their own habits (Eckles, Nicolaides, and Aral). On the other hand, the presence of others can suppress willingness to verify information (Jun, Meng, and Johar). People may become swayed by extreme or moderate reviews simply based on the perceived default (Kupor and Tormala).

Bridging insights from different methodological techniques that span various consumption domains (media, product recommendations, experiential activities, exercise habits), this session brings together the latest work on social influence and its consequences for judgment and behavior. With the ease and rapidity of information transmission through social networks, a closer inspection of when people are more susceptible to peer effects can help improve individuals’ decisions and experiences. We believe the substantive issues raised here would be especially useful for those interested in social influence, persuasion, information processing, and habits.

**Perceived Social Presence Reduces Fact-Checking**

**EXTENDED ABSTRACT**

A recent concern, intensified in the wake of the 2016 U.S. Presidential election, surrounds the circulation of “fake” news and other unverified digital content. As people have grown to rely on social media as an important news source (Pew Research Center 2016), a relevant question is how we scrutinize information in such settings. Across several experiments, people fact-checked less often when they evaluated claims in a (perceived) collective setting (e.g., in a group or on social media) than when they did so alone. Inducing vigilance immediately prior to evaluation increased rates of fact-checking under social contexts.

In Experiment 1 (N = 175), MTurk participants logged onto a simulated news website where they evaluated 36 statements described as headlines published by a U.S. media organization. These claims were pretested to be relatively ambiguous, evenly divided in their veracity, and spanned a diverse set of topics. Participants could identify each statement as true, false, or raise a fact-checking “flag” allowing them to learn its veracity. We specified a bonus reward such that individuals received 1/1/0 points for each correct/incorrect flagged statement, respectively (e.g., with each point awarding 5 cents). Throughout the task, some participants saw their username displayed by itself (Alone), while others saw 102 other “currently online” participants beneath their own group (Respondent). Respondents flagged (fact-checked) a fewer proportion of statements in the Group compared to Alone condition [$M_{\text{Alone}} = 17\%; M_{\text{Group}} = 11\%$].

The incentive structure above implies that an expected-value maximizer would be indifferent between flagging and not flagging. To test whether people are more likely to fact-check in others’ presence when doing so is strictly dominant, Experiment 2 (N = 215) imposed a reward (+0.25 point) for flagging and featured 37 statements of varying ambiguity. Although overall flagging rates increased, people again fact-checked less in the presence of others [$M_{\text{Alone}} = 26\%; M_{\text{Group}} = 20\%$] across all levels of ambiguity.
Experiment 3 investigated whether diffusion of responsibility (Latané et al., 1979) may account for suppressed fact-checking. We presented respondents (N=165) with 38 statements about U.S. congressmen/women and introduced a third condition (Group-Distinct) that differentiated participants from others logged onto the forum by displaying their own name in red text alongside 30 others in black (van Bommel et al. 2012). If social presence blunts fact-checking because individuals free-ride on others’ efforts, then this behavior should diminish when they feel more personally responsible within a collective setting. Although heightening individual distinctiveness indeed increased felt responsibility for uncovering the truth, this did not prompt greater fact-checking: Those in the Alone condition [M = 13%] flagged more than those in both Group conditions [M_group = 6%; M_group-Distinct = 7%].

Experiment 4 (N=371) tested whether evaluating information in a social context where others’ presence is cued indirectly can impede fact-checking. Participants evaluated the 36 headlines from Experiment 1 in an Alone or Group condition (102 others). We introduced a second factor of platform type: Those in the Traditional News condition completed the task on the simulated forum as done previously, while those in the Social Media condition viewed the same headlines framed as Facebook posts from the focal media organization. Replicating prior results, people flagged less when they saw others (vs. only themselves) on the traditional media site [M_Alive = 6.4%; M_Group = 3.5%]. On the social media platform, however, this difference disappeared [M_Alive = 4.4%; M_Group = 4.4%]. So, browsing information in an inherently social context seemed to make participants behave as if they were in a group.

Experiment 5 (N=308) found that people need not be co-attending to the same stimuli to be susceptible to the social presence effects observed so far. Regardless of whether other respondents were described as “currently online” (completing the same task) or “previously online” (had already completed it), participants fact-checked less in the company of others [M_current = 15%; M_past = 18%] than when alone [M = 24%].

Might the reluctance to fact-check be compounded by a motive to corroborate one’s own beliefs? Participants in Experiment 6 (N=287) read 50 (purported) campaign statements from two U.S. politicians. Candidate A’s statements reflected a more conservative view, while candidate B’s a more liberal one. We further varied the number of others (30 vs. 102 others) to examine the role of group size. Participants flagged less in the company of others regardless of group size [M_Alive = 12%; M_Group-Small = 8%; M_Group-Large = 6%]. Although people were more likely to accept a statement as true when its view accorded with their own party, political alignment did not affect flagging rates (which instead depended only on social presence), suggesting that the tendency to exercise motivated reasoning may operate independently.

One reason why collective settings suppress fact-checking is that being around others may automatically lower our guards, impairing vigilance more generally. Three pieces of evidence lend some credence to this possibility. First, respondents in a separate study who scored high on chronic prevention (but not promotion) focus—a trait associated with being habitually cautious (Higgins et al. 2001)—appeared less vulnerable to the effect of social presence. Second, people in a group (vs. individual) environment performed worse on a proofreading task. Finally, the last experiment (N=385) tested whether promoting a vigilance mindset can increase fact-checking under social settings. Before evaluating statements in either an Alone or Group condition, respondents either were or were not exposed to a vigilance induction shown to increase prevention focus (Higgins et al. 1994). Control participants flagged fewer statements in the presence of others [M_Alive = 20%; M_Group = 12%]. However, this difference disappeared among those given the vigilance exercises [M_Alive = 21%; M_Group = 23%], with participants in the Group condition electing to fact-check nearly twice as often.

The experiments above furnish evidence that perceiving the presence of others may reduce people’s willingness to fact-check information. Further, these data suggest that others’ presence may lower our guards in an almost instinctual fashion, consistent with a “safety in numbers” heuristic (Roberts 1996). Continuing to devise interventions that encourage greater informational scrutiny poses an important challenge towards inspiring a well-informed populace.

Seeing the World Through Others’ Lens: When Shared Experience Boosts Novelty

EXTENDED ABSTRACT

Ordinary life is filled with repeated activities. Very often consumers take the same route to work, stop by the same coffee shop and interact with the same group of people. Almost by definition, repetition results in a decrease in experienced novelty—people satiate (Coombs and Avrunin 1977). To counteract unwanted satiety, prior research has identified a few intra-personal strategies, such as consuming later and consuming something different. We propose an interpersonal strategy: consume with others who are new to the experience.

Due to our social instinct, we automatically synchronize our behaviors and experiences with other people. When seeing others yawn, we also start yawning (Platek et al. 2003); when witnessing a person being socially rejected, we feel lonely too (Wesselmann, Bagg, and Williams 2009); when reading emotionally laden posts on Facebook, without face-to-face interaction, we can feel how others feel and converge with our friends’ emotions (Kramer, Guillory, and Hancock 2014). Building on this line of research, we predict that when experiencing old stimuli with another person who is new to the experience, people adopt his/her novel perspective, resulting in a more refreshing experience for the self. This effect is driven by neither the mere presence of others nor the change in experience type (i.e., solo experience vs. joint experience). Hence, controlling for the presence of others, we predict that people find their experience more novel when experiencing it with another person who has had the experience fewer times. Importantly, because the degree to which people adopt another person’s fresh pair of eyes depends on interpersonal closeness, we predict that the proposed effect only occurs between close others. Four studies tested our proposed framework.

Study 1 surveyed people’s movie re-consumption experience. Participants recalled the last time they re-watched a movie, rated the novelty of their experience, and indicated whether they re-watched it by themselves or with other person(s). Those who watched with other(s) further rated whether other(s) have watched the movie more or fewer times than they did (1 = fewer times, 7 = more times). We also collected background variables such as participants and other(s)’ overall liking of the movie. In support of our hypothesis, those who re-watched the movie with others (vs. alone) rated the movie more novel [M = 5.00, SD = 1.22 vs. M = 4.57, SD = 1.09; t(256) = 2.50, p = .013]. This is driven by the lower consumption frequency of others relative to self [M = 2.93, SD = 2.05, t(196) = 7.34, p < .001; one-sample t-test against 4]. Further, controlling for other people’s liking of the movie, the fewer times other(s) watched the movie relative to participants themselves, the more novel participants rated their experience [β = .17, p = .02].

Study 2 tested the effect in the Magic Kingdom in Disney World using real-time measures. We surveyed visitors who were with fami-
ly and friends. Participants first evaluated novelty of their experience on that day, and then indicated whether they were a first-time visitor or not. Non-first-timers also rated to what extent it felt like first time. Next, participants indicated 1) how likely they would come back and 2) how soon they would come back. Finally, they answered other questions about the visit, including 1) the (average) frequency of other person(s) visit, 2) frequency of their own visit, 3) time elapsed since their last visit, 4) time in Magic Kingdom on that day, and 5) group size. Controlling for items 2)-4), the frequency of other(s) visit negatively predicted novelty ($\beta = -0.19$, $p = .02$), likelihood of coming back ($\beta = -0.24$, $p < .001$), how soon people would like to come back ($\beta = -0.24$, $p < .001$), and for non-first-timers, whether it felt like first time ($\beta = -0.42$, $p < .001$).

Study 3 was conducted in the lab for higher internal validity. We presented undergraduate participants with six pictures of their familiar campus scenes and asked them to imagine visiting these places with a group of freshmen (their in-group members) who have “never been to these places before” or “been to these places many times”. Participants in the former condition rated the scenes more novel ($M = 4.61$, $SD = 1.29$ vs. $M = 3.97$, $SD = 1.01$; $F(1, 130) = 9.95$, $p = .002$).

Study 4 further tested the process by manipulating closeness, using a 2 (Other’s status: without-prior-experience vs. with-prior-experience) $\times$ 2 (Closeness: close vs. distant) between-participants design. Participants first answered a few attitude questions as a part of the closeness manipulation. Next, they watched a short video clip four times, and then watched it one more time with another person who “has not yet watched the video” or “has watched this video for four times, and then watched it one more time with another person”. They also learned that this person’s answers to the attitude questions overlapped 80% (in close conditions) or 20% (in distant conditions) with theirs. Finally, participants rated the novelty of the last iteration. An Other’s Status $\times$ Closeness ANOVA on novelty yielded the predicted interaction ($F(1, 79) = 6.25$, $p = .014$); participants found the video clip more novel when the other person had no prior experience ($M = 4.52$, $SD = 2.09$ vs. $M = 3.19$, $SD = 2.11$; $t(40) = 2.06$, $p = .046$) only when they felt close to the other person.

Satiation occurs all too often as consumers usually need to experience stimuli repeatedly by themselves. We propose and find support for a social approach to combat satiation—that is, consumers can regain novelty by re-experiencing with a close other who has a fresh pair of eyes. Among other benefits of a social relationship, such as emotional and financial support, friends can enhance our experiences.

When Moderation Fosters Persuasion: The Persuasive Power of Deviatory Reviews

EXTENDED ABSTRACT

When people seek to persuade others to purchase a product, they often review it extremely favorably. Despite the intuitive appeal of this approach, we find that a moderately positive review can sometimes be more persuasive. In particular, when the perceived default evaluation in a given context is extremely positive, moderately positive reviews that deviate from that default can become more persuasive.

Defaults can be created by factors both endogenous (e.g., pre-selected options; Johnson and Goldstein 2003) and exogenous (descriptive norms; Miller and Prentice 1996) to a review context. These defaults often emerge on review platforms, and frequently they are extremely positive. For example, numerous review portals feature pre-selected 5-star ratings (e.g., Merchantcircle.com 2016). Similarly, perhaps because consumers frequently give services the highest possible rating on many platforms (e.g., Uber, Lyft, etc.), consumers regularly assume that the default review on those platforms is extremely positive (Kane 2014; Quora 2013). We propose that just as people more frequently deviate from a default when they have carefully deliberated about their choice (Huh, Vosgerau, and Morewedge 2014), they may believe that others are more likely to have deviated from a default when those others have carefully deliberated about their choice. Furthermore, because greater deliberation increases perceived accuracy (Barden and Petty 2008), people may infer that a deviatory assessment is more accurate, which may thus increase its persuasiveness. This proposed deviation effect suggests that when the default evaluation is believed to be extremely positive, a moderately positive review might be more persuasive (e.g., increase consumers’ desire to purchase the reviewed product) than an extremely positive review. We outline four studies below that test this theorizing.

In Study 1, participants imagined that they viewed a 4-star or 5-star rating of a phone on a review platform on which the majority of reviews had 5 stars. Participants perceived the review to be more accurate when the reviewer gave it 4 stars (i.e., when the review was deviatory: $M = 5.14$, $SD = 1.19$) versus 5 stars (i.e., when the review was not deviatory: $M = 4.55$, $SD = 1.33$), ($t(199) = 3.34$, $p < .001$). Participants were also more likely to buy the phone when the reviewer rated it 4 stars ($M = 3.52$, $SD = 1.84$) rather than 5 stars ($M = 2.91$, $SD = 1.63$), ($t(199) = 2.41$, $p = .017$). Perceived accuracy mediated participants’ purchase decisions (95% CI: 12 to .55).

Study 2 examined whether the deviation effect occurs even when the default is not explicit. After a pretest revealed that the majority of MTurkers perceive that the default ride-sharing review is 5 out of 5 stars, a separate sample of MTurkers imagined that they viewed a 4-star or 5-star ride-sharing review. Participants perceived the 4-star (vs. 5-star) review to be more accurate ($M_{4-Stars} = 5.09$, SD = .16; $M_{5-Stars} = 5.16$, SD = .11; $t(197) = 2.88$, $p = .004$), and the 4-star review prompted a greater desire to use the ride-sharing service ($M_{4-Stars} = 5.16$, SD = .11; $M_{5-Stars} = 4.63$, SD = .12; $t(197) = 3.34$, $p < .001$). As further predicted, perceived accuracy mediated participants’ behavioral intentions (95% CI: .11 to .60).

Study 3 tested the robustness of the deviation effect with a different manipulation of deviance—deviation from a pre-selected star rating. Study 3 also tested our theorizing that people not only perceive a moderately positive review to be more accurate when the default is extremely positive, but that they also perceive an extremely positive review to be more accurate when the default is moderately positive. Thus, participants read about a reviewer who rated a restaurant 4 (or 5) stars in a review portal that pre-selects a default rating of 4 (or 5) stars. In other words, participants were assigned to one cell in a 2 (Default: Moderate vs. Extreme) $\times$ 2 (Reviewer Evaluation: Moderate vs. Extreme) design. Separate 2 $\times$ 2 ANOVAs revealed interactions on perceived thoughtfulness, perceived accuracy, and desire to try the restaurant ($F(3, 196) = 5.75$, $ps < .001$). When the default was 5 stars, participants perceived the 4-star (vs. 5-star) review to be more thoughtful, accurate, and persuasive ($F(3, 196) = 31.79$, $ps < .001$). In contrast, when the default was 4 stars, participants perceived the 5-star (vs. 4-star) review to be more thoughtful, accurate, and persuasive ($F(3, 196) = 21.84$, $ps < .001$). Moreover, a serial mediated moderation model (Hayes 2013) revealed that the interaction on behavioral intentions occurred because the deviation boosted perceived thoughtfulness, which in turn boosted perceived accuracy (95% CI: -1.80, -.96). These results are consistent with our
Study 4 further tested the proposed theorizing: If the deviation effect occurs because deviation signals thoughtfulness, then evidence that a reviewer thought carefully about his/her recommendation should moderate the effect. To test this possibility, we presented participants with an 8-star (or 10-star) restaurant review on a website which had a 10-star evaluative default. Participants either read no further information, or read that the reviewer thought deeply about his rating. Separate 2 (Reviewer Evaluation: Moderate vs. Extreme) × 2 (Thoughtfulness: High Thought vs. Control) ANOVAs revealed interactions on perceived thoughtfulness, accuracy, and desire to try the restaurant ($F$s(1, 396) > 22.53, $p$s < .001): In the control condition, participants perceived the 8-star review to be more thoughtful, accurate, and persuasive ($F$s(1, 396) = 13.37, $p$s < .001). In contrast, when participants learned that the reviewer devoted substantial thought to his review, participants perceived the review equivalently regardless of its deviance ($F$s(1, 396) > .40, $p$s > .528).

Taken together, these results reveal that the perceived default in a review context can play an important role in shaping people’s willingness to be influenced by an extreme or moderate review.

**Social Influence, Habits, and Disrupted Performance Environments**

**EXTENDED ABSTRACT**

Sedentary lifestyle and the lack of physical activity are leading causes of preventable death globally (Lopez et al. 2001), triggering chronic diseases like obesity, type-2 diabetes and other cardiovascular conditions whose prevalence has become a major health policy challenge. For many people, failure to exercise is unlikely to be due to ignorance or lack of interest. While individuals are frequently motivated to start exercising in order to reduce and reverse different health risks, they often encounter difficulties in forming a sustained behavioral change.

In this research we analyze a unique, granular dataset of individual-level exercise data (primarily running) from millions of users worldwide to (a) measure the regularity of exercise behavior, (b) identify factors that predict a behavior continuing, (c) compare social influence in running for individuals with and without running habits, and (d) estimate the consequences of common disruptions to circumstances cues for habitual behaviors. This work thus uses a large, networked data set and modern causal inference techniques to address central questions in the psychology of habits with applications to interventions—especially social interventions—to influence exercise behavior and adoption of consumer exercise products.

We develop measures of regularity and predictability of behaviors suited to measuring habits in such large observational data sets. Much of the prior work on habits has relied on self-reported frequency and perceived automaticity (Hagger et al. 2015). Prior work on human mobility has measured predictability using discrete time, matrix factorization methods, and entropy of discrete variables (Eagle and Pentland 2009) that are not suited to studying the onset of particular behaviors marked by a time and other, often continuous-valued, contextual variables (e.g., location). For each individual, we fit a Gaussian mixture to the variables describing their behaviors and use the differential entropy of the resulting density as a measure of regularity and predictability of the context for exercise behaviors. This habit measure predicts future exercise behaviors better than mere frequency of prior exercise behaviors: more habitual users are more likely to persist in exercising (and tracking this) in the future.

We additionally compare this measure with other measures from prior work.

We study how individuals with different levels of measured exercise habits respond to disruptions to the performance environment for their behavior. In particular, we use the exogenous shock to the setting for running caused by the end of daylight savings time (DST), the timing and implementation of which varies within our data set (i.e., some countries and states in the U.S. do not observe DST, some locations observe it at different times). Among people who run in the same range of times in the afternoon, people with higher exercise habit measures are more affected by this disruption: they show a larger decrease in average running frequency.

We then estimate peer effects in exercise behavior. We use multiple specifications to increase the credibility of this estimation, including using individual fixed effect to control for time-invariant confounding, using random shocks to peers’ running behavior caused by weather (for peers in different cities), and using variations in settings on users’ mobile phones that determine their exposure to notifications about peer running. Consistent with prior work (Aral and Nicolaides 2017), we find substantial peer effects in this behavior: peers running causes increases in ego running on that and the subsequent day.

A novel substantive contribution of this work is to examine how peer effects are moderated by habits and the disruption of the performance context for the behavior. Based on prior work, we may expect sudden changes to the everyday environment that disrupt habits to sometimes lead to behaviors that more closely match people’s goals. For example, Larcom, Rauch, and Willems (2015) find that a public transport strike caused many commuters to find new routes that were preferable to their old routes. Wood, Tam and Witt (2005) present evidence that disruptions to the performance context for a behavior can cause that behavior to become more consistent with a person’s goals. Prior work (e.g., Verplanken and Roy 2015) has found increased effectiveness of interventions following such disruption (e.g., moving). If peer effects occur in part through changes in goals or other attitudes, we should expect that periods of disruption may increase susceptibility to this social influence. Thus, we combine the analyses described above to estimate differences in peer effects on egos with and without strong exercise habits and before and after disruptions. We find, in this work in progress, that these peer effects are moderated by these habit measures and exogenous disruptions.

In summary, this work contributes to understanding habits and when social influence is likely to occur. This has implications for psychological theory and for the design and targeting of interventions (e.g., when to present social information so as to change behavior).

**REFERENCES**


