Fleeting Generalization: How Unstable Belief Updating Keeps People Overly Pessimistic About Talking to Strangers

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Abstract

Conversations with strangers and weak ties tend to be positive experiences, and yet research suggests a reliable tendency to hold overly pessimistic expectations about such conversations. We examine how people update their beliefs after talking with strangers to understand how people's miscalibrated social expectations could persist even in the presence of more positive social experiences. In three longitudinal experiments, having a conversation led to more optimistic (and better calibrated) expectations about a future conversation, especially with the same person, but updating was fleeting. Within one or two weeks, expectations reverted to a more pessimistic baseline similar to those who had no conversation to learn from in the first place. This *fleeting generalization* was unique to conversation (compared to a noninteractive control condition). It emerged both when a future conversation was with the same person and when it was with a different person, when people were explicitly asked to predict their experience before having it and when they were not, and across both relatively shallow and deeper conversations. Fleeting generalization stems partly (but not entirely) from recalling conversations as less positive than they felt immediately after having them. These findings suggest that miscalibrated social beliefs can persist even with unbiased experience to learn from.

Keywords: conversation, social interaction, belief updating, miscalibration, learning

Statement of Limitations

This research reveals robust evidence for fleeting generalization in learning from conversations with strangers through three experiments involving longitudinal designs. Although the conversations were real, open-ended, unstructured conversations meant to mirror those in daily life, the experimental control necessary for internal validity could not fully capture the wide variety of conversations that people have in daily life. We measured people's expectations and experiences in conversation through self-report measures, but did not include behavioral measures that might provide additional tests of our hypotheses. Our sample sizes were sufficient for testing our hypotheses (Ns = 289, 218, 273 in Studies 1-3, respectively), comprising English-speaking adults spanning diverse ages and moderately diverse racial backgrounds. Future work could test the robustness in our effects across stable individual differences or cultures using larger and more culturally diverse samples.

Fleeting Generalization: How Unstable Belief Updating Keeps People

Overly Pessimistic About Talking to Strangers

Social connection is a critical component of human wellbeing, affecting both mental and physical health (Cacioppo & Cacioppo, 2014; Helliwell & Putnam, 2004; Holt-Lunstad et al., 2017; House et al., 1988; Milek et al., 2018). Even brief interactions with strangers, such as saying "hello" to a barista or chatting with a stranger while commuting, can increase reported happiness (Epley & Schroeder, 2014; Sandstrom & Dunn, 2014a, 2014b; Sun et al., 2020), social connection (Boothby et al., 2018; Epley & Schroeder, 2014), and learning (Atir et al., 2022; Granovetter, 1973; Roche et al., 2024). However, emerging research suggests that people consistently underestimate how positive these moments of connection will be, especially with strangers and weak ties, potentially leading to *undersociality*: choosing to be less social than would be optimal for our own well-being (Epley et al., 2022). Specifically, conversations with strangers tend to be more pleasant (Epley & Schroeder, 2014), more informative (Atir et al., 2022), and less awkward (Hart et al., 2021; Kardas et al., 2022; Sandstrom et al., 2022) than people expect them to be beforehand. Existing research has explored explanations for overly pessimist expectations, finding they can stem from biases in the construal of social interaction (with expectations focusing on one's competency in social interaction but experience determined more by the warmth expressed in the interaction), and overlooking the power of reciprocity and responsiveness in social interaction to create positive social experiences (Epley et al., 2022).

And yet, despite experiencing positive interactions (Van Lange & Columbus, 2021), misplaced pessimism about future interactions persists. This pattern creates a cycle that we suspect many readers will resonate with: you might be reluctant to go out to a social event on a

Friday night only to find the experience more enjoyable than expected, but then when a new dinner party rolls around the following Friday night, you're just as pessimistic about how much you'll enjoy it as you were the week before. This persistent gap between expectations and experience in social interaction might therefore seem puzzling: why do people seem to not learn from their experience and develop more optimistic (and better calibrated) expectations about social interactions with strangers?

In this paper, we report three experiments that address this question by testing how people's expectations about talking with a stranger are affected by direct experience. Our experiments suggest that people do indeed learn from their surprisingly positive experiences of talking to strangers, but not for very long.

Social Learning

The persistence of overly pessimistic beliefs about social interaction presents a puzzle. Classical models of learning in the social sciences suggest that people update their beliefs using all available information to yield the most calibrated (or rational) expectations possible, following the predictions made by Bayes' rule (Lucas & Sargent, 1981; O'Reilly et al., 2013; Rescorla & Wagner, 1972). According to this account, miscalibrated expectations arise not from mistaken learning but rather from misleading experiences to learn from, such as biased sampling (Epley et al., 2022). If, for instance, people talk with those they believe will be pleasant to talk with and avoid those they think would be unpleasant to talk with, then people would primarily learn from the conversations they choose to have and would not learn how pleasant the avoided conversations would have been. This creates, in Hogarth et. al's (2015) terms, a "wicked" learning environment in which the experiences people have to learn from are biased in ways that yield mistaken beliefs. The factors that create pessimistic expectations to begin with (e.g.,

differences in construal, excessive uncertainty due to overlooking responsiveness and reciprocity in social interaction; Epley et al., 2022) could therefore be self-fulfilling by leading people to avoid the actual experiences they would need to calibrate their expectations. Beliefs that encourage avoidance are therefore more likely to be miscalibrated (i.e., overly pessimistic) than beliefs that encourage approach (Denrell, 2005).

Biased sampling suggests that people would have well-calibrated expectations if only they were exposed to a "kind" learning environment (Hogarth et al., 2015) where people had a sufficient amount of unbiased experience to learn from. A pilot survey we conducted suggests that people may indeed have insufficient experience connecting with strangers (full details available in the Supplemental Materials). Among 201 U.S. respondents (Gender: 150 women, 42 men, 7 non-binary, 1 chose "other", one not reported; Age: $M = 30.20$, $SD = 11.71$, range = 18-76), 41% reported having no conversations with strangers on the day we surveyed them, compared to only 6% who had no conversations with people they already knew. When people did interact with strangers, their interactions tended to be brief compared to conversations with known others. Specifically, when we asked survey respondents to recall the shortest and longest conversations they had that day with strangers and several different known others (friends, family members, acquaintances, romantic partners), conversations with strangers were notably shorter ($M_{shortest} = 2.30$, $SD_{shortest} = 3.92$; $M_{longest} = 5.11$, $SD_{longest} = 6.57$) than conversations with known others ($M_{shortest} = 5.96$, $SD_{shortest} = 10.13$; $M_{longest} = 24.41$, $SD_{longest} = 31.95$). People may therefore have relatively few opportunities to update their beliefs about conversations with strangers through direct experience. By this account, providing people with a more randomly selected sample of experiences talking with strangers or weak ties should lead to more calibrated expectations about social interactions.

However, recent evidence casts doubt on whether experience alone is sufficient to increase calibration. In one field experiment (Sandstrom et al., 2022), participants were randomly assigned to engage in a social scavenger hunt for 5 consecutive weekdays (Monday through Friday). Each day, participants in the conversation condition were encouraged to find people fitting a particular description (e.g., has nice nails, wearing a hat, is outdoors) and to try talking with them, whereas participants in the observation condition were simply asked to notice people fitting the particular description without talking to them. Participants in the conversation condition began the week with overly pessimistic expectations, overestimating how often they would be rejected when trying to talk to a stranger and underestimating how much they would enjoy the interaction. Across the week, participants updated some expectations but not others. They became dramatically less pessimistic about being rejected but still underestimated how much they would enjoy the conversation *to the same extent* at the end of the week as they did at the beginning. This mixed pattern of updating – learning about others' willingness to engage but less about the experience once engaged – suggests additional barriers to calibrating social expectations through experience.

In three experiments, we test how people update their expectations about social interaction, specifically about talking with strangers, in a context meant to make learning from experience relatively easy. Rather than initiating conversations with self-selected strangers in daily life, we randomly assigned participants to have a conversation with another participant for a specified period of time, and then asked them to report their expectations for another conversation in the same setting 1-2 weeks in the future. We compared expectations about social interaction and non-interactive control conditions (taking a break or watching a TED talk, where

we do not expect miscalibrated expectations to begin with), both immediately following an interaction and immediately before a second interaction.

Generalizing from Experience: Fast or Slow, Fleeting or Stable?

In theory, rational updating from social experiences should follow Bayes' rule, such that each experience within a category of events - such as a conversation with a stranger - should be treated as an independent data point, with expectations (or priors) about future experiences being the weighted average of the amount and quality of evidence accumulated. From a rational learning perspective, then, updating expectations to be in line with experiences should happen relatively slowly based on the accumulated quality-weighted data from all past experiences, and be stable across time in the absence of new information.

In practice, predicting belief updating is more complicated because expectations are at least partly constructed at the time of judgment based on whatever information is most accessible at the time (Lichtenstein & Slovic, 2006; Slovic, 1995), and because what people learn from an experience depends on how they interpret it (Gilbert, 1998). Was a (better than expected) experience attributable to the nature of conversations in general, to this specific person, or to something unique about this conversation? Different answers yield different predictions about both the speed and durability of belief updating from experience.

One possibility is that one conversation is perceived to be largely irrelevant for predicting the next conversation, and therefore people do not update their expectations for a future conversation. Research on the correspondence bias (Gilbert & Malone, 1995) indicates that people may be prone to overly narrow construals of a social interaction, meaning they may think they're learning more about the person they're talking with (e.g., that's an interesting *person*) than about the situational effect of having a conversation more generally (e.g., conversations

with strangers are relatively interesting). A positive experience might also be subtyped into its own category (much in the same way that an outgroup member who does not fit the group stereotype is subtyped), allowing the overall expectation to remain unchanged (Kunda & Oleson, 1995). These processes could lead people to attribute the positive outcome of a conversation to the person they were talking with, or the unique circumstances they were talking in, rather than to the more general act of having a conversation with a stranger. By this account, each conversation would lead to little-to-no generalization due to overly narrow learning.

Alternatively, people may generalize their expectations about social interaction relatively fast, but in a fleeting manner. Generalization could be fast but fleeting if memory for the experience regresses to a more neutral point over time, such that people forget how pleasant, informative, etc. their previous conversations were. A similar pattern has been observed in interventions to correct misinformation, where beliefs can shift immediately following a persuasive intervention but then regress towards the initial belief over time (a phenomenon known as The Continued Influence Effect: Johnson & Seifert, 1994; Walter & Tukachinsky, 2020), partly due to memory decay (Swire-Thompson et al., 2023). In social interaction, this could mean that while the immediate experience of a pleasant conversation boosts expectations, that impression erodes, allowing prior pessimism to reassert itself. Generalization could also be fast but fleeting if people's expectations for a social interaction are based on their actual experience immediately after the interaction, but are constructed from additional sources of information as the immediate experience fades over time (such as generalized beliefs, stereotypes, or anything that happens to be cognitively accessible immediately before another interaction). These processes would lead to fleeting generalization, whereby people update their

expectations to be in line with their experience immediately after a social interaction, but revert to an overly pessimistic expectation over time.

Finally, expectations could vary over time solely due to temporal distance, even without an experience to learn from. A conversation scheduled for two weeks from now may invite rosier predictions, whereas the same conversation may trigger "cold feet" and seem less positive as the event draws closer in time (Gilovich et al., 1993; Trope & Liberman, 2003). This variability across time based on temporal distance could create time-related changes in expectations independent of any learning from past experience.

These mechanisms - narrow attribution, fleeting generalization, and temporal distance - generate distinct predictions for both the speed and durability of belief updating. Narrow attribution predicts little immediate change and limited transfer to new partners. Fleeting generalization predicts fast immediate updating after a new experience, followed by gradual reversion toward baseline, to expectations held in the absence of the experience. Temporal construal predicts differences in optimism based on proximity to the event, absent new experience.

The Present Experiments: How Social Experience Affects Social Expectations

In three longitudinal studies, we seek to better understand how miscalibrated expectations about social interaction could persist even in an ideal learning environment: structured, randomly assigned conversations with strangers in which the timing and nature of future interactions are known. This context removes many barriers to calibration that might exist in everyday life – such as uncertainty about the partner or setting – and allows us to observe how quickly expectations shift after a single experience and whether such changes persist over time.

In Experiment 1, we examine how experiencing a conversation in Session 1 (vs. taking a break in a control condition) affects expectations for a second conversation (two weeks later), both immediately after the first conversation and immediately before the second conversation. We also assess expectations after the second conversation for a hypothetical third conversation two weeks later. We examine the robustness of our experimental results across conversations structured to be either relatively deep vs open-ended, and when participants explicitly report their expectations before an initial conversation or not. In a conceptual replication (Supplemental Experiment 1), we compare conversation against an engaging, but noninteractive, control condition (watching a TED talk). Both experiments suggest a pattern of fleeting generalization. People update their expectations for a future conversation in a positive (and more calibrated) direction immediately after having a conversation with a stranger, consistent with learning from experience. However, this updating is fleeting, regressing to a more pessimistic baseline similar to the control condition just before a second conversation in Session 2 (and updating in a positive direction again for a hypothetical conversation in Session 3).

In Experiment 2, we tested the role of memory decay in fleeting generalization by asking participants to report their memory for the experience two weeks later. We find that memory for a prior conversation partly regresses over time, suggesting that people might fail to learn optimally from social experience in part because they forget how positive a prior social experience had been.

In Experiment 3, we examine whether people update their expectations more narrowly to the person they interacted with, by measuring expectations about repeated conversations with the same person versus a different person. We also manipulate whether the second conversation immediately follows the first, or is separated in time by a week. We find evidence for somewhat

narrow updating immediately after a conversation, such that people expect a second conversation with the same person to be more positive than with a new stranger, but similar patterns of regression towards more pessimistic expectations immediately before a second conversation.

We also examined how temporal distance alone affects updating from social experience by comparing expectations at different time points in the control conditions of the three experiments, absent a conversational experience. We found limited support for this mechanism; people were more pessimistic about the difficulty and awkwardness of an imminent conversation, but their expectations about the positive aspects of the conversation (enjoyment, liking, learning) were similar for an imminent and distant conversation.

Collectively, these data suggest that people can learn from their social experiences, but that this learning fades, maintaining overly pessimistic biases in the long run.

Transparency and Openness (All Studies)

We report how we determined our sample size, all data exclusions, all manipulations, and all measures in the experiment in the relevant Method sections. All data (raw and processed), analysis scripts, and materials are available on Open Science Framework (OSF) at https://osf.io/kzh49/?view_only=73e121774b0744ccaab23a868ef082aa (Atir & Epley, 2025). All studies were pre-registered (study design, hypotheses, and analysis plan), with pre-registrations available on OSF. We analyzed data using R version 4.4.1 (R Core Team, 2023).

Experiment 1

Method

Participants

We recruited participants through a university and community participant pool, achieving a final usable sample of 289[1] individuals who successfully completed both experiment sessions (based on self-identification, 219 women, 57 men, 11 nonbinary, 2 did not report gender; M_{Age} = 28.14, SD_{Age} = 10.77, Min_{Age} = 18, Max_{Age} = 77; 116 White, 87 Asian, 43 Black or African American, 3 American Indian or Alaska Native, 1 Native Hawaiian or Other Pacific Islander, 14 chose 'other,' 11 multiracial, 3 chose 'unknown,' and 11 did not report race). We excluded 12 additional participants from all analyses due to technical issues and/or experimenter error[2]. In addition, we did not include 105 participants who completed only Session 1, reflecting a 74% retention rate based on participant-driven attrition. We determined through a sensitivity analysis in G*Power (version 3.1; Faul et al., 2007) that our sample size of 289 provided 80% power to detect an effect size equal to Cohen's d of at least .42 on our primary effect of interest, i.e., a between-condition difference in expectations for the second conversation in Session 1 (parameters: two-tailed, between-subjects *t-test;* α error probability = .05; power = .8; sample sizes of 56 and 233 for the two key conditions, break and conversation, respectively).

Procedure

Participants completed this experiment in two sessions, held two weeks apart, following a procedure diagramed in Figure 1.

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[1] We deviated slightly from our pre-registered sample size due to both financial and methodological considerations. We pre-registered a minimum of 55 usable responses per condition (after exclusions). We achieved this threshold in all but one condition (deep conversation with no reporting of expectations), which included 53 usable responses. We achieved this threshold at the same time as the primary research assistant overseeing this experiment was transitioning to a new role and would require training a new person for this role. Given the small discrepancy that would be unlikely to affect any results, the financial cost of continuing the experiment at this point, and the possibility of methodological variance due to a new research assistant overseeing the experiment, we decided to stop the experiment just short of our pre-registered target.

[2] Eight participants failed to complete the entire session, one pair had audio issues, one participant was assigned to the incorrect condition, and one participant may have been aware they were speaking to a confederate, who neglected to change the Zoom display name.

Figure 1

Experiment 1 Procedure
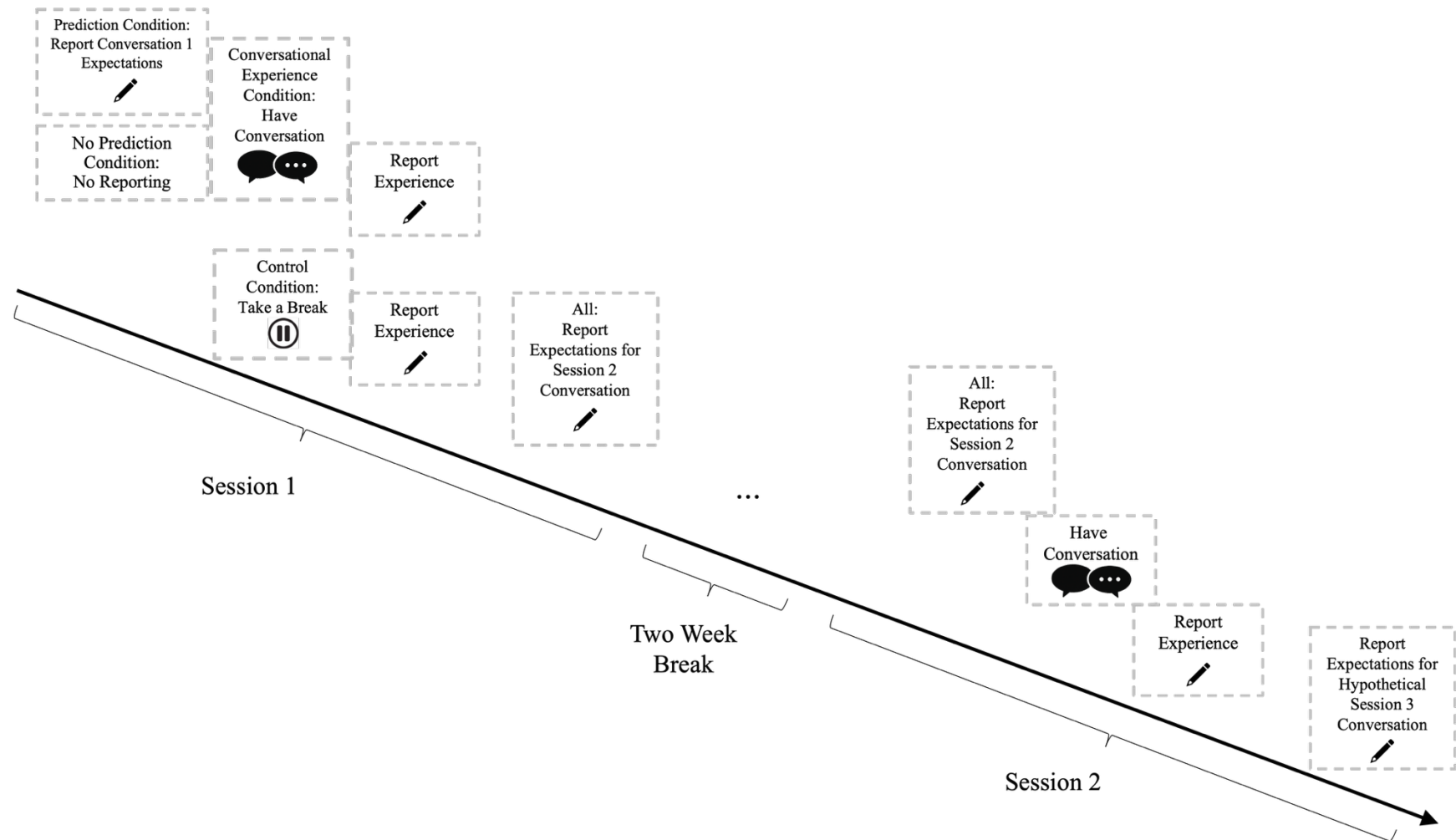
In Session 1, groups of four[3] participants joined a virtual videoconferencing platform and were randomly assigned (as a group) to either the control condition ($N = 56$) or the social learning condition ($N = 233$, who were further randomly assigned to one of four conditions, as described below). Participants in the control condition were informed they would have a break where they could do whatever they pleased for 10 minutes, whereas participants in the social learning condition were informed they would have a conversation with another randomly selected participant for 10 minutes in a virtual breakout room (with their cameras on). Participants in the social learning condition were then randomly assigned to one of four conditions in a 2 (conversation type: open ended vs. deep) x 2 (Conversation 1 expectations: report vs. do not report) experimental design. Participants in the open-ended condition ($N = 124$) were told that they could have a conversation about whatever they pleased for 10 minutes, whereas participants in the deep condition ($N = 109$) were given 3 questions to discuss that were meant to encourage more personally intimate conversations (e.g., "If I were to become a good friend of yours, what would be most important for me to know about you?"; Kardas et al., 2022).

Within both conversation types, participants in the social condition were also randomly assigned to either report their expectations for the conversation beforehand ($N = 120$) or not ($N = 113$). Those who reported their expectations beforehand rated how they expected the conversation would make them feel on both positive and negative dimensions using scales ranging from 1 ("Very Little" or "Not at all") to 9 ("A lot," "Very," or "Very much"). The positive dimensions measured expectations about learning ("How much do you think you will learn from the conversation today?"), interest ("How interesting do you think the conversation today will be?"), enjoyment ("How much do you think you will enjoy the

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[3] We scheduled four participants for each experimental session, but conducted a session even if fewer actually attended (pairing participants up with a confederate if we had an odd number).

conversation today?"), and liking ("How much do you think you will like the person you will have a conversation with today?"). The negative dimensions measured expectations about difficulty ("How difficult do you think it will be to carry on the conversation today?") and awkwardness ("How awkward do you think the conversation today will be?"). Because they were highly correlated, we averaged the positive dimensions ($\alpha = .76 – .94$ across sessions, judgment type, and tasks) into one index and the negative dimensions ($\alpha = .73 – .92$) into a separate index. In addition, participants made a binary choice indicating which activity they would prefer to do for the next 10 minutes if given the choice – having a conversation or taking a break. If there were only two participants in a social learning session, a confederate joined the meeting room to keep participants uncertain about the identity of the conversation partner when reporting their expectations.

Participants then engaged in the conversation or break for 10 minutes. If there was an odd number of participants in a social learning session, then we paired one randomly selected participant with a confederate research assistant ($N = 14$ or 6%; confederates did not complete the survey). Immediately after, all participants reported their actual experience of the activity (conversation or break) on the same positive and negative dimensions (the binary choice question now asked which activity participants would rather have done).

The experimenter then reminded all participants that as part of Session 2 of the experiment, held in approximately two weeks, they would have a conversation with a (new) participant (open-ended or deep, matching the conversation type from Session 1 in the social learning condition). All participants then reported how they expected this conversation two weeks in the future would make them feel on the same positive and negative dimensions described above.

In Session 2, held approximately two weeks later (depending on participants' schedules), participants again joined a virtual videoconference and were informed that they would have a conversation with another participant. All participants (regardless of initial condition) then reported their expectations for the conversation using the same positive and negative dimensions from Session 1. Participants then had a 10-minute conversation (either open-ended or deep) in breakout rooms, followed immediately by reporting their experiences of the conversation on the same measures. If there was an odd number of participants in a social learning session, one of the participants, randomly determined, was paired with a confederate RA ($N = 42$ or 14.5%; the confederate did not complete the survey). Finally, participants were asked to imagine that they would have another conversation with a new person in a hypothetical third session, two weeks later, and reported their expectations for this conversation. Participants were then debriefed, compensated, and thanked for their time.

Results

We report analyses including all participants below (including those paired with a confederate). Excluding participants paired with a confederate does not alter the significance levels of any of our results except in three minor cases that we identify in footnotes.

As shown in Figures 2 and 3, participants started out overly pessimistic about having a conversation with a stranger, finding their conversation a more positive experience than they expected (consistent with past findings). Participants in the social learning condition learned from their experience immediately following their conversation, as indicated by having more positive expectations for the conversation in Session 2 compared to participants in the control condition. Explicitly reporting their expectations before the Session 1 conversation did not significantly affect their reported experiences after the conversation, or their expectations for the

next conversation in Session 2. Two weeks later, however, learning had faded significantly, such that participants who had talked with a stranger (social learning condition) now had expectations that did not differ significantly from those who hadn't (control condition). Consequently, participants were again overly pessimistic about their second conversation, once again having a better conversation than they expected. Following this unexpectedly positive second experience, participants again updated their expectations for a third (hypothetical) conversation in a positive direction, closer to their actual experiences.

We confirm these patterns in the statistical analyses described below. For all analyses in the paper, when examining multiple observations from the same participant, we fit a linear mixed-effects model (for continuous outcomes) or a generalized linear mixed-effects model (for dichotomous outcomes) with a random intercept for participant (to account for individual-level differences in responses). In ratings about the conversation, the random intercept was always nested in the pair (to account for the response dependence of participants who conversed with each other). Linear and generalized linear mixed-effects models were run using the R packages lme4 version 1.1-35.5 (Bates et al., 2015) and lmerTest version 3.1-3 (Kuznetsova et al., 2017). For single observations, we fit a linear regression model.

Figure 2

Positive Expectations and Experiences of Conversations Across Time (Experiment 1)
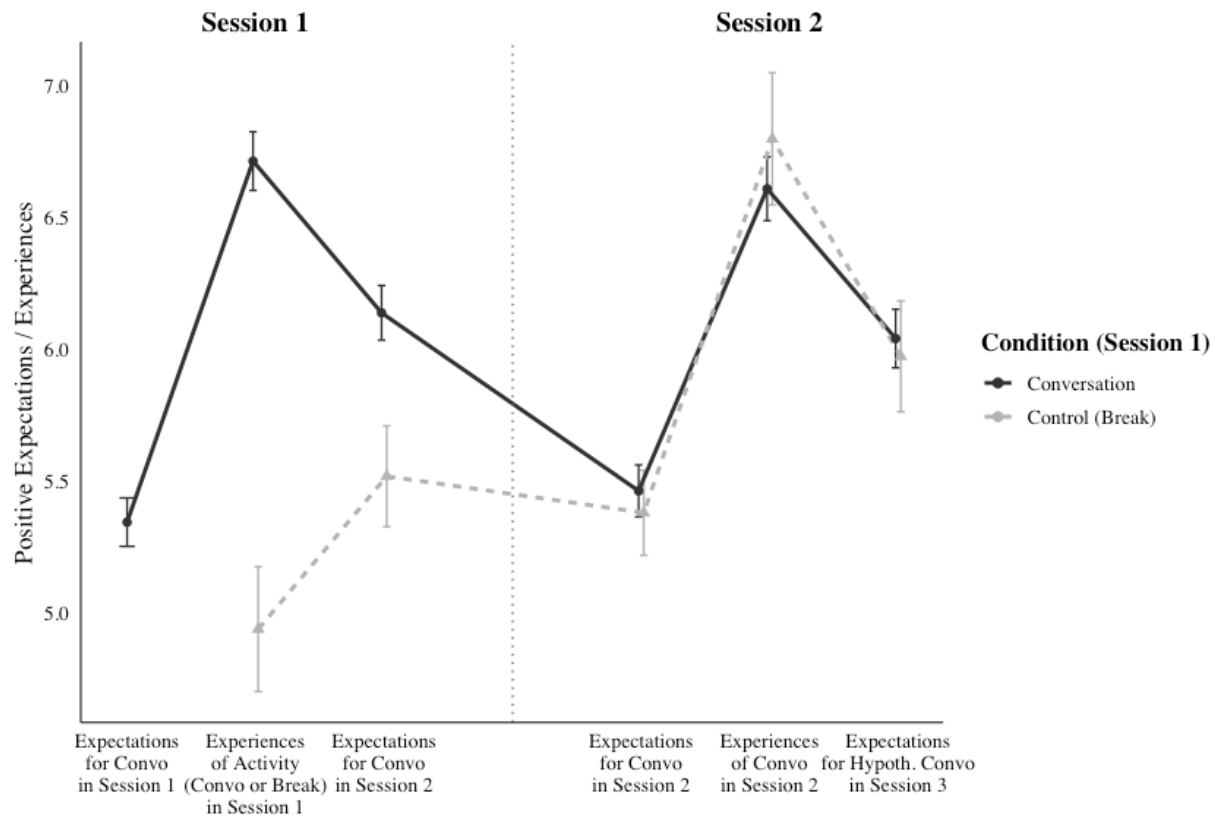
Note: Positive dimensions include learning from the activity, interestingness, enjoyment, and liking. Error bars represent ± 1 standard errors. Higher numbers indicate more positive expectations or experiences.

Figure 3

Negative Expectations and Experiences of Conversations Across Time (Experiment 1)
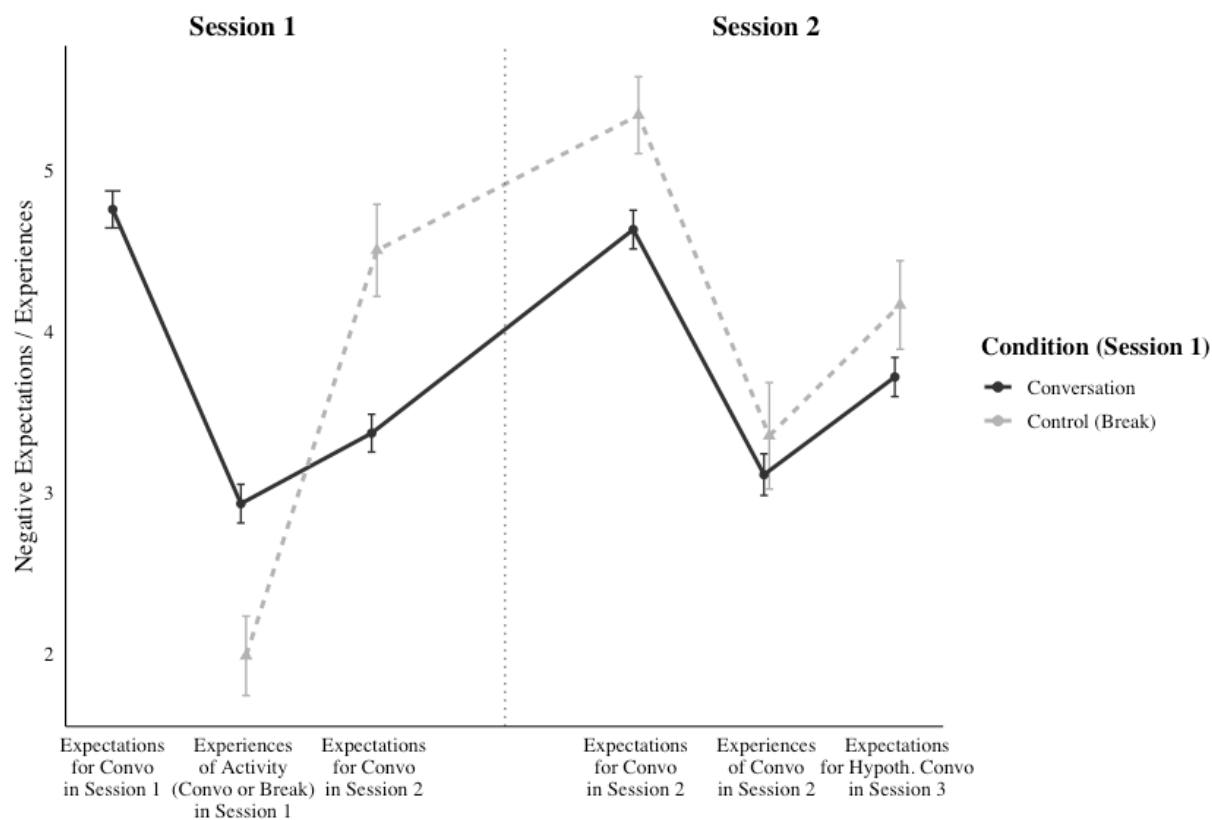
Note: Negative dimensions include difficulty and awkwardness. Error bars represent ± 1 standard errors. Higher numbers indicate more negative expectations or experiences.

Session 1 Conversation: Overly Pessimistic Expectations

We began by examining whether participants held overly pessimistic expectations about having a conversation with a stranger. Because some reported their expectations before the Session 1 conversation while others did not, we could compare expectations against experiences both within- and between-participants. Within-participants, expectations before the Session 1 conversation significantly underestimated the positive aspects of the conversation (learning, interest, enjoyment, and liking), $b = 1.40$, $t(146.49) = 9.75$, $p < .001$, and significantly overestimated the negative aspects (difficulty and awkwardness), $b = -1.86$, $t(173.85) = -11.00$, $p < .001$. We observed the same pattern between-participants; expectations before Session 1 were also significantly less positive, $b = 1.30$, $t(231) = 6.19$, $p < .001$, and significantly more negative, $b = -1.74$, $t(231) = -7.58$, $p < .001$, than the experiences of those who did not report their expectations beforehand. Talking with a stranger was surprisingly positive whether participants explicitly called their expectations to mind beforehand or not.

This gap in Session 1 between participants' expectations and their experiences did not vary significantly between the open-ended and deep conversation conditions for either positive, $b = .39$, $t(229) = .93$, $p = .35$, or negative dimensions, $b = -.12$, $t(229) = -.25$, $p = .80$.

Finally, having a conversation was not only an *unexpectedly* positive experience, it was also a more positive one than taking a break in the control condition, $b = 1.78$, $t(287) = 6.97$, $p < .001$. At the same time, perhaps not surprisingly, it was also more negative – more difficult and awkward – than taking a break, $b = 1.13$, $t(287) = 4.30$, $p < .001$. Experiences in the open-ended and deep conversations did not significantly differ from each other (positive: $b = -.13$, $t(231) = -.57$, $p = .57$; negative: $b = .15$, $t(231) = .64$, $p = .52$).

Immediate Updating After Conversation

Having a conversation in Session 1 made participants more optimistic about how they would feel in their conversation with a new person in Session 2, consistent with updating their beliefs to be in line with their immediate experience. Specifically, immediately following their Session 1 activity, participants in the social learning condition (who just had a conversation) had significantly more positive, $b = .62$, $t(287) = 2.68$, $p = .0078$, and significantly less negative, $b = -1.13$, $t(287) = -4.10$, $p < .001$, expectations for their conversation at Session 2 compared to participants in the control condition (who had just taken a break).

Participants' expectations for their Session 2 conversation did not differ significantly between those who had reported their expectations before their Session 1 conversation and those who did not, $b_{Positive} = .14$, $t(231) = .67$, $p = .50$, $b_{Negative} = .33$, $t(231) = 1.41$, $p = .16$, indicating that explicitly reporting one's expectations beforehand did not noticeably affect updating after a conversation. Participants' expectations for their Session 2 conversation were more positive in the deep conversation than the open-ended condition, $b = .50$, $t(231) = 2.44$, $p = .015$[4], but no more negative, $b = .003$, $t(231) = .01$, $p = .99$.

Because the explicit reporting of expectations (vs. not) had nonsignificant effects across all measures, and conversation topic (open ended vs. deep) did not have differential effects on learning across time, we collapse across these conditions in all the following analyses to ease presentation of our results.

Session 2 Conversation: Updating Decays

Immediately after having a conversation with a stranger, participants were more optimistic about a second conversation than those who did not have an initial conversation, but this increased optimism faded entirely by the time their next conversation arrived. This pattern of

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[4] This test was statistically nonsignificant when excluding participants paired with a confederate, $b = .40$, $t(192) = 1.76$, $p = .08$.

fleeting generalization was confirmed by a significant interaction in a 2 (timing of expectations: Session 1, Session 2) × 2 (Prior activity in Session 1: conversation vs. break) mixed-effects model for positive dimensions, $b = .54$, $t(289.00) = 3.17$, $p = .0017$. However, the interaction for negative dimensions was statistically nonsignificant, $b = .42$, $t(289.00) = 1.74$, $p = .083$[5]. As reported in the previous section, planned simple-effects tests indicated that participants in the social learning condition had more positive expectations, and less negative expectations, *immediately* after that experience than did those in the break condition. Two weeks later, these differences were nonsignificant for the positive dimensions of the conversation, $b = .08$, $t(287) = .38$, $p = .70$, but remained statistically significant for the negative dimensions, $b = -.71$, $t(287) = -2.61$, $p = .0095$. This pattern emerged because the expectations of participants in the social learning condition became more pessimistic between Sessions 1 and 2. Specifically, participants in the social learning condition had less positive, $b = -.68$, $t(233.00) = -8.93$, $p < .001$, and more negative, $b = 1.26$, $t(233.00) = 12.10$, $p < .001$, expectations just before their conversation in Session 2 than they had immediately after their conversation in Session 1. In the control condition, in contrast, participants' positive expectations did not change significantly between Sessions 1 and 2, $b = -.14$, $t(56.00) = -.96$, $p = .34$, but they were significantly more negative before Session 2 than in Session 1 (albeit a smaller change than in the social learning condition), $b = .84$, $t(56.00) = 3.43$, $p = .001$.

The fleeting generalization observed in the social learning condition meant that participants' expectations not only became less optimistic over time, they also became less calibrated over time. Calculating the simple difference between participants' expectations at both time points and their experience following the Session 2 conversation as a measure of calibration

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[5] This test was statistically significant when excluding participants paired with a confederate, $b = .57$, $t(247.00) = 2.30$, $p = .02$.

indicated that expectations in Session 1 were significantly better calibrated for both positive dimensions, $b = -.68$, $t(233.00) = -8.93$, p < .001, and negative dimensions, $b = 1.26$, $t(233.00)$ $= 12.14$, $p < .001$. These results indicate that people updated their expectations about social interaction in a more positive, and more calibrated, direction immediately after having a conversation, but there was no longer any evidence that they had learned from their prior experience two weeks later when they were about to have a new conversation.

Binary Comparison of the Conversation and the Break

We observed similar patterns in participants' stated preferences for having a conversation versus a break. At the start of Session 1, a majority of participants in the social learning condition reported preferring to have a conversation over a break (68.3%), exact binomial $p < .001$. This preference was even stronger after having their Session 1 conversation, McNemar test, $\chi^2 = 14.00$, $p < .001$, where participants now overwhelmingly preferred another conversation (83.3%), $p < .001$. In contrast, those who took a break (control condition) did not show a clear preference for having a conversation over a break (51.8%), $p = .90$, and were less likely to prefer a conversation than participants in the social learning condition, $\chi^2(1, N = 289) = 24.00$, $p < .001$).

This shift in stated preferences in the social learning condition, however, was fleeting. Immediately before having their conversation in Session 2, fewer participants in the social learning condition reported preferring to have a conversation than did so at the end of Session 1 (68.7%), McNemar test, $\chi^2 = 23.00$, $p < .001$.

Temporal Proximity: Close Versus Distant Conversations

Expectations and preferences could change over time due to temporal distance, regardless of social learning. Specifically, people may be more optimistic that a future conversation will be

a relatively positive experience, but then get less optimistic moments before the conversation is about to happen (Gilovich et al., 1993; Trope & Liberman, 2003). The design of this experiment allows us to test the role of temporal distance alone by analyzing expectations in the control condition, in which participants reported how they expected a conversation in Session 2 would make them feel both when it was two weeks away (at the end of Session 1) and again when it was imminent (at the start of Session 2). We observed a nonsignificant change in positive expectations, $b = -.14$, $t(56.00) = -.96$, $p = .34$, but a significant increase in negative expectations, $b = .84$, $t(56.00) = 3.43$, $p = .001$, indicating that participants in the control condition were less optimistic when the conversation was imminent. Reported preferences for having a conversation versus taking a break showed a similar pattern, with significantly more people preferring a conversation when it was temporally distant than when it was imminent (51.8% vs 37.5%), McNemar test, $\chi^2(1) = 4.10$, $p = .04$[6]. The impact of temporal distance on negative expectations and preferences, but not positive expectations, suggests that some of the change over time observed in the social learning condition could stem from temporal distance, but that temporal distance alone cannot explain the larger changes on both positive and negative expectations.

Expectations Following Session 2

Participants again showed evidence of learning from experience in their expectations for a hypothetical conversation two weeks after Session 2. Specifically, participants in both the social learning and control conditions - who now both had a conversation in Session 2 to learn from – reported more optimistic expectations for the hypothetical future conversation with a stranger immediately after actually having one than they did immediately before having it (more positive expectations, $b = .59$, $t(288.30) = 7.86$, $p < .001$; less negative expectations, $b = -.97$,

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[6] This test was statistically nonsignificant when excluding participants paired with a confederate, McNemar test, $\chi^2(1) = 3.30$, $p = .07$.

$t(288.67) = -9.87$, $p < .001$). Having just experienced a surprisingly positive conversation in Session 2 made people more optimistic about how a future conversation would make them feel, exactly as having a conversation in Session 1 led those in the social learning condition to feel. The results of Experiment 1 suggest that this updating is likely to be fleeting.

Supplemental Experiment 1

We report the full details of a conceptual replication in the Supplemental Materials that follows a procedure similar to Experiment 1, but with a simpler design that also allows us to test whether the pattern of learning we observed is unique to social interaction. In Session 1, participants in the social learning condition had an open-ended conversation with a stranger, whereas those in the control condition had an active – but not socially *inter*active – experience designed to be interesting and informative, namely watching a TED talk randomly selected from all 6-12 minute presentations available online. Participants went through the activity and then learned that two weeks later, in Session 2, they would have a conversation with a (new) stranger *and* watch a (new) TED talk. Participants then reported how they expected both activities would make them feel, allowing us to examine whether the pattern of miscalibrated expectations and fleeting generalization is unique to conversation. Two weeks later, in Session 2, participants again reported their expectations for the conversation and the TED talk, and then went through each activity and reported their actual experiences immediately afterwards.

Results indicated that participants in the social learning condition were more optimistic about how positive their conversation at Session 2 would be compared to those in the control condition, consistent with the results of Experiment 1. In contrast, the conditions did not differ in their expectations for the control experience (watching a TED talk). This updating in the social learning condition was again fleeting, as those in the social learning condition were less

optimistic (and less well-calibrated) immediately before their conversation in Session 2 than they has been immediately after their conversation in Session 1. This resulted in participants in both the social learning and control conditions underestimating how positive it would be to have a conversation with a stranger in Session 2, whereas expectations of the control activity were not miscalibrated.

As in Experiment 1, participants learned temporarily from their experience how positive a conversation with a stranger would be, but this more calibrated insight was fleeting, leaving them again underestimating how positive their conversation would be immediately before having it. That we did not observe the same patterns in expectations and experiences of a nonsocial activity (watching a TED talk) supports prior research suggesting that miscalibrated expectations about social interaction stem not from global pessimism or learning difficulties but are rather specific to the social context (e.g., misunderstanding how another person will respond in the interaction; Epley et al., 2022).

Experiment 2

In Experiment 2, we test the role that mistaken memory might play in failure to learn from prior experience. Specifically, the unexpected positivity of a nice conversation might be crystal clear immediately after having it, but then regress towards a more neutral emotional state as memory for the experience fades over time. If people's memory for a prior conversation becomes less clear (and therefore more neutral) over time, then expectations based on memory of an experience would become less calibrated. We tested this by conducting another longitudinal experiment, but adding a measure in a third session asking people to recall how they felt both in the conversation and in a control experience.

Method

Participants

We recruited participants from a university pool of students and community members. The final sample comprised 218 individuals who successfully completed all three experiment sessions (based on self-identification, 144 women, 72 men, 2 nonbinary; $M_{Age} = 30.63$, $SD_{Age} = 12.24$, $Min_{Age} = 18$, $Max_{Age} = 74$, one participant did not report age; 84 Asian, 76 White, 24 Black or African American, 14 chose 'other,' 12 multiracial, 2 chose 'unknown', and 6 did not report race). We excluded thirty-five additional participants from all analyses due to technical issues and/or experimenter error.[7] In addition, 45 participants completed only Session 1 and nine completed only Sessions 1 and 2. This yielded an 80% retention rate based on participant-driven attrition.

We determined through a sensitivity analysis in G*Power (version 3.1; Faul et al., 2007) that our sample size of 218 provided 80% power to detect an effect size equal to Cohen's *d* of at least .38 on our primary effect of interest, i.e., between-condition difference in expectations for the second conversation in Session 1 (same parameters as in Experiment 1; sample sizes of 117 and 100 for the two conditions).

Procedure

Participants completed a 3-session experiment spanning a roughly 4-week period. Sessions 1 and 2 followed a procedure somewhat similar to Experiment 1 and S1 (See Figure 4). In Session 1, we randomly assigned participants to either the social learning condition ($N = 118$)

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[7] Fifteen participants did not have the questions correctly displayed in Session 1, two participants were accidentally paired with each other for both Session 1 and Session 2 conversations, three participants mistakenly participated in Session 3 without participating in Session 2, two participants used the chat feature instead of speaking because one participant's microphone did not work well, one participant could not hear the TED talk audio, and one was accidentally invited to Session 2 too early. In addition, 11 participants failed to provide complete responses in Sessions 1, 2, or 3.

Figure 4
Experiment 2 Procedure
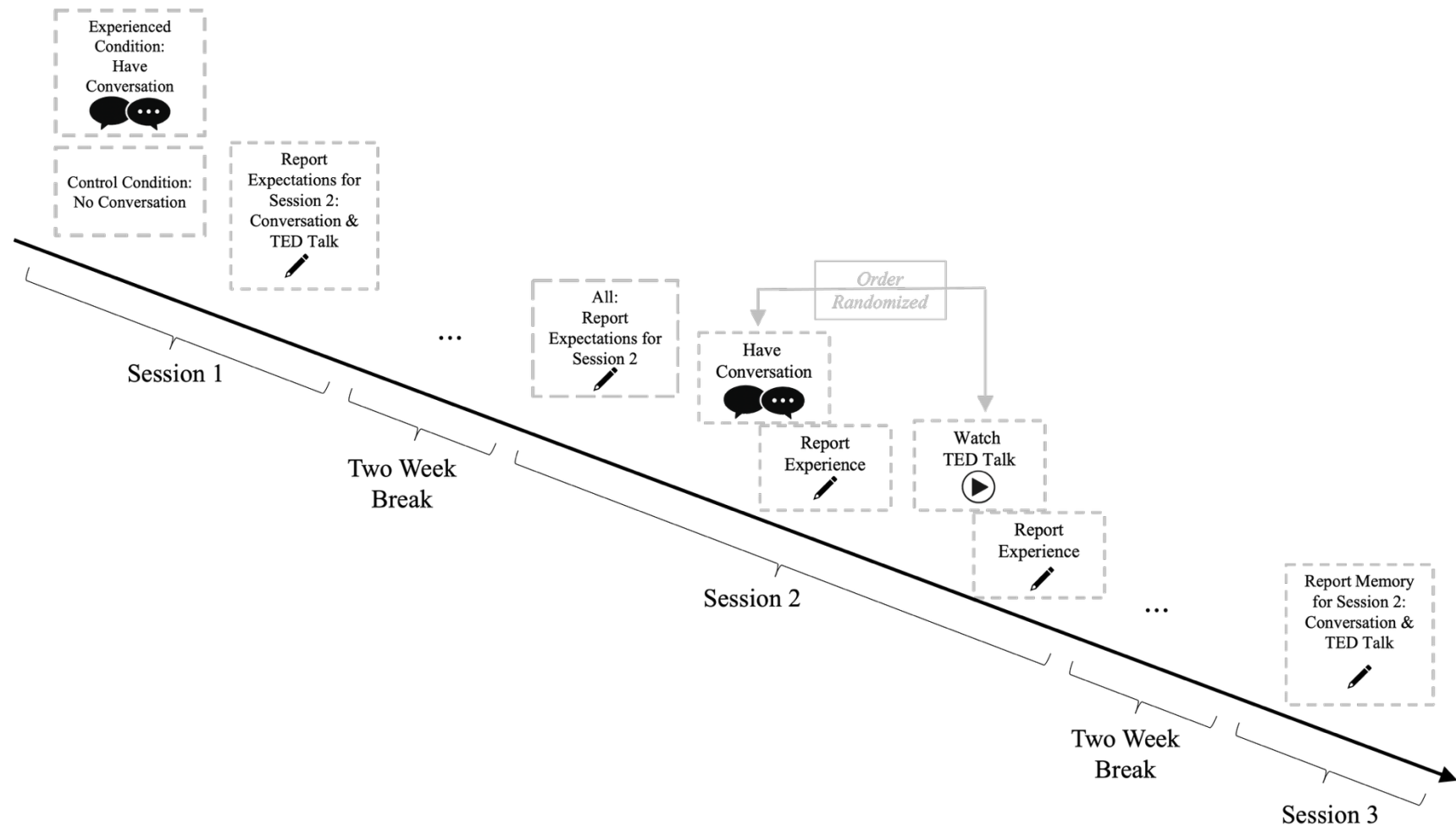
or control condition ($N = 100$). Participants in the social learning condition first had an open-ended conversation with a stranger for 10 minutes. Participants in the control condition did not have a conversation. The experimenter then told all participants that they would complete two activities in Session 2, roughly two weeks later: have an open- ended conversation with a (new) stranger and watch a randomly selected TED talk (in a randomized order). All participants then reported their expectations for each activity on the same positive dimensions used in Experiment 1 and S1, and on the same negative dimensions – difficulty and awkwardness – plus feelings of anxiety about the activity. We again averaged the positive dimensions ($\alpha = .92 – .96$ across sessions, judgment type, and tasks), and the negative dimensions ($\alpha =.74 – .89$), into separate composite measures. Three additional measures included perceptions of luck[8] (how lucky participants expected to feel for being paired up with their specific conversation partner and for watching the specific TED talk), and approach orientation and avoidance orientation (the extent to which they wanted to have or avoid the conversation and watch or avoid the TED talk). Participants also answered two forced-choice questions (in a randomized order) about which activity (conversation or the TED talk) they thought they would learn more from, and which would be more enjoyable. Finally, participants reported their demographic information.

Roughly two weeks later, in Session 2, all participants had a conversation and watched a randomly selected TED talk, in random order. Participants reported their expectations for each activity at the start of the session, using the same measures from Session 1, and their experiences after each activity, using past-tense phrasing of the same measures (except we removed the

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[8] The luck item was originally included to test whether people might be generalizing their experience narrowly to the person they're interacting with rather than the broader activity of having a conversation with a stranger. If so, they might attribute their surprisingly positive experience to being lucky to have been randomly paired up with their conversation partner. Indeed, participants report feeling luckier to have been paired up with the person after their conversation than they anticipated feeling beforehand. However, given ambiguity about how people could interpret the term "lucky," we decided not to emphasize this point in the manuscript.

approach and avoidance motivation items because participants were about to experience both activities). Finally, all participants at the end of Session 2 then learned that in Session 3 of the experiment, to be held roughly two weeks later, they would be asked to recall their experience of each activity from Session 2. To refresh their future memories, participants wrote a few sentences about the conversation they had had and the TED talk they had watched, and had their pictures taken by the experimenter in a screenshot.

In Session 3, two weeks after Session 2, participants completed an online survey independently, without an experimenter. The survey asked participants to recall their experience of the conversation and the TED talk from Session 2, in counterbalanced order. They were first reminded of the activity (Conversation: "You had a conversation over Zoom with another participant in the experiment whom you did not know. This conversation lasted about 10 minutes. Your conversation partner's name was [name]. This is his or her picture: [picture]. To jog your memory, here is what you wrote about your conversation two weeks ago: [participant text]"; TED: "You watched the TED talk. Its title was [title]. To jog your memory, here is what you wrote about the TED talk two weeks ago: [participant text]"). We asked participants on the survey if they remembered the activity ("Yes", "No", "Unsure"), and then asked them to report their memory of the experience in the activity using slightly rephrased questions from Session 2 (e.g., "Thinking back on the conversation, how much did you enjoy the conversation?").

Results

Because of the complexity of this experiment, we report some pre-registered analyses in the Supplemental Materials to ease presentation of the results.

The main results of Experiment 2 are shown in Figures 5 and 6, depicting positive and negative dimensions of the activity, respectively. This experiment replicated our Experiment 1

findings that having a conversation (versus no conversation) led to more optimistic expectations about future conversations, an effect specific to conversations that did not generalize to a noninteractive experience (watching a TED talk). As in Experiment 1, this updating significantly decayed after two weeks, with participants' expectations becoming more pessimistic and statistically indistinguishable from participants who did not have a conversation to learn from. Finally, participants in Session 3 remembered their conversations as less positive than they had reported them being immediately afterward, suggesting that memory decay may partially explain why overly pessimistic expectations persist even in the presence of unbiased experience. We confirm these patterns statistically in the analyses described below.

Immediate Updating After Conversation

We first examined how participants' experiences in Session 1 affected their expectations for Session 2. An examination of the interaction between condition (social learning vs. control) and the topic of expectations (Session 2's conversation vs. TED talk) yielded a significant interaction for positive aspects of the experience, $b = .61$, $t(218.00) = 3.38$, $p < .001$, and for negative aspects, $b = -.70$, $t(218.00) = -2.71$, $p = .007$, and a nonsignificant interaction for feelings of luck, $b = .47$, $t(218.00) = 1.92$, $p = .056$. Planned comparisons indicated that participants in the social learning condition were more optimistic about their conversation in Session 2 compared to participants in the control condition, $b_{Positive} = .64$, $t(216) = 3.45$, $p < .001$, $b_{Negative} = -.76$, $t(216) = -2.83$, $p = .005$, $b_{Luck} = .70$, $t(216) = 2.63$, $p = .009$, but did not differ from the control condition in their expectations for watching a TED talk in Session 2, $b_{Positive} = .03$, $t(216) = .16$, $p = .88$, $b_{Negative} = .06$, $t(216) = .27$, $p = .78$, $b_{Luck} = .23$, $t(216) = .79$, $p = .43$. Because people tend to be overly pessimistic about conversations with strangers, the more optimistic expectations about conversation in the social learning condition suggest not only

Figure 5

Positive Expectations and Experiences of Conversations and TED Talks Across Time (Experiment 2)
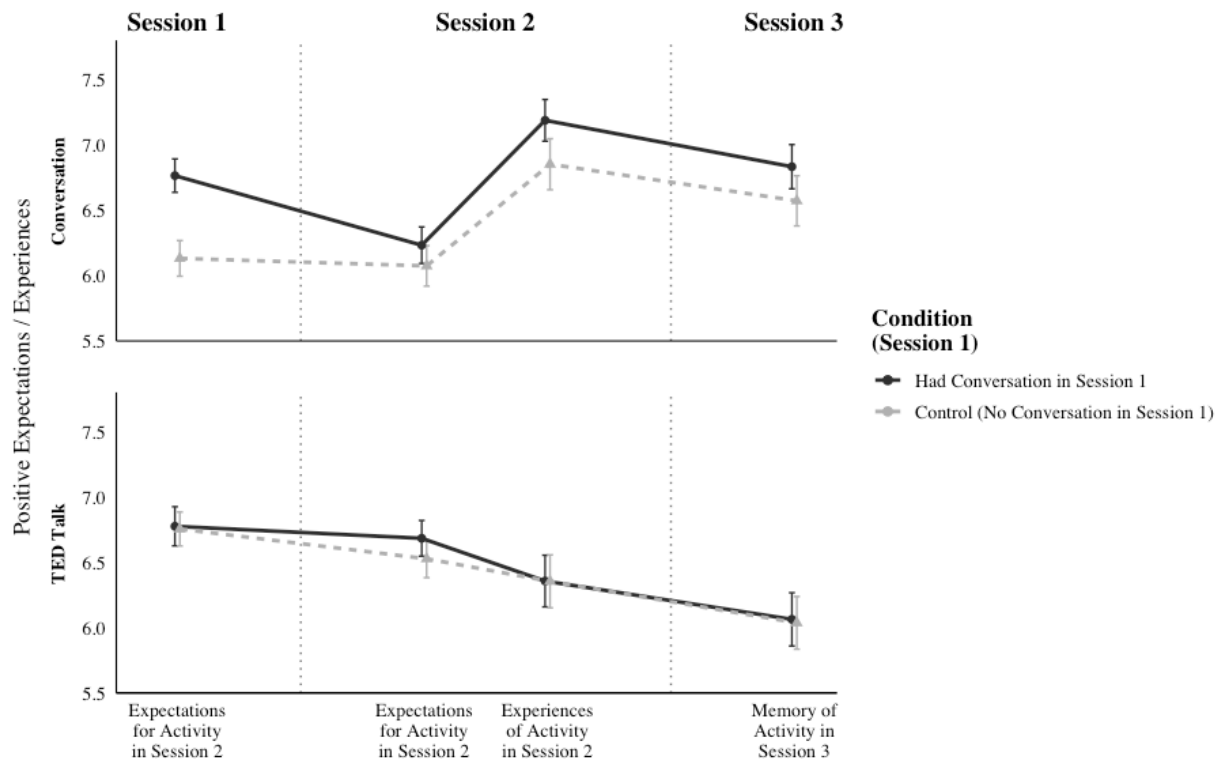
Note: Positive dimensions include learning from the activity, interestingness, enjoyment, and liking. Error bars represent ± 1 standard errors. Higher numbers indicate more positive expectations or experiences.

Figure 6

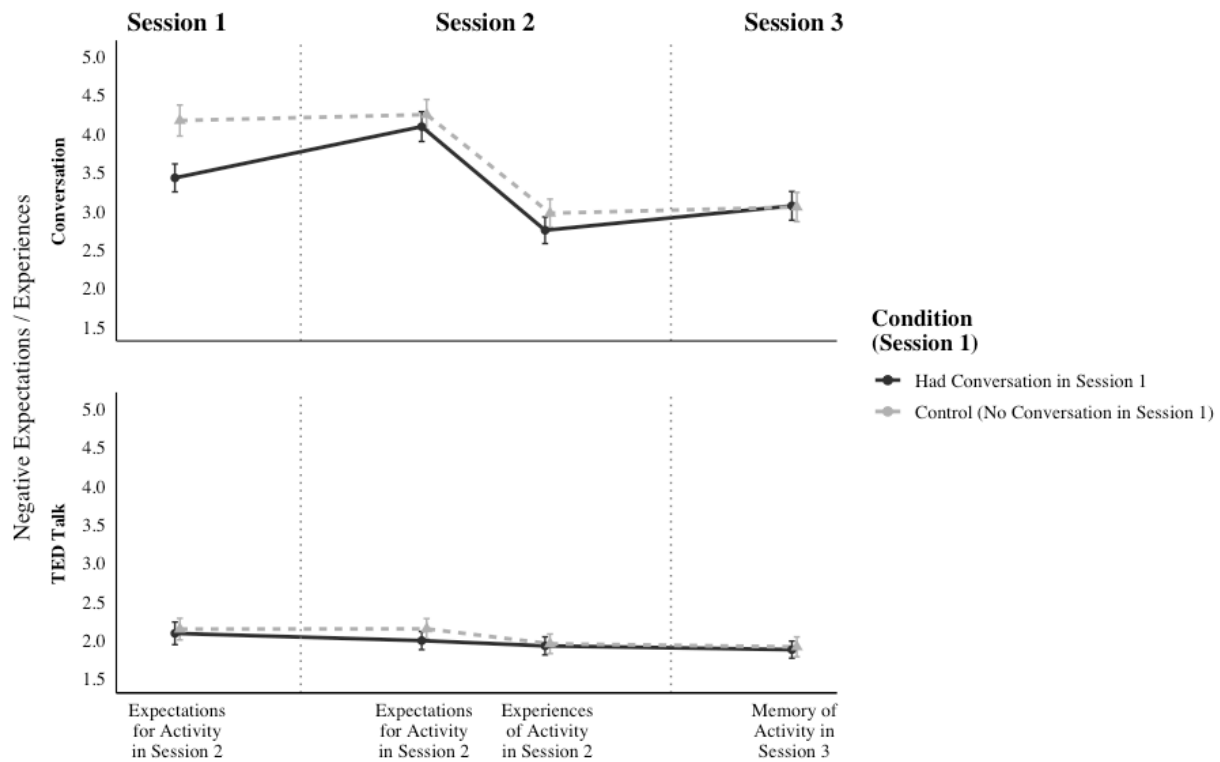*Negative Expectations and Experiences of Conversations and TED Talks Across Time (Experiment 2)*

Note: Negative dimensions include difficulty carrying out the activity, anxiety, and awkwardness. Error bars represent ± 1 standard errors. Higher numbers indicate more negative expectations or experiences.

learning from prior experience, but also updating their expectations in a more calibrated direction.

Session 2 Conversation: Updating Decays

As in Experiment 1, the increased optimism observed immediately after having a conversation in Session 1 faded entirely by the time the Session 2 conversation arrived. In a non-preregistered analysis of participants in the social learning condition, we examined the interaction between Session (1 vs. 2) and activity (conversation vs. TED Talk), which yielded significant interactions for both positive and negative aspects, $b_{Positive} = .44$, $t(354.00) = 2.59$, $p = .010$, $b_{Negative} = -.76$, $t(354.00) = -3.03$, $p = .003$, but not for luck, $b_{Luck} = .36$, $t(354.00) = 1.36$, $p = .17$. These interactions indicated that participants' expectations about the conversation became less positive and more negative at Session 2 than immediately after their conversation in Session 1, $b_{Positive} = -.52$, $t(118.00) = -5.11$, $p < .001$, $b_{Negative} = .65$, $t(118.00) = 3.70$, $p < .001$, $b_{Luck} = -.39$, $t(118.00) = -1.98$, $p = .05$, but that expectations about the TED talk did not change significantly across time, $b_{Positive} = -.083$, $t(118.00) = -.91$, $p = .37$, $b_{Negative} = -.10$, $t(118.00) = -.73$, $p = .47$, $b_{Lucky} = -.034$, $t(118.00) = .18$, $p = .86$.

Another indication of fleeting generalization can be seen in changes in expectations from Session 1 to Session 2 in the social learning and control conditions. Although participants in the two conditions had significantly different expectations for their Session 2 conversation in Session 1, they did not differ significantly immediately before their Session 2 conversation, $b_{Positive} = .18$, $t(216) = .87$, $p = .38$, $b_{Negative} = -.18$, $t(216) = -.66$, $p = .51$, $b_{Lucky} = .059$, $t(216) = .23$, $p = .81$. We also observed nonsignificant differences between these conditions in their expectations for the TED talk, $b_{Positive} = .18$, $t(216) = .88$, $p = .38$, $b_{Negative} = -.16$, $t(216) = -.91$, $p = .36$, $b_{Lucky} = .34$, $t(216) = 1.30$, $p = .20$. There were also no significant interactions between

condition (social learning vs. control) and activity (conversation vs. TED talk) as predictors of participants' expectations immediately before their experiences in Session 2, $b_{Positive}$ = .005, $t(218.00)$ = .028, p = .98, $b_{Negative}$ = -.021, $t(218.00)$ = -.078, p = .94, b_{Lucky} = -.28, $t(218.00)$ = -1.21, p = .23.

In Session 2, then, participants' expectations about their experience in a conversation were again significantly miscalibrated. Specifically, we observed a significant interaction between judgment type (expectations vs. experiences) and activity (conversation vs. TED), $b_{Positive}$ = 1.13, $t(654.00)$ = 6.05, p < .001, $b_{Negative}$ = -1.18, $t(654.00)$ = -6.47, p < .001, b_{Luck} = 1.42, $t(654.00)$ = 6.35, p < .001. As shown in Figures 5 and 6, this interaction indicated that participants in both conditions were overly pessimistic about having a conversation, underestimating the positive aspects of the conversation, b = -.86, $t(217.00)$ = -7.51, p < .001, overestimating the negative aspects, b = 1.31, $t(217.00)$ = 10.71, p < .001, and underestimating how lucky they would feel to be paired with their conversation partner, b = -1.65, $t(217.00)$ = -11.20, p < .001. Participants were not, in contrast, overly pessimistic about watching a TED talk. In fact, participants expected the TED talk to be nonsignificantly *more* enjoyable than they found it to be, b = .26, $t(218.00)$ = 1.87, p = .062, and were nonsignificantly miscalibrated about the negative aspects, b = .12, $t(218.00)$ = 1.34, p = .18, and how lucky they would feel about their assigned TED talk, b = -.25, $t(218.00)$ = -1.52, p = .13.

Binary Comparison of the Conversation and the TED Talk

As in Experiment 1, we also observed that participants' experiences changed their beliefs about which activity was more enjoyable in a series of non-pre-registered analyses. In Session 1, a larger percentage of participants expected the conversation to be more enjoyable than the TED talk in the social learning condition (62.7%) than in the control condition (45.0%), b = .72, z =

2.60, $p = .009$ (generalized linear model), suggesting that people learned from their experience about how enjoyable conversations are. However, two weeks later in session 2, just before experiencing both activities, a similar proportion in the social learning condition (49.2%) and control condition (45.0%) expected the conversation to be more enjoyable, $b = .17$, $z = .61$, $p = .54$ – consistent with fleeting generalization. At the start of Session 1, participants in the social learning condition were not only more pessimistic than they had been about the conversation, but also more miscalibrated. After experiencing both activities, significantly more participants reported enjoying the conversation (75.2%) compared to the TED talk, $p < .001$ (exact binomial test). Put differently, experiencing both activities significantly increased the number of participants who felt the conversation was more enjoyable than the TED talk, $b = 1.81$, $z = 5.80$, $p < .001$.

We observed statistically nonsignificant changes in learning. In both sessions, a majority of participants in both conditions believed that the TED talk would be more informative than the conversation (65.3% in the social learning condition and 75.4% in the control condition in Session 1, $b = .52$, $z = 1.72$, $p = .08$; 76% and 74%, respectively, in Session 2, $b = .07$, $z = .24$, $p = .81$). Not surprisingly given that TED talks are specifically designed to be especially informative, a majority of participants expected to learn more from the TED talk than the conversation before experiencing the activities (75%), $p < .001$, and after experiencing both (65%), $p < .001$ (exact binomial tests). However, completing both activities significantly increased the number of participants who felt the conversation was more informative than the TED talk, $b = .54$, $z = 2.37$, $p = .018$.

Temporal Proximity: Close Versus Distant Activities

As we did for Experiment 1 and S1, we also examined whether temporal proximity affected people's expectations by analyzing participants in the control condition (who did not experience a conversation in Session 1). Specifically, we examined, in the control condition, how expectations for each activity (conversation vs. TED Talk) varied between Session 1 and immediately before experiencing the activities in Session 2. We observed nonsignificant interactions indicating that time did not affect expectations about the conversation versus TED talk differently, $b_{Positive} = .17$, $t(300.00) = .91$, $p = .36$, $b_{Negative} = .073$, $t(300.00) = .27$, $p = .78$, $b_{Luck} = .40$, $t(300.00) = 1.43$, $p = .15$. Analyzing only expectations for the conversation, we observed nonsignificant differences in expectations when the conversation was distant versus imminent (failing to replicate the effect on negative aspects observed in Experiment 1), $b_{Positive} = .06$, $t(100.00) = .61$, $p = .54$, $b_{Negative} = -.08$, $t(100.00) = -.45$, $p = .65$, $b_{Luck} = -.25$, $t(100.00) = 1.26$, $p = .21$. Analyzing only expectations for the TED talk, participants were significantly more optimistic about the positive aspects of the TED talk if it was in the future than when it was imminent, $b = .23$, $t(100.00) = 2.24$, $p = .027$, but we observed nonsignificant effects of temporal distance on negative aspects, $b = -.003$, $t(100.00) = -.027$, $p = .98$, and luck, $b = .15$, $t(100.00) = .75$, $p = .45$.

As we did with Experiment 1, we also tested whether conversation timing affected participants' interest in having the conversation or avoiding it (i.e., approach and avoidance motivation). Analyzing approach and avoidance preferences separately, we found nonsignificant interactions between temporal distance (distant vs. imminent experience) and activity (conversation vs. TED talk), indicating that changes in approach and avoidance motivation did not differ significantly for the two activities, $b_{Approach} = .13$, $t(300.00) = .47$, $p = .64$, $b_{Avoidance} = .51$, $t(300.00) = 1.56$, $p = .12$ (we predicted a significant interaction for avoidance based on

existing research). Analyzing each activity separately, we found that participants expressed similar approach motivation for the conversation regardless of its timing, $b = .11$, $t(100.00) = .63$, $p = .53$, but expressed a weaker desire to avoid the conversation when it was distant than when it was imminent, $b = -.83$, $t(100.00) = -4.08$, $p < .001$. Temporal distance had nonsignificant effects on approach motivation, $b = .24$, $t(100.00) = 1.40$, $p = .16$, and avoidance motivation, $b = -.32$, $t(100.00) = -1.61$, $p = .11$, for the TED talk.

Overall, these results suggest that temporal distance alone has relatively weak effects on expectations for conversation, but has a larger effect on people's interest in avoiding the conversation, with people reporting more interest in avoiding a conversation when it is imminent than when it is distant. Temporal distance does not, however, seem to explain the changes in expectations for social interactions we observed across time.

Memory for Conversation

People might fail to learn from experience if they misremember their experience across time. To test this possibility, we compared participants' memory for their conversational experience and their TED talk experience in Session 3, held roughly two weeks after Session 2, against their experiences reported in Session 2. As shown in Figures 5 and 6, people in Session 3 remembered their Session 2 conversation to be less positive overall than they reported experiencing it immediately afterwards (in Session 2), $b_{\text{Positive}} = -.32$, $t(218.00) = -5.29$, $p < .001$, $b_{\text{Negative}} = .21$, $t(218.00) = 2.27$, $p = .024$, $b_{\text{Lucky}} = -.47$, $t(218.00) = -4.93$, $p < .001$. Memory for the TED talk was more mixed, with people remembering it as less positive and feeling less lucky than they did immediately after watching it, $b_{\text{Positive}} = -.30$, $t(218.00) = -4.33$, $p < .001$, $b_{\text{Lucky}} = -.22$, $t(218.00) = -2.11$, $p = .036$, but showing nonsignificant changes for negative aspects, $b_{\text{Negative}} = -.044$, $t(218.00) = -.61$, $p = .54$. Tests of the interaction between timing (Session 2 experience

vs. Session 3 memory) and activity (conversation vs. TED talk) were nonsignificant, $b_{Positive} =$ .016, $t(654.00) = .08$, $p = .93$, $b_{Negative} = -.25$, $t(654.00) = -1.44$, $p = .15$, $b_{Lucky} = .25$, $t(654.00) = 1.10$, $p = .27$.

These results provide suggestive evidence that changes in memory could partially explain fleeting generalization from experience for social interaction. People may maintain overly pessimistic expectations about talking with strangers because they forget, at least to some extent, how pleasant their conversations were in the past. However, changes in memory for an experience in Session 3 were smaller than the changes in expectations from Session 1 to Session 2, suggesting that memory provides only a partial explanation for fleeting generalization.

Experiment 3

In Experiment 3, we continue testing the attributes of fleeting generalization in social interaction by examining two potential moderators. First, we test the role of narrow generalization, such that people generalize a prior social experience to the person they interacted with instead of the properties of social interaction itself. Instead of learning that talking with strangers is pleasant, people might instead learn that talking with the particular person they spoke with was pleasant. We test this by asking people to have two conversations with either the same person, or with different people. This allows us to test how people generalize a social experience to future interactions immediately following the experience, and to test how fleeting this generalization is by measuring expectations again immediately preceding a second interaction. Second, we test a potential moderator of overly pessimistic expectations by having the two conversations either separated in time by two weeks or happening one after the other. Experiments 1-2 indicated that people do learn from experience immediately, but that this learning decays to an overly pessimistic expectation over time. This suggests that direct

experience would indeed eliminate overly pessimistic expectations about talking with strangers, as long as the opportunity to talk occurred in the moments immediately after the experience.

Method

Participants

We recruited participants from a university subject pool of students and community members. The final sample comprised 273 individuals who successfully completed both experiment sessions (based on self-identification, 189 women, 75 men, 8 nonbinary, 1 transgender; $M_{\text{Age}} = 27.15$, $SD_{\text{Age}} = 10.71$, $Min_{\text{Age}} = 18$, $Max_{\text{Age}} = 78$, excluding one who reported their age as zero; 110 White, 105 Asian, 25 Black or African American, 1 American Indian or Alaska Native, 10 chose 'other,' 12 multiracial, 1 chose 'unknown', and 9 did not report race). Thirteen additional participants were excluded from all analyses due to technical issues and errors.[9] An additional 61 participants completed only Session 1. This represents a 70% retention rate based on participant-driven attrition. We determined through a sensitivity analysis in G*Power (version 3.1; Faul et al., 2007) that our sample size provided 80% power to detect an effect size of $d_z = .17$, equivalent to Cohen's d of at least .3, on the generalization effect for positive aspects of the conversation, i.e., the difference in positive expectations for the first conversation and immediate positive expectations about the second conversation. For simplicity, we examined a difference between two dependent means (matched pairs) instead of a mixed-effects regression (parameters: two-tailed; α error probability = .05; power = .8; sample size of 273).

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[9] Twelve participants saw instructions that did not match their condition, and one mistakenly reported their expectations after having the conversation. In addition, 5 participants failed to provide complete responses in Sessions 1 or 2.

Figure 7
Experiment 3 Procedure
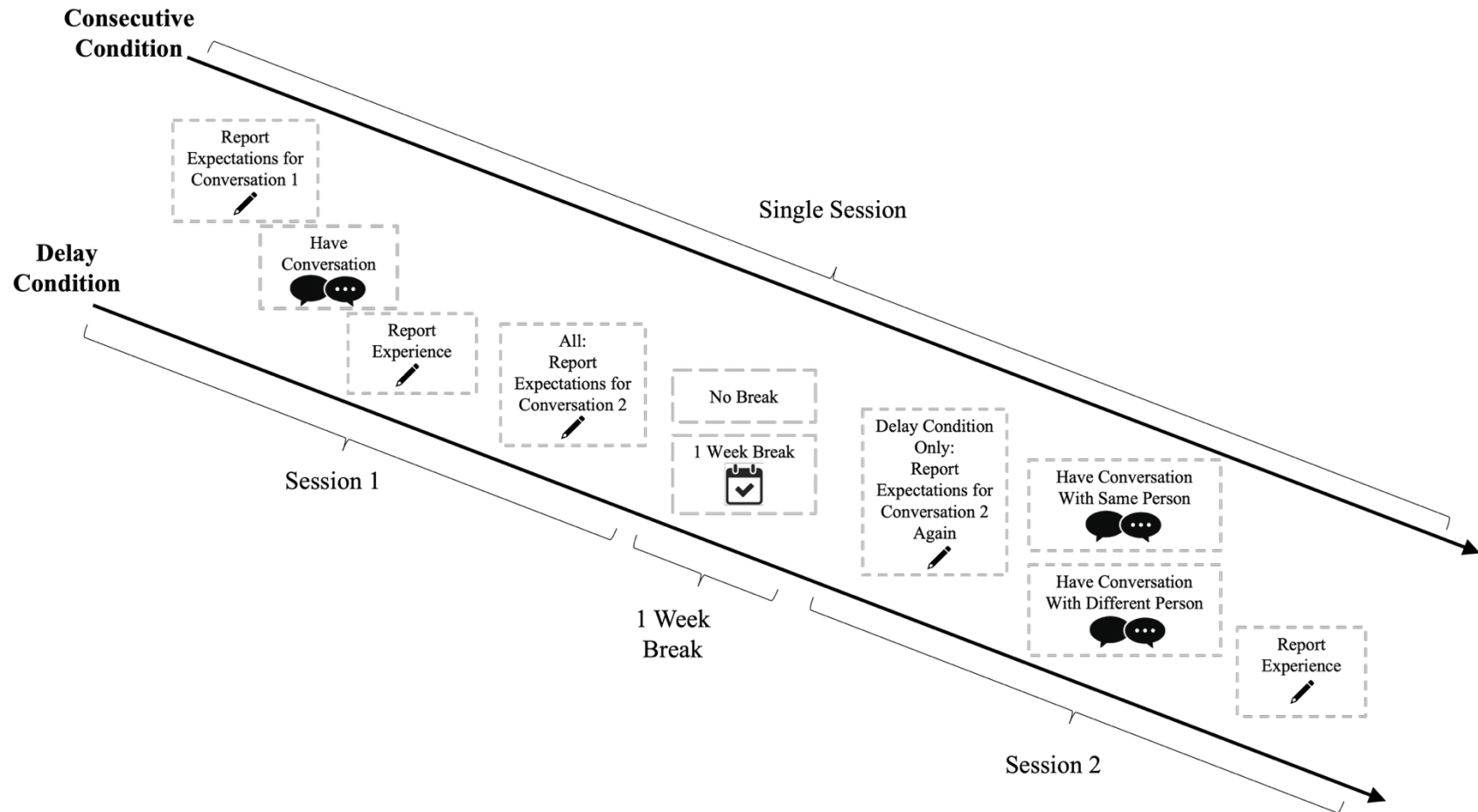
Procedure

The procedure is diagramed in Figure 7. We recruited groups of 4-7 participants for each session who joined a virtual room on a videoconferencing platform with the experimenter at prescheduled times. Participants were randomly assigned (as a group) to either complete two conversations in a single session (Consecutive condition; $N = 131$), or in two sessions, separated by roughly one week (Delay condition; $N = 142$), as well as to either have both conversations with the same participant ($N = 132$) or each with a new participant ($N = 141$). Each conversation occurred in a virtual breakout room with participants' cameras turned on, lasted 10 minutes, and was open ended (i.e., participants could talk about whatever they liked).

Before each conversation, participants reported their expectations for the conversation (details below). After each conversation, participants reported their actual experiences on the same measures. In the Delay condition, participants reported their expectations about the second conversation twice: once at the end of Session 1 (when the conversation was a week away) and once at the start of Session 2 (moments before the conversation). In the consecutive condition, participants reported their expectations about the second conversation only once, between conversations 1 and 2.

Participants reported their expectations on positive and negative dimensions all rated on a 1-9 scale. These items varied slightly from Experiments 1-2 as part of our effort to test our hypotheses by sampling a variety of methods and measures. The positive dimensions measured expectations and experience about learning [" how much do you think you will learn about the other person?; how much general information (not about the other person) do you think you will learn?; "how much useful information do you think you will learn?"], interest ("How interesting do you think the conversation will be?"), enjoyment ("How much do you think you will enjoy

the conversation?"), and liking ("How much do you think you will like the other person?"). Although we had pre-registered analyses of these items individually, they were highly correlated and we therefore averaged them into a single composite in order to ease presentation of the results ($\alpha = .88 – .91$ across sessions and judgment type). The negative dimension included a single item about difficulty ("How difficult do you think it will be to carry on the conversation?"). Participants also reported their feelings of luck ("How lucky do you think you will feel for being paired up with this particular person?"). Before the conversation, but not after, participants also reported their anxiety ("How anxious do you feel about having the conversation?").

One feature that could be critical for learning from experience is awareness that an experience differed from one's expectations, and therefore needed to be updated. To assess this, we also included additional measures about two aspects of learning (about one's conversation partner, and about general information) both before and after the conversation, asking people to compare their experiences directly against their expectations. After reporting their expectations before their first conversation, we asked participants to estimate the probability that they would learn less than they expected, as much as they expected, and more than they expected, with the three probabilities summing to 100% for each aspect of learning. After the conversation, we asked participants how much they actually learned compared to their expectations (both about their conversation partner and about general information) on scales that ranged from 1 ("much less than I expected") to 9 ("much more than I expected"), with 5 labeled "as much as I expected."

Results

The results of Experiment 3 are shown in Figures 8 and 9, depicting positive and negative aspects of the conversation, respectively. Replicating Experiments 1-2, we again observed that participants were overly pessimistic about talking with a stranger in their first conversation, having a better experience than they expected immediately beforehand. Participants again updated their expectations for a future conversation immediately after having one, in line with their experiences, with some evidence indicating that people generalized more when the future conversation was with the same conversation partner. One week later, however, the more optimistic (and better calibrated) updating among participants in the delay condition had faded significantly for both those speaking with the same partner and those speaking with a new partner, leaving people again with overly pessimistic expectations immediately before having a second conversation. We confirm these patterns statistically in the analyses described below.

First Conversation: Overly Pessimistic Expectations

Participants again came into the experiment with overly pessimistic expectations about their own experience of talking with a stranger, reporting that their first conversation was more positive and less negative than they expected immediately beforehand, , $b_{Positive}$ = .82, $t(273.00)$ = 10.05, $p < .001$, $b_{Difficult}$ = -1.42, $t(273.00)$ = -9.74, $p < .001$, b_{Luck} = 1.66, $t(273.00)$ = 13.70, $p < .001$. Consistent with random assignment, these main effects did not vary by whether their future conversation would be with the same or different partner, $b_{Positive}$ = -.033, $t(273.00)$ = -.20, p = .84, $b_{Difficult}$ = .36, $t(273.00)$ = 1.155, p = .25, b_{Luck} = .037, $t(273.00)$ = .15, p = .88, or whether their second conversation was immediately after the first or delayed, $b_{Positive}$ = -.055, $t(273.00)$ = -.34, p = .74, $b_{Difficult}$ = -.18, $t(273.00)$ = -.62, p = .54, b_{Luck} = .076, $t(273.00)$ = .31, p = .76.

Figure 8

Positive Expectations and Experiences in Consecutive vs. Week-Apart Conversations with the Same or Different Partner (Experiment 3)
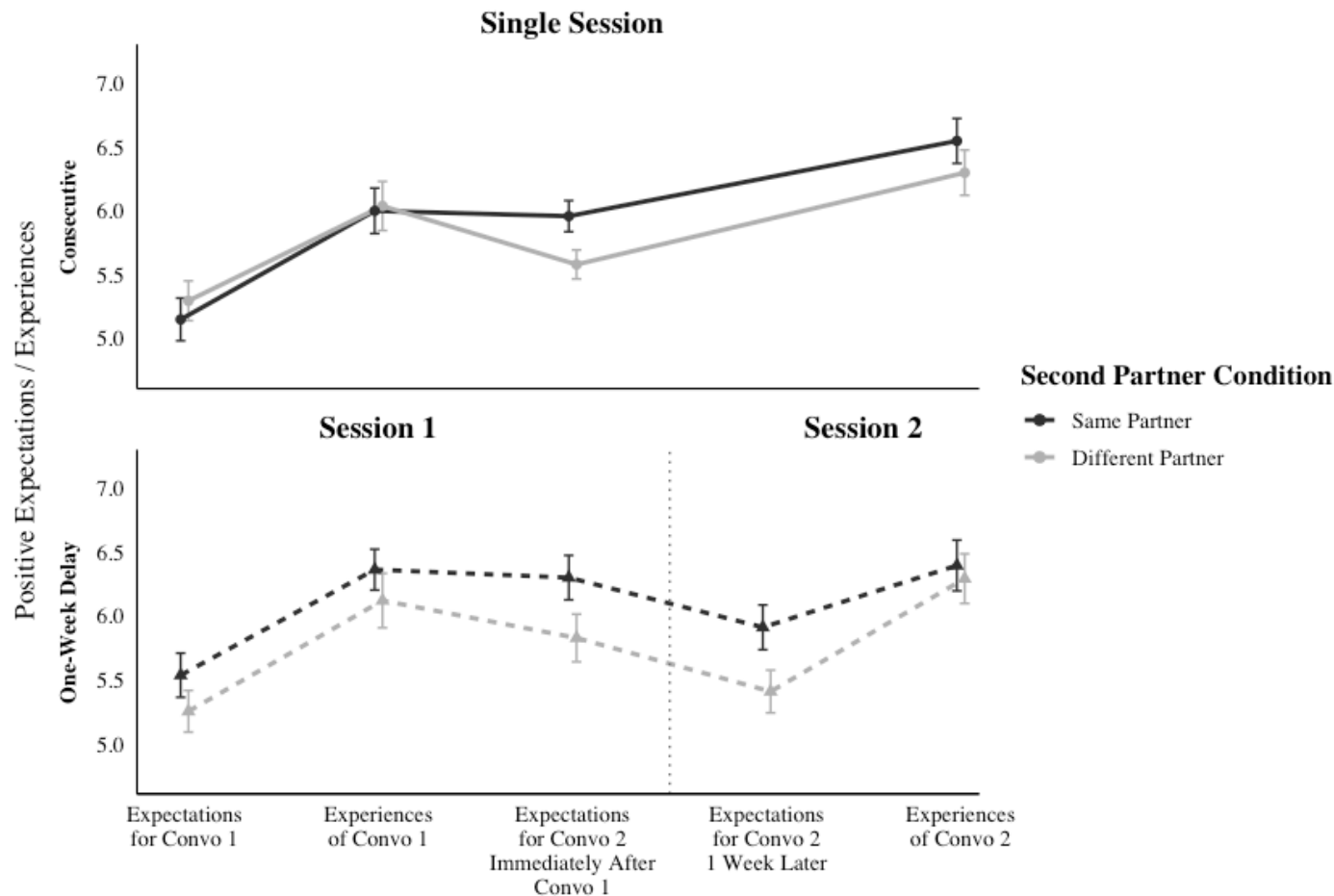
Note: Positive dimensions include learning about one's conversation partner, learning general information, learning useful information, interestingness, enjoyment, and liking. Error bars represent ± 1 standard errors. Higher numbers indicate more positive expectations or experiences.
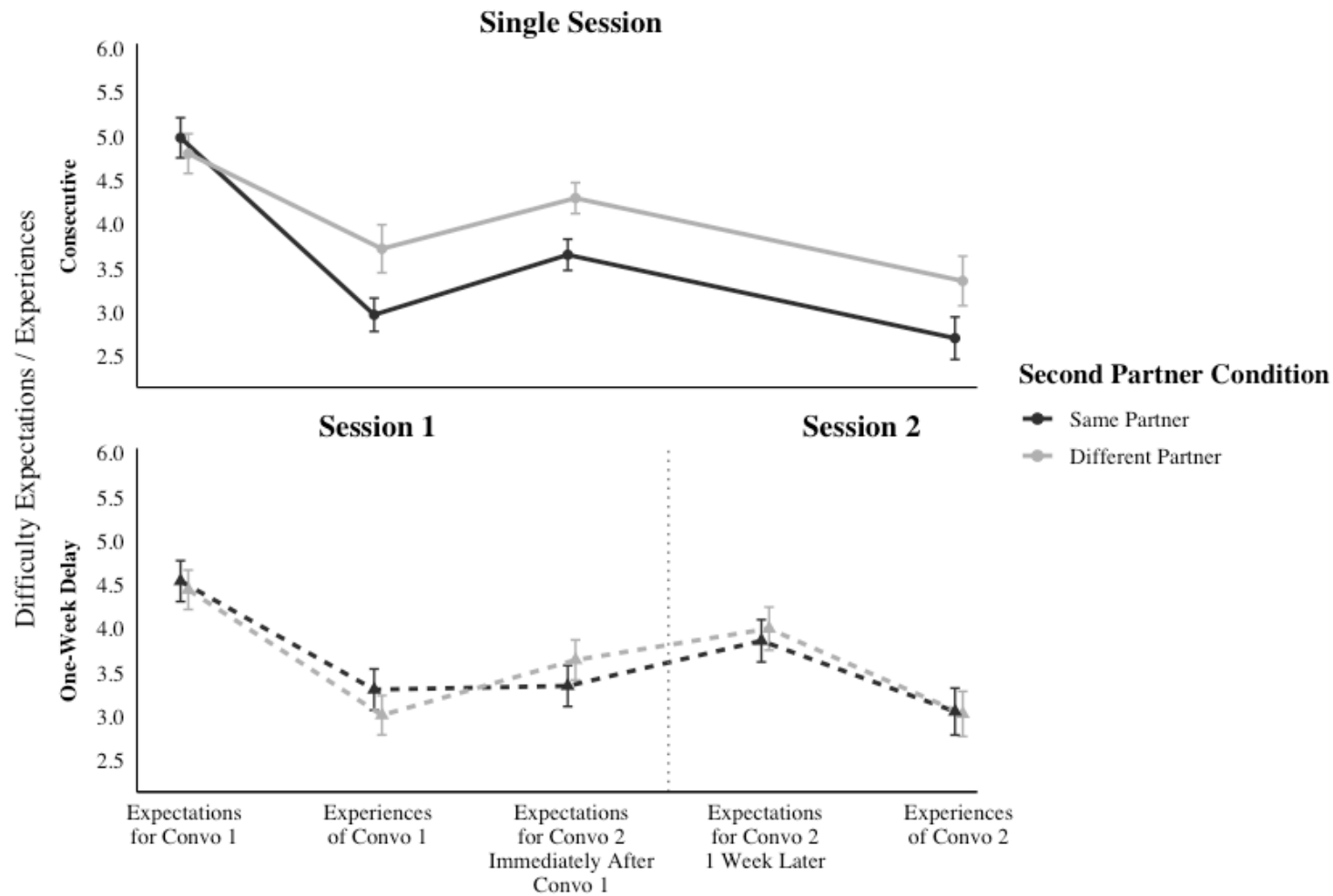
Figure 9:

Negative Expectations and Experiences in Consecutive vs. Week-Apart Conversations with the Same or Different Partner (Experiment 3)

Note: The negative aspect is difficulty in carrying out the conversation. Error bars represent ± 1 standard errors. Higher numbers indicate more negative expectations or experiences.

We observed similar patterns when participants reported how their experiences would compare, or did compare, against their expectations directly. Before their first conversation, participants were confident that their expectations were calibrated. Specifically, participants thought it was more likely that they would learn exactly as much as expected compared to learning more, $t_{LearnAboutPerson}(272) = 7.29$, $p < .001$, $t_{LearnInGeneral}(272) = 8.94$, $p < .001$, or less, $t_{LearnAboutPerson}(272) = 6.14$, $p < .001$, $t_{LearnInGeneral}(272) = 8.88$, $p < .001$. After the conversation, however, participants reported learning significantly more than they expected about the other person ($M = 6.12$, $SD = 1.80$), $t(272) = 10.31$, $p < .001$, and in general ($M = 5.76$, $SD = 1.78$), $t(272) = 7.06$, $p < .001$ (one-sample t-test against the mid-point of the scale). Again, consistent with random assignment, these results did not vary significantly across the partner and timing conditions, ps $> .14$.

Immediate Updating After Conversation

As in Experiments 1-2, participants seemed to learn from their surprisingly positive experience in their first conversation. Immediately after their first conversation, participants' expectations about the second conversation were more positive than their expectations for the first conversation, $b_{Positive} = .69$, $t(233.08) = 7.87$, $p < .001$, $b_{Difficult} = -.99$, $t(319.31) = -6.48$, $p < .001$, $b_{Luck} = 1.23$, $t(275.98) = 9.42$, $p < .001$. Participants' expectations for their second conversation depended somewhat on whether their second conversation would be with the same person as the first conversation or a new person. Specifically, we observed a nonsignificant interaction between partner (same or different) and conversation (first or second) for positive aspects of the second conversation, $b = .36$, $t(529.11) = 1.83$, $p = .068$, and significant interactions for difficulty, $b = -.60$, $t(400.13) = -1.97$, $p = .050$, and luck, $b = .84$, $t(482.05) = 3.11$, $p = .002$. Planned comparisons indicated that although people had more positive

expectations for their second conversation than they did for their first conversation with both the same partner, $b_{Positive} = .78$, $t(132.00) = 7.70$, $p < .001$, $b_{Difficult} = -1.26$, $t(132.00) = -6.23$, $p < .001$, $b_{Luck} = 1.52$, $t(132.00) = 9.42$, $p < .001$, and with a new partner, $b_{Positive} = .43$, $t(141.00) = 4.92$ $p < .001$, $b_{Difficult} = -.65$, $t(141.00) = -4.32$, $p < .001$, $b_{Luck} = .68$, $t(141.00) = 5.77$, $p < .001$, the significant interactions for difficulty and luck indicate that people updated their expectations somewhat *more* for the same partner than a new partner.

These interactions suggest that participants were more likely to generalize their first experience in conversation to the same person in a future conversation than to a different person. This interpretation is somewhat supported by the patterns of correlations between participants' reported expectations vs. experiences in their first conversation and their expectations for the second conversation. A strong correlation between experiences in the first conversation and expectations for the second would suggest participants were generalizing from their experience. In contrast, a strong correlation between their expectations for the first conversation and their expectations for the second conversation would suggest they were relying on generalized beliefs about social interaction as a guide for their second conversation. We therefore tested whether people's expectations for the second conversation correlated more strongly with the experience of the first conversation (that they just had) or with their expectations for that first conversation, for conversations with the same partner versus different partner.

The interactions with partner type (same vs. different) were nonsignificant for positive aspects, $z = .83$, $p = .41$, but significant for difficulty, $z = 2.30$, $p = .02$, and luck, $z = 2.91$, $p = .004$. For the positive aspects of the conversation, expectations for the second conversation correlated more strongly with their experience in the first conversation than with their expectations for the first conversation, $r = .85$ vs. .68, respectively, $t(270) = 5.97$, $p < .001$ (using

William's t, comparing overlapping correlations), but did not differ between the same vs. new partner conditions.

However, for the negative aspect (difficulty) and perceived luck, we observed stronger correlations between expectations for the second conversation and experience in the first conversation compared to expectations for the first conversation when the partner was the same person, $r_{\text{Difficult}}$ = .63 vs. .27, respectively, $t(129)$ = 3.93, p < .001, r_{Luck} = .84 vs. .52, respectively, $t(129)$ = 6.33, p = .001, but not when the conversation partner in the second conversation was new, $r_{\text{Difficult}}$ = .67 vs. .58, $t(138)$ = -1.39, p = .17, r_{Luck} = .67 vs. .69, $t(138)$ = -0.37, p = .71). These results provide some evidence that participants were using their experience in the first session as a guide to the second conversation when they were speaking with the same person, but were not generalizing from their experience in a conversation to the same extent when their next partner was a new person.

Temporal Proximity: Close versus Distant Conversations

Some participants had their second conversation immediately following their first conversation (Consecutive condition), whereas others had their second conversation a week after their first conversation (Delay condition). Whether expectations varied as a function of this temporal distance manipulation is somewhat unclear. Participants had somewhat more optimistic expectations when the second conversation was temporally distant versus moments away; they did not expect it to be significantly more positive, b = .31, $t(271)$ = 1.80, p = .073, but did expect it to be significantly less difficult, b = -.51, $t(271)$ = -2.10, p = .037, and expected to feel significantly luckier about their assigned conversation partner, b = .52, $t(271)$ = 2.25, p = .025. These conditions did not vary significantly in their expectations of their first conversation, b_{Positive} = . 17, $t(271)$ = 1.02, p = .31, $b_{\text{Difficult}}$ = .39, $t(271)$ = 1.72, p = .086, b_{Luck} = . 39, $t(271)$ =

1.79, $p = .075$. The same pattern emerges if we take into account the baseline expectations for the first conversation by examining the *change* in expectations from Conversation 1 to Conversation 2: this change did not differ as a function of the timing of the next conversation (delayed versus moments away), $b_{Positive} = .061$, $t(234.24) = .35$, $p = .73$, $b_{Difficult} = -.081$, $t(323.23) = -.26$, $p = .79$, $b_{Luck} = .22$, $t(277.66) = .83$, $p = .40$, suggesting that belief updating from experience was similar regardless of the timing of the second conversation (failing to replicate the effect on negative aspects observed in Experiment 1, but in line with Experiment 2).

This interpretation is also supported by nonsignificant differences in the correlations between the immediate expectations for the second conversation (made right after Conversation 1) and the experiences in Conversation 2 when Conversation 2 was moments away and when it was in the future ($r_{Positive} = .58$ vs. $.68$, respectively; $r_{Difficulty} = .38$ vs. $.40$; $r_{Luck} = .64$ vs. 68), $z_{Positive} = -1.40$, $p = .16$, $z_{Difficult} = -.15$, $p = .88$, $z_{Luck} = -.51$, $p = .61$.

Expectations Versus Experiences

Because people tend to be overly pessimistic about conversations with strangers, their more optimistic expectations for a second conversation immediately following their first conversation also proved to be more realistic. Specifically, the difference between participants' expectations for their second conversation (immediately following their first conversation) and their actual experience in their second conversation was smaller than the gap between their expectations and experiences for their first conversation (ignoring partner type because it does not apply to the first conversation[10]), $b_{Positive} = .36$, $t(678.91) = 3.22$, $p = .0013$, $b_{Difficult} = -.73$,

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[10] Testing for 3-way interactions with partner type (same vs. different) revealed nonsignificant interactions for positive aspects of the conversation, $b = -.31$, $t(679.22) = 1.37$, $p = .17$, and for difficulty, $b = -.52$, $t(682.53) = -1.34$, $p = .18$, and a significant interaction for luck, $b = .60$, $t(681.62) = 1.97$, $p = .049$. Unpacking the 3-way interaction for luck, participants were generally better calibrated about the second conversation than the first, but this pattern was more pronounced when speaking with the same partner, $b = 1.25$, $t(396.00) = 6.24$, $p < .001$, than a different one, $b = .65$, $t(282.00) = 2.71$, $p = .007$.

$t(681.73) = -3.71$, $p < .001$, $b_{Luck} = .94$, $t(679.84) = 6.07$, $p < .001$. These interactions indicate

that participants significantly underestimated their expectations of their first conversation, $b_{Positive}$

$= .82$, $t(273.00) = 10.05$, $p < .001$, $b_{Difficult} = -1.42$, $t(273.00) = -9.74$, $p < .001$, $b_{Luck} = 1.66$,

$t(273.00) = 13.70$, $p < .001$, more than they did their second conversation, $b_{Positive} = .46$, $t(273.00)$

$= 5.92$, $p < .001$, $b_{Difficult} = -.69$, $t(273.00) = -4.91$, $p < .001$, $b_{Luck} = .72$, $t(273.00) = 7.38$, $p <$

.001. Participants seemed to have learned from their experience that talking with a stranger was

surprisingly positive, which at least momentarily led to more calibrated expectations about a

second conversation.

Despite participants' inaccuracy, as with the first conversation, participants were

confident that their expectations were calibrated. They thought it was more likely that they

would learn exactly as much as they expected than that they would learn more,

$t_{LearnAboutPerson}(272) = 8.31$, $p < .001$, $t_{LearnInGeneral}(272) = 10.12$, $p < .001$, or less, $t_{LearnAboutPerson}$

$(272) = 10.24$, $p < .001$, $t_{LearnInGeneral}(272) = 11.40$, $p < .001$. After the conversation, however,

participants reported learning more than they expected about the other person ($M = 6.13$, $SD =$

1.71), $t(272) = 10.95$, $p < .001$, and in general ($M = 5.83$, $SD = 1.79$), $t(272) = 7.68$, $p < .001$

(one-sample t-test against the mid-point of the scale). These results did not vary significantly

across the partner and timing conditions, $ps > .48$.

Session 2 Conversation: Updating Decays

Replicating the fleeting generalization we observed in Experiments 1-2, the more

optimistic expectations that participants learned from their first conversation faded significantly

over time in the delayed condition. One week after their first conversation, participants in the

Delay condition had significantly less optimistic expectations about their second conversation

than they did a week earlier immediately after their first conversation, $b_{Positive} = .40$, $t(142.00) =$

5.29, $p < .001$, $b_{\text{Difficult}} = -.44$, $t(142.00) = -2.72$, $p = .0074$, $b_{\text{Luck}} = .47$, $t(142.00) = 4.13$, $p < .001$.

This fleeting generalization occurred similarly for a second conversation with the same partner and for a new partner, as indicated by nonsignificant interactions, $b_{\text{Positive}} = -.030$, $t(142.00) = -.20$, $p = .84$, $b_{\text{Difficult}} = -.16$, $t(142.00) = -.49$, $p = .63$, $b_{\text{Luck}} = -.055$, $t(142.00) = -.24$, $p = .81$. This pattern of fleeting generalization means that participants' expectations were significantly better calibrated immediately after having their first conversation than they were a week later, immediately before their second conversation.

Although participants' expectations were less optimistic after a delay, they still showed some evidence of retaining learning from their session 1 experience. After a week, expectations were still significantly more positive than expectations for the *first* conversation in Session 1, $b_{\text{Positive}} = .30$, $t(149.47) = 2.15$, $p = .033$, $b_{\text{Difficulty}} = -.59$, $t(164.12) = -2.78$, $p = .006$, $b_{\text{Luck}} = .79$, $t(156.33) = 3.89$, $p < .001$. These gaps did not differ by partner type (same partner vs. new partner) for positive aspects of the conversation and for difficulty, $b_{\text{Positive}} = .22$, $t(255.31) = .75$, $p = .45$, $b_{\text{Difficulty}} = -.24$, $t(229.61) = -.55$, $p = .58$. They did, however, differ significantly for feelings of luck, $b = 1.16$, $t(226.28) = 2.89$, $p = .004$, such that Session 2 expectations for the same partner were more positive than initial Session 1 expectations, $b = 1.25$, $t(72.00) = 4.94$, $p < .001$, but expectations for a different partner no longer differed significantly from Session 1 expectations, $b = .09$, $t(70.00) = .53$, $p = .60$.

Experiment 3 yielded three main findings. First, we replicated previous results that people tend to underestimate the positive aspects and overestimate the negative aspects of conversations with strangers. Second, a single experience talking with a stranger yielded both more optimistic and more realistic expectations immediately after the experience, especially for a second conversation with the same person compared to a new person. Third, the more optimistic

expectations that people learned from their experience faded over time, regardless of whether people were having a second conversation with the same person or with a new person. These results again suggest that people can learn from their social experiences, but that overly narrow and fleeting generalization may allow overly pessimistic expectations to persist over time even in the presence of calibrating experience to learn from.

General Discussion

How could people maintain mistakenly pessimistic beliefs about conversations with strangers despite having opportunities to learn from experience? A series of three longitudinal experiments suggests that fleeting generalization from experience could provide at least a partial explanation. After having a conversation with a stranger, participants did indeed learn from their experience, immediately updating their expectations about future conversations to be more positive, and more calibrated with their actual experience (Experiments 1-3), particularly when their next conversation was with the same person rather than with a new stranger (Experiment 3). We did not observe this same pattern with a nonsocial experience, such as watching a TED talk (Experiment 2), where participants' expectations were not miscalibrated to begin with. This specificity suggests the updating reflects genuine learning about miscalibrated expectations about the outcomes of conversation with strangers in particular, rather than just a general mood effect or demand characteristics.

However, what participants learned from their experience in social interaction was fleeting. Within just 1-2 weeks, expectations about having a conversation with a stranger had largely reverted to their initial overly pessimistic state (Experiment 1-3). This regression occurred even though participants were in a learning environment that would make learning from experience easier (Hogarth et al., 2015). In particular, our experiments involved a very

circumscribed social experience that would be repeated again at a specified time with a known person under the same conditions, thereby eliminating at least some of the uncertainty typically involved in social interactions in everyday life. The decay in learning was partly explained by participants remembering their conversations as less positive than they had reported them being immediately afterward (Experiment 3). However, memory decay alone cannot fully account for the persistence of pessimistic expectations, because participants still remembered their past conversations more positively than they had initially expected them to be.

That we do not observe a similar pattern of fleeting generalization with nonsocial experiences, such as a TED talk, suggests that miscalibrated pessimism is not a feature of any potentially pleasant activity. Although participants consistently underestimated how positive (and overestimated how negative) their experience in conversation would be, they did not do the same with watching a TED talk. If anything, they slightly overestimated how much they would enjoy the talks (Experiment 2). This asymmetry is notable because TED talks share many features with conversations: both involve another person and can be informative and enjoyable. The key difference, we believe based on past research, is that conversations are inherently interactive, whereas watching a talk is a nonsocial experience. This finding aligns with prior research documenting that people uniquely underestimate the positive experience of social interaction (Atir et al., 2022; Epley & Schroeder, 2014), suggesting that pessimism about conversation stems from misplaced beliefs about one's partner in a conversation, or about the power of conversation itself to create a positive sense of social connection (Epley et al., 2022; Kardas et al., 2022).

The pattern of fleeting generalization we consistently observed challenges simple accounts of learning from social experience, and raises questions about why such learning might

be difficult to maintain. Previously suggested explanations for why social learning might be difficult, including asymmetric feedback from actions versus inactions (Hogarth et al., 2015), the inherent uncertainty of social interactions (Atir et al., 2022), and the outsized impact of negative experiences on future expectations (Baumeister et al., 2001), cannot explain why people *do* generalize from their experiences to form more calibrated expectations immediately after an interaction, only to have this learning fade over time.

The disconnect between immediate and longer-term learning suggests a more nuanced understanding is needed of how people process and maintain social learning. One possibility is that the immediate experience of a conversation is compelling enough to temporarily override the structural features that make social learning otherwise difficult. In particular, people may rely more heavily on an immediate experience as a bottom-up guide to future interactions when it is highly accessible, but base their expectations on more generalized beliefs or top-down processes of inference when the memory of specific experiences has faded over time, regressing to a more neutral point. We observed results consistent with this pattern in Experiment 3, where participants' expectations about a future conversation were more strongly correlated with their personal experience immediately after a conversation than after a one-week delay.

Future research should examine how features of the learning environment shape belief updating across different contexts and populations. For instance, we might expect more persistent belief updating in contexts where social feedback is immediate and unambiguous, or among individuals who regularly engage in conversations with strangers as part of their profession. Cross-cultural research could examine how broader social norms and trust levels influence the persistence of conversational pessimism (Liu et al., 2019). Future work could also examine whether the learning process differs substantially when conversations are surprisingly

positive versus disappointing. In our experiments, the majority of participants' first conversations were better than expected (~75%), with only 16-22% reporting experiences that were less positive than expected. Our experiments are therefore underpowered to test whether fleeting generalization differs meaningfully for negative versus positive conversational surprises. In addition, participants who had worse-than-expected conversations also had significantly more positive expectations beforehand, meaning that relatively "better" and "worse" outcomes are confounded with participants' initial expectations. Future research with larger samples would be needed to test this possibility in a way that unconfounded expectations from "better" and "worse" experiences.

One critical direction would be examining how fleeting generalization operates in natural social environments. Our experiments created highly controlled conditions in order to isolate the effect of learning from experience. Participants knew exactly when they would have their next conversation, what the conversation would entail, and something about who they would talk with (i.e., another participant in the subject pool). In daily life, the timing, topics, and types of conversations people have are far more variable. Future research could use experience sampling methods to track how people's beliefs about social interaction fluctuate based on their naturally-occurring conversational experiences, providing insight into belief updating in more ecologically valid settings.

Another important question is whether certain types of conversations produce more durable learning than others. For instance, conversations that lead to concrete outcomes (e.g., learning useful information, making plans, being helped or rejected) might produce more lasting updates to expectations than purely social exchanges. Similarly, conversations that challenge

specific pessimistic beliefs (e.g., discovering common ground with someone very different from oneself) might lead to more persistent belief updating than less memorable interactions.

Our findings have important implications for social isolation, which has been identified as a major public health concern (Jeste et al., 2020; Office of the Surgeon General, 2023). Programs designed to combat loneliness often encourage people to engage more with others, but our findings suggest that one-off interventions may have limited long-term impact on people's beliefs, and potentially on their willingness to routinely initiate social contact. Our finding that memory decay partially explains the regression in beliefs suggests another avenue for intervention. Rather than focusing solely on creating opportunities for positive social interactions, interventions might benefit from incorporating strategies to help people maintain more accurate memories of their social experiences. This could involve simple practices like reflecting on recent social interactions. Studies could test whether having people frequently reflect on their positive experience might forestall memory's regression, helping create more lasting belief updates. Other work could examine whether focusing people's attention on different aspects of conversations (e.g., their partner's apparent enjoyment versus their own performance) affects the durability of learning.

Conclusion

Despite the many opportunities people have to learn about social interaction through direct experience, pessimistic beliefs about conversations with strangers remain remarkably persistent. Our findings help explain this persistence: while people do learn from conversational experiences and update their expectations accordingly, this learning proves fragile. Within just one to two weeks, people's expectations largely revert to their initial pessimistic state, even under conditions designed to facilitate learning. This pattern of fleeting generalization is partially but

not entirely explained by memory decay, and may help maintain miscalibrated beliefs about social interaction over time. That this pattern emerged specifically for conversations, but not for non-social experiences like watching TED talks, suggests there is something uniquely challenging about calibrating expectations for social interaction. These findings not only illuminate why people maintain overly pessimistic beliefs about talking with strangers despite evidence to the contrary, but also reveal a fundamental fragility in social learning itself. Even in environments engineered to maximize calibration, the mind's default expectations can reassert themselves quickly. Creating lasting changes in social beliefs may require more than occasional positive experiences to learn from.

Table 1

Assessment of Limitations

Dimension	Assessment
Internal validity	
Is the phenomenon diagnosed with experimental methods?	Yes - Random assignment to conditions with manipulation of conversation experience across three studies.
Is the phenomenon diagnosed with longitudinal methods?	Yes - All studies track changes across 1-4 weeks with two or three measurement points.
Were the manipulations validated with manipulation checks, pretest data, or outcome data?	Manipulations (conversation versus other experience, time, repeated or different partner type) were face valid.
What possible artifacts were ruled out?	The TED talk control condition (Experiments S1 and 2) demonstrates specificity of learning effects to conversations, helping to rule out demand characteristics.
Statistical validity	
Was the statistical power at least 80%?	Yes, for detecting a small–medium effect size in all experiments.
Was the reliability of the dependent measure established in this publication or elsewhere in the literature?	Yes - Composite measures showed good to excellent internal consistency reliability (αs = .73 to .96 across studies). Individual items were face valid standard rating scales. Test-retest reliability was not assessed, though its relevance is reduced by the longitudinal design focused on capturing change.
If covariates are used, have the researchers ensured they are not affected by the experimental manipulation before including them in comparisons across experimental groups?	N/A - Analyses did not use covariates.
Were the distributional properties of the variables examined and did the variables have sufficient variability to verify effects?	Yes – Distributional properties were examined. See full results in the SM. **Experiment 1**: Pre-conversation ratings showed significant deviations from normality for all negative measures (Shapiro–Wilk ps < .05) and mixed evidence for positivity: S1 pre-Convo1 was normal (p = .39), S1 pre-Convo2 deviated significantly (p = .001), and S2 pre-Convo2 was borderline but nonsignificant (p = .06). For conversations, positivity ratings showed minimal skew pre-conversation (skew = −0.31 to 0.01) but became moderately negatively skewed post-conversation (skew = −0.61 to −0.63). Negative ratings showed mild skew pre-conversation (skew = −0.19 to 0.32) and strong positive skew post-conversation (skew = 0.89–0.92). Variability was sufficient to detect effects, with minimal floor effects for positivity (0–1%) and moderate ceiling effects

(2–24%), and with moderate floor effects for negative ratings (7–32%) but negligible ceiling effects (0–3%).

Experiment 2: Pre-conversation ratings showed significant deviations from normality for all measures (Shapiro-Wilk $ps < .05$). For conversations, positivity ratings showed mild negative skew pre-conversation (skew = -0.26 to -0.43) becoming stronger post-conversation (skew = -0.95 to -1.16), negative ratings showed mild positive skew pre-conversation (skew = 0.14 to 0.41) becoming more skewed post-conversation (skew = 0.86 to 0.91), and luck showed minimal skew pre-conversation (skew = -0.03 to -0.22) becoming moderately negative post-conversation (skew = -0.58 to -0.81). Variability was sufficient to detect effects, with minimal floor effects for positivity (0-2%), moderate floor effects for negative ratings (11-32%), and minimal floor effects for luck (2-6%). Ceiling effects were moderate for positivity (7-28%), minimal for negative ratings (0-0.5%), and moderate for luck (4-24%). Memory ratings (Session 3) showed similar patterns but with somewhat attenuated skew for all measures.

Experiment 3: Pre-conversation ratings showed adequate normality for positivity (Shapiro-Wilk $ps > .07$) but significant deviations for difficulty and luck ($ps < .001$). Post-conversation, all measures showed deviations from normality ($ps < .01$), with positivity becoming negatively skewed (skew = -0.27 to -0.50), difficulty becoming positively skewed (skew = 0.78 to 0.98), and luck showing moderate negative skew (skew = -0.70 to -0.75). However, variability was sufficient to detect effects, with minimal floor effects (< 1% for positivity, 5-33% for difficulty) and ceiling effects (3-8% for positivity, < 3% for difficulty, 17-23% for luck).

Generalizability to different method	
Were different experimental manipulations used?	Yes - Studies used different manipulations to test the updating effect. Studies 1, S1, and 2 used different control conditions (break, TED talk, no experience) to test the specificity of conversation effects. Experiment 3 manipulated both conversation partner (same

	vs. different) and timing (consecutive vs. delayed).
Generalizability to field settings	
Was the phenomenon assessed in a field setting?	Studies involved real interactions between strangers, but these were conducted in an experimental setting.
Are the methods artificial?	Moderately - While Zoom conversations are common, the 10-minute format is experimentally imposed. However, the open-ended nature of the conversation is ecologically valid.
Generalizability to times and populations	
Are the results generalizable to different years and historic periods?	This was not tested.
Are the results generalizable across populations (e.g., different ages, cultures, or nationalities)?	Partial evidence - Samples were English-speaking participants of diverse ages. Moderate diversity in race, low diversity in ethnicity. Culture and nationality information was not collected.
Theoretical limitations	
What are the main theoretical limitations?	We tested three mechanisms - fleeting generalization, narrow attribution, and temporal distance – that each make different predictions about the speed and timing of updating. We found the most robust evidence for fleeting generalization, with limited evidence of narrow attribution (expectations were updated even for new conversation partners, but more so for the same partner) and temporal distance (people were somewhat more pessimistic about an upcoming conversation than a future one, but only on negative conversational aspects, and not consistently across studies). Fleeting generalization itself was partially explained by memory decay, with future work needed to explain it fully.

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