



# The Personal and Interpersonal Benefits of Rediscovery

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The Personal and Interpersonal Benefits of Rediscovery

A dissertation presented

by

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to

The Department of Business Studies

in partial fulfillment of the requirements

for the degree of

Doctor of Philosophy

in the subject of

Organizational Behavior

Harvard University

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## The Personal and Interpersonal Benefits of Rediscovery

### Abstract

Individuals commonly fail to document their current experiences such that they often forget about these experiences altogether. In the context of learning, for example, experts may have difficulty remembering the experience of being inexperienced, making it difficult for them to help and train novices. Across three chapters, I explore the personal and interpersonal benefits of rediscovery—the process of revisiting past experiences that are non-salient or inaccessible in the moment. In the first chapter, I test whether individuals understand the benefits of rediscovery for themselves. Using a time capsule paradigm, I demonstrate that rediscovering past experiences, particularly ordinary ones, generates more interest and curiosity than expected. Whereas the first chapter focuses on the benefits of rediscovery at the individual level, the second and third chapters explore the interpersonal benefits of rediscovery. In the second chapter, studies with interns and medical students demonstrate that relative to relying on memories of past experiences, rediscovering these experiences (e.g., by reading their past accounts of these events) better equips individuals to understand and advise those with less experience. In the third chapter, a study of expert guitarists reveals that rediscovering the experience of inexperience enables experts to better relate to novices, helping them give advice that novices rate as more helpful and encouraging.

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Dedicated to Mom and Dad for their incredible love and support.

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## CHAPTER 1

A “Present” for the Future:

The Unexpected Value of Rediscovery

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### ABSTRACT

Although documenting everyday activities may seem trivial, four studies reveal that creating records of the present generates unexpected benefits by allowing future rediscoveries. In Study 1, we used a time-capsule paradigm to show that individuals underestimate the extent to which rediscovering experiences from the past will be curiosity provoking and interesting in the future. In Studies 2 and 3, we found that people are particularly likely to underestimate the pleasure of rediscovering ordinary, mundane experiences, as opposed to extraordinary experiences. Finally, Study 4 demonstrates that underestimating the pleasure of rediscovery leads to time-inconsistent choices: Individuals forgo opportunities to document the present but then prefer rediscovering those moments in the future to engaging in an alternative fun activity. Underestimating the value of rediscovery is linked to people’s erroneous faith in their memory of everyday events. By documenting the present, people provide themselves with the opportunity to rediscover mundane moments that may otherwise have been forgotten.

At any moment, individuals can choose to capture their current experiences—for example, by taking photographs or writing diary entries—or to let those moments elapse undocumented. Everyday life moments, such as making breakfast or chatting with a coworker, tend to fall in the latter category: They seem too mundane to preserve or too salient in the moment to forget. Documenting such mundane moments in the present, however, offers a clear benefit if they are forgotten: Such records allow the present to be rediscovered in the future. Here, we explore whether people correctly anticipate the value of rediscovering ordinary experiences in the future and how their predictions of future value, in turn, influence their decisions to take advantage of opportunities to document the present.

A large body of research has demonstrated a host of errors that people make in predicting their future affective reactions. People have difficulty predicting how they will feel in the future (Gilbert, Gill, & Wilson, 2002; Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998; Kermer, Driver-Linn, Wilson, & Gilbert, 2006) and estimating the emotional impact of both negative and positive events in the future (Frederick & Loewenstein, 1999; Fredrickson & Kahneman, 1993; Gilbert, Morewedge, Risen, & Wilson, 2004; Wilson & Gilbert, 2005). Whereas prior research has focused on how people mispredict their affective responses to future experiences, in the studies reported here we explored people's mispredictions of how they will feel in the future upon rediscovering their past. We found that individuals underestimate the future value of rediscovering today's seemingly mundane experiences.

Why might people underestimate the pleasure of such rediscovery? People mistakenly use their current states as heuristics to make projections about future affective responses (Gilbert et al., 2002) and imagine that their future selves will be similar to their current selves (Caruso, Van Boven, Chin, & Ward, 2013; Quoidbach, Gilbert, & Wilson, 2013). Because people

inaccurately expect their current states to be similar to their future states (Conlin, O'Donoghue, & Vogelsang, 2007; Loewenstein, 2000; Loewenstein, O'Donoghue, & Rabin, 2003), they may think that they will remember mundane details about the present and that today's mundane details will continue to seem mundane in the future (Dougherty, 2001; Ericson, 2011). In reality, individuals have imperfect memories that fade or become distorted over time (Schmolck, Buffalo, & Squire, 2000; Talarico & Rubin, 2003) such that external cues (e.g., rediscovering an old memento) can trigger more vivid recall of related past experiences (Berntsen, 1998). Given these findings, we predicted that people would undervalue today's experiences, such that rediscovering today's mundane details in the future would be more interesting than they anticipate, and that they would consequently tend to underdocument today's experiences.

We tested our predictions in four experiments. Using a time-capsule paradigm, we first examined whether individuals underestimate the curiosity and interest they will experience when rediscovering mundane details from the past (Study 1). Then, we assessed how the type of experience—ordinary or extraordinary—moderates this effect (Studies 2 and 3). Finally, we examined whether underestimating the pleasure of rediscovery leads to time-inconsistent choices, such that people forgo opportunities to document the present only to find their future selves wanting to rediscover those very moments (Study 4).

### **Study 1: Underestimating the Value of Rediscovery**

In Study 1, we asked people to predict how they would feel when rediscovering their current experiences in the future. Three months later, we compared their predictions with their actual feelings. We expected that people would underestimate the extent to which they would find their current experiences to be curiosity provoking and interesting in the future.

### **Method**

**Participants.** One hundred thirty-five undergraduates (65.9% female, 33.3% male, 0.7% unreported; mean age = 20.4 years,  $SD = 1.0$ ) in the northeastern United States completed the first part of this online study in exchange for \$5, knowing that they would be contacted later for a follow-up. Three months later, 106 of these students (78.5% response rate; 67.0% female, 32.1% male, 0.9% unreported; mean age = 20.4 years,  $SD = 1.0$ ) completed a follow-up survey in exchange for an additional \$20. There were no differences in gender,  $\chi^2(1, N = 135) = 0.31, p = .58$ , Cramér's  $V = .05$ , or age,  $U = 1,487.00, p = .97, r = .003$ , between those who did and did not complete the study; we present results for only those participants who completed both parts of the study.

We calculated our desired sample size using an estimated effect size ( $d$ ) of 0.3, which required a sample size of approximately 90 participants for 80% power of detecting the effect. We targeted a recruitment of 130 to 150 students, anticipating a return rate of 60% to 70%.

**Design and procedure.** Participants created time capsules at the beginning of the summer (Time 1) and opened them 3 months later at the beginning of the following school year (Time 2). To create the time capsules, participants responded to nine prompts capturing a range of current experiences: the last social event they attended, a recent conversation, how they met their roommate for the following semester, three songs they recently listened to, an inside joke, a recent photo, a recent status they had posted on their Facebook profile, an excerpt from a final paper for class, and a question from a recent final exam. After creating their time capsules, participants were informed that they would be contacted in “a few months” for the second part of the study. For each element of the time capsule, we asked participants to predict how curious they would be to see what they had documented, how surprised they would be after seeing what

they had documented, and how meaningful and interesting they would find each element in the future (1 = *not at all*, 7 = *extremely*).

Three months later (Time 2), participants were e-mailed a follow-up survey that listed the prompts they had viewed at Time 1. Prior to viewing their responses, participants indicated how curious they were to rediscover their response to each prompt. After participants reported their curiosity, they viewed what they had documented 3 months earlier. Then, they rated how surprised they were by each element and how meaningful and interesting they found each element (1 = *not at all*, 7 = *extremely*).

We averaged responses to the surprise, meaningfulness, and interest items to form a composite interest score for both Time 1 ( $\alpha = .90$ ) and Time 2 ( $\alpha = .87$ ). Table 1 provides descriptive statistics for each measure for Study 1.

## **Results**

Across the nine prompts, participants' ratings of their curiosity and interest were highly intercorrelated ( $\alpha_{\text{curiosity}} = .93$ ,  $\alpha_{\text{interest}} = .90$ ). We therefore present results collapsed across the prompts. Participants' Time 1 predictions of their curiosity ( $M = 3.99$ ,  $SD = 1.32$ ) were lower than their actual curiosity ratings at Time 2, immediately before reading their responses ( $M = 4.34$ ,  $SD = 1.25$ ),  $t(105) = 2.88$ ,  $p = .005$ ,  $d = 0.27$ . Participants also underestimated how interesting they would find their responses. Predictions of interest at Time 1 ( $M = 3.54$ ,  $SD = 1.01$ ) were lower than ratings of actual interest experienced at Time 2 ( $M = 3.82$ ,  $SD = 0.89$ ),  $t(105) = 3.10$ ,  $p = .003$ ,  $d = 0.29$ .

**Table 1.** Results from Studies 1, 2, and 4: Comparison of Mean Time 1 and Time 2 Ratings

Study and measure	Time 1 mean (predicted experience)	Time 2 mean (actual experience)	Underestimate (Time 2 – Time 1)	<i>p</i> <sup>a</sup>
<b>Study 1</b>				
Curiosity	3.99 [3.74, 4.24]	4.34 [4.10, 4.58]	0.35 [0.11, 0.59]	.005
Interest	3.54 [3.34, 3.73]	3.82 [3.65, 4.00]	0.29 [0.10, 0.47]	.003
Surprise	2.84 [2.64, 3.05]	3.25 [3.06, 3.44]	0.40 [0.19, 0.62]	< .001
Meaningfulness	3.81 [3.60, 4.03]	4.04 [3.84, 4.23]	0.22 [0.03, 0.42]	.02
Interest	3.95 [3.73, 4.18]	4.19 [4.00, 4.38]	0.23 [0.02, 0.45]	.03
<b>Study 2</b>				
Curiosity	3.15 [2.66, 3.63]	4.77 [4.22, 5.32]	1.63 [0.99, 2.26]	< .001
Interest	3.48 [3.10, 3.86]	4.66 [4.20, 5.12]	1.18 [0.67, 1.68]	< .001
Enjoyableness	3.35 [2.95, 3.76]	4.56 [4.07, 5.06]	1.21 [0.70, 1.72]	< .001
Interest	3.60 [3.16, 4.05]	4.75 [4.25, 5.25]	1.15 [0.55, 1.75]	< .001
<b>Study 4</b>				
Curiosity: video	5.03 [4.53, 5.53]	4.78 [4.34, 5.22]	-0.25 [-0.81, 0.31]	.38
Interest: video	4.86 [4.43, 5.29]	4.63 [4.28, 4.98]	-0.23 [-0.67, 0.21]	.31
Enjoyableness	5.03 [4.57, 5.49]	4.72 [4.34, 5.10]	-0.31 [-0.82, 0.19]	.22
Interest	5.03 [4.56, 5.50]	4.92 [4.56, 5.29]	-0.11 [-0.60, 0.38]	.66
Meaningfulness	3.73 [3.33, 4.13]	4.21 [3.78, 4.63]	0.48 [-0.02, 0.98]	.06
Curiosity: conversation	3.67 [3.20, 4.15]	4.47 [4.00, 4.94]	0.80 [0.24, 1.35]	.005
Interest: conversation	3.35 [2.97, 3.74]	4.57 [4.16, 4.99]	1.22 [0.83, 1.61]	< .001
Enjoyableness	3.27 [2.82, 3.72]	4.58 [4.11, 5.05]	1.31 [0.85, 1.78]	< .001
Interest	3.59 [3.13, 4.06]	4.63 [4.18, 5.07]	1.03 [0.63, 1.43]	< .001
Meaningfulness	3.20 [2.75, 3.66]	4.52 [4.04, 4.99]	1.31 [0.75, 1.87]	< .001
Memory	73.31% [67.24, 79.39]	41.85% [34.78, 48.92]	-31.46% [-38.74, -24.18]	< .001

Note: The values in square brackets are 95% confidence intervals. The table presents

results for the composite measure of interest as well as for the specific scales. For the measure of memory, participants indicated how much of their written summary of their conversation they expected to remember at Time 2 or they had remembered at Time 2.

<sup>a</sup>This column presents *p* values from *t* tests comparing predictions with actual experience.

## Discussion

The results of Study 1 demonstrate that people mispredict how their future selves will feel when they rediscover their past experiences: They underestimate not only how curious they will be to rediscover their past but also how interesting they will find the process of rediscovery.

### Study 2: Rediscovering Ordinary Versus Extraordinary Experiences

Does the magnitude of misprediction vary as a function of the type of experience? In Study 2, we examined whether people are more likely to underestimate the value of rediscovering simple, mundane experiences from everyday life than to underestimate the value of rediscovering extraordinary experiences that they may expect to enjoy remembering. In a 7-month longitudinal study, participants predicted the curiosity and interest they would feel while rediscovering documented conversations.

## Method

**Participants.** We recruited 68 participants (57.4% female, 39.7% male, 2.9% unreported; mean age = 38.1 years,  $SD = 12.7$ ) from Amazon's Mechanical Turk. They completed the first part of this online study in exchange for \$0.50. Seven months later, 48 participants (70.6% response rate; 56.3% female, 43.8% male; mean age = 38.3 years,  $SD = 12.2$ ) completed a follow-up survey for an additional \$3. There were no differences in gender,  $\chi^2(1, N = 66) = 0.59$ ,  $p = .44$ , Cramér's  $V = .09$ , or age,  $U = 405.00$ ,  $p = .70$ ,  $r = .05$ , between individuals who did and did not complete both surveys; we report results only for those participants who completed both parts of the study.

Given an estimated 60% to 70% response rate, we targeted recruitment of approximately 70 participants so that the study would have 80% power to detect an effect with an estimated effect size ( $d$ ) of 0.4.

**Design and procedure.** Participants signed up for a longitudinal study investigating individuals' thoughts and feelings. At Time 1, all participants wrote about a recent conversation. They were then informed that they would be contacted again in “a few months” to read what they had written. We asked them to predict how curious they would be to view their records and how much they expected to find this experience enjoyable and interesting when contacted in the future (1 = *not at all*, 7 = *extremely*). Participants then rated how ordinary and how extraordinary the conversation they had documented was (1 = *not at all*, 7 = *extremely*; adapted from Bhattacharjee & Mogilner, 2014).

Seven months later (Time 2), we e-mailed a follow-up survey to the same participants. First, they indicated how curious they were to read their written responses from Time 1. After reading what they had written, participants rated how enjoyable and interesting they found rediscovering the conversation (1 = *not at all*, 7 = *extremely*).

We averaged responses to the last two items to form a composite interest score at both Time 1 ( $\alpha = .85$ ) and Time 2 ( $\alpha = .81$ ). Descriptive statistics for all variables are presented in Table 1.

## **Results**

Participants' Time 1 predictions of the curiosity they would experience ( $M = 3.15$ ,  $SD = 1.68$ ) were lower than the curiosity they actually experienced at Time 2 ( $M = 4.77$ ,  $SD = 1.88$ ),  $t(47) = 5.17$ ,  $p < .001$ ,  $d = 0.91$ . Similarly, participants' predictions of how interesting they would find the experience of reading what they had documented ( $M = 3.48$ ,  $SD = 1.31$ ) were lower than their actual ratings of interest at Time 2 ( $M = 4.66$ ,  $SD = 1.58$ ),  $t(47) = 4.70$ ,  $p < .001$ ,  $d = 0.81$ .

Additionally, the more participants rated their conversations as ordinary, the more they underestimated their curiosity,  $r(48) = .40$ , 95% confidence interval (CI) = [.14, .63],  $p = .005$ , and interest,  $r(48) = .35$ , 95% CI = [.06, .61],  $p = .01$ , when they rediscovered those experiences at Time 2. Conversely, the more they rated their conversations as extraordinary, the less participants underestimated their Time 2 curiosity,  $r(48) = -.29$ , 95% CI = [-.58, .03],  $p = .04$ , and interest,  $r(48) = -.40$ , 95% CI = [-.59, -.18],  $p = .005$ .

## **Discussion**

Study 2 replicated the primary results from Study 1: Individuals underestimated the value of rediscovering current experiences in the future. Moreover, this effect was influenced by the ordinariness of the experience: The more ordinary experiences were perceived to be in the moment, the larger the magnitude of the prediction error. These findings suggest that the unexpected value people receive from rediscovery stems at least in part from the pleasure of reflecting on the simpler, more mundane aspects of daily life; in contrast, the pleasure of rediscovery is more accurately anticipated for memories that seem memorable in the moment.

### **Study 3: Rediscovering an Ordinary Day Versus Valentine's Day**

Whereas participants decided for themselves whether to document ordinary or extraordinary experiences in Study 2, in Study 3 we randomized whether participants rediscovered an ordinary or extraordinary event. In a longitudinal field study spanning 3 months, individuals in romantic relationships predicted the curiosity and interest they would feel to rediscover an extraordinary experience (i.e., what they did on Valentine's Day) and an ordinary experience (i.e., what they did on a typical day near February 14). Three months later, they rediscovered their documentation of one of these experiences. We expected individuals to

underestimate their future curiosity and pleasure more for ordinary events than for extraordinary ones.

## **Method**

**Participants.** We recruited 152 individuals (71.7% female, 27.0% male, 1.3% unreported; mean age = 24.3 years,  $SD = 3.18$ ) from an alumni network at a northeastern university. Individuals who reported having a romantic partner were eligible to complete this 3-month online study. Participants completed the first two parts of the study (1 week apart) in exchange for \$5.00. Three months later, 130 participants (85.5% response rate; 73.1% female, 26.2% male, 0.8% unreported; mean age = 24.3 years,  $SD = 3.32$ ) completed a follow-up survey in exchange for an additional \$10. There were no differences in gender,  $\chi^2(1, N = 150) = 0.44, p = .51$ , Cramér's  $V = .05$ , or age,  $U = 1,239.5, p = .49, r = .06$ , between individuals who did and did not complete all surveys; we report results only from those participants who completed all parts of the study. We excluded 1 participant who reported no longer being in a relationship after completing the first part of the study.

Given an estimated 80% response rate, we targeted recruitment of approximately 150 participants so that the study would have 80% power to detect an effect with an estimated effect size ( $f$ ) of .1.

**Design and procedure.** Participants were informed that the study was about individuals' "thoughts and feelings across time." On February 8, 2014, we asked participants to recall a recent typical experience with their partner (Time 1 ordinary event) and to write in as much detail as possible about what they did during the event, where they were, what they discussed, and how they felt during the experience. One week later, on February 15, 2014, the same participants were asked to recall their recent experience with their partner on Valentine's (Time 1

extraordinary event) and to complete the same writing prompt. For both events, we told participants that they would have the opportunity to read their documentation in a few months. Immediately after documenting each experience, participants predicted how curious they would be to view their documentation in “a few months” and how enjoyable, interesting, meaningful, and surprising they thought reading their account of the event would be in the future (1 = *not at all*, 7 = *extremely*). As a manipulation check, participants also rated how extraordinary they found each event (1 = *extremely ordinary*, 4 = *neither ordinary nor extraordinary*, 7 = *extraordinary*).

Three months later (Time 2), we e-mailed a follow-up survey to the same participants. Half of the participants were randomly assigned to read what they had written on February 8, 2014 (about an ordinary day), whereas the other half were assigned to read what they had written on February 15, 2014 (about Valentine’s Day). Participants indicated how curious they were to read what they had written. After reading what they had written, they rated how enjoyable, interesting, meaningful, and surprising they found their responses (1 = *not at all*, 7 = *extremely*). Participants also rated how extraordinary they found the event (1 = *extremely ordinary*, 4 = *neither ordinary nor extraordinary*, 7 = *extraordinary*) and how detailed they found their account (1 = *not at all*, 4 = *somewhat*, 7 = *extremely*). Finally, they indicated the percentage of the written response that they had remembered prior to reading their account. After participants completed the study, they received a message containing the content of both their ordinary and their extraordinary accounts.

For our analyses, we averaged ratings of enjoyment, interest, meaningfulness, and surprise to form a composite interest score at both Time 1 ( $\alpha = .71$ ) and Time 2 ( $\alpha = .73$ ).

## **Results**

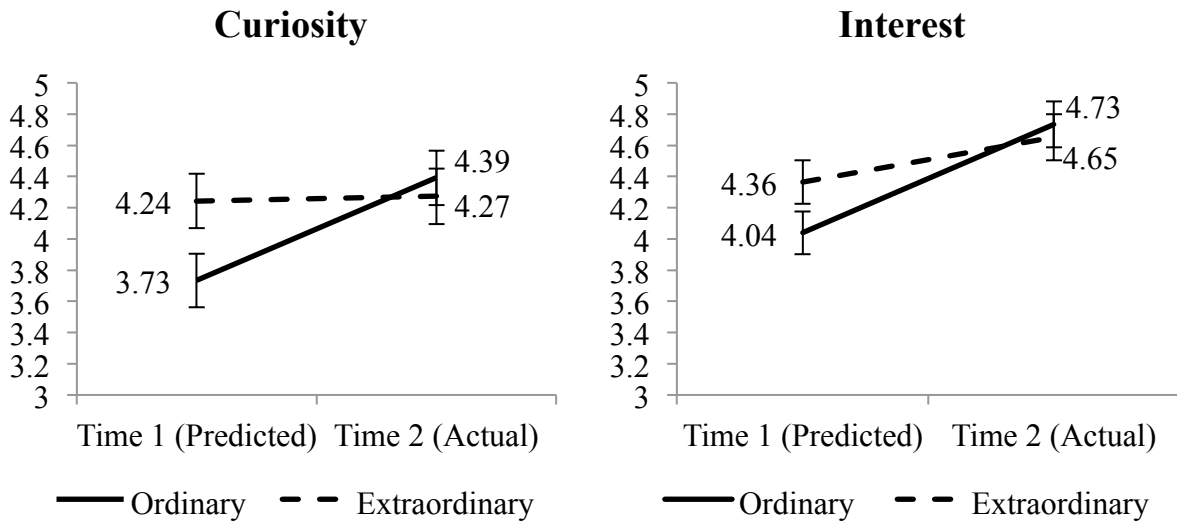
**Extraordinariness.** At Time 1, participants rated their experience with their partner on a typical day to be less extraordinary ( $M = 2.73$ ,  $SD = 1.42$ , 95% CI = [2.39, 3.08]) than their experience with their partner on Valentine's Day ( $M = 4.35$ ,  $SD = 1.38$ , 95% CI = [4.01, 4.69]),  $F(1, 128) = 39.86$ ,  $p < .001$ ,  $\eta_p^2 = .24$ . Thus, our manipulation of extraordinariness was effective.

We conducted a repeated measures analysis of variance (ANOVA) with perceptions of extraordinariness as the dependent measure, time (Time 1 vs. Time 2) as a within-subjects factor, and type of event (ordinary vs. extraordinary) as a between-subjects factor. This analysis revealed a main effect of time,  $F(1, 128) = 26.23$ ,  $p < .001$ ,  $\eta_p^2 = .17$ ; experiences seemed more extraordinary overall at Time 2 ( $M = 4.23$ ,  $SD = 1.22$ , 95% CI = [4.02, 4.43]) than they did 3 months earlier, at Time 1 ( $M = 3.55$ ,  $SD = 1.61$ , 95% CI = [3.27, 3.83]). We also found an interaction between time and type of event,  $F(1, 128) = 15.02$ ,  $p < .001$ ,  $\eta_p^2 = .11$ . Simple-effects tests revealed that ordinary experiences were perceived as more extraordinary at Time 2 ( $M = 3.94$ ,  $SD = 1.25$ , 95% CI = [3.64, 4.23]) than at Time 1 ( $M = 2.73$ ,  $SD = 1.41$ , 95% CI = [2.39, 3.08]),  $F(1, 128) = 39.86$ ,  $p < .001$ ,  $\eta_p^2 = .24$ , whereas these ratings for the extraordinary experiences did not differ between Time 1 ( $M = 4.35$ ,  $SD = 1.38$ , 95% CI = [4.01, 4.69]) and Time 2 ( $M = 4.52$ ,  $SD = 1.14$ , 95% CI = [4.23, 4.80]),  $F(1, 128) = 0.79$ ,  $p = .38$ ,  $\eta_p^2 = .006$ .

**Curiosity.** We conducted the same repeated measures ANOVA with curiosity as the dependent measure. We observed a main effect of time  $F(1, 128) = 6.16$ ,  $p = .01$ ,  $\eta_p^2 = .05$ ; anticipated curiosity at Time 1 ( $M = 3.99$ ,  $SD = 1.42$ , 95% CI = [3.75, 4.24]) was lower than actual curiosity at Time 2 ( $M = 4.33$ ,  $SD = 1.42$ , 95% CI = [4.09, 4.58]). There was also an interaction between time and type of experience,  $F(1, 128) = 5.12$ ,  $p = .03$ ,  $\eta_p^2 = .04$ . Simple-effects tests revealed that for ordinary events, Time 1 predictions of future curiosity ( $M = 3.73$ ,  $SD = 1.39$ , 95% CI = [3.39, 4.08]) were lower than actual curiosity at Time 2 ( $M = 4.39$ ,  $SD =$

1.48, 95% CI = [4.04, 4.76]),  $F(1, 128) = 11.08, p < .001, \eta_p^2 = .08$ , whereas for extraordinary events, predicted curiosity at Time 1 ( $M = 4.24, SD = 1.40, 95\% \text{ CI} = [3.90, 4.58]$ ) did not differ from experienced curiosity at Time 2 ( $M = 4.27, SD = 1.37, 95\% \text{ CI} = [3.94, 4.61]$ ),  $F(1, 128) = 0.02, p = .88, \eta_p^2 < .001$  (Fig. 1).

**Figure 1.** Results for curiosity (left panel) and interest (right panel) in Study 3. Each graph shows predicted feelings (Time 1) and actual feelings (Time 2) separately for ordinary and extraordinary experiences. Error bars represent  $\pm 1 \text{ SE}$ .



**Interest.** We conducted the same repeated measures ANOVA with interest as the dependent measure and again found a main effect of time,  $F(1, 128) = 25.88, p < .001, \eta_p^2 = .17$ ; anticipated interest at Time 1 ( $M = 4.20, SD = 1.12, 95\% \text{ CI} = [4.01, 4.40]$ ) was lower than actual interest at Time 2 ( $M = 4.69, SD = 1.19, 95\% \text{ CI} = [4.49, 4.90]$ ). We also observed an interaction between time and type of experience,  $F(1, 128) = 4.45, p = .04, \eta_p^2 = .03$ . Simple-effects tests revealed that for ordinary events, predicted interest at Time 1 ( $M = 4.04, SD = 1.09,$

95% CI = [3.76, 4.32]) was lower than experienced interest at Time 2 ( $M = 4.73$ ,  $SD = 1.24$ , 95% CI = [4.44, 5.03]),  $F(1, 128) = 25.50$ ,  $p < .001$ ,  $\eta_p^2 = .17$ . Although predicted interest for extraordinary events at Time 1 ( $M = 4.36$ ,  $SD = 1.13$ , 95% CI = [4.08, 4.64]) was lower than experienced interest at Time 2 ( $M = 4.65$ ,  $SD = 1.14$ , 95% CI = [4.37, 4.93]),  $F(1, 128) = 4.51$ ,  $p = .04$ ,  $\eta_p^2 = .03$ , the magnitude of underestimation was smaller than for ordinary events (Fig. 1).<sup>1</sup>

**Memory.** Individuals who rediscovered ordinary events reported remembering a smaller percentage of what they had written ( $M = 33.55\%$ ,  $SD = 25.44$ , 95% CI = [27.19, 39.90]) than did those who rediscovered extraordinary events ( $M = 46.81\%$ ,  $SD = 27.82$ , 95% CI = [39.86, 53.76]). This 13.27% difference was statistically significant,  $t(126) = -2.82$ ,  $p = .006$ , 95% CI = [3.94, 22.59],  $d = 2.36$ .

**Detail.** To better understand how the content of records is related to mispredicting the value of rediscovery, we asked participants to rate how detailed their records were at Time 2. We found that participants rated their accounts of ordinary events as more detailed ( $M = 4.67$ ,  $SD = 1.49$ , 95% CI = [4.30, 5.04]) than their accounts of extraordinary events ( $M = 4.22$ ,  $SD = 1.36$ , 95% CI = [3.88, 4.55]) by a difference of 0.46,  $t(127) = 1.82$ ,  $p = .07$ , 95% CI = [-0.04, 0.95],  $d = 0.32$ . Individuals underestimated their future interest more for accounts that were rated as more detailed,  $r(129) = .27$ , 95% CI = [.12, .42],  $p = .002$ , and this correlation was directionally the same for both extraordinary events,  $r(65) = .22$ , 95% CI = [-.02, .46],  $p = .08$ , and ordinary

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<sup>1</sup> A possible explanation for our results in Studies 1 and 2 is that only individuals who valued rediscovery of the past completed the survey at Time 2. To address this possibility in Study 3, we ran additional analyses including all participants, assuming that those who dropped out would have given the lowest possible rating (1) for experienced interest at Time 2. Despite these conservative estimates, predicted interest was lower than experienced interest for ordinary events (predicted:  $M = 3.93$ ,  $SD = 1.14$ ; experienced:  $M = 4.32$ ,  $SD = 1.66$ ),  $F(1, 145) = 4.62$ ,  $p = .03$ , but not for extraordinary events (predicted:  $M = 4.18$ ,  $SD = 1.12$ ; experienced:  $M = 4.21$ ,  $SD = 1.60$ ),  $F(1, 145) = 0.04$ ,  $p = .84$ . These analyses mitigate the concern that our results were due solely to attrition.

events,  $r(64) = .26$ , 95% CI = [.03, .47],  $p = .04$ . These results offer initial evidence that in addition to the type of experience, the content of documentation influences the experience of rediscovery, such that detailed accounts provide more value in the future than initially predicted.

## **Discussion**

Mirroring the correlational results from Study 2, Study 3 offers causal evidence that individuals are more likely to mispredict the value of rediscovering ordinary events than to mispredict the value of rediscovering extraordinary events, which are more memorable. Additionally, ordinary events came to be perceived as more extraordinary over time, whereas perceptions of extraordinary events did not change across time.

### **Study 4: Forgoing Rediscovery**

Studies 1 through 3 document when individuals mispredict the pleasure of rediscovering the past. In each study, however, participants were given no choice: They were required to both document and reflect on their experiences. In Study 4, we explored how mispredicting the pleasure of rediscovery may lead individuals to forgo the documentation that allows for future rediscovery. We asked people to choose between documenting an experience and engaging in an alternative fun activity (Time 1). Then, 1 month later, we asked them to choose between rediscovering the experience they had documented and engaging in an alternative fun activity (Time 2). We predicted that people would make time-inconsistent choices, such that most individuals would choose the alternative fun activity at Time 1, even if doing so meant forgoing the opportunity for rediscovery in the future. However, we predicted that at Time 2, most individuals would prefer to rediscover the past rather than engage in the alternative fun activity.

Finally, we examined whether errors in predicting memory could account for individuals' mispredictions about the pleasure of rediscovery. In Study 3, people who rediscovered ordinary

events reported remembering a smaller percentage of what they had written than did those who rediscovered extraordinary events. In Study 4, we compared participants' predictions of their memory accuracy with their actual memory of their focal experiences.

## **Method**

**Participants.** Eighty-one individuals (55.6% female, 44.4% male; mean age = 34.0 years,  $SD = 11.5$ ) from Amazon's Mechanical Turk completed the first part of this online study in exchange for \$0.50. One month later, 64 participants (79% response rate; 54.7% female, 45.3% male; mean age = 33.9 years,  $SD = 11.0$ ) completed a follow-up survey in exchange for an additional \$5. There were no differences in gender,  $\chi^2(1, N = 81) = 0.09, p = .76$ , Cramér's  $V = .03$ , or age,  $U = 532.5, p = .89, r = .01$ , between individuals who did and did not complete both surveys. We present results for only those participants who completed both parts of the study.

Given an estimated return rate of 70%, we targeted a recruitment of 80 individuals so that the study would have 80% power to detect an effect with an estimated effect size ( $d$ ) of 0.4.

## **Design and procedure.**

At Time 1, participants chose between the following two options: (a) spending 5 min writing about a recent conversation they had with a friend and then having the opportunity to read their account in 1 month or (b) watching a 5-min video featuring a conversation between a talk-show host and an author now and then watching a different but similar video in 1 month. Regardless of their expressed preference, participants then completed both tasks (in random order) and predicted how they would feel about these activities in the future. This method allowed us to make within-subjects comparisons of prediction errors across the two activities.

For the writing task, we asked participants to “think about a recent conversation you had, and consider all of the details that went into the conversation: what you said, what the other party

said, and where the conversation took place.” After writing about their conversation, participants predicted how curious they would be to read what they had written and how enjoyable, interesting, and meaningful reading their documentation would be in 1 month (1 = *not at all*, 4 = *somewhat*, 7 = *extremely*). They also estimated the percentage of their response that they thought they would remember 1 month later. After watching the video, participants predicted how curious they would be to watch a similar video 1 month later and rated how enjoyable, interesting, and meaningful they would find the experience of watching a similar video at that later time. After completing both the video and writing exercises, participants predicted what they would choose when given the following two choices in a month: read what they had written or watch a similar video.

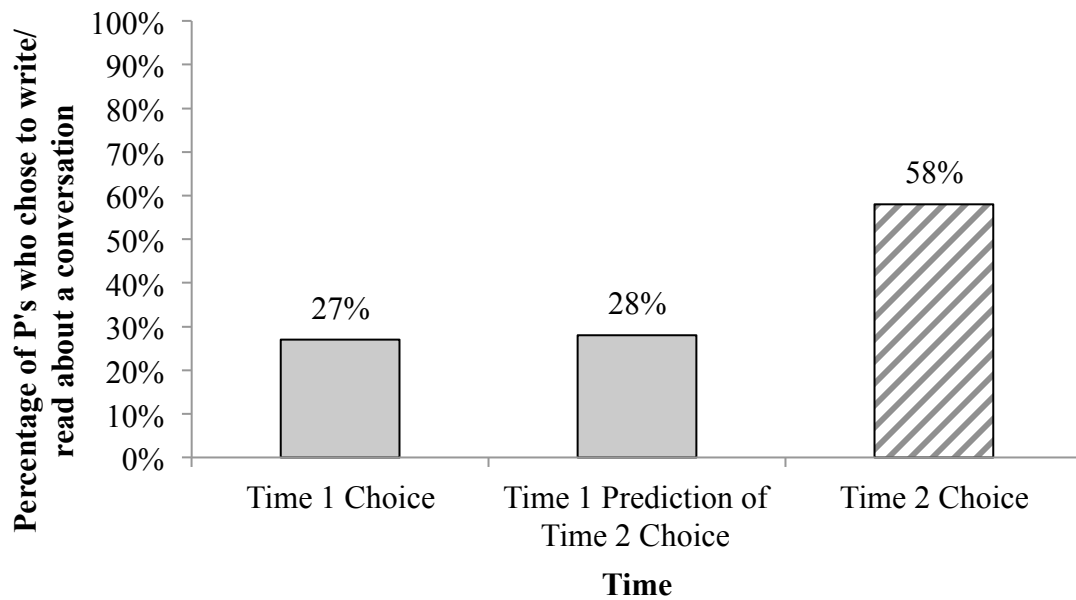
One month later, we e-mailed a follow-up survey to the same participants. They indicated their level of curiosity to read what they had written and to watch the video (1 = *not at all*, 4 = *somewhat*, 7 = *extremely*) and then made a choice between (a) spending 2 min reading what they had written a month earlier and (b) watching a 2-min video of a conversation between a talk-show host and an author. Regardless of their choice, participants completed both activities in random order and rated how meaningful, interesting, and enjoyable they found each activity (1 = *not at all*, 4 = *somewhat*, 7 = *extremely*). After reading their documentation of their conversation, participants indicated the percentage of their written response that they had remembered.

We averaged responses to the items measuring meaningfulness, interest, and enjoyableness to form a composite interest score at both Time 1 ( $\alpha = .80$ ) and Time 2 ( $\alpha = .88$ ). The difference between predicted memory at Time 1 and actual memory at Time 2 served as our measure of participants’ misprediction of their memory. Descriptive statistics are presented in Table 1.

## Results

**Choices.** At Time 1, only a minority of participants chose writing about a recent conversation over watching the video (27%, 17/64), and a similarly small percentage predicted that they would choose to read about the conversation in 1 month, at Time 2 (28%, 18/64; see Fig. 2). In other words, the majority of participants decided to forgo the opportunity to read their documentation in the future. However, we found a preference reversal 1 month later: The majority of participants at Time 2 chose to read their account of the conversation (58%, 37/64) instead of watching the video (Fig. 2). Both their choice at Time 1,  $\chi^2(1, N = 64) = 5.72, p = .02$ , Cramér's  $V = .30$ , and their Time 1 prediction about their choice at Time 2,  $\chi^2(1, N = 64) = 4.09, p = .04$ , Cramér's  $V = .25$ , differed from their actual choice at Time 2.

**Figure 2.** Results from Study 4: percentage of participants who chose to write about a conversation at Time 1, who predicted that they would choose to read about the conversation at Time 2, and who actually chose to read about the conversation at Time 2.



**Curiosity.** We conducted a repeated measures ANOVA with curiosity as the dependent measure and time (Time 1 prediction vs. Time 2 experience) and task (video vs. conversation) as within-subjects independent variables. There was an interaction between time and task,  $F(1, 63) = 8.42, p = .005, \eta_p^2 = .12$ . That is, participants' Time 1 predictions of the curiosity they would experience prior to reading about the conversation at Time 2 ( $M = 3.67, SD = 1.89$ ) were lower than the curiosity they actually experienced at Time 2 ( $M = 4.47, SD = 1.88$ ),  $t(63) = 2.88, p = .005, d = 0.42$ . However, participants' predicted curiosity about viewing a similar video at Time 2 ( $M = 5.03, SD = 1.99$ ) did not differ from their experienced curiosity at Time 2 ( $M = 4.78, SD = 1.77$ ),  $t(63) = 0.89, p = .38, d = 0.13$ . Additionally, there was a main effect of task,  $F(1, 63) = 10.10, p = .002, \eta_p^2 = .05$ ; participants expressed more curiosity about the video task than the conversation task overall.

**Interest.** A corresponding ANOVA on interest ratings also showed an interaction between time and task,  $F(1, 63) = 35.48, p < .001, \eta_p^2 = .36$ . Participants' Time 1 prediction of their interest in reading about the conversation at Time 2 ( $M = 3.35, SD = 1.55$ ) was lower than their experienced interest at Time 2 ( $M = 4.57, SD = 1.67$ ),  $t(63) = 6.25, p < .001, d = 0.76$ . However, participants' Time 1 predictions of the interest they would experience from watching the video at Time 2 ( $M = 4.86, SD = 1.72$ ) did not differ from their actual interest at Time 2 ( $M = 4.63, SD = 1.40$ ),  $t(63) = 1.04, p = .30, d = 0.15$ . There were also main effects of task,  $F(1, 63) = 10.92, p = .002, \eta_p^2 = .15$ , and time,  $F(1, 63) = 8.64, p = .005, \eta_p^2 = .12$ ; participants expressed more interest in the videos than in their conversations, and their predicted interest was overall lower than their actual interest.

**Memory.** Participants were overly optimistic about how much of the documented conversation they would remember. At Time 1, they believed that they would remember the

majority of the conversation ( $M = 73.31\%$ ,  $SD = 27.63$ ). However, at Time 2, they reported remembering less of the conversation ( $M = 41.85\%$ ,  $SD = 23.72$ ) than they had predicted,  $t(60) = 8.65$ ,  $p < .001$ ,  $d = 1.22$ . In addition, the more they overestimated how much they would remember, the more they underestimated how interesting they would find these conversations in the future,  $r(61) = .37$ , 95% CI = [.10, .59],  $p = .003$ .

## **Discussion**

Study 4 demonstrates that underestimating the joy of rediscovery leads individuals to make time-inconsistent choices: They choose to forgo opportunities to document experiences in the present, only to find themselves wanting to retrieve those records in the future. Although participants were inaccurate in predicting their enjoyment of rediscovering experiences from their past, they did accurately predict their future enjoyment of a video similar to one they had just viewed. Additionally, their overconfidence in their future memory at least in part explains their undervaluation of future rediscovery. For example, one participant wrote that it “was interesting to find out how little I recalled what I had written.” Thus, results from Study 4 provide evidence that people’s overestimation of the accuracy of their own memory underlies their underestimation of the pleasure of rediscovery.

## **General Discussion**

Across four longitudinal studies, we found that people underestimate how curiosity provoking and interesting they will find rediscovering today’s moments in the future—an effect that leads them to forgo the opportunity to document the present even though they later choose to rediscover it. This phenomenon arises at least in part because individuals fail to realize that they will forget the mundane details of their current experiences; as a result, the value of rediscovery is mispredicted particularly for ordinary—rather than extraordinary—experiences.

Taken together, our findings demonstrate a novel error in affective forecasting (Gilbert et al., 1998; Wilson & Gilbert, 2005): failure to anticipate the pleasure of rediscovering past experiences. Existing research on forecasting errors shows that people overestimate their emotional reactions to new experiences because they fail to consider how they will acclimate to them (Gilbert et al., 2002; Gilbert et al., 1998; Wilson & Gilbert, 2005). In contrast, when deciding whether to document their current experiences, individuals actually underestimate the pleasure that rediscovery will bring them in the future. Consistent undervaluation of the present leads people to avoid documenting the present even though they will enjoy rediscovering present moments in the future. The time-inconsistent choices we observed suggest that even simple interventions (e.g., taking a few minutes to document the present) could generate unexpected value in the future.

Our investigation suggests several opportunities for future research. First, more research is needed to clarify how ordinary and extraordinary moments may appreciate (or depreciate) in value over time, and whether individuals may even overestimate the value of rediscovering extraordinary moments (e.g., the 5,000 pictures from one's "extraordinary" wedding may be excessive). Second, given that some individuals are more skilled affective forecasters than others (Dunn, Brackett, Ashton-James, Schneiderman, & Salovey, 2007), additional research is needed to identify the types of individuals (e.g., those who do not already keep diaries and journals) who are especially likely to benefit from an intervention that motivates them to document and rediscover their experiences.

We also note that documenting the present does not come without costs. For example, research shows that documenting the present by taking photos or writing about events can hinder encoding of the memories themselves, or even create false memories (Henkel, 2014). Indeed, the

increased availability of cameras embedded in cell phones and the explosion of posts and photographs about everyday activities on Web sites such as Facebook, Instagram, and Twitter have led scholars to theorize that an unhealthy narcissism is growing in society (Twenge, Campbell, Hoffman, & Lance, 2010; Twenge & Foster, 2010). We note, however, that the effect we observed hinges on a critical step after documentation: taking time to rediscover and cherish documented memories, rather than documenting endlessly. Future research should explore the optimal balance between enjoying the present as it unfolds and documenting the present to enjoy it in the future.

### **Conclusion**

People systematically underestimate the value of rediscovering the past. Encouraging documentation of the present provides people with access to future value that they otherwise may have missed. As one participant put it, “Re-reading this event of doing mundane stuff with my daughter has certainly brightened my day. I’m glad I chose that event to write about because of the incredible joy it gives me at this moment.” By recording ordinary moments today, one can make the present a “present” for the future.

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## CHAPTER 2

### Rediscovering reflections:

#### Leveraging the past to understand and advise novices

Ting Zhang

### ABSTRACT

Individuals with more knowledge and expertise tend to forget about the experience of *inexperience*, making it difficult for them to understand novices. To date, we know little about the possible factors that help experienced individuals help novices. Across three studies, this paper investigates a possible intervention: rediscovering reflections that were written when individuals were once novices themselves. In the context of medicine and summer internships, Studies 1 and 2 found that relative to those who merely recalled their past experiences, individuals who read their own reflections about past work experiences gave advice that novices rated as higher in quality. Study 3 found that relative to merely taking the perspective of novices, rediscovering past experiences helped those with more experience better predict the behavior of novices. Taken together, these findings demonstrate that rediscovering past experiences influences individuals' perception of novices and their ability to give advice.

*Keywords:* Expert, novice, advice, rediscovery, inexperience

Beginners commonly seek advice from those with more experience. Medical students ask resident and attending physicians questions on providing patient care. New hires may receive guidance from more seasoned employees on navigating challenges of learning new job-related tasks and skills. Although experts have more knowledge, skills, and experience relative to novices, they also suffer from imperfect memory of their past experiences, making it difficult for experts to remember their own experience as novices (Arkes, Faust, Guilmette, & Hart, 1988; Arkes, Wortmann, Saville, & Harkness, 1981; Bukszar & Connolly, 1988). Consequently, experts sometimes fall prey to the curse of knowledge by incorrectly assuming others have access to the same knowledge (Birch & Bloom, 2007; Camerer, Loewenstein, & Weber, 1989). Together, these problems prevent experts from being able to understand novices and inhibit them from giving helpful and relevant advice.

Despite mounting evidence on the fallibility of experts, we know little about the factors that help these experts help others (Bonaccio & Dalal, 2006). This paper provides evidence of a theoretically motivated intervention that bridges the gap between those with more experience and those with less experience. In particular, this paper focuses on the importance of rediscovering reflections that experienced individuals wrote when they were novices. Prior research on reflection has mostly focused on the immediate benefits of reflection on individuals' well being and work productivity (Boud, Cressey, & Docherty, 2005; Di Stefano, Gino, Pisano, & Staats, 2014; Francis & Pennebaker, 1992). This paper focuses not on the impact of reflection but instead on the influence of *rediscovering* these past reflections. Three experiments in the lab and field demonstrate that rediscovering reflections that capture the mindset of being a novice helped more experienced individuals 1) better understand novices and 2) give advice that novices rated as higher in quality.

## Experts Advising Novices

The exchange of advice is considered a helping behavior in which advisors often formulate and communicate judgments or recommendations about possible courses of action to another individual (Bonaccio & Dalal, 2006). Research on adviser-advisee contexts has mostly focused on advice recipients, particularly in whether and how advisees seek (Brooks, Gino, & Schweitzer, in press; Hofmann, Lei, & Grant, 2009) and take up advice (Soll & Larrick, 2009; Tost, Gino, & Larrick, 2012; Yaniv, 2004a; Yaniv & Kleinberger, 2000). Utilization of the advice depends on the task (Gino & Moore, 2007), advice content (Dalal & Bonaccio, 2010), the level of expertise of the adviser (Harvey & Fischer, 1997), relationship between advisers and advisees (Tost et al., 2012), and the advisee's affective and cognitive state (Gino, Brooks, & Schweitzer, 2012; Gino & Schweitzer, 2008).

Despite the wealth of knowledge on the factors that influence advisees, we know less about the factors that help advisers—particularly experts—give advice (Bonaccio & Dalal, 2006). Research on advisers has thus far investigated how advisers make decisions differently for others than they would for themselves (Jonas & Frey, 2003; Kray & Gonzalez, 1999). For example, when people advise others, they place greater weight on the information central to the problem, but when they make decisions for themselves, they are more likely to weigh all types of information equally, regardless of the importance of the information. Other research has focused on the factors that lead advisers to make biased recommendations (Li & Madarász, 2008; Loewenstein, Cain, & Sah, 2011). In particular, disclosure policies intended to protect advisees actually led advisers to offer more biased recommendations because advisers either 1) felt morally licensed to exaggerate their recommendations or 2) were strategically compensating for

how much advisees would discount their advice (Cain, Loewenstein, & Moore, 2011; Loewenstein, Sah, & Cain, 2012).

This paper focuses on problems advisers face when they have greater expertise relative to their advisees, preventing them from being able to relate to their advisees. Expertise is a relational construct in that experts are individuals who have more knowledge and skills acquired through experience or practice relative to others (Abernethy & Russell, 1987; Ericsson, Krampe, & Tesch-Römer, 1993). Many of the distinctions between experts and novice relate to the sheer “amount and organization of knowledge” that experts have acquired over time (Ericsson et al., 1993). When provided with complex information, experts are better able to use relevant information (Shanteau, 1988, 1992). Experts of procedural tasks that involve motor performance, such as typing or playing tennis, expend fewer cognitive resources on the task relative to novices, freeing their resources for extra memory and planning needed when the task becomes more difficult (Ericsson et al., 1993; Gentner, 1988). Because of the amount of deliberate practice in which experts engage, they can better anticipate future events relative to novices (Abernethy & Russell, 1987). For example, experienced chess players are better equipped to recognize patterns, encode these patterns in long-term memory, and plan potential moves relative to novices (Charness, 1976, 1989, 1991).

Despite the relative advantage that experts have in their knowledge and skills and the potential for them to help novices (Isaacs & Clark, 1987; Lachner & Nückles, 2014), there is evidence that this very advantage also generates a set of biases that may prevent experts from being able to relate to novices cognitively and emotionally. Experts have limited access to memories of their experiences as novices. Experts are prone to the hindsight bias which describes situations when having knowledge of the outcome leads individuals to assume that

they had known this information all along (Arkes et al., 1988; Arkes et al., 1981; Bukszar & Connolly, 1988; Fischhoff, 2013). For example, physicians overestimated the likelihood they would have correctly diagnosed a patient when they were provided with information about the actual diagnosis (Arkes et al., 1981).

Related to the hindsight bias, which describes the tendency for individuals to overestimate the amount of knowledge they had in the past, the curse of knowledge refers to the tendency for experts to overestimate the amount of knowledge that *others* have (Birch & Bloom, 2007; Camerer et al., 1989; Hinds, 1999). Individuals with more information have difficulty realizing that other people do not possess the information they have, even when it is in their best interest (Camerer et al., 1989). Furthermore, people with privileged information assume that others have access to the same information, leading them to make incorrect predictions about others' behaviors (Keysar, Barr, Balin, & Brauner, 2000). Those with more information also anchor on their own perspectives and tend to insufficiently adjust when estimating others' perspectives (Epley, Keysar, Van Boven, & Gilovich, 2004). When interacting with novices, individuals with more expertise were worse at predicting the amount of time it would take for novices to learn complex tasks (Hinds, 1999).

### **Rediscovering Past Reflections as an Intervention**

To resolve the problem that experts have difficulty relating to novices, this paper proposes a novel intervention: rediscover past reflections that document the experience of being a beginner. Prior research on reflection has demonstrated the direct benefits of reflection on individuals' well being and work performance (Di Stefano et al., 2014; Pennebaker, 1993). Expressive writing exercises asking individuals to reflect on emotional reactions to traumatic events generated overall health benefits, increasing individuals' immune functioning

(Pennebaker, Kiecolt-Glaser, & Glaser, 1988) and reducing the number of physical ailments reported (Greenberg & Stone, 1992). In work-related contexts, reflection through expressive writing reduced absenteeism (Francis & Pennebaker, 1992) and increased motivation amongst unemployed individuals to find jobs (Spera, Buhrfeind, & Pennebaker, 1994). These benefits are not specific to writing about traumatic or emotional events: a recent field experiment demonstrated that employees who reflected for 15 minutes at the end of a work day on key lessons learned performed better relative to those who did not engage in these reflection exercises (Di Stefano et al., 2014)

Although we know more about the immediate benefits of reflection on individuals, we know little about the consequences of *rediscovering* these past reflections once they have been forgotten. Rediscovery is the process of revisiting past experiences that are inaccessible or non-salient to individuals in the moment (Zhang, Kim, Brooks, Gino, & Norton, 2014). By rediscovering reflections written in the past, individuals are prompted to consider experiences that they otherwise would not have been able to remember on their own. In the context of experts giving advice to novices, rediscovering reflections written in the past may help more experienced individuals re-examine their mindset in the past, allowing them to better understand their past experiences as novices. Because novices often encounter similar challenges, helping experts rediscover their own past experiences as novices could simultaneously enable these experts to understand novices better and give helpful advice.

### **Overview of Present Research**

In the context of medicine and internships, the present research investigates the impact of rediscovering the past as an intervention to bridge the gap between experts and novices. In the context of medical education, Study 1 investigates how rediscovering documentation of past

experiences influences experts' perceptions of their own advice relative to merely recalling these past experiences. Study 2 investigates the downstream consequences of advisers rediscovering their past on the advisees' perception of advice quality in the transfer of advice from experienced summer interns to internship seekers. To better understand the mechanism of rediscovering past experiences, Study 3 tests whether rediscovering one's own past experience helps more experienced individuals understand the experience of others beyond merely taking the perspective of others.

### **Study 1: Medical Students Rediscovering Reflections on Acquiring Clinical Skills**

To study how rediscovering accounts of the past influences the quality of advice given to others, this experiment investigates the exchange of advice in the medical context where incoming medical students frequently seek advice from more experienced students. Medical students ascend a steep learning curve when applying what they have learned in the classroom to providing patient care (Thompson & Rogers, 2008). In this study, medical students wrote reflections about the process of acquiring clinical skills and their early experiences working with patients in their clinical skills course. One year later after they had completed the course, these experienced medical students gave advice about working with patients to medical students who were in the first weeks of the same clinical skills course that the advisers had just completed. Prior to giving advice to incoming medical students about interviewing and working with patients, half of these individuals rediscovered their reflections during the clinical skills course. The other half recalled what they had documented prior to giving advice. Because rediscovering the past reminds individuals about forgotten experiences (Zhang et al., 2014), I expected that individuals in the rediscovery condition would give advice that advisers would perceive as more

helpful to novices compared to the advice from those in the control condition who merely recalled their past.

## **Method**

**Participants.** Fifty-five medical students who had completed their clinical skills course (54.7% female;  $M_{age}=24.70$ ,  $SD=2.19$ ) were recruited from a university in the northeastern United States to participate in a study about their clinical skills experience in exchange for \$30.

**Design and procedure.** During their clinical skills course throughout the academic year, medical students wrote a series of ten reflections about “issues or events that [they] observed” while learning how to interact with patients in clinics.

A year after completing the course, these students were contacted to complete a study about their clinical skills experience. To test whether rediscovery has an effect above and beyond merely recalling the past, all participants, including those in the control condition, were asked to recall one of the earliest reflections they wrote about during the clinical skills course. Half of the participants were then randomly assigned to find one of the earliest reflections and to summarize what they wrote.

Afterwards, participants were then asked, “What advice would you give an incoming medical school student about interacting with patients?” Participants then rated how helpful their advice was based on the extent to which they believed their advice to be useful, actionable, detailed, encouraging, and helpful (1=*not at all*; 7=*extremely*;  $\alpha = .83$ ). To counterbalance the study, participants in the recall condition also were asked at the end of the study to find one of their earliest reflections and summarize the account.

## **Results and Discussion**

**Advisers' perception of helpfulness.** Participants in the rediscovery condition perceived their own advice to be more helpful ( $M=4.98$ ,  $SD=.97$ , 95% CI [4.65,5.30]) relative to those in the control condition ( $M=4.24$ ,  $SD=.80$ , 95% CI [3.87,4.61]),  $t(53)=3.05$ ,  $p=.004$ , 95% CI [.25, 1.22],  $d=.84$ .

These results provide initial evidence that helping advisers rediscover their own experiences allows them to formulate advice that they perceive as more helpful relative to those who merely recalled their past experiences.

### **Study 2: Rediscovering the Past**

Whereas Study 1 investigated how rediscovery influences how advisers perceive the helpfulness of their own advice, Study 2 employs another organizational context to investigate the downstream consequences of rediscovering past reflections on advisees. In Study 2, summer interns—while they were still learning the responsibilities of their internship—documented their work experiences. They returned to the study after they completed their internship and had gained more expertise in their roles two months later. Prior to giving advice to others who were seeking internship positions for the following year, half of these individuals rediscovered their reflections whereas the other half merely recalled what they had documented. Because research has shown that advisers differ in their taste for advice or feedback relative to less experienced advice recipients (Finkelstein & Fishbach, 2012), multiple advice recipients—individuals who were in the process of seeking summer internships—rated each piece of advice. I expected that individuals in the rediscovery condition would give advice that both advisers and advisees would perceive to be more helpful relative to individuals in the control condition who merely recalled their past. Furthermore, given that advice recipients tend to discount others' advice (Yaniv,

2004b; Yaniv & Kleinberger, 2000), I also expected that advisers would perceive their own advice as more helpful relative to advisees' ratings of the same advice.

## **Method**

**Participants.** One hundred sixty-nine summer interns (50.3% female;  $M_{age}=20.78$ ,  $SD=.98$ ) were recruited to be internship advisers from a university in the northeastern United States and completed the first part of this online study (Time 1) in July 2014. Interns received \$10 for writing about their internship experience and were informed they would be contacted several months later for a follow-up study. After these students had completed their summer internships two months later (Time 2), 143 students (84.6% response rate; 52.1% female;  $M_{age}=20.76$ ,  $SD=.94$ ) returned to complete a follow-up survey in exchange for an additional \$15. There were no differences in gender ( $\chi^2(1, N=167)=1.25, p=.26$ , Cramér's  $V=.09$ ) or age ( $U=1,682.00, p=.74, r=.03$ ) between those who did and did not complete the study; the data presented include only participants who completed both parts of the study.

A separate group of ninety-three undergraduates in their freshmen and sophomore year from a northeastern university in the United States (70% female;  $M_{age}=19.46$ ,  $SD=.92$ ) completed a study in exchange for \$10. These students—who were seeking summer internships in finance, consulting, media, and government at the time—played the role of advisees who read and evaluated advice from their advisers.

**Design and procedure: advisers.** Advisers were undergraduates who had just completed either their sophomore or junior year. They reflected on their experience during their summer internship (Time 1) and rediscovered these reflections two months later at the beginning of the following school year (Time 2). In their reflections, participants answered each of the following prompts:

- 1) Please write about how your experiences surprised you or were different from what you had initially expected.
- 2) Please write about a recent interaction that you had with a colleague at work that was particularly meaningful to you.
- 3) Please write about a recent challenge that you faced at work, how you managed that challenge, and what you learned from your experience.

Two months later (Time 2), participants were emailed a follow-up survey about their summer internship experience. To test whether rediscovery has an effect above and beyond merely recalling the past, all participants, including those in the control condition, were asked to recall “your summer internship experience in terms of what surprised you, a specific interaction that you had, and challenges that you faced.” Half of the participants were then randomly assigned to rediscover what they had written for each of the prompts.

Afterwards, participants gave advice to other college students who were seeking summer internships and were informed that their advice would be sent to other students at the same university. Participants gave advice based on the following prompts:

- 1) What advice would you give to someone who is considering this internship and other related internships for this upcoming summer?
- 2) Please explain the factors that make for a rewarding and meaningful summer internship experience.

Participants then rated how useful and helpful their advice would be (1=*not at all*; 7=*extremely*;  $\alpha = .80$ ).

**Design and procedure: advisees.** Undergraduates were recruited to receive advice from upperclassmen about their summer internship experiences. Based on the consensual assessment

technique (Amabile, 1982), participants were presented with nine randomly selected pieces of advice from advisers (Milkman, Rogers, & Bazerman, 2009). Before reading each piece of advice, participants read information about the industry, company, and job title of the adviser. Each piece of advice was displayed on a separate page in random order such that no two advisers rated the same subset of advice in the same order. Because raters read a randomly selected subset of advice, internship seekers rated an average of 5.5 pieces of advice ( $SD=1.91$ ).

Participants rated each piece of advice on the following dimensions presented in random order (1=*not at all*; 7=*extremely*) (intra-class correlations across the random subset of judges are provided next to each item): the extent to which the advice provided them with new information (1=*not at all*; 7=*very much*;  $ICC1=.73, p<.001$ ), was helpful ( $ICC1=.84, p<.001$ ), actionable ( $ICC1=.82, p<.001$ ), and detailed ( $ICC1=.85, p<.001$ ). Because there was high reliability across these items ( $\alpha=.97$ ), they were averaged into a composite score of overall quality. Table 2 provides descriptive statistics for each measure in Study 2.

## Results

**Word count of advice.** Those who rediscovered accounts of their summer internship experience in the past wrote more words when asked to give advice to other students who could benefit from their experiences ( $M=121.16, SD=82.68, 95\% CI [101.44, 140.87]$ ) than those who merely recalled their past experiences ( $M=80.26, SD=54.55, 95\% CI [89.00, 112.97]$ ),  $U=1,783.00, p=.002, r=.26$ .

**Advisers' perception of helpfulness.** Participants in the rediscovery condition also perceived their own advice to be more helpful ( $M=5.05, SD=.91, 95\% CI [4.83, 5.27]$ ) relative to those in the control condition ( $M=4.67, SD=.92, 95\% CI [4.45, 4.88]$ ),  $t(140)=3.10, p=.01, 95\% CI [.08, .69], d=.53$ . This effect of condition on perceived helpfulness of advice ( $\beta=.38, t=2.57,$

$p = .01$ ) held in a regression after controlling for the number of words that participants wrote ( $\beta = .40, t = 2.59, p = .01$ ) and interacting the condition and word count ( $\beta = -.38, t = -1.80, p = .08$ ).

**Table 2.** Means with 95% confidence intervals for variables assessed in Study 2.

	Recall Condition	Rediscovery Condition
<b>Adviser</b>		
Word count	80.26 [89.00, 112.97]	121.16 [101.44, 140.87]
Own ratings of advice quality	4.67 [4.45, 4.88]	5.05 [4.83, 5.27]
Helpful	4.74 [4.48, 4.99]	5.09 [4.86, 5.31]
Useful	4.60 [4.37, 4.82]	5.01 [4.77, 5.26]
<b>Advisee's perceptions</b>		
Overall quality	3.70 [3.45, 3.95]	4.24 [3.96, 4.52]
Helpful	3.88 [3.63, 4.13]	4.45 [4.17, 4.74]
Actionable	3.87 [3.61, 4.13]	4.38 [4.11, 4.66]
Detailed	3.65 [3.35, 3.93]	4.22 [3.89, 5.54]
New	3.42 [3.17, 3.69]	3.92 [3.63, 4.20]

**Advisees' perception of advice quality.** Similarly, advice *recipients* rated the advice from those who rediscovered accounts of their past summer internship experiences as better in quality ( $M=4.24, SD=1.17, 95\% CI [3.96, 4.52]$ ) relative to those in the control condition

( $M=3.70$ ,  $SD=1.06$ , 95% CI [3.45, 3.95]),  $t(141)=2.89$ ,  $p=.004$ , 95% CI [.16, .89],  $d=.49$ . The effect of condition on perceived quality of advice ( $\beta=.26$ ,  $t=2.45$ ,  $p=.02$ ) held in a regression after controlling for the number of words that participants wrote ( $\beta=.93$ ,  $t= 8.31$ ,  $p<.001$ ) and interacting the condition and word count ( $\beta=-.40$ ,  $t=-2.54$ ,  $p=.01$ ).

To test how advisers perceived their own advice relative to advice recipients, I conducted a linear mixed model analysis of helpfulness ratings, treating the assigned condition (rediscovery vs. control), evaluator (adviser vs. advisee), and their interaction as fixed effects. Importantly, there was a significant main effect of the evaluator, confirming that advisers perceived their own advice to be more helpful than did advice recipients,  $F(1,282) = 34.89$ ,  $p < .001$ . Replicating results from prior research showing that advisees tend to discount advice from others (Yaniv & Kleinberger, 2000), there was also a main effect of condition such that both advisers and advisees rated the advice from those who rediscovered their prior internship experience as more helpful relative to those who merely recalled their experience,  $F(1,282) = 13.64$ ,  $p < .001$ . The interaction between condition and evaluator on perceived helpfulness of the advice was not statistically significant,  $F(1,282) = .85$ ,  $p = .34$ .

## **Discussion**

Taken together, the results in Study 2 demonstrate that relative to merely recalling past events, rediscovering accounts of past experiences influenced individuals to give advice that both advisers and advisees perceived as more helpful and better in overall quality. Additionally, these findings demonstrate that advice givers perceived their own advice as more helpful compared to the perspective of advice recipients.

One possible explanation for why internship seekers viewed the advice from those who rediscovered as more helpful is that these advisers simply wrote more words of advice relative to

those who merely recalled their past experience. Controlling for the number of words that participants wrote did not alter the findings, suggesting that advice from those who rediscovered their past experiences differed above and beyond the amount of content written.

### **Study 3: Rediscovery vs. Perspective Taking**

Studies 1 and 2 demonstrated that relative to merely recalling past experiences, rediscovering reflections of past experiences influenced seasoned individuals to give advice that both advisers and advisees rated as more helpful. These findings support the hypothesis that rediscovering past reflections enables experienced individuals to better understand the perspective of being a novice—a perspective that they had forgotten over time. Building on these findings, Study 3 serves two purposes: 1) further explore how rediscovering past experiences in order to better understand those with less experience differs from directly adopting the perspective of these individuals, and 2) quantify the extent to which rediscovering past accounts enables experienced individuals to understand the behaviors of the inexperienced.

Research on perspective taking demonstrates that individuals adopt egocentric perspectives when estimating the experience of others (H. L. Davis, Hoch, & Ragsdale, 1986; Epley et al., 2004; Gilovich & Savitsky, 1999; Keysar et al., 2000; Nickerson, 2001). That is, individuals anchor on their own perspectives and then make adjustments based on their expectations of how others' perspectives might differ from their own. During this process, individuals often insufficiently deviate from their own perspectives, leading to incorrect estimates of others' experiences. For example, when making estimates about how others would perceive ambiguously sarcastic messages, participants were unable to overlook the privileged information they had about the intentions of these messages that others could not access. As a

result, individuals wrongly estimated that the messages would be perceived with more clarity than they actually were.

Understanding another person's perspective through rediscovery of one's own past differs from directly taking the perspective of someone else: whereas perspective taking leads individuals to anchor on their own experience and adjust based on their expectations of others' experiences, rediscovering past experiences anchors individuals on their own *past* experiences. In the expert-novice context, experts' past experiences are presumably closer to the experiences that novices face than their present experiences. In contexts where experienced individuals share a past experience that most novices encounter, rediscovering these past events could allow experts to understand the experiences of novices more accurately.

To understand how rediscovering past reflections helps individuals better understand the perspective of less experienced individuals, this study employed a two-stage incentive compatible paradigm that has been adapted from past studies demonstrating the curse of knowledge (Newton, 1990). At the first stage, all participants listened to someone else clapping a commonly known song and wrote about their experience as a listener. Newton (1990) has demonstrated that individuals find the process of guessing songs based solely on claps alone to be confusing and difficult with a minority of participants who are able to guess the songs correctly.

Seven months later, these participants who played the role as a listener were contacted again—this time, everyone played the role as a clapper. Participants then estimated the proportion of individuals who would guess the song they clapped correctly. Prior to making an estimate, one third of participants were assigned to rediscover what they wrote as listeners and another third were asked to take the perspective of the listener. I expected that benchmarked

against the actual percentage of correct guesses, those who rediscovered their past reflections would generate more accurate estimates than those in the perspective taking or control conditions.

## **Method**

**Participants.** One hundred one participants (56.42% female;  $M_{age}=34.78$ ,  $SD=10.25$ ) from Amazon's Mechanical Turk were recruited to participate in a two-stage study about their knowledge of music. Participants were compensated \$0.50 for completing the first stage and returned seven months later to complete the second stage for \$0.75.

**Design and procedure.** Participants at Time 1 played the role of a listener as they were asked to guess the name of a song in a 30-second audio recording of an individual clapping the popular tune "Old MacDonald Had a Farm." As participants were guessing the tune, they were asked to write what they were "thinking and feeling as [they] were listening to the audio clip."

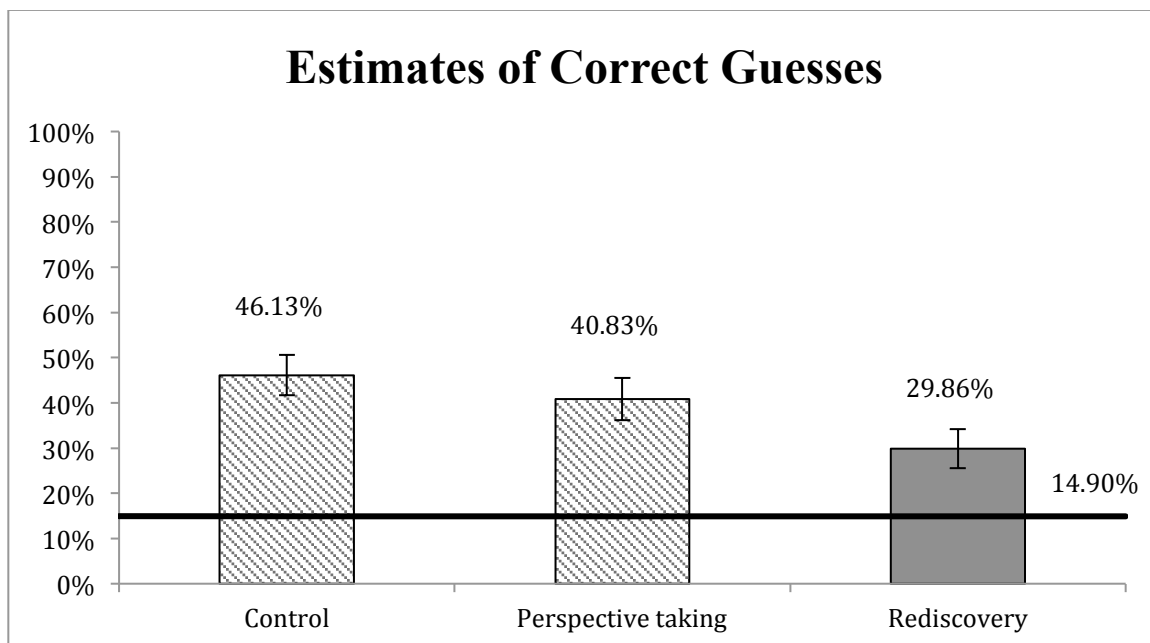
Seven months later, these participants who had prior experience as a "listener" returned to the study to play the role of a "clapper." Participants were asked to clap the "Star Spangled Banner" and upload a recording of their clapping. Those in the control condition then estimated the percentage of individuals that would guess the tune correctly based on their clapping. Individuals in the perspective-taking group were asked to "consider the perspective of someone guessing the name of the song you clapped and their experience of listening to your clapping" prior to making an estimate. Those in the rediscovery group were asked to consider their own thoughts as they were playing the role of a listener and were then provided with their original reflections when they played the role of a listener seven months earlier in the first stage of the study. All participants were informed that the individual who was the most accurate in estimating the percentage of correct guesses would receive an additional \$5 bonus.

In order to estimate the proportion of individuals who were able to guess correctly that the tune clapped was the “Star Spangled Banner,” one hundred one participants (36.6% female;  $M_{age}=36.52$ ,  $SD=10.43$ ) from Amazon’s Mechanical Turk were each randomly paired with one clapper and asked to guess the song in exchange for \$1.

## Results

**Correct guesses.** Listeners from the separate sample of participants correctly guessed the “Star Spangled Banner” 14.9% (15/101) of the time.

**Figure 3.** Percentage of participants that clappers estimated would correctly guess their song by condition in Study 3. Error bars represent  $\pm 1$  standard error. The line represents the actual proportion of participants who guessed clappers’ songs correctly.



**Predictions.** The accuracy of estimates differed across the rediscovery, perspective taking, and control conditions,  $F(2,98)=3.28$ ,  $p=.04$ ,  $\eta_p^2=.06$ . Those in the rediscovery

condition were the most accurate in their estimates, predicting that 29.86% ( $SD=25.72$ , 95% CI [21.02,38.69]) of participants would guess the song correctly. Pair-wise comparisons using Fisher's LSD correction revealed that predictions after rediscovering past reflections were more accurate than predictions of those in the control condition ( $M=46.13\%$ ,  $SD=24.52$ , 95% CI [36.97,55.30]),  $p=.015$ , and perspective taking condition ( $M=40.83\%$ ,  $SD=28.33$ , 95% CI [31.25,50.42]),  $p=.08$ . Predictions between the perspective taking and control conditions did not differ from one another,  $p=.42$ .

## **Discussion**

These findings demonstrate that rediscovering reflections written in the past helps experienced individuals better understand the behaviors of less experienced others. In this study, all clappers had the first-hand experience of guessing a tune based on claps alone and were thus familiar with the feeling of confusion that listeners often experience. The results demonstrate having a past experience as a listener was most helpful for clappers when they were able to rediscover their own reflections about their struggles in identifying the tune. That is, experienced clappers were more accurate in their estimates about the proportion of people who would correctly guess the tune they clapped when they had the opportunity to rediscover their experience as listeners relative to when they were asked to take the perspective of the listener or were not reminded about their past experience.

Although those who rediscovered their past reflections were still inaccurate in their estimates (29.86%) relative to the actual rate of correct guesses at 14.9%, rediscovery of past events generated were the closest estimates relative to the taking the perspective of others and the control group. More research is needed to understand the factors that can further reduce this overestimate.

## General Discussion

Three studies test whether rediscovering past experiences helps experienced individuals better understand and advise novices. The first two studies demonstrate that relative to merely recalling past experiences, rediscovering past reflections about being inexperienced helped individuals give advice that they perceived as better (Study 1) and that novices perceived as more helpful (Study 2). Study 3 shows that experienced individuals are better able to predict the behavior of less experienced others when they have the opportunity to rediscover their own past reflections relative to when they consider the perspective of others.

### Theoretical Contributions

Whereas the prior research on adviser-advisee relationships has mostly focused on the advisee (Bonaccio & Dalal, 2006; Brooks et al., in press; Gino & Moore, 2007; Harvey & Fischer, 1997; Hofmann et al., 2009), this research calls attention to helping advisers—particularly those with more experience—help novice advisees who face similar challenges that these advisers faced in the past. Furthermore, these results demonstrate that although experts have more knowledge and skills in their particular domain (Abernethy & Russell, 1987; Charness, 1989; Ericsson et al., 1993), they are not immune to human biases (Hinds, 1999; Kahneman, 1991). In fact, simply having more knowledge and skills does not necessarily mean that experts are equipped to 1) remember the experience of being a novice and 2) relay the knowledge and experience they have gained in a relevant and helpful way.

One possible intervention to mitigate this gap between experts and novices is helping experts rediscover their past experiences as novices. Whereas past research has focused on the direct impact of reflection at the individual level (Di Stefano et al., 2014; Pennebaker, 1993; Spera et al., 1994), this paper focuses on the impact of *rediscovering* past reflections at the

*interpersonal* level. Beyond the immediate benefits of reflection on performance and health outcomes (Boud et al., 2005; Cyboran, 2005), these findings reveal that the content of reflections have value for individuals long after the reflections are written. In particular, the rediscovery of past reflections is helpful in the context of advice exchange where advisers have more experience than advisees.

Additionally, the assumption in past research on perspective taking is that individuals must overcome their egocentricism in order to adopt the perspective of others more effectively (M. H. Davis, 1996). For example, encouraging individuals to adopt the perspective of others reduced the gap in perceived differences between the self and other (M. H. Davis, Conklin, Smith, & Luce, 1996). These studies demonstrate that the dynamic between experts and novices provides a unique context where egocentricism—particularly, individuals’ interest in their own past—can be leveraged to make experts more accurate in their understanding of novices’ behaviors. In other words, these studies demonstrate that, in some cases, making individuals focused on their past self—as opposed to others—can help experts better understand novices.

This paper also contributes to the advice literature by providing a new method for evaluating advice quality. Building on prior research on the judge adviser system, which has largely studied advice in the context of decision tasks that involve the estimation of probable events or multiple choice questions (Bonaccio & Dalal, 2006; Budescu, Rantilla, Yu, & Karelitz, 2003; Sniezek & Buckley, 1995), this research considers another way of evaluating advice quality: based on the perceptions of those who have the potential to utilize the advice. Just as customers on Yelp.com rate the quality of restaurants, advisees can also evaluate the quality of advice provided.

### **Limitation and Future directions**

A critical assumption underlying these findings is that experts' past experiences mirror the experiences of their novice advisees. However, given that innate ability and environmental factors are critical determinants in the extent to which beginners face challenges and have opportunities to learn (Bransford, Brown, & Cocking, 1999; Colquitt & Simmering, 1998; Ericsson et al., 1993), experts' past experiences may differ substantially from the experience of novices they are advising. When these experiences differ, rediscovering past experiences of being a novice may be even detrimental to helping experts relate to novices. For example, musicians with perfect pitch, a rare innate ability to identify or recreate a musical tone without any reference tones, might give advice that is less applicable to novices without perfect pitch if these experts were to rediscover how easy it was to learn music. Experts raised in high socioeconomic backgrounds might be less understanding of the challenges that novices with low socioeconomic backgrounds face if these experts focused on their own past rather than the experience of others. Thus, when experts' past experiences differ from their advisees' experiences, the act of rediscovery could lead experts to adopt an egocentric view that is harmful: experts may focus on differences between themselves and their advisees, preventing them from being able to relate to their advisees and give them relevant advice.

Additionally, these studies operationalize advice quality based on what novices rate as more helpful in content. However, novices may not be the best determinants of advice quality: Novices may not have the broader perspective to determine what type of advice would actually help them in the future and are also more prone to seeking positive feedback, which may not necessarily help them improve (Finkelstein & Fishbach, 2012; Fishbach, Eyal, & Finkelstein, 2010; Locke & Latham, 1990; Powers, 1973). Additionally, there is an implicit assumption that advice that is rated as more helpful in content will generate better outcomes. More research is

needed to test whether advice that novices perceive as more helpful yields greater advice utilization and improved learning.

### **Conclusion**

Experts commonly forget about the experience of being a novice. This research demonstrates the importance for experts to rediscover their past as inexperienced individuals. By placing experts back in the mindset of their past selves, experts are better equipped to understand and advise novices.

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## CHAPTER 3

Back to the beginning:

Rediscovering inexperience helps experts give advice

Ting Zhang

### ABSTRACT

The knowledge, skills, and experiences that experts have accumulated should enable experts to understand novices. And yet, experts are often unable to understand novices *because* of their experiences. How can experts better help less experienced or knowledgeable others? This paper investigates how rediscovering the experience of *inexperience* enables experts to advise novices. In an experiment, expert guitarists who rediscovered the feeling of being inexperienced—by playing their instrument with their non-dominant hand—gave advice that novices rated as more encouraging and helpful in content relative to experts who played traditionally. These findings demonstrate that rediscovering the feeling of inexperience influences experts' perception of novices and their ability to give advice.

*Keywords:* Expert, novice, advice, rediscovery, inexperience, potential

Accumulating more knowledge and experience over time means that experts also forget the experience of being *inexperienced* (Fischhoff, 1975). As a result, experts may have difficulty understanding the challenges that novices face and advising novices based on that understanding. For example, a surgery resident said in an interview, “Sometimes, I’ll ask the surgeon what I’m doing wrong, and the response that I get is ‘I don’t know, just watch me do it.’” Thus, although experts have more knowledge, skills, and experience relative to novices, that experience does not necessarily enable experts to help novices effectively.

Experts are not immune from the biases and imperfections that affect all humans: imperfect memory, failure to perspective take, and lack of empathy for others (Hinds, 1999; Kahneman, 1991; Shanteau, 1992a; Shanteau & Stewart, 1992). In the context of expertise, these biases generate unique problems that create a gap between experts and novices, making it difficult for experts to understand novices’ experiences. Experts fall prey to the hindsight bias, leading them to incorrectly assume that their past selves had access to the same knowledge they currently have (Bukzar & Connolly, 1988; Fischhoff, 1975). Consequently, they also exhibit the curse of knowledge by incorrectly assuming others have access to the same knowledge they do (Birch & Bloom, 2007; Camerer, Loewenstein, & Weber, 1989). Experts also suffer from the empathy gap through their inability to cognitively and emotionally relate to less experienced individuals (Van Boven & Loewenstein, 2005). Together, these problems prevent experts from reaching their full potential in helping novices.

To date, we know little about interventions that enable experts to help novices more effectively. In the context of advice, research has provided information about the cognitive, emotional, and environmental factors that influence how advisees consider recommendations from their advisers (Bonaccio & Dalal, 2006; Gino & Moore, 2007; Harvey & Fischer, 1997;

Kray & Gonzalez, 1999; Yaniv & Kleinberger, 2000). Research on advisers has mainly studied how advisers can be biased in their recommendations (Cain, Loewenstein, & Moore, 2011; Kray & Gonzalez, 1999; Loewenstein, Sah, & Cain, 2012). One possible way is the help experts rediscover their own past experiences as novices (Zhang, 2015). However, individuals may not have documentation of past experiences to retrieve or the ability to access relevant documentation of past experiences at the appropriate moment. This paper provides evidence of another theoretically motivated intervention that bridges the gap between experts and novices in the context of advice exchange. A field experiment with expert guitarists investigates how rediscovering the cognitive and emotional experiences of being a beginner—by putting experts back in the position as a beginner—enables experts to give advice that novices rate as more encouraging and helpful in content.

### **Overcoming the Curse of Expertise**

Experts are individuals who have more knowledge and skills acquired through experience or practice relative to others (Abernethy & Russell, 1987; Ericsson, Krampe, & Tesch-Römer, 1993). Relative to novices, experts have acquired a greater “amount and organization of knowledge” over time (Ericsson et al., 1993). Greater knowledge offers many benefits: when provided with complex information, experts are better able to use relevant information (Shanteau, 1988, 1992b). Experts of procedural tasks that involve motor performance, such as typing or playing tennis, expend fewer cognitive resources on the task relative to novices, freeing their resources for extra memory and planning needed when the task becomes more difficult (Ericsson et al., 1993; Gentner, 1988). Because of the amount of deliberate practice in which experts engage, they can better anticipate future events relative to novices (Abernethy & Russell, 1987). For example, expert chess and tennis players can quickly recognize patterns, encode them

into long-term memory, and plan potential—skills that would take novices a much longer period of time (Charness, 1976, 1989, 1991).

Although the additional knowledge helps experts navigate complex decisions (Isaacs & Clark, 1987; Lachner & Nückles, 2014), there is also evidence that this very accumulation of knowledge is not necessarily beneficial—and may even be harmful. In a study of expert political judgments, Tetlock (2005) found that experts were no better at predicting probabilities of events or specific outcomes relative to chance. Experts also have limited access to memories of their experiences as novices. For procedural tasks, experts may even develop an oversimplified view of the task as the details of the task become less salient and as experts lose awareness of the steps or components involved in the task (Hinds, 1999; Langer & Imber, 1979; Sternberg, 1997). For knowledge-based tasks, experts are prone to the hindsight bias which describes situations when having knowledge of the outcome leads individuals to assume that they had known this information all along (Arkes, Faust, Guilmette, & Hart, 1988; Arkes, Wortmann, Saville, & Harkness, 1981; Bukszar & Connolly, 1988; Fischhoff, 2013).

As a related problem, experts also suffer from the curse of knowledge—the tendency for experts to overestimate the amount of knowledge that others have (Birch & Bloom, 2007; Camerer et al., 1989; Hinds, 1999). Individuals with more information have difficulty realizing that other people do not possess the information they have, even when it is in their best interest (Camerer et al., 1989). As a result, individuals commonly mispredict others' behaviors (Keysar, Barr, Balin, & Brauner, 2000) and insufficiently adjust away from their own perspectives when estimating others' perspectives (Epley, Keysar, Van Boven, & Gilovich, 2004). When interacting with novices, individuals with more expertise were worse at predicting the amount of time it would take for novices to learn complex tasks (Hinds, 1999).

In addition to having greater difficulty taking the cognitive perspective of novices, experts may have greater difficulty emotionally empathizing with novices. Although there is some evidence that individuals who have had experience with an emotionally distressing event are more sympathetic toward others facing similar experiences (Batson et al., 1996; Clore & Jeffery, 1972), these experienced individuals are less empathetic towards others who have failed to endure similar events (Ruttan, McDonnell, & Nordgren, in press). Thus, experts may be unsympathetic when novices struggle with tasks that experts forgot were challenging.

These challenges become magnified when experts serve as advisers to novices. The exchange of advice is considered a helping behavior in which advisors often formulate and communicate judgments or recommendations about possible courses of action to another individual (Bonaccio & Dalal, 2006). To date, research on adviser-advisee contexts has mostly focused on the recipients of advice (Brooks, Gino, & Schweitzer, in press; Hofmann, Lei, & Grant, 2009) and the factors that influence their decision to take up advice provided (Dalal & Bonaccio, 2010; Fischer, Carmon, Ariely, & Zauberaman, 1999; Gino & Moore, 2007). Despite the wealth of knowledge on the factors that influence advisees (Soll & Larrick, 2009; Tost, Gino, & Larrick, 2012; Yaniv, 2004; Yaniv & Kleinberger, 2000), we know less about the factors that help advisers give advice, particularly in the exchange of advice between experts and novices (Bonaccio & Dalal, 2006).

To resolve the problem that experts have difficulty relating to novices, this paper proposes a novel intervention that enables experts to rediscover the experience of *inexperience*: changing the task in which they have developed expertise such that they have to re-experience the feeling of learning the task again. I hypothesize that the process of rediscovering

inexperience would help experts better relate to the novices they are advising and provide advice that novices perceive as higher in quality.

### **Experiment: Expert and Novice Guitarists**

To study the impact of rediscovering inexperience on experts, expert guitarists were recruited to give advice to a novice guitar player. Some of the expert guitarists in this study played with their non-dominant hand to rediscover the feeling of inexperience whereas others played traditionally. I predicted that experts who rediscovered the experience of inexperience would evaluate the novice as having more potential and give advice that novices would rate as better relative to experts who did not engage in the act of rediscovery.

A separate group of novices evaluated the advice that these expert guitarists provided. Just as individuals evaluate others on both warmth and competence (Cuddy, Fiske, & Glick, 2008; Fiske, Cuddy, Glick, & Xu, 2002; Fiske & Taylor, 1991), advisees can evaluate advice in terms of the extent to which the advice is motivating (similar to “warmth” of advice) and helpful in the content (similar to “competence” of advice). I predicted that novices would find the advice from experts who rediscovered the experience of inexperience as more helpful in content and as more encouraging relative to advice from those who did not engage in the act of rediscovery. Additionally, given prior research showing that teachers were more encouraging towards students they expected to have greater potential for growth (Rosenthal & Jacobson, 1968), I expected that the amount of potential that experts saw in the beginner would predict the extent to which novices perceive the advice as encouraging.

### **Method**

**Participants.** Seventy-four expert guitarists (20% female;  $M_{age}=30.6$ ,  $SD=12.9$ ) with an average of 8.7 years of playing experience ( $SD =5.77$ ) were recruited for this study in exchange

for \$5. Guitarists with at least three years of experience playing the instrument and who had access to a microphone on their computers were eligible to participate in this study. I excluded four participants who did not follow the recording instructions.

A separate group of seventy-five novice guitarists (42.7% female;  $M_{age}=30.5$ ,  $SD=7.82$ ) playing less than one year were recruited to rate advice from expert guitarists in exchange for \$1.

**Design and procedure for experts.** All expert guitarists were asked to record their playing for one minute and upload that recording. Those who were randomly assigned to rediscover the experience of being a beginner were asked to “flip [their] guitar around,” “play on the fingerboard with [their] RIGHT hand,” and “strum with [their] LEFT hand.” For left-handed guitarists, the instructions were adjusted so that they were strumming with their right hand and playing on the fingerboard with their left. In contrast, those in the control group were asked to “play as [they] would on a typical day.” Guitarists could choose to play any piece during that minute of recording. After uploading their recording, participants wrote answered the question, “What did you play, and what did you think of your playing?”

All guitarists then watched a video clip of a beginner guitarist who struggled to play a series of chords and were asked to “please give advice to this person about playing the guitar” in “three to five sentences.” Participants then evaluated the beginner on the following dimensions: how similar they felt to this individual (1=*not at all*; 4=*somewhat*; 7=*extremely*), the amount of potential they saw in the individual (1=*very little*; 4=*some*; 7=*a lot*), and the quality of playing (1=*very bad*; 4=*neither good nor bad*; 7=*very good*). Guitarists also rated their own advice in terms of how detailed and encouraging they perceived their advice to be (1=*not at all*; 4=*somewhat*; 7=*extremely*). As a manipulation check, participants answered “To what extent did the first recording exercise make you feel like a beginner?” (1=*not at all*; 4=*somewhat*; 7=*a lot*).

To counterbalance the design of the study, participants played their instrument again in the style they did not have the chance to play at the end of the study for one minute and uploaded their recording. That is, those in the rediscovery condition played traditionally whereas those in the control condition played nontraditionally.

**Design and procedure for novices.** Using the consensual assessment technique, novice guitarists evaluated randomly selected pieces of advice from experts (Amabile, 1982). Each piece of advice was displayed on a separate page in random order such that no two advisers rated the same subset of advice in the same order. Because the advice participants rated was randomly selected, an average of 5.15 novices rated each piece of advice ( $SD=1.98$ ).

Novices rated each piece of advice on the following dimensions presented in random order (1=*not at all*; 7=*extremely/very much*) (reliability across the random subset of judges is provided next to each item): the extent to which the advice is encouraging ( $ICC1=.90, p<.001$ ), motivating ( $ICC1=.67, p<.001$ ), detailed ( $ICC1=.87, p<.001$ ), would fix the player's technique ( $ICC1=.74, p<.001$ ), and would help the player produce a better sound ( $ICC1=.78, p<.001$ ).

To assess whether these ratings of advice loaded onto different factors, I conducted a factor analysis based on principal axis factoring and maximum likelihood estimation procedures without rotation. The analysis returned the expected two-factor solution (eigenvalues = 3.26 and 1.12): the quality of content items loaded strongly on the first factor (.89, .89, .89), and the two encouragement items loaded strongly on the second factor (-.31, -.37, -.27). Table 3 provides descriptive statistics for each measure.

## **Results and Discussion**

**Manipulation check.** Playing the instrument with their non-dominant hand made guitarists feel more like beginners ( $M=5.95$ ,  $SD=1.57$ ) than did playing the instrument traditionally ( $M=3.25$ ,  $SD=1.92$ ),  $t(73)=6.69$ ,  $p<.001$ ,  $d=1.57$ .

**Experts' evaluation of beginner.** Guitarists evaluated the beginner's playing as better after rediscovering the feeling of being a novice guitarist ( $M=3.26$ ,  $SD=.94$ ) than did guitarists who played traditionally ( $M=2.56$ ,  $SD=.81$ ),  $t(73)=3.45$ ,  $p<.001$ ,  $d=.81$ . Guitarists who played nontraditionally also felt more similar to the novice ( $M=3.92$ ,  $SD=1.56$ ) and saw more potential in the novice ( $M=5.59$ ,  $SD=1.07$ ) than did guitarists who played traditionally ( $M_{similar}=3.19$ ,  $SD_{similar}=1.47$ ;  $M_{potential}=4.94$ ,  $SD_{potential}=1.33$ ),  $t_{similar}(73)=2.08$ ,  $p_{similar}=.04$ ,  $d_{similar}=.49$ ,  $t_{potential}(73)=2.32$ ,  $p_{potential}=.02$ ,  $d_{potential}=.54$ .

**Word count of advice.** As intended based on the study design to hold constant the amount of writing across conditions, guitarists wrote similar number of words in both the rediscovery ( $M=66.33$ ,  $SD=27.41$ ) and control conditions ( $M=60.06$ ,  $SD=26.18$ ),  $t(73)=1.01$ ,  $p=.32$ ,  $d=.24$ .

**Content analysis: specificity in language.** Content analysis based on Linguistic Inquiry Word Count (LIWC) revealed that advice from those in the rediscovery condition were more likely to include words that pinpointed specific parts of the beginners' body (e.g., hands, finger, etc.) ( $M=2.71$ ,  $SD=2.70$ , 95% CI [1.83, 3.58]) relative to those in the control condition ( $M=1.48$ ,  $SD=2.08$ , 95% CI [.78, 2.18]),  $t(73)=2.19$ ,  $p=.03$ , 95% CI [.11, 2.34],  $d=.51$ .

**Advisees' evaluation of content.** Novices also rated the advice from experts who rediscovered the feeling of inexperience as more helpful in content ( $M=4.68$ ,  $SD=1.19$ , 95% CI [4.42, 5.08]) relative to those in the control condition ( $M=3.96$ ,  $SD=1.11$ , 95% CI [3.58, 4.33]),  $t(73)=2.73$ ,  $p=.008$ , 95% CI [.20, 1.26],  $d=.64$ .

**Advisees' perception of encouragement.** Novices rated the advice from experts who rediscovered the feeling of inexperience as more encouraging ( $M=4.75$ ,  $SD=1.00$ , 95% CI [4.42, 5.08]) relative to those in the control condition ( $M=4.23$ ,  $SD=1.03$ , 95% CI [3.88, 4.58]),  $t(73)=2.24$ ,  $p=.03$ , 95% CI [.05, .99],  $d=.53$ .

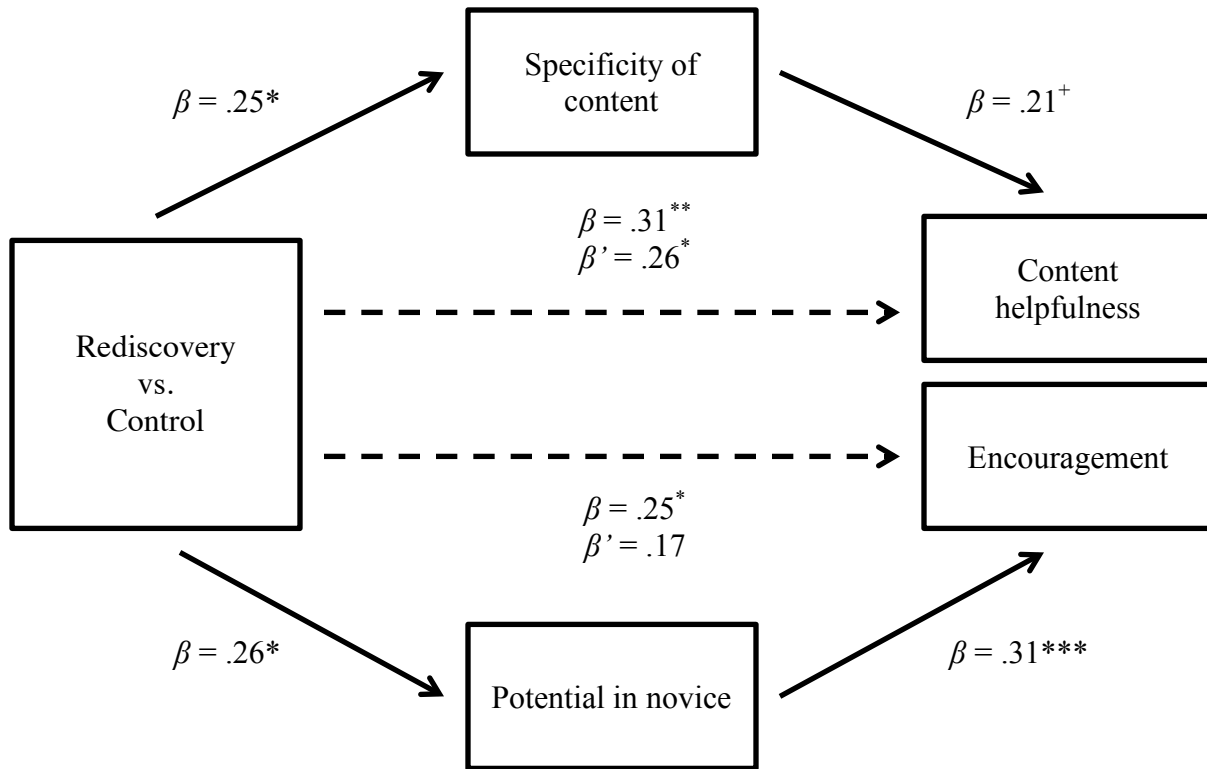
**Table 3.** Means with 95% confidence intervals for variables assessed.

	Control Condition	Rediscovery Condition
<b>Expert guitarist advice</b>		
Word count	60.06 [51.20, 68.91]	66.33 [57.45, 75.22]
Potential in novice	4.94 [4.49, 5.39]	5.59 [5.24, 5.94]
Similar to novice	3.19 [2.70, 3.69]	3.92 [3.42, 4.43]
Quality of playing	2.56 [2.28, 2.83]	3.26 [2.95, 3.56]
<b>Novice ratings</b>		
Encouragement	4.19 [3.84, 4.54]	4.75 [4.42, 5.08]
Encouraging	4.35 [3.92, 4.78]	4.99 [4.61, 5.37]
Motivating	4.03 [3.70, 4.36]	4.51 [4.19, 4.84]
Content	3.93 [3.54, 4.31]	4.68 [4.30, 5.07]
Detailed	3.74 [3.33, 4.15]	4.50 [4.07, 4.93]
Technique	4.25 [3.81, 4.70]	5.00 [4.63, 5.37]
Sound	3.79 [3.39, 4.19]	4.55 [4.15, 4.96]

A mediation analysis tested whether greater specificity in content as revealed in the computer textual analysis would explain the effect of rediscovery on the extent to which novices perceived the advice as helpful in content (Baron & Kenny, 1986). The rediscovery condition was positively associated with using more specific words identifying parts of the novices' body ( $\beta=.25, t=2.19, p=.03$ ). When controlling for using more specific language, the effect of rediscovery was significantly reduced (from  $\beta=.31, t=2.73, p=.008$  to  $\beta=.26, t=2.24, p=.03$ ), and specificity in experts' language predicted novices' perception of the advice as more helpful in content ( $\beta=.20, t=1.77, p=.08$ ). A bootstrap analysis indicated that the 95% bias-corrected confidence interval for the size of the indirect effect excluded zero (.001, 0.38), suggesting a significant indirect effect (MacKinnon, Fairchild, & Fritz, 2007; MacKinnon, Lockwood, & Williams, 2004).

A separate mediation analysis tested whether the perceptions of the novice's potential would explain the effect of rediscovery on the extent to which novices perceived the advice as encouraging (Baron & Kenny, 1986). The rediscovery condition was positively associated with experts' perceptions of the novice's potential ( $\beta=.26, t=2.23, p=.02$ ). When controlling for experts' perceptions of the novice's potential, the effect of rediscovery was reduced to non-significance (from  $\beta=.25, t=2.24, p=.028$  to  $\beta=.17, t=1.52, p=.13$ ), and potential predicted the extent to which experts gave advice that novices perceived as more encouraging ( $\beta=.31, t=2.79, p=.007$ ). A bootstrap analysis indicated that the 95% bias-corrected confidence interval for the size of the indirect effect excluded zero (.04, 0.39), suggesting a significant indirect effect (MacKinnon et al., 2007; MacKinnon et al., 2004).

**Figure 4.** Mediation analyses on content helpfulness and encouragement of advice.



Taken together, these findings demonstrate that experts who rediscovered the feeling of being a beginner evaluated novices differently relative to those who did not engage in the act of rediscovery. Expert guitarists who broke the routine of playing the guitar traditionally by playing with their non-dominant hand saw more potential in novices, felt more similar to them, and evaluated the novices as playing better relative to those who played traditionally.

This study also found that advice varied on two primary dimensions: the extent to which the advice is encouraging and the content is helpful. Rediscovering the feeling of inexperience helped these experts give more specific advice that novices rated as more helpful in content and led experts to find more potential in novices, helping experts generate more encouraging advice. For example, those in the control condition gave advice such as the following: “This player

needs more confidence... This player's hand placement is wrong," and "I would say practice that everyday. Practice until you can't get it wrong." In contrast, those in the rediscovery condition were more likely to give the following advice: "Have that right hand flowing on the strings, and suspend the hand using your pinky finger as a swivel on the body of the guitar... Play slower, and work your way up to full speed; Kirk Hammett didn't learn it overnight!" These findings also show that rediscovery influences experts to become more encouraging by helping them see more potential in their advisees.

### **General Discussion**

Experts have difficulty understanding and advising novices. Simply having more knowledge and skills does not necessarily mean that experts are equipped to relay the knowledge and experience they have gained in a relevant, helpful, and encouraging way. One possible intervention to mitigate this gap between experts and novices is helping experts rediscover the experience of *inexperience*. Expert guitarists rediscovering the experience of being a beginner—by playing the guitar with their nondominant hand to break their routine—felt more similar to and saw more potential in beginners relative to those who did not engage in the act of rediscovery. Consequently, novice guitarists found the advice from those who rediscovered the feeling of *inexperience* as more encouraging and helpful in content. The extent to which experts saw potential in their advisees mediated the relationship between the act of rediscovering *inexperience* and the extent to which novices perceived the advice to be motivating. Additionally, rediscovery helped experts give more concrete advice, which novices rated as more helpful in content.

### **Theoretical Contributions**

These findings contribute to the literature on the curse of expertise, which has identified the unintended consequences of gaining more knowledge and skills (Hinds, 1999). In particular, these findings demonstrate that although experts have more knowledge, skills, and experiences relative to novices (Abernethy & Russell, 1987; Charness, 1989; Ericsson et al., 1993), experts also need help, particularly when they interact with and advise novices. Additionally, these findings challenge the notion that individuals cannot “unknow” what they have learned and demonstrate it is possible to make experts rediscover the feeling of inexperience in their field of expertise.

These findings also contribute to the literature on advice, which has mostly focused on the advisee (Bonaccio & Dalal, 2006; Brooks et al., in press; Gino & Moore, 2007; Harvey & Fischer, 1997; Hofmann et al., 2009). By studying the factors that help experts give advice, this paper also introduces a novel new method for evaluating advice quality. Building on prior research on the judge adviser system, which has largely studied advice in the context of decision tasks that involve the estimation of probable events or multiple choice questions (Bonaccio & Dalal, 2006; Budescu, Rantilla, Yu, & Karelitz, 2003; Snizek & Buckley, 1995), this research considers another way of evaluating advice quality: based on the perceptions of those who have the potential to utilize the advice. Additionally, these findings reveal two primary dimensions in which advice varies: level of encouragement and helpfulness of content.

### **Limitation and Future Directions**

In an experiment, expert guitarists rediscovered the feeling of inexperience by playing the same instrument in a new way, giving them access to the visceral experience as a novice guitar player. Additional research is needed to understand whether making experts a beginner in any domain—not necessarily the domain in which they are advising novices—would yield the same

findings. Given that some of the difficulty experts face is making tacit knowledge explicit, additional research is needed to understand whether becoming a beginner would influence experts to give advice that is more helpful in content, even if experts have the experience of being a beginner in a different domain. If the gap between experts and novices exists due to motivational reasons (e.g., lack of empathy from experts), making experts beginners in a different domain from the focal domain could help experts give advice that is more encouraging.

Based on comments from experts, the majority of individuals believed that rediscovering the feeling of inexperience was “interesting” and “enjoyable.” However, some individuals also found the experience difficult and uncomfortable: “This is cruel,” “I thought it was pretty terrible. I am not even sure you could really call it playing...I sounded awful, and it was frustrating,” and “Everything felt completely awkward and out of place.” Additional research is needed to understand the boundary conditions in which rediscovering inexperience increases frustration, inhibiting experts’ abilities to perform and help others.

Furthermore, these studies operationalize advice quality based on what novices rate as more helpful in content and more encouraging. However, novices may not be the best determinants of advice quality: novices may not have sufficient perspective to determine what type of advice would actually help them in the future and are also more prone to seeking positive feedback, which may not necessarily help them improve (Finkelstein & Fishbach, 2012; Fishbach, Eyal, & Finkelstein, 2010; Locke & Latham, 1990; Powers, 1973). Additionally, there is an implicit assumption that advice that is more helpful in content and more encouraging will generate better outcomes. More research is needed to test whether advice high on both the dimensions of content and encouragement actually leads to greater advice utilization and improved learning.

## **Conclusion**

The very accumulation of knowledge and skills that make experts a valuable resource can also limit their ability to relate to novices and provide help. This research demonstrates the importance for experts to rediscover the experience of *inexperience*. By placing experts back in the mindset of novices, experts are better equipped to understand novices and give advice that is more helpful and encouraging.

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