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Focusing on the Future From Afar: Self-Distancing From Future Stressors Facilitates Adaptive Coping

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Prior research indicates that visual self-distancing enhances adaptive self-reflection about negative past events (Kross & Ayduk, 2011). However, whether this process is similarly useful when people reflect on anxiety-provoking future negative experiences, and if so, whether a similar set of mechanisms underlie its benefits in this context, is unknown. Here we addressed these questions using a combination of experimental and individual difference methods with adults and adolescents (total $N = 2,344$). In Studies 1 and 2, spontaneous self-distancing predicted less anxious emotional reactivity among adults and adolescents. This effect was mediated by differences in how vividly participants imagined a future anxiety-provoking event. Study 3 provided causal evidence in an adult sample: Adopting a self-distanced (vs. self-immersed) perspective when reflecting on a future stressor led to lower levels of anxiety as well as lower imagery vividness. Consistent with Studies 1 and 2, reductions in imagery vividness mediated the emotion regulatory benefits of self-distancing. A meta-analysis of all three studies further confirmed these findings across samples. Thus, the current studies extend previous research on the benefits of self-distancing to future stressors. In addition, they highlight a novel mechanism for this relation: imagery vividness.

Keywords: self-distancing, anxiety, prospection, imagery vividness, emotion regulation

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Although reflecting on past and future negative experiences can help people make meaning out of these events, it can also lead to maladaptive, recursive patterns of thought such as past-oriented rumination (Nolen-Hoeksema, 1991) or future-oriented worry (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). This raises the question: What mechanisms determine whether people's attempts to understand their feelings succeed or fail? According to one program of research, a person's ability to "take a step back" and reflect on their feelings from a self-distanced visual perspective plays a critical role in facilitating adaptive self-reflection. However, all of this work has focused on the role that self-distancing plays in allowing people to reflect on negative past experiences. Recent work sheds new light on the importance of turning our attention to the relatively understudied domain of prospective thought (e.g., Baumeister & Vohs, 2016; Baumeister, Vohs, & Oettingen, 2016; Gilbert & Wilson, 2007; Jing, Madore, & Schacter, 2016; Seligman, Railton, Baumeister, & Sripada, 2013; Szpunar, Spreng, & Schacter, 2014). How we represent our possible futures is a core feature of human thought that can determine anything from affect to our perception of available choices and our ability to build meaning of our experiences (Seligman et al., 2013). Yet, it is still unclear whether visual self-distancing operates when people reflect on anxiety-provoking stressors that have yet to occur. The main goal of the current research was to address this issue.

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Self-Distancing in Retrospective Self-Reflection

When people reflect on negative past events, they typically adopt a self-immersed, first person perspective, seeing the situation replay through their own eyes (Kross & Ayduk, 2011; Nigro & Neisser, 1983). However, it is also possible for them to reflect on the self from a self-distanced or "fly on the wall" perspective in which they see themselves from afar.

A number of studies have examined the emotion regulatory implications of analyzing negative feelings from a self-distanced versus a self-immersed perspective. Self-distancing engenders a number of benefits. Namely, it leads to lower levels of negative affect and physiological reactivity after reflecting on past events (e.g., Ayduk & Kross, 2008, 2010; Kross & Ayduk, 2008; Kross, Ayduk, & Mischel, 2005; Verduyn, Van Mechelen, Kross, Chezzi, & Van Bever, 2012; Wisco & Nolen-Hoeksema, 2011), and reduces intrusive ideation and rumination over time (Ayduk & Kross, 2010; Kross & Ayduk, 2008; Verduyn et al., 2012).

The aforementioned findings have been observed both when self-distancing is experimentally manipulated and spontaneously assessed as an individual difference (Ayduk & Kross, 2010; Grossmann & Kross, 2010; Kross & Ayduk, 2011; Verduyn et al., 2012). They have been observed in several populations including children (Kross, Duckworth, Ayduk, Tsukayama, & Mischel, 2011), adolescents (White, Kross, & Duckworth, 2015), adults (Ayduk & Kross, 2010; Kross et al., 2005; Verduyn et al., 2012), and various clinical populations (Kross, Gard, Deldin, Clifton, & Ayduk, 2012; Park, Ayduk, & Kross, 2016; Penner et al., 2016). Collectively, they suggest that self-distancing enables adaptive self-reflection over negative past experiences. But what about reflecting on future negative experiences?

From Past to Future: Self-Distancing in Prospective Self-Reflection

Despite evidence suggesting that self-distancing is beneficial in retrospective contexts, recent research suggests that it would be a mistake to implicitly assume that the same pattern of findings should generalize from one domain (i.e., focusing on the past) to the other (i.e., focusing on the future; Van Boven, Kane, & McGraw, 2008). Indeed, several groups have suggested that retrospection and prospection could be distinct psychological processes governed by partially dissociable sets of underlying mechanisms (e.g., D'Argembeau & van der Linden, 2004; Nolen-Hoeksema et al., 2008; Seligman et al., 2013; Van Boven & Ashworth, 2007).

Prior research provides mixed clues about whether and how self-distancing should enhance people's ability to adaptively reflect on future negative experiences. On the one hand, several studies indicate that retrospection and prospection share common features. For example, both recruit a network of brain regions that support episodic memory processing (e.g., Cabeza & St. Jacques, 2007; D'Argembeau et al., 2010; Schacter, Addis, & Buckner, 2007; Storm & Jobe, 2012; Tulving, 2005). People are also capable of vividly simulating both types of experiences (Holmes & Mathews, 2010; McLaughlin, Borkovec, & Sibrava, 2007) and often experience both prospective and retrospective thoughts as "real" (Ehlers, Hackmann, & Michael, 2004; Gonsalves et al., 2004; Johnson, 2006). Given these similarities, one might expect self-distancing to facilitate effective emotion regulation similarly when reflecting over the past and the future.

On the other hand, retrospection and prospection also differ from each other on several dimensions. For example, prospection is less constrained by reality than retrospection. It therefore tends to be more creative, more imaginative, and less effortful (see Van Boven, Kane, & McGraw, 2008 for review). Furthermore, remembered past events are construed more concretely than imagined future events (Kane, Van Boven, & McGraw, 2012), containing more idiosyncratic details such as time and place, objects and people, and sound and color (D'Argembeau & Van der Linden, 2004; Johnson, Foley, Suengas, & Raye, 1988). Prospection also elicits greater affective intensity than retrospection (Van Boven & Ashworth, 2007). The asymmetry in affective evocativeness between retrospection and prospection is partly due to the uncertainty associated with the future, which potentiates the intensity of emotional reactions (Wilson, Centerbar, Kermer, & Gilbert, 2005). In addition, mental simulations tend to be more extensive and vivid when anticipating what future events might be like than when remembering what past events were like (Van Boven & Ashworth, 2007).

Given the differences between retrospection and prospection, it is difficult to make firm predictions about whether self-distancing should or should not function similarly when people try to cope with negative events that have already happened versus negative events that they fear might happen; rather this is an open empirical question. Prospection could be a boundary condition for the emotion regulatory effectiveness of self-distancing because thinking about anticipated future events elicits more intense and evocative emotions than thinking about past events. Alternatively, self-distancing could be even more effective when dealing with anticipated negative events because with greater emotional intensity there might be more room for self-distancing to serve a down-regulatory function. Given these opposing possibilities, the first goal of the present research was to examine whether visual self-distancing reduces emotional reactivity to future stressors similar to its effect on past stressors.

Exploring Additional Mechanisms of Action

To the extent that self-distancing does lead to a reduction in negative emotional reactivity regarding future anxiety-provoking events, our second goal was to examine the psychological mechanisms that underlie this emotion regulatory effect. Previous research has shown that self-distancing reduces emotional reactivity when people reflect on negative past experiences by leading them to recount the episodic details of their experience less (i.e., what happened and what was felt) and reconstrue it more (i.e., finding insight and closure in their experience; Kross & Ayduk, 2008, 2011; Kross et al., 2005, 2011). Could this be the case for anticipated experiences as well?

We expected self-distancing to foster reconstrual of future stressors because psychological distance more generally facilitates "big picture appraisals," which reduces intensity of negative affect (e.g., Bruehlman-Senecal & Ayduk, 2015; Fujita, Trope, Liberman, & Levin-Sagi, 2006; Rude, Mazzetti, Pal, & Stauble, 2011; Trope & Liberman, 2010). However, we were more agnostic about whether reductions in recounting the concrete details of an experience would serve as a mechanism through which self-distancing

impacts emotional reactivity to future stressors. Because representations of anticipated events contain concrete details to a lesser degree to start with (e.g., Johnson et al., 1988), recounting might not serve as a mechanism through which self-distancing impacts emotional reactivity to future stressors.

In considering additional mediating mechanisms that might be more relevant to future experiences, we drew from the literature on prospective mental imagery. Visual imagery plays an important role across emotional disorders (e.g., Holmes, Lang, & Deeprose, 2009; Holmes & Mathews, 2010) and vividness, that is the detailed and realistic nature, of negative prospective imagery is linked with anxiety disorders (e.g., MacLeod, Tata, Kentish, & Jacobsen, 1997; Stöber, 2000). Moreover, third person memories are often reported as less realistic and vivid than first person memories (Berntsen & Rubin, 2006; McIsaac & Eich, 2002; cf. Terry & Barwick, 1998). We therefore explored the possibility that self-distancing reduces emotional reactivity to future negative events by reducing imagery vividness.

Generalizability to Novel Outcomes and Adolescence

To expand our understanding of the possible emotion-regulatory function of self-distanced analysis, we also explored two novel outcomes uniquely relevant to future stressors. First, we examined whether self-distancing affected estimates of how likely it is that one's stressor will occur because stressors that seem more likely may elicit stronger negative emotion (Berenbaum, Thompson, & Bredemeier, 2007; Butler & Mathews, 1983; MacLeod, Williams, & Bekerian, 1991; Miranda & Mennin, 2007). Second, we tested the impact of self-distancing upon feelings of self-efficacy for coping with the stressor. Self-efficacy reflects a perception that one has the ability or skills to accomplish a given goal (Bandura, 1986), akin to a challenge mindset, which occurs when one perceives their resources (i.e., coping ability) to outweigh the demands of the situation (Blascovich & Mendes, 2000). Alternative types of self-distancing strategies (e.g., third person self-talk) have been shown to foster greater challenge appraisals of acute stressors (Kross et al., 2014); thus, we tested whether these effects would extend further, to more distal and uncertain stressors.

Finally, we investigated the generalizability of self-distancing research to an adolescent population. Although most research on self-distancing has focused on adults, two recent studies have begun to establish the benefits of self-distancing when reflecting on negative past events in children (Kross et al., 2011) and adolescents (White et al., 2015). Extending our understanding of self-distancing in adolescence is important because the teenage years are marked by particularly strong and frequent negative emotions (Larson, Csikszentmihalyi, & Graef, 1980; Larson & Lampman-Petraitis, 1989; Larson, Moneta, Richards, & Wilson, 2002). Here, we were interested in whether adolescents would mirror adults in how they use and benefit from self-distancing in future-oriented contexts, two questions that have not previously been addressed in these samples.

Overview of Present Research

We performed three studies to address these issues. All three studies focused on the effects of self-distanced reflection on emotional reactivity to a future stressor. However, they were designed by multiple laboratories and thus included some conceptually overlapping but distinct measures. Here we focus on those measures that were common across laboratories, which were essential to assessing the aims of the research. (Additional exploratory analyses can be found in the online supplemental material.) Study 1 examined the implications of individual differences in spontaneous self-distancing for emotional reactivity in young adults and compared two potential mediators: thought content (i.e., recounting vs. reconstruing) and imagery vividness. Study 2 addressed these questions in an adolescent sample. Finally, Study 3 explored the causal effects of self-distancing on emotional reactivity to future events in a young adult sample.

Study 1

Study 1 examined the relation between individual differences in spontaneous self-distancing and emotional reactivity in the context of reflecting on a future stressor. Participants were asked to think about an event in their future that caused them to worry. They then completed a measure of self-distancing, and reported on their current emotional state and several aspects of their visualization of the worrisome event.

Method

Participants. Participants were 997 undergraduates (584 women, 275 men, 138 did not indicate gender; M_{age} = 20.13, SD_{age} = 2.88). All participants provided consent prior to completing the survey, which was approved by the University of California, Berkeley and University of Michigan institutional review boards. Two groups of students from Berkeley completed the study for course credit as part of a large packet of prescreening surveys in two subsequent semesters (*n*s = 340 and 569). If students completed the survey more than one time, only their first response was considered. The number of subjects in the subject pool who chose to complete the prescreening survey determined sample size. In addition, 88 students from the University of Michigan also completed the same survey. Of this group, those who confirmed that they were able to think of a real stressor were included in our final sample of 886.[1]

Procedure. Participants were first prompted to think of a specific future stressor:

> Take a few moments right now to think about a specific future experience that you worry about happening to you from time to time. This could be as minor as worrying about failing an exam or more serious as having a terminal illness.

[1] We also conducted analyses for Studies 1 and 3 that included only students who thought of a real worry and indicated that they were highly proficient in English (Study 1: n = 696; Study 3: n = 785). For Study 1, results of correlations with self-distancing and mediation pathways did not differ substantively, except that the correlation with thought content did not reach significance and the correlation with likelihood became significant, $r(690) = -.11$, $p < .01$; both were marginal in the main analysis. Study 3 results did not differ substantively when using this sample. We did not have data on English fluency for Study 2. However, participants were from a high-performing magnet school with no English language learner students. We are therefore confident that all participants were highly proficient in English.

Next, participants were asked to spend a few minutes trying to understand the causes and reasons underlying their thoughts and feelings surrounding the future stressor:

> Now that you've thought of a specific worry-provoking experience, spend a few moments right now focusing on the causes and reasons underlying the thoughts and feelings you experience as you think about it. Try to understand why you're feeling the way you are as you think about this experience. Take a few minutes to do this.

Afterward, they completed the measures that follow.

Measures. Unless otherwise indicated, measures were on a seven-point Likert scale anchored at 1 (*strongly disagree*) and at 7 (*strongly agree*). Descriptive statistics are provided in Table 1.

Spontaneous self-distancing. Spontaneous self-distancing during the visualization was assessed using an item reported in previous research (Ayduk & Kross, 2010; Grossmann & Kross, 2010): "As you visualized your worrisome future experience in your mind's eye, to what extent did you feel like you were a distanced observer of what was happening (i.e., watched the event unfold from the perspective of an observer, in which you could see yourself from afar) vs. an immersed participant in the experience (i.e., saw the event replay through your own eyes as if you were right there)?" Participants answered this question on a seven-point Likert scale, ranging from 1 (*predominantly immersed participant*) to 7 (*predominantly distanced observer*).

Emotional reactivity. Participants answered two items assessing negative affect during the visualization: "Thinking about the event in this study made me feel negatively (e.g., anxious, nervous, apprehensive)" and "As I thought about the event, my emotions and physical reactions to these future concern(s) were intense." These items were adapted from prior self-distancing research (Kross et al., 2005; Ayduk & Kross, 2010) to refer to a future stressor. Scores on these two items, $r(872) = .61$, $p < .01$, were combined to create an index of emotional reactivity.

Thought content (recounting–reconstrual). Recounting was measured with a statement adapted from prior self-distancing research to refer to a future stressor (Ayduk & Kross, 2010): "My thoughts focused on the specific chain of events [e.g., sequence of events that would unfold; what can really happen; what I would say, feel or do] as I thought about the experience in this study."

Reconstrual was assessed using three items: "As I imagined and thought about this future experience during the study, I had a realization that led me to experience a sense of closure about my fears and concerns about this event," "As I imagined and thought about this future experience during the study, I had a realization that caused me to think differently about it," and "Thinking about the future event during the study led me to have a clearer and more coherent understanding of my emotions surrounding the possibility of this event." These items were adapted from Ayduk and Kross (2010) to refer to a future event. Scores on these items were combined to create a total reconstrual score ($\alpha = .79$).

Following prior research (Ayduk & Kross, 2010; Kross & Ayduk, 2008; Kross et al., 2005, 2011), we assessed the balance between these two types of thought content by subtracting reconstrual from recounting. Thus, higher scores on this index reflected the predominance of recounting relative to reconstruing, which served as our key thought content mediator.

Imagery vividness. Imagery vividness was measured with two items: "My imagination of the event was clear and vivid" and "The experience felt real, as if it were really happening to me, when I imagined it during the study." Item scores, $r(865) = .62$, $p < .01$, were averaged to form an imagery vividness score.

Estimated likelihood. Participants' perceptions of event likelihood were measured with the item, "I believe that this event is very likely to happen in the future."

Self-efficacy. Self-efficacy regarding coping with their future stressor was measured with the item, "If I were to face this situation tomorrow, I could handle it well."

Stressor type. Participants from Berkeley ($n = 801$) were asked to "briefly describe the stream of thoughts that flowed through your mind as you thought about this anticipated event." Two coders determined whether these responses indicated three types of stressors: social, school, or health. From these codes, stressors were sorted into five categories: social only, school only, health only, multiple stressors (e.g., school and health), or uncodeable (i.e., none of the above). Interrater reliability was acceptable ($k = .72$); disagreements were settled by a third coder.

Results

Preliminary analyses confirmed that continuous variables were normally distributed (skewness and kurtosis values were within $+/-1$) and that there were no outliers >3 standard deviations from the mean. See Table 1 for full correlation matrix. All following analyses control for sample using the larger sample from Berkeley as the reference group.[2] Bootstrapping results for correlations were derived from 10,000 samples.

As hypothesized, spontaneous self-distancing was associated with lower levels of emotional reactivity, $r_p(879) = -.14$, $p < .01$, bootstrapped 95% CI [–.22, −.07]. Unlike previous research with past events, self-distancing was only marginally related to thought content (i.e., the predominance of recounting over reconstrual), $r_p(873) = -.06$, $p = .09$, bootstrapped 95% CI [–.13, .01], and was not significantly related to either of its individual components (i.e., recounting, $r_p(873) = -.02$, $p = .48$, bootstrapped 95% CI [–.10, .05], and reconstrual, $r_p(877) = .05$, $p = .11$, bootstrapped 95% CI [–.02, .13]). Self-distancing was related to lower vividness of one's visualization, $r_p(875) = -.16$, $p < .01$, bootstrapped 95% CI [–.24, −.08], and marginally lower likelihood estimates, $r_p(875) = -.06$, $p = .06$, bootstrapped 95% CI [–.14, .01], but was unrelated to self-efficacy, $r_p(873) = .04$, $p = .28$, bootstrapped 95% CI [–.04, .11].[3]

Stressor type. Participants thought about a range of stressors: 17.10% of responses referred to a social stressor, 21.10% referred to school stressors, 4.37% referred to health stressors, 7.37%

[2] Considering relations among self-distancing and other variables collected in Study 1, only the correlation with likelihood was moderated by sample ($\Delta R^2 = .01$, $p < .01$). The Michigan sample differed from both Berkeley samples (Sample × Distance interactions: $B = 0.38$, $p < .01$, and $B = 0.32$, $p < .01$). Specifically, the relation was negative in the Berkeley samples, $r(281) = –.14$, $p = .02$, and $r(511) = –.07$, $p = .10$, but it was positive in the Michigan sample, $r(81) = .24$, $p = .03$.

[3] Although we collected likelihood estimates as a dependent variable, it is possible that events perceived to be less likely are hypothetically distanced from the here and now and elicit less emotion (e.g., Trope & Liberman, 2010). Thus, we tested whether self-distancing still predicted lesser emotional reactivity when controlling for likelihood estimates in Studies 1 through 3; the relationship remained significant in all cases ($ps < .01$), ruling out this alternative account for our effects.

Table 1
Study 1: Descriptive Data and Correlations

Measure	*n*	*M*	*SD*	1	2	3	3a	3b	4	5	6
1. Spontaneous self-distancing	884	3.78	1.76	—	−.14**	−.06†	−.02	.05	−.16**	−.06†	.04
2. Emotional reactivity	885	4.97	1.31		—	.23**	.33**	.05	.34**	.15**	−.35**
3. Thought content (recounting–reconstrual)	879	1.51	1.77			—	.68**	−.62**	.14**	.01	−.26**
3a. Recounting	879	4.97	1.41				—	.15**	.34**	−.01	−.02
3b. Reconstrual	883	3.46	1.31					—	.18**	−.03	.33**
4. Imagery vividness	881	4.12	1.43						—	.13**	.03
5. Estimated likelihood	881	4.12	1.63							—	−.03
6. Self-efficacy	879	3.10	1.68								—

Note. Correlations control for sample.
† $p < .10$. ** $p < .01$.

referred to more than one stressor, and 39.45% were uncodeable. The remaining 10.61% of participants either left the item blank or otherwise refused to respond (e.g., responded "I politely decline"); these data points were treated as missing for stressor type analyses. Self-distancing did not differ by stressor type, $F(4, 709) = 1.06$, $p = .38$.

Mediation analyses. To test whether imagery vividness or thought content mediated the relation between self-distancing and reactivity, we conducted bias corrected bootstrapping tests (Hayes, 2013) with 10,000 replications (see Figure 1). In a joint mediation model, self-distancing predicted attenuated emotional reactivity indirectly through vividness (indirect effect = −0.04, bootstrapped 95% CI [−0.06, −0.02]) but not through thought content (indirect effect = −0.01, bootstrapped 95% CI [−0.02, 0.00]), thus lending support to the notion that spontaneous self-distancing relates to lower emotional reactivity in future oriented events more through visualization than thought content.

Summary and Discussion

Consistent with the effects of self-distancing from past emotional experiences (Ayduk & Kross, 2010; Grossmann & Kross, 2014; Verduyn et al., 2012; White et al., 2015), spontaneous self-distancing was linked to less anxious reactivity when participants reflected on their anticipated future experiences. Previous work has also found that this relation is mediated by the content of one's thoughts about the stressor, specifically that self-distancing relates to less recounting relative to reconstrual of the event (Ayduk & Kross, 2010). Although thought content (i.e., recounting–reconstruing) was marginally related to self-distancing, we did not find it to be a significant mediator in the current study. Instead, the relation between self-distancing and emotional reactivity was explained, at least in part, through the vividness with which participants imagined the anxiety-provoking event. Thus, the current research aligns with prior research indicating that vivid emotional imagery can intensify negative emotions (Holmes & Mathews, 2005).

In addition, greater self-distancing was marginally associated with seeing one's stressor as less likely to occur, though not with greater feelings of self-efficacy regarding that stressor. Importantly, the correlational design employed in Study 1 demonstrated that these relations occur naturally when spontaneously adopting a self-distanced perspective during the visualization task.

Study 2

Study 2 serves to address these findings in a younger population of middle and high school students. Like adults in Study 1, adolescents were asked to imagine a future event that caused them to worry, after which they reported on how they thought and felt about the event.

Method

Participants. Participants were 552 students (sixth to 12th grade) at an urban school in the Northeast United States. Opt-out parental consent and child assent were obtained for all participants prior to completing the study, which was approved by the University of Pennsylvania institutional review board. A small number of students (<1%) were excluded from further analyses because they said they could not think of something that made them anxious and were unable to describe an event they worried about. The final sample ($N = 547$; 300 girls, 247 boys; $M_{grade} = 9.39$, $SD = 1.93$) was diverse with 36.6% of students reported as White, 19% Asian, 19%, Black/African American, 2.7% Hispanic, 2.7% multiracial or "other"; demographic data were not reported for the remaining 19.9%.

Procedure. Students were tested in class during the school day using computer-administered surveys. A researcher was present during all testing sessions to field students' questions.

Measures.

Memory prompt. Following a brief introduction, students were prompted to think of an event that made them feel anxious using the following instructions, which were delivered via audio recording and adapted for adolescents from prior work (Ayduk & Kross, 2010):

> No matter how happy people are with their lives, there are times that they worry or become anxious about things that might go wrong in the future.
>
> Take a few moments right now to think about a specific experience that you're worried could happen to you in the future. This could be something like taking an important test, getting your final grades, getting into your favorite college, speaking or performing in front of a crowd, or meeting someone new. But really, it could be any experience that makes you anxious.

Once students were able to think of something that made them anxious, they were told to imagine the event happening in their

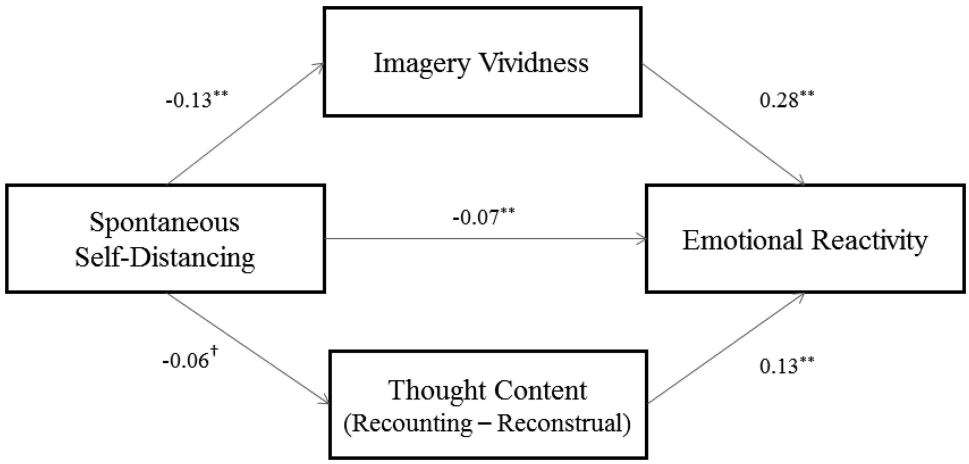

Figure 1. Study 1: Spontaneous self-distancing predicts emotional reactivity indirectly through imagery vividness but not through thought content for young adults ($n = 875$). Values represent unstandardized regression coefficients. Analyses controlled for sample. † $p < .10$. ** $p < .01$.

imagination. When they were ready to continue, they were prompted to take at least 30 seconds to think about why they were feeling anxious about this experience.

> Now that you've thought of a specific experience that makes you worry or feel anxious, take some time to try to understand the causes and reasons for thoughts and feelings you have as you think about it. Why do you feel the way you do? What are the causes and reasons for your feelings? Take your time to really understand why you are worried or anxious about this experience.

Survey questions. Descriptive data and reliability statistics for all survey measures are provided in Table 2. Unless otherwise indicated, the following measures used a seven-point Likert scale anchored at 1 (*completely disagree*) and at 7 (*completely agree*).

Spontaneous self-distancing. As in Study 1, we assessed self-distancing by asking adolescents to rate the item: "A few moments ago, when you saw this future experience in your imagination how much did you feel like you were seeing it through your own eyes versus watching the experience from a distance (like watching yourself in a movie)?" (1 = *completely through my own eyes*, 7 = *completely from a distance*). In addition, to increase reliability this study included a second item that has also been included in past research on self-distancing (Ayduk & Kross, 2010; Kross et al., 2011, 2014; White et al., 2015): "When you saw this experience happen in your imagination a few moments ago, how far away from the experience did you feel?" (*1 = very close*, 7 = *very far*). Ratings on these two items, $r(545) = .24$, $p < .01$, were combined on an a priori basis to create a spontaneous self-distancing composite score. Analyses for individual items are provided in the online supplemental material.

Emotional reactivity. Adolescents indicated their current emotional state by rating the following four items: "Please mark the bubble that matches how happy or unhappy you feel right now" (1 = *very unhappy*, 7 = *very happy*; reverse scored prior to analysis[4]), "Thinking about this experience made me feel anxious, nervous, or worried," "When I thought about this experience, my feelings were pretty strong," and "When I thought about this experience, I felt the same way I did when I first started to worry about it." Ratings were averaged to create an emotional reactivity index ($\alpha = .57$).

Thought content (recounting-reconstrual). Adolescents rated their agreement with the statement, "When I thought about this experience, I saw it happening step-by-step, from beginning to end" to operationalize recounting. They also rated their agreement with the following reconstrual items: "When I thought about this experience just now, I understood why it makes me feel anxious better than I did when I first started to worry about it," and "When I thought about this experience, I realized something that made it bother me less," $r(545) = .27$, $p < .01$. We created a thought content variable by subtracting reconstrual from recounting; higher scores reflected the predominance of recounting relative to reconstruing.

Imagery vividness. We asked adolescents "When you thought about this experience a few moments ago, how much did it feel real or imagined?" (1 = *very real*, 7 = *very imagined*). This variable was reverse coded prior to analyses to align with the items used in Studies 1 and 3.

Estimated likelihood. Adolescents' perceptions of event likelihood were assessed through the item "How likely is it the experience you thought about will really happen in the future?" (1 = *it definitely will not happen*, 5 = *it definitely will happen*).

Stressor type. Students were asked to indicate whether their concerns were related to "school or another academic concern (e.g., grades, tests, or getting into college)," "a social experience (e.g., meeting new people or performing in front of people), "health (e.g., getting sick)," "other," or "I could not think of anything."

Results

Preliminary analyses confirmed that variables were within acceptable limits for both skewness and kurtosis (+/−2) and there

[4] We also asked a nearly identical question at baseline (i.e., before asking students to think of something that makes them worry). Controlling for affect at baseline does not substantively alter any correlations with self-distancing.

Table 2
Study 2: Descriptive Data and Correlations

Measure	*M*	*SD*	1	2	3	4	4a	4b	5	6
1. Grade	9.39	1.93	—	.06	.08†	−.04	−.17**	−.14**	−.08†	.06
2. Spontaneous self-distancing	3.39	1.40		—	−.14**	−.24**	−.21**	.11*	−.38**	−.07
3. Emotional reactivity	4.75	1.04			—	.15**	.10*	−.11**	.28**	.08†
4. Thought content (recounting–reconstrual)	−.35	2.30				—	.76**	−.60**	.23**	.10*
4a. Recounting	3.36	1.85					—	.06	.26**	.04
4b. Reconstrual	3.71	1.49						—	−.03	−.12**
5. Imagery vividness	4.76	1.58							—	.16**
6. Likelihood	3.75	1.08								—

† $p < .10$. * $p < .05$. ** $p < .01$.

were no outliers >3 standard deviations from the mean. Bootstrapping analyses for correlations used 10,000 samples.

Spontaneous self-distancing was negatively related to emotional reactivity, $r(545) = -.14$, $p < .01$, bootstrapped 95% CI [–.23, −.05], suggesting that students who spontaneously self-distanced from negative thoughts were better able to regulate their emotions. As expected, self-distancing also correlated negatively with imagery vividness, $r(545) = -.38$, $p < .01$, bootstrapped 95% CI [−.46, −.31]. Unlike Study 1, however, self-distancing was also related to lower levels of recounting, $r(545) = -.21$, $p < .01$, bootstrapped 95% CI [–.29, −.13], and higher levels of reconstrual, $r(545) = .11$, $p = .01$, bootstrapped 95% CI [.02, .20], as well as the balance between the two (i.e., thought content), $r(545) = -.24$, $p < .01$, bootstrapped 95% CI [–.32, −.16]. Self-distancing was not related to students' perceptions that the event was more or less likely to happen, $r(545) = -.07$, $p = .11$, bootstrapped 95% CI [–.16, .02]. See Table 2 for full correlation matrix.

Stressor type. Responses were varied: 56.31% of students reported that they worried about school-related events, 25.96% reported on social experiences, 2.74% reported health concerns, and 14.44% reported on other worries that they felt did not fit the given categories. Three students (0.55%) indicated that they "could not think of anything"; for the purposes of this variable, their responses were treated as missing data. (However, these students were included in the full sample because they responded to an open-ended question asking them to describe their stressor.) Self-distancing did not differ by stressor type, $F(3, 540) = 2.25$, $p = .08$; no Bonferroni-corrected pairwise comparisons reached significance.

Mediation analyses. As in Study 1, we investigated the possibility that thought content and imagery vividness jointly mediate the relation between self-distancing and emotional reactivity (see Figure 2). Bias corrected bootstrapping analyses (Hayes, 2013) with 10,000 replications supported the hypothesis that self-distancing predicts lower emotional reactivity, at least in part, through less vivid visualizations of the event (indirect effect = −0.07, bootstrapped 95% CI [−0.11, −0.04]). We did not find evidence that self-distancing predicts emotional reactivity indirectly through thought content (indirect effect = −0.02, bootstrapped 95% CI [−0.04, 0.00]).

Summary and Discussion

Our findings with adolescents replicate most of the main results with adults in Study 1: The more adolescents self-distanced from a worrisome future event, the less worry they reported about the experience. Notably, this relation was explained in part by adolescents' less vivid visualizations of the event. In the same joint

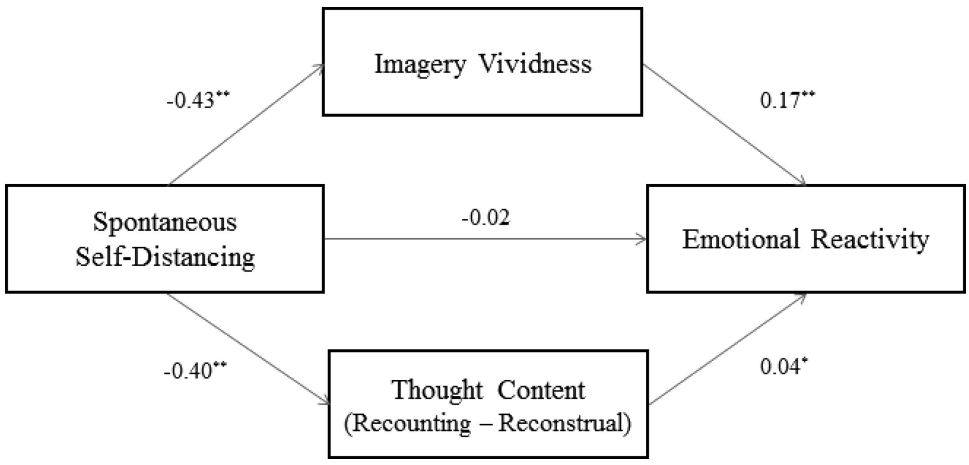

Figure 2. Study 2: Spontaneous self-distancing predicts emotional reactivity indirectly through imagery vividness but not through thought content for adolescents ($N = 547$). Values represent unstandardized regression coefficients. * $p < .05$. ** $p < .01$.

mediation model, we did not find evidence that self-distancing was related to lower emotional reactivity through changes in thought content (predominance of recounting over reconstrual) above and beyond vividness. However, replicating prior research focusing on past events, self-distancing was related to lower levels of recounting and higher levels of reconstrual, as well as the balance between the two. This result is in line with the weaker trends seen in Study 1, but the more controlled testing environment of Study 2 may have strengthened our power to detect this effect.

Adolescents who self-distanced were no more or less likely to believe the stressful event would actually come to pass. Although we found evidence that self-distancing was marginally related to decreased feelings of likelihood of the event actually happening for adults in Study 1, we did not find this to be the case for adolescents. Further research is needed to understand the relation between self-distancing and likelihood and to determine whether this was simply a matter of power to detect an effect or whether developmental factors could be at play in this discrepancy.

Study 3

Although Studies 1 and 2 provided evidence for a relation between self-distancing and emotional reactivity in dealing with future-related worries, they were limited in their ability to establish a causal effect of self-distancing. Thus, in Study 3, we tried to build upon these findings through experimental manipulation of visual perspective upon a future stressor. Participants in Study 3 generated a specific personal future stressor, were directed to either self-distance or self-immerse while trying to understand the reasons underlying their thoughts and feelings about this stressor, and then reported on their emotional state and several aspects of their visualization.

We expected to replicate the effects obtained in Studies 1 and 2, such that self-distancing relative to self-immersing would attenuate emotional reactivity and imagery vividness, and that vividness would mediate the relationship between self-distancing and reactivity.

Method

Participants. Participants were 1,018 undergraduates (618 women, 330 men, 70 did not indicate gender; $M_{age} = 20.08$, $SD = 3.58$) who completed this study online in exchange for psychology course credit as part of a large packet of prescreening surveys at University of California, Berkeley. The Berkeley institutional review board approved this research and all participants provided consent before participating. Different courses were assigned to receive one of two different prescreening packets; the self-distancing prompt was in one packet, and the self-immersing prompt was in another packet. Courses were assigned to each packet on the basis of class size so that each packet went out to roughly equal numbers of students. In addition, each packet was distributed to roughly the same number of lower and upper-division courses. Thus, although course assignment to condition was not completely random, it did not depend on course content or participant characteristics. Sample size was determined by the number of subjects who elected to complete each packet including demographic information. As in Study 1, we included students who indicated that they were able to think of a stressor, leaving a final sample of ($N = 911$).

Procedure. Participants were asked to think of a specific future stressor, using the same prompt as in Study 1. Next, participants were asked to assume one of two perspectives on this stressor:

> [Self-immersed condition ($n = 532$)]. Now that you've thought of a specific worry-provoking experience, close your eyes and imagine yourself in that experience in your mind's eye. Now imagine the event unfold through your own eyes as if it were happening to you. See the event as it unfolds in your imagination.
>
> [Self-distanced condition ($n = 379$)]. Now that you've thought of a specific worry-provoking experience, close your eyes and imagine yourself in that experience in your mind's eye. Now take a few steps back. Move away from the event in your imagination to a point where you can now watch the experience unfold from a distance and see yourself in the event. As you do this, focus on what has now become the distant you. Now watch the situation unfold as if it were happening to the distant you. See the event as it unfolds in your imagination.

Participants in both conditions were then asked to spend a few minutes visualizing the event from their assigned perspective (immersed vs. distanced) while trying to understand the causes and reasons for the emotions they were experiencing over their stressor.

> [Self-immersed condition]. As you continue to see the situation unfold through your own eyes, try to understand the emotions that you're experiencing. Why do you have those feelings? What are the underlying causes and reasons? Take a few minutes to do this.
>
> [Self-distanced condition]. As you continue to watch the situation unfold to your distant self, try to understand the emotions that the distant you is experiencing. Why does he (she) have those feelings? What are the underlying causes and reasons? Take a few minutes to do this.

Afterward, participants answered a series of questions about their visualization, and reported on their self-immersion versus self-distancing while visualizing their stressor.

The decision to omit a neutral control condition was made in light of previous research that found no differences between self-immersion and neutral control conditions (Mischkowski, Kross, & Bushman, 2012; White & Carlson, 2016). Such findings suggest that self-immersion is people's default perspective. This makes theoretical sense (see Tulving, 1983) and is consistent with the memory literature that shows that first person perspective is the default perspective from which autobiographical memories (e.g., Crawley & French, 2005), particularly those that are emotionally valenced (e.g., D'Argembeau, Comblain, & Van der Linden, 2003; Nigro & Neisser, 1983) are remembered.

Measures.

Survey measures. Participants answered the same set of questions used in Study 1 (on the same seven-point rating scale), and all dependent measures were calculated just as they were in Study 1. Thus, each participant had scores on the following measures: emotional reactivity (items correlated at $r[899] = .62$, $p < .01$), recounting, reconstrual ($\alpha = .77$), imagery vividness (items correlated at $r[888] = .67$, $p < .01$), estimated likelihood, and self-efficacy.

Manipulation check. To assess the effectiveness of our self-distancing manipulation, participants indicated the extent to which

they felt like an immersed participant in the experience during the visualization (seeing the event replaying through their own eyes) versus a distanced observer of what was happening (watching the event unfold from afar) on a seven-point Likert scale (1 = *predominantly immersed participant*, 7 = *predominantly distanced observer*).

Results

Although participants were nested within courses, they completed the packets individually during the very first week of classes. Furthermore, we did not have data on which participants came from which courses; thus, we treated participants as independent observations in our analyses.[5] Preliminary analyses indicated that variables were normally distributed (skewness and kurtosis values within +/−1) and did not reveal any outliers (i.e., values >3 standard deviation from the mean). Participants in the self-distanced condition were slightly older at baseline ($M = 20.49$, $SD = 3.70$) than participants in the self-immersed condition ($M = 19.69$, $SD = 3.38$), $t(850) = -3.26$, $p < .01$; however, controlling for age does not substantively change any of the primary self-distancing analyses presented in Study 3.

Scores on our dependent variables were compared between conditions using independent sample *t* tests. Variance differed across conditions for several key variables; thus, *t* tests presented below with noninteger degrees of freedom have been adjusted to account for unequal variances. For effect sizes, we calculated Glass's delta (Δ; Glass, McGaw, & Smith, 1981) by dividing the difference between condition means by the standard deviation of the larger, self-immersed group. See Table 3 for descriptive and test statistics for Study 3.

Manipulation check. Participants in the self-distancing condition reported being significantly more distanced from the self during their visualization than participants in the immersion condition, $t(886.26) = -5.11$, $p < .01$, $\Delta = 0.31$; our manipulation thus effectively created differences in self-distancing between conditions.

Dependent measures. Experimentally replicating the key findings of the previous two studies, self-distancing significantly reduced emotional reactivity, $t(909) = 5.99$, $p < .01$, $\Delta = 0.41$, and imagery vividness, $t(871.88) = 2.14$, $p = .03$, $\Delta = 0.13$, during the visualization. Consistent with Study 2, self-distancing also affected thought content, $t(868.26) = 2.79$, $p < .01$, $\Delta = 0.17$ by leading to higher levels of reconstrual relative to recounting. Individually, reconstrual increased in the distancing condition but recounting did not differ between conditions, $t(885.39) = -2.33$, $p = .02$, $\Delta = 0.14$, and $t(881.20) = 1.40$, $p = .16$, $\Delta = 0.08$, respectively. In contrast to the results of Study 1, people in the self-distancing condition reported greater self-efficacy than those in the self-immersed condition, $t(848.10) = -3.09$, $p < .01$, $\Delta = 0.20$. Finally, self-distancing did not affect estimated likelihood of the event, $t(867.27) = -1.38$, $p = .17$, $\Delta = 0.09$.

Mediation analysis. To test whether imagery vividness and thought content mediated the relation between the self-distancing condition and reactivity, we conducted bias corrected bootstrapping analyses with 10,000 replications (Hayes, 2013). Condition was dummy coded such that self-immersed = 0, and self-distanced = 1. Results are consistent with the claim that self-distancing, compared to self-immersion, decreases emotional reactivity indirectly through both imagery vividness (indirect effect = −0.04; bootstrapped 95% CI [−0.09, −0.01]) and thought content (indirect effect = −0.05; bootstrapped 95% CI [−0.10, −0.02]). See Figure 3.

Summary and Discussion

In sum, Study 3 obtained causal evidence for self-distancing reducing reactivity in response to a visualized future stressor. In contrast to the correlational studies presented in the preceding text, this experimental research found that the effects of self-distancing on emotional reactivity were mediated by both vividness of the visualization, and the classic self-distancing mediator of thought content. We also found that self-distancing significantly increased feelings of self-efficacy for coping with a future stressor in this sample. Although we cannot be sure why these results differ from the correlational studies reported above, it is possible that this experimental study benefited from explicit instructions to self-distance. In turn, this could have resulted in greater effects on downstream consequences such as thought content and feelings of self-efficacy. In line with Study 2, we found no effect of self-distancing upon estimated likelihood.

Meta-Analysis

The relation between self-distancing and the primary outcome variables of emotional reactivity and imagery vividness was robust across studies. However, the relation between self-distancing and thought content, as well as several secondary outcome variables, varied in size and significance across the aforementioned studies. Likewise, imagery vividness consistently mediated the relation between self-distancing and emotional reactivity, but thought content did not. Therefore, we further investigated these effects through a series of meta-analyses.

Method

Using the Hedges–Olkin and Rosenthal–Rubin method (Hedges & Vevea, 1998), we conducted meta-analyses of the bivariate correlations in our model across our three studies. Bivariate correlations were entered for Studies 1 and 2. (Results did not differ substantively when we entered partial correlations for Study 1, which controlled for sample.) For Study 3, condition was dummy

[5] Because assignment to condition was not completely random, one might be concerned about confounding factors explaining the group differences we found. Another way to examine the data that bypasses this concern is to examine how individual differences in self-distancing, as measured by the manipulation check variable, relate to key outcomes of interest (instead of treating the design as experimental). Therefore, we ran a series of Pearson correlations using our self-distancing manipulation check variable. Across conditions, individual differences in self-distancing mirrored the results of Studies 1 and 2: Greater self-distancing was related to lower emotional reactivity, $r(907) = -.19$, $p < .01$, less recounting relative to reconstruing (i.e., thought content), $r(905) = -.13$, $p < .01$, less vivid visualizations, $r(907) = -.16$, $p < .001$, and greater self-efficacy, $r(902) = .09$, $p < .01$. This replication of the individual difference findings from Studies 1 and 2 makes it difficult to imagine how a potential confound would predict all of these hypothesized results.

Table 3
Study 3: Descriptive and Test Statistics

Measure	Distanced *M* (*SD*)	Immersed *M* (*SD*)	*t*	*df*	*p*	95% CI	Δ
Self-distancing	4.11 (1.48)	3.56 (1.79)	−5.11	886.26	<.01	[−0.77, −0.34]	0.31
Emotional reactivity	4.72 (1.31)	5.24 (1.29)	5.99	909	<.01	[0.35, 0.69]	0.41
Thought content (recounting–reconstrual)	1.18 (1.67)	1.52 (1.90)	2.79	868.26	<.01	[0.10, 0.56]	0.17
Recounting	4.86 (1.33)	4.99 (1.57)	1.40	881.20	.16	[−0.05, 0.33]	0.08
Reconstrual	3.67 (1.17)	3.47 (1.40)	−2.33	885.39	.02	[−0.37, −0.03]	0.14
Imagery vividness	3.96 (1.33)	4.16 (1.53)	2.14	871.88	.03	[0.02, 0.39]	0.13
Estimated likelihood	4.20 (1.55)	4.04 (1.77)	−1.38	867.27	.17	[−0.37, 0.06]	0.09
Self-efficacy	3.23 (1.62)	2.88 (1.78)	−3.09	848.10	<.01	[−0.58, −0.13]	0.20

Note. Tests with noninteger degrees of freedom have been adjusted to account for unequal variances across conditions. 95% CI is the 95% confidence interval of the difference. Δ = Glass's delta.

coded (0 = immersed, 1 = distanced) and entered into correlational analyses. In this method, correlations within studies are submitted to a Fisher *r*-to-*z* transformation, weighted by sample size, and averaged across studies to compute an average *z* score. This average *z* score is then divided by the standard error to estimate a Z_{obt} statistic with a corresponding *p* value (for a similar approach, see Kross et al., 2014; Zayas & Shoda, 2005).

We then conducted a meta-analysis of the joint mediation results using the protocols described above for correlations. In this case, *Z* statistics for indirect effects through vividness and thought content were obtained from Sobel's tests (Hayes, 2013), converted to *r*, and then entered into the meta-analysis.

Results and Discussion

As noted in Table 4, meta-analyses confirmed that self-distancing significantly predicted lower emotional reactivity and imagery vividness across the three studies presented above. They also confirmed the indirect effect of self-distancing on emotional reactivity through vividness. Notably, although results of these individual studies varied in the strength of the relation between self-distancing and thought content, the meta-analysis revealed a significant negative correlation between these constructs across studies. Moreover, looking at the individual components of thought content, self-distancing predicted lower levels of recounting and higher levels of reconstrual, thus mirroring previous research regarding reflection on past negative events (Kross & Ayduk, 2011). However, the meta-analysis of the indirect effect of self-distancing on emotional reactivity through thought content was only marginally significant.

Meta-analyses (see Table 4) also confirmed that self-distancing was not related to the perceived likelihood that an anticipated negative event would actually happen in the future (see Table 4). The lack of a significant relation between self-distancing and perceived likelihood of the event suggests that the marginally significant results of Study 1 may have been due to chance or characteristics of this particular sample. Finally, self-distancing was related to greater feelings of being able to cope with the worrisome future event. Kross et al. (2014) found similar results when participants were asked to perform a stressful speech task: Self-distancing led participants to focus more on the positive attributes that would allow them to complete the speech successfully as opposed to the threat created by the stressful situation.

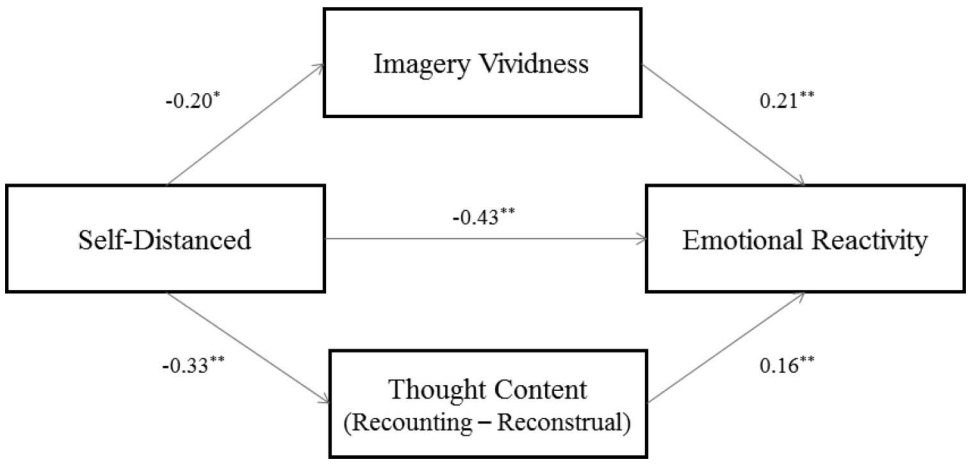

Figure 3. Study 3: Self-distancing, compared with self-immersion, predicts emotional reactivity indirectly through imagery vividness and thought content for young adults (n = 908). Values represent unstandardized regression coefficients. * $p < .05$. ** $p < .01$.

Table 4
Meta-Analyses of Correlations and Indirect Effects Across Studies 1 Through 3

Analyses	*n*	Z_{obt}	*p*
Correlations with self–distancing			
Emotional reactivity	2,341	−7.93	<.01
Thought content	2,333	−5.60	<.01
Recounting	2,333	−3.80	<.01
Reconstrual	2,339	3.63	<.01
Imagery vividness	2,336	−8.85	<.01
Estimated likelihood	2,335	−1.12	.26
Self-efficacy	1,782	2.96	<.01
Indirect effects of self-distancing on emotional reactivity through			
Vividness	2,330	−3.13	<.01
Thought content	2,330	−1.77	.08

Note. All analyses contain data from three studies, with the exception of self-efficacy, which was collected in Studies 1 and 3 only. Z_{obt} scores are average weighted effect sizes for Studies 1–3, divided by the *SE*.

General Discussion

The present work investigated whether benefits seen in previous research concerning self-distancing in relation to negative past experiences extend to reflecting on future negative events. We found this to be the case for both adults and adolescents, and in both spontaneous and experimental contexts. Across all studies, the present work provided evidence that self-distancing can effectively attenuate emotional reactivity when applied to future stressors.

Together these studies suggest that visual self-distancing has similarly beneficial effects on emotion regulation when applied to future negative events as has been documented for past negative events (Kross & Ayduk, 2011). These similar results could be attributable to shared processes for past and future events in episodic memory (Storm & Jobe, 2012; Tulving, 2005) and more work is needed to investigate this possibility. They also provide convergent evidence with studies of linguistic self-distancing that have looked at emotion regulatory benefits for future negative events. For example, this research has found that reflecting on an impending stressor using non-first-person self-talk (i.e., using "you" or one's own name to refer to oneself) can decrease anxiety (Kross et al., 2014). It should be noted however, that Kross and colleagues (2014) found the shared variance between visual self-distancing and non-first-person self-talk was only 8%; thus, though related, these two forms of self-distancing do not appear to be the same process. Investigating each independently continues to be important for future work.

The effect sizes for the relation between self-distancing and emotional reactivity in future-oriented contexts were within the range of effect sizes observed in prior research on self-distancing and emotional reactivity in past-oriented contexts (for individual difference studies, *r*s: −.13 to −.48; for experimental designs, *d*s: 0.24 to 0.72) but relatively small. However, small effects are not necessarily unimportant or uninformative. For example, the current studies were run as part of online mass testing sessions (Studies 1 and 3) and in classrooms (Study 2) where we could not control distractions and other testing conditions as closely as in a lab setting. That we continue to see significant effects that are consistent with our a priori predictions in the face of this added noise speaks to the applicability of the findings to people's daily lives. Indeed, many of the theoretically and practically important relationships in the "real world" tend to be quite small (e.g., asbestos and cancer [r = .08]; calcium intake and bone density [r = .12]; second hand smoking and lung cancer [r = .14]; condom use and reduced risk of HIV [r = .17]; Bushman & Anderson, 2001). And yet these small effects guide wide-scale national policies regarding exposure to toxins, health care, smoking, and so on.

The second goal of this research was to examine the mechanisms through which self-distancing attenuates emotional reactions to anticipated future events. Here, drawing from work on prospective mental imagery (Holmes & Mathews, 2010; Holmes et al., 2009), we proposed that imagery vividness might mediate the relation between self-distancing and emotional reactivity in this context. Across studies, greater self-distancing when reflecting on the future was associated with less vivid imagery, which in turn predicted lower emotional reactivity. It is possible that self-distancing led to less vivid mental imagery during reflection because it requires higher levels of mental construal. According to the construal level theory of psychological distancing (Liberman & Trope, 2008), distancing from one's personal experience in the here and now requires greater mental construction of the experience and therefore, leads to less detailed visualization. This process could have resulted in self-distancers imagining future negative events as less vivid. In turn, less vivid emotional imagery can decrease negative emotions (Holmes & Mathews, 2005). Current results suggest that the emotional benefits of this process could have important implications for the development of anxiety treatments and interventions.

Prior research has shown that self-distancing impacts emotional reactivity, at least in part, by leading people to reconstrue their experiences in ways that promote insight and closure, as opposed to recounting the details of the event (e.g., Kross & Ayduk, 2008; Kross et al., 2005, 2011). As expected, self-distancing from future-oriented worries predicted greater reconstrual of the event across all three studies. We were less certain about whether self-distancing would predict recounting when applied to future events because, compared to past events, future ones naturally contain fewer details (Johnson et al., 1988). Across studies, distancing did predict less recounting of details. It also predicted an adaptive balance of these two thought processes, namely a predominance of reconstruing relative to recounting. However, when pitted against vividness, thought content only marginally mediated the relation between self-distancing and emotional reactivity. This finding is consistent with research showing that our emotions about future events might be particularly impacted by visual imagery (Van Boven & Ashworth, 2007).

Finally, we set out to explore two novel outcomes related to future stressors: the perceived likelihood that the anticipated negative event would actually come to pass and feelings of self-efficacy for coping with the stressor. Self-distancing was not related to whether participants thought the event they worried about would actually occur. It did, however, predict increased feelings of self-efficacy. Participants who self-distanced when reflecting on their worries were more likely to report that they felt able to handle the upcoming stressor, as was also the case in recent research on linguistic self-distancing (Kross et al., 2014). Taken together, these findings clearly demonstrate that

self-distancing is an adaptive way to approach and allay our concerns about the future.

The current research brings up several questions that are unique to studying self-distancing in the context of future (vs. past) emotional experiences. For instance, what happens to individuals who assume different perspectives upon their stressors when those stressors actually come to fruition? Does reduced emotional reactivity and increased self-efficacy lead to greater approach, as opposed to avoidant, behaviors in addressing the upcoming stressor? Future longitudinal research should address these possibilities.

It will also be important to look at moderators of the effects seen here, especially in light of recent work suggesting that these processes are more effective for people scoring high on distress. For example, Kross et al. (2012) showed that the effectiveness of self-distancing for working through negative past experiences increased linearly with depressive symptoms. Similarly, Penner et al. (2016) found that spontaneous self-distancing predicted lower short- and long-term distress among high, but not low, trait anxious parents of pediatric cancer patients. Also, given that the vividness with which individuals imagine negative events has been linked with anxiety disorders (MacLeod et al., 1997; Stöber, 2000), the ability to reduce emotional reactivity via imagery vividness could be especially relevant to clinical populations. These findings underscore the need to further explore the individual differences that determine who could benefit most from self-distancing in future contexts.

The current studies focused on how self-distancing can reduce negative emotion during reflection on an anticipated negative event, that is when asking "why" one is feeling the way they are feeling. On the surface, our results might appear at odds with construal level theory (CLT), which argues that the simple act of asking "why" alone can induce more abstract thought and higher level mental construals and thus, facilitate self-control (e.g., Freitas, Gollwitzer, & Trope, 2004; Fujita et al., 2006). However, both theory and research in clinical science on depression and rumination make the opposite prediction to the CLT perspective and have repeatedly demonstrated that focusing on the reasons underlying one's negative emotions (i.e., rumination) both precipitates and maintains depression (see Nolen-Hoeksema et al., 2008 for review). Given that in the depression literature "why" focus is studied from a first-person perspective by default, the rumination and self-distancing findings complement each other in demonstrating that engaging in a "why" focus by itself undermines rather than facilitates adaptive emotion regulation. On the other hand, as demonstrated by experimental studies on self-distancing, a "why" focus can lead to more adaptive emotional responding to negative events if it is implemented jointly with self-distancing (see Kross & Ayduk, 2017 for review). One potential explanation for this seeming discrepancy between CLT and self-distancing (as well as rumination) might be that empirical work using the CLT tends to focus primarily on how a single dimension of distancing impacts cognition and behavior whereas self-distancing examines the joint effect of two mental operations that both induce high level construals. Therefore, future CLT research might want to systematically examine how multiple dimensions of distancing work together to impact self-control and emotion regulation.

The studies presented here, like all studies, had some limitations worth noting. First, all of this work relied solely on self-report measures. Although this is, to some extent, difficult to avoid when studying abstract thought processes, this method would benefit from additional corroborating measures such as biodata or other more objective performance-based tasks. Second, the self-report measures used here were often based on one or few items, which in some cases had relatively low interitem reliability. However, these limitations should introduce noise to the measurements, thus constraining the ability to detect significant relations between variables in theoretically predicted directions. This did not seem to be the case here. Furthermore, these items, which have high face validity, were directly taken from previous studies on self-distancing. Nevertheless, future work would benefit from more in-depth measurement of these constructs to eliminate such concerns about reliability. Finally, although we did not find that self-distancing differed by the content of one's worry, future research could attempt to better control for potential effects of different stressors by asking for more detailed descriptions, standardizing the stressor that participants are asked to consider, or creating the same stressful experience for all participants.

In conclusion, the present work aimed to extend the phenomenon of visual self-distancing from the domain of past emotions into the domain of future stressors and the prospective mental imagery that such stressors generate. Self-distancing appears to be an effective means of reducing emotional reactivity about future stressors in adolescents and adults, via reducing the vividness of the concomitant mental imagery. These findings raise a novel set of questions for researchers to explore.

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