

**Supplemental Materials**

**A Linguistic Signature of Psychological Distancing in Emotion Regulation**

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## I. Study 1 Task Instructions

You will now complete a number of trials of an emotion regulation task. First you will see the word LOOK or the word CHANGE above a picture and a text box. If you see the word LOOK, then you should just look at the picture and let yourself feel whatever that image makes you feel. Don't try to change your feelings at all, but rather just let them emerge naturally.

If you see the word CHANGE, then you should try to make yourself feel better about the image by rethinking what it means. Try to think about the image in a new way that makes you feel better about it. For example, you might imagine that the image is fake: no one is hurt, what you see is just made of plastic, it's just a scene from a movie, etc. You could also think about how the image is part of a positive story: something positive will soon happen in the picture, or there's something happening outside the picture that actually helps you feel better about it.

While these are on the screen, you will have 30s to write what you are thinking and feeling about the picture. **Make sure that what you write follows the LOOK or CHANGE instructions!** After the picture, you will use a scale to rate how you feel either after just looking or changing your feelings.

## II. Study 2 Task Instructions

*Physical Distance Condition.* In this task, you will see the word "HERE" or the words "NOT HERE" above a picture and a text box. If you see the word "HERE," you should write about the picture using words that make the image seem physically close to you. This means that you should discuss the picture as if it is happening right in front of you. If you see the words "NOT HERE," you should write about the picture WITHOUT using words that make it seem close to you. This means that you should **not** write about it as if it is happening right in front of you. Instead, you can write about how it is happening far away from you. Whatever you decide to write, do not write about it as if it is physically close to you. You will have 30s to write about the picture. After this time, you will use a scale to rate how you feel about the picture.

*Social Distance Condition.* In this task, you will see the word "I" or the words "NOT I" above a picture and a text box. If you see the word "I," you should write about the picture using the word "I". This means that you should discuss how the picture relates to you. If you see the words "NOT I," you should write about the picture WITHOUT using the word "I." This means that you should **not** write about how the picture relates to you. Instead, you can write about how it relates to other people or write about it without referencing people at all. Whatever you write, do not use the word "I." You will have 30s to write about the picture. After this time, you will use a scale to rate how you feel about the picture.

*Temporal Distance Condition.* In this task, you will see the word "NOW" or the words "NOT NOW" above a picture and a text box. If you see the word "NOW," you should write about the picture using words in the present tense. This means that you should discuss the picture as if it is happening right now. If you see the words "NOT NOW," you should write about the picture WITHOUT using the present tense. This means that you should **not** write about it as if it is happening now. Instead, you can write about how it happened in the past or how it will happen in the future. Whatever you write, do not use words in the present tense. You will have 30s to write about the picture. After this time, you will use a scale to rate how you feel about the picture.

### **III. Analyses of Subcomponents of Study 1 Linguistic Distancing Measure**

To ensure that emotion regulation shifted the frequencies of words encoding social and temporal distance within the linguistic distancing composite measure, we used t-tests to test whether use of each component of this variable (i.e., first-person singular pronouns, present-tense verbs, discrepancy words, articles, and words of more than six letters) changed during reappraisal, and we used correlation analyses to test whether greater increases in use of each word category while regulating was associated with greater reappraisal success (see Study 1 methods for further details). Results from these analyses are presented in **Tables S1 and S2**.

Participants reduced their use of first-person singular pronouns (e.g., "I," "me," "my") when regulating their emotions, and participants who showed greater decreases in first-person pronoun use

when regulating were more successful regulators, suggesting that emotion regulation is associated with spontaneous *social* distancing. Participants also used fewer present-tense verbs when regulating, and there was a trending relationship between increased temporal distancing and better reappraisal success, implying that increased *temporal* distance contributes to emotion regulation. The use of discrepancy words (e.g., “could,” “should,” “would”) was reduced when regulating, but there was no relationship between changes in discrepancy word and reappraisal success. Article use increased when participants were regulating their emotions, and greater increases in article use when regulating correlated with improved emotion regulation success. These results are in line with Pennebaker & King’s (1999) demonstration that increased article use coheres with other facets of psychological distancing. The frequency of words greater than 6 letters in length did not vary significantly across conditions, and it did not correlate with reappraisal success. Hence, it may not be central to a linguistic signature of emotion regulation.

**Table S1.** T-tests comparing frequencies of psychological distance words in *Look Negative* and *Reappraise Negative* conditions.

	<i>t</i>	<i>p</i>	<i>d</i>	<i>Look Neg.</i> Mean ( <i>SD</i> )	<i>Reapp. Neg.</i> Mean ( <i>SD</i> )
First-Person Singular Pronouns	-8.80	< .001 <sup>***</sup>	-0.80	5.54% (3.76)	2.88% (2.81)
Present-Tense Verbs	-5.56	< .001 <sup>***</sup>	-0.46	14.27% (4.72)	12.31% (3.70)
Discrepancy Words	-4.19	< .001 <sup>***</sup>	-0.51	2.32% (1.46)	1.58% (1.40)
Articles	6.29	< .001 <sup>***</sup>	0.52	6.57% (3.52)	8.35% (3.36)
Words > 6 Letters	-1.55	.124	-0.15	16.32% (5.36)	15.59% (4.45)

**Notes:** <sup>\*\*\*</sup>  $p < .001$

**Table S2.** Correlations between reappraisal success and changes in the frequency of psychological distance words.

	<i>r</i>	<i>p</i>	95% CI
First-Person Singular Pronouns	-.22	.025 <sup>*</sup>	[-.39, -.03]
Present-Tense Verbs	-.18	.065 <sup>#</sup>	[-.36, .01]
Discrepancy Words	-.16	.101	[-.34, .03]
Articles	.35	< .001 <sup>***</sup>	[.18, .51]
Words > 6 Letters	-.05	.600	[-.24, .14]

**Notes:** The correlation between reappraisal success and present-tense verb use is significant when all participants are included ( $r = -.18, p = .044, 95\% \text{ CI} = [-.35, -.01]$ ); <sup>\*\*\*</sup>  $p < .001$ , <sup>\*</sup>  $p < .05$ , <sup>#</sup>  $p < .10$

#### IV. Analyses of Negative and Positive Affect Word Use in Study 2

The use of negative and positive affect words did not differ significantly between *Close* ( $M = 6.11\%$ ,  $SD = 4.36$ ) and *Distant* ( $M = 6.04\%$ ,  $SD = 4.32$ ) conditions,  $F(1, 224) = 0.11$ ,  $p = .741$ ,  $\eta_p^2 = .00$ , 90% CI = [.00, .01]. There was a main effect of domain,  $F(2, 224) = 3.56$ ,  $p = .030$ ,  $\eta_p^2 = .03$ , 90% CI = [.00, .07], suggesting that groups differed in their overall tendency to use negative words when writing (*Social* > *Physical* > *Temporal*). There was not a significant interaction between distance and domain for negative affect word use,  $F(2, 224) = 2.56$ ,  $p = .079$ ,  $\eta_p^2 = .02$ , 90% CI = [.00, .06]. Distance did not significantly affect the overall use of positive affect words,  $F(1, 224) = 0.58$ ,  $p = .448$ ,  $\eta_p^2 = .003$ , 90% CI = [.00, .02]. However, there was a significant main effect of domain on positive affect word use,  $F(2, 224) = 9.87$ ,  $p < .001$ ,  $\eta_p^2 = .08$ , 90% CI = [.03, .14] (*Physical* > *Social* > *Temporal*), as well as a significant interaction between distance and domain,  $F(2, 224) = 6.25$ ,  $p = .002$ ,  $\eta_p^2 = .05$ , 90% CI = [.01, .10]. T-tests revealed that physical distancing was associated with increased use of positive affect words,  $t(71) = 2.38$ ,  $p = .02$ , 95% CI = [0.07, 0.82],  $d = 0.23$ , social distancing did not affect positive affect word use,  $p = .27$ , and temporal distancing was associated with reduced use of positive affect words,  $t(80) = -3.27$ ,  $p = .002$ , 95% CI = [-0.70, -0.17],  $d = -0.32$ . Although the effect in the physical distancing condition is consistent with hypotheses, the finding in the temporal distancing condition is contrary to hypotheses. We refrain from over-interpreting this result given that it does not concord with participants' own explicit negative affect ratings.

#### V. Manipulation Checks of Psychological Distance Words in Study 2

Participants complied with instructions and modulated their use of psychological distance words in the social and temporal distancing conditions of Study 2. There was an overall main effect of distance on use of first-person singular pronouns,  $F(1, 224) = 532.74$ ,  $p < .001$ ,  $\eta_p^2 = .70$ , 90% CI = [.65, .74]. There was also a main effect of domain on "I" use,  $F(2, 224) = 15.88$ ,  $p < .001$ ,  $\eta_p^2 = .12$ , 90% CI = [.06, .19], and a distance  $\times$  domain interaction,  $F(2, 224) = 195.24$ ,  $p < .001$ ,  $\eta_p^2 = .64$ , 90% CI = [.57, .68]. In particular,

participants used fewer first-person singular pronouns in “NOT I” trials compared to “I” trials of the *Social Distance* condition,  $t(73) = -22.23, p < .001, 95\% \text{ CI} = [-12.09, -10.10], d = -3.71$ .

Likewise, participants overall used present-tense verbs less when distancing,  $F(1, 224) = 228.51, p < .001, \eta_p^2 = .50, 90\% \text{ CI} = [.43, .56]$ . There was also a main effect of domain on present-tense verb use,  $F(2, 224) = 30.39, p < .001, \eta_p^2 = .21, 90\% \text{ CI} = [.14, .28]$ , and a significant distance  $\times$  domain interaction,  $F(2, 224) = 68.89, p < .001, \eta_p^2 = .38, 90\% \text{ CI} = [.30, .45]$ . Instructing participants to not use present-tense verbs reduced their frequency in the *Temporal Distance* condition,  $t(80) = -15.05, p < .001, 95\% \text{ CI} = [-9.48, -7.27], d = -1.87$ .

## VI. Study 2 Linguistic Distancing Analyses

See Study 1 Methods for a description of how to produce the linguistic distancing measure. As expected, participants' text entries scored higher on linguistic distancing in *Distant* conditions ( $M = .17, SD = .34$ ) than *Close* conditions ( $M = -.17, SD = .41$ ),  $F(1, 224) = 486.66, p < .001, \eta_p^2 = .68, 90\% \text{ CI} = [.63, .73]$ . There was also a main effect of domain on linguistic distancing,  $F(2, 224) = 26.46, p < .001, \eta_p^2 = .19, 90\% \text{ CI} = [.12, .26]$ , and a distance  $\times$  domain interaction,  $F(2, 224) = 42.62, p < .001, \eta_p^2 = .28, 90\% \text{ CI} = [.19, .35]$ . Follow-up t-tests confirmed that linguistic distancing was greater for *Distance* trials than *Close* trials for all three distancing domains [*Physical*:  $t(71) = 8.74, p < .001, 95\% \text{ CI} = [0.19, 0.30], d = 0.66$ ; *Social*:  $t(73) = 17.91, p < .001, 95\% \text{ CI} = [0.49, 0.61], d = 1.82$ ; *Temporal*:  $t(80) = 10.63, p < .001, 95\% \text{ CI} = [0.20, 0.29], d = 0.72$ ]. Note that the significant difference in the *Physical Distance* condition is spontaneous. Unlike for the other two conditions, participants in this condition were not instructed to shift their use of any word categories that comprise the linguistic distancing measure. Hence, this result supports the notion that the linguistic distancing measure tracks psychological distance.

## VII. Study 2 Descriptive Statistics

**Table S3.** Descriptive Statistics for Dependent Variables in Each Condition of Study 2

	<i>Close</i> Mean ( <i>SD</i> )	<i>Distant</i> Mean ( <i>SD</i> )
Self-Reported Negative Affect		
<i>Physical Distance</i>	4.30 (1.16)	3.46 (1.02)
<i>Social Distance</i>	3.66 (1.29)	3.39 (1.12)
<i>Temporal Distance</i>	3.66 (1.16)	3.49 (1.06)
Negative Affect Words		
<i>Physical Distance</i>	6.18 (4.04)	5.75 (3.54)
<i>Social Distance</i>	6.78 (5.30)	7.29 (5.48)
<i>Temporal Distance</i>	5.43 (3.55)	5.16 (3.45)
Positive Affect Words		
<i>Physical Distance</i>	2.45 (1.72)	2.90 (2.10)
<i>Social Distance</i>	2.75 (2.09)	2.50 (1.71)
<i>Temporal Distance</i>	1.92 (1.37)	1.49 (1.34)
First-Person Singular Pronouns		
<i>Physical Distance</i>	6.51 (4.20)	3.03 (3.16)
<i>Social Distance</i>	11.65 (4.09)	0.56 (1.09)
<i>Temporal Distance</i>	3.68 (3.93)	2.89 (3.68)
Present-Tense Verbs		
<i>Physical Distance</i>	12.81 (4.79)	11.65 (4.87)
<i>Social Distance</i>	14.33 (4.51)	11.69 (3.97)
<i>Temporal Distance</i>	12.49 (4.75)	4.12 (4.19)
Linguistic Distance		
<i>Physical Distance</i>	-0.19 (0.38)	0.05 (0.36)
<i>Social Distance</i>	-0.43 (0.33)	0.12 (0.27)
<i>Temporal Distance</i>	0.08 (0.35)	0.32 (0.32)