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Construal Level and Structure-Bound Experiencing: Two Mediation Analyses.

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□ Abstract

This study examined a buffering effect of construal level on emotional reactivity and the mediating role of the structure-bound manner (Repetition) between this link in Experiment 1. Results showed that high-level construal (abstract mindset) attenuated the emotional reactivity related with three emotion-elicited scenarios as compared with low-level construal (concrete mindset). It was also found that this causal link was mediated by coder-rated Repetition related with participants' thoughts during the manipulation of construal level. To further test the link between construal level and Repetition, Experiment 2 examined an alternative model, that is, structure-bound experiencing (Repetition vs. non-Repetition) would causally impact emotional reactivity as well as the mediating role of construal levels. Results showed that participants in the Repetition condition reported greater emotional reactivity related with a negative traffic scenario. In addition, this causal link was mediated by construal level (concreteness of the stream of thoughts during reading the scenario). These results suggest that construal level and Repetition have strong and interchangeable link.

□ **Keywords:** construal level, structure-bound manner, psychological distance, emotion regulation

□ 要 旨

本研究では解釈レベルと構造拘束的な体験様式との関連性について2つの実験から検討を行った。実験1では、解釈レベルが感情反応性に及ぼす緩衝効果、およびこの心理的プロセスにおける構造拘束的な体験様式（反復性）の媒介効果について検証した。その結果、高次解釈（抽象的のマインドセット）は低次解釈（具体的マインドセット）と比較して、3つの感情喚起シナリオを読了することによる感情反応性を低減することが明かとなった。また、この因果関係は解釈レベル操作中の思考における反復性によって媒介されていた。続いて、解釈レベルと構造拘束的な体験様式（反復性）の間の頑健な関係性をさらに検証するため、実験2では代替モデル、すなわち、構造拘束的な体験様式の実験操作（反復性対非反復性）は、解釈レベルの媒介的役割および感情反応性への緩衝効果が観察されるかどうかといったモデルの妥当性を検証した。その結果、反復条件の参加者は非反復条件と比較してネガティブシナリオを読了することによる感情反応性がより強くなることが示された。加えて、この因果関係は解釈レベル（シナリオを読んでいる間の思考の具体性）により媒介されていた。これらの結果は、解釈レベルと構造拘束的な体験様式が互いに相互互換の関係性を成し、強固な結びつきを持つことを示唆していた。従来の感情制御方略へと解釈レベルの操作を追加できる可能性が議論された。

□ キーワード：解釈レベル、構造拘束的な体験様式、心理的距離、感情制御

The various stimuli that surround us can be represented at different levels of construal. Even without any particular stimuli to influence our thoughts, feelings, and behaviors, representations often appear in our consciousness. We can construe objects either abstractly or concretely according to the situation. Such difference of abstractness is called the construal level (for a review, see Trope & Liberman, 2010). According to construal level theory (CLT), high-level construal entails superordinate goals, reasons, and coherent, central meanings of an object, whereas low-level construal is characterized by

subordinate goals, procedures, and incoherent, peripheral meanings of an object. If we take an example of a pencil that has an eraser attached to it, its most significant meaning of existence is to write (i.e., high-level construal) and not to erase something (i.e., low-level construal). High-level construal is an issue not only in daily life but also in the context of psychotherapy. For example, how a client is aware of and understands the meanings of her/his distressing life events after getting psychotherapy is considered a higher level of construal than what concretely happened to her/him.

Cognitive reappraisal strategies, such as self-distancing (“to ‘take a step back’ from one’s experience so that they could work-through it more effectively,” Kross & Ayduk, 2017), involve adaptively reconstruing the meanings of negative experiences (e.g., Ayduk & Kross, 2010a; Kross & Ayduk, 2011). Thus, one goal of psychotherapies is arguably to reappraise aspects of high-level construal, and changing the construal level significantly impacts this cognitive reappraisal process. In this research, we propose a strong link between construal-level and the structure-bound manner (see below for further details), which is a key variable in the theory of experiencing (Gendlin, 1964). This theory emphasizes psychological distance from the self to representations (e.g., Cornell, 1991) in the way that people adaptively relate with their inner experiences.

Definition and Features of the Structure-Bound Manner

According to the early work of Gendlin (1964), in the structure-bound manner, there is not the implicit functioning of experiencing but only the process-skipping structure:

*The respects in which it is structure bound are not
experiencing...in the structure-bound manner the*

experiencing process is, in given respects, missing...the implicit functioning of experiencing ought to be there, but there is only the process-skipping structure, and the experiencing surrounding it and leading up to it. Thus we say that structure-bound aspects are not in process.

He also referred that there are six features of the manner in which we experience, which somewhat overlap: *Immediacy of Experiencing* (vs. “dissociation or postponement of affect”); *Presentness* (vs. “repetitious and structured pattern of feeling”); *Richness of Fresh Detail* (vs. “only bare set of emotions”); *Frozen Whole* (“shaped units with their own set structure”); *Repetitive vs. Modifiable* (“it repeats itself in many situations without any changing”); and *Optimal Implicit Functioning* (vs. “the implicit functioning of experiencing cannot occur”).

Geiser (2010) offers an intriguing perspective on a structure-bound manner. There are times when we lose touch with our experiencing. If this becomes prolonged, then our experiencing is structure-bound, and such stoppage can become a lifestyle. This stoppage makes our responses stereotypic; we are unable to respond to fresh and new inputs, and our inner life run in circles. Structure-bound patterns are characterized by ambivalence (e.g., yes/no, good/bad, always/never). Sometimes an experiential manner inclines toward one-sidedness that is not in-process experiencing. Because depressive individuals tend to brood on their worries, depression may be one of this one-sidedness, being in prolonged stoppages or structure-bound patterns. That is, it is a blocked, stopped process and a stereotypical reaction pattern occurs. This repetition of a single thought is a feature of the structure-bound manner, in contrast to in-process experiencing, which is spontaneous and characterized by continuous symbolic interactions (Suetake, 1986; For more about in-process and structure-bound manner, see Gendlin, 1964: Available online at [previous](#).

focusing.org, Gendlin Online Library). In addition, a traumatized person might ruminate about what they have experienced (e.g., Schrawächter, 2005). In sum, process stoppage and repetition of thought are important aspects of the structure-bound manner.

Relationships between the Structure-Bound Manner and Other Variables: Correlational, Mediational, and Causal Effects

Takasawa and Ito (2009) developed a scale for the structure-bound manner for measuring the extent to which individuals lapse into the structure-bound manner. Their scale is based on the above six features of experiential manner described by Gendlin (1964), which allows us to capture trait-level individual differences in the experiential manner (higher scores mean that the experiential manner is more structure-bound) and to find quantifiable relationships between the structure-bound manner and other psychological constructs. As a result of factor analysis in Takasawa and Ito's (2009) study, the six features of the experiential manner are summarized into two factors: Repetition (negative experiences repeat in our mind) and Remaining on the Sidelines (when one acts as an observer of one's own behavior with little or no ongoing experiencing which implicitly functions; e.g., Takasawa, 2021). In addition, Repetition, Remaining on the Sidelines, and composite scores showed positive correlations with physical and psychological symptoms (physical fatigue, anxiety and insomnia, social activity disorder, depression tendency), and hallucination-like experiences, indicating that participants reporting higher scores of trait-level structure-bound manner tended to have such symptoms or experiences.

Takasawa and Ito (2011) examined the goodness of fit of Kira's (1994) model, in which the structure-bound manner (Repetition) mediates between distancing and trait self-efficacy. Distancing is the attempt to build

psychological distance—a subjective experience that something is close or far away from the self, here, and now (Trope & Liberman, 2010)—from worries. Takasawa and Ito (2011) found correlations between distancing, structure-bound manner (Repetition), and self-efficacy. Importantly for our purposes, when Repetition was entered into the model as a mediator, the direct effect from the distancing to self-efficacy disappeared and the indirect (mediating) effect became significant. It was, thus, demonstrated that participants who tended to build distance from worries were unlikely to fall into structure-bound manner, and were thus apt to gain self-efficacy. In contrast, Remaining-on-the-sidelines factor did not correlate with self-efficacy, indicating that this factor is not effective in explaining the proposed mediation relationship between distancing and self-efficacy. These results are the basis for utilizing Repetition as an experimental manipulation to induce one’s structure-bound manner in the present study (Experiment 2).

Takasawa (2016, Study 4) investigated whether psychological distance to mental representations with different emotional valences depends on the trait level of the structure-bound manner. The results showed that participants with a higher degree of the structure-bound manner evaluated negative words psychologically closer and positive words far from them than those with a lower degree of the structure-bound manner. This correlational link was replicated by utilizing “me/not me” trait judgments. This self-reference task (Markus, 1977) prompts participants to quickly judge whether or not words with emotional valence expressing personality characteristics apply to themselves. Participants with higher trait-level structure-bound manner categorized more negative words as “Me” and responded more quickly to negative words than those with lower trait-level structure-bound manner (Takasawa, 2016, Study 5).

Takasawa (2016, Study 6) demonstrated that the structure-bound manner (Repetition) shrinks psychological distance to negative representations. After all participants first read a negative scenario (concerning a traffic accident),

half were prompted to repeat negative thinking (i.e., Repetition condition), and the other half were prompted to repeatedly think about a ship crossing the Pacific Ocean (i.e., non-Repetition condition). Participants in the Repetition condition reported greater negative emotions and had a stronger implicit attitude toward negative-proximal, positive-distal concept compared with those in non-Repetition condition. That is, participants in the Repetition condition evaluated negative representations closer and positive ones distant from them, whereas those in the non-Repetition condition evaluated positive representations as closer and negative ones as distant.

Takasawa, Kaneda, and Tsuda (2019) revealed that both spatial distance (Experiment 1) and temporal distance (Experiment 2), which are subordinate concepts of psychological distance, diminished emotional reactivity. The causal paths from both psychological distances to emotional reactivity were also mediated by the structure-bound manner (Repetition). Specifically, participants prompted to imagined a negative scenario occurring far from their home did not lapse into the structure-bound manner (Repetition) and their emotional reactivity to the negative stimulus weakened, compared to participants prompted to imagine a negative scenario occurring in their home. As mentioned above, it is becoming clear that the structure-bound manner has various relationships with other constructs, especially with psychological distance, which is an important predictor of behavior in construal level theory (CLT).

Construal Level Theory

According to Trope and Liberman (2010), as psychological distance (e.g., spatial, temporal, social, and hypothetical distance) between the self and objects increases, we represent those objects abstractly. This is called high-level construal, and the information processed by such construal is called high-level representation. High-level representation is abstract, ambiguous, yet time-

consistent information and includes desirability considerations, and representations on goals, values, intentions, and reasons. By contrast, as psychological distance between the self and objects decreases, we represent those objects concretely. This is called low-level construal, and the information processed by such construal is called low-level representation. Low-level representation is concrete and context-dependent and includes examinations of feasibility and representations on secondary goals, values, materials, and means. For example, when construing the act of drinking black tea at a higher level, it is expressed as a goal-related act of “enjoying a beautiful aroma.” When the same action is construed at a lower level, it is expressed as a means-related act of “bringing the cup to the nose.” Centrality decides the level of construal. High-level representation conveys information on the object’s central features, including its meaning, while low-level representation conveys information on its peripheral features.

As we increase psychological distance to objects, it becomes easy to construe them through high-level representations. Because high-level construal brings central and invariable information whereas low-level construal brings context-dependent information, low-level representations become unavailable when psychological distance to the objects becomes too great. There is also reverse causality in that high-level construal prompts us to feel greater psychological distance to objects. As high-level construal yields general and hard-to-change information, we can integrate (for example) past experiences that are temporally distant with current knowledge, which allows us to imagine a physically distant land. By contrast, the limited and context-dependent information yielded by low-level construal is more useful when the objects are close, as our coping with near objects tends to depend more on the situation than with distant objects. Even if we apply low-level construal to distant objects, such low-level information is of limited value because the situations surrounding distant objects might change. Thus, low-level representations of

objects prompt us to feel less psychological distance from them. Thus, there is a strong link between construal level and psychological distance.

Function of Construals Level in Affect-Based Evaluation

Various methods have been used to manipulate psychological distance between the self and objects, and to control one's emotion (e.g., Clearing a Space: a strategy for distancing the self from one's inner representations by imagination induction, Gendlin, 1981; Self-Distancing, Ayduk & Kross, 2010b; Kross, Ayduk, & Mischel, 2005). Given that increasing psychological distance brings high-level construal, the question arises whether high-level construal could fulfill the emotion control function in the same way as increasing psychological distance. Williams, Stein, and Galguera (2014) examined how the difference in construal level affects emotion-based judgment. With increasing psychological distance, participants' intensity of felt emotions was attenuated in evaluating both positive and negative experiences. However, high-level construal enhanced positivity in both positive and negative experiences much more than the baseline positivity level. The latter finding initially seems to contradict the previous research: when considering distal objects, we construe them abstractly and, thus, represent them at higher level, so increasing psychological distance and higher construal level ought to equally attenuate the emotional intensity and negativity of one's experience. However, the results of Williams et al. (2014) were contrary to this theoretical prediction, indicating that high-level construal strengthened the positivity of one's thoughts, rather than reducing the negativity of both positive and negative experiences. Thus, functional differences have been found between psychological distance and construal level that influence the emotional aspects of experiences.

To explain the underlying mechanism of this shift toward positivity, researchers have proposed that high-level construal is linked to favorable

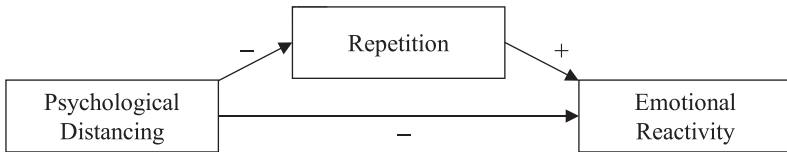
evaluation of the object and desirable behavior. For example, Eyal, Liberman, Trope, and Walther (2004) showed that high-level construal provides a favor for acts, that is, a preference for that behavior, compared to low-level construal. Specifically, considerations in favor of an action (e.g., a pro-new exam in the next semester) were more salient in making decisions in the distant future than considerations against (con) the action. In addition, Fujita, Trope, Liberman, and Levin-Sagi (2006) argued that the abstract thought associated with the diet goal leads to self-control (e.g., trying not to eat before going to bed), which is a favorable outcome for individuals who wish to lose weight. It can, thus, be inferred that evaluations shift positively or are more likely to cause positive behavior due to high-level construal.

What are the functions of low-level construal? To answer this question, it is necessary to describe the relationship between self-control and cognitive resources, ego depletion. According to Baumeister, Blatslavsky, Muraven, and Tice (1998), deliberate, controlled action is required in order to exert self-control. Moreover, controlled action consumes limited resources that are akin to strength or energy. In effect, resources are depleted immediately after self-controlled behavior, and immediately attempting to again achieve self-control is doomed to fail due to lack of resources (e.g., after coping with a tough job, one may want to eat sweets, even when dieting). Importantly, Agrawal and Wan (2009) showed that, in the context of self-control, low-level construal prompts us to focus on efforts and current resources. In addition, individuals whose resources are depleted become more inclined to dwell on the feeling of tiredness and the limits of their current resources; consequently, they wish to abandon self-control behavior. In other words, low-level construal of objects does not provide the boost to positive cognitive processing that focuses on the goal delivers, as in high-level construal.

The Present Study

In the context of the structure-bound manner, Repetition has been found to mediate the causal effect of psychological distancing on emotional reactivity (upper half of Figure 1). There is also a strong link between psychological distance and construal level (e.g., Trope & Liberman, 2010). Because the link between psychological distance and the structure-bound manner is also strong, we assume that by manipulating construal level instead of psychological distance, Repetition will mediate the causal path between construal level and emotional reactivity (lower half of Figure 1). For practical perspective, Kross and Ayduk (2017) referred to the fact that people cannot feasibly engage in the strategy that prompts one to imaginarily take a few step back (i.e., psychologically distancing) when they were confronting stressful events in vivo, not in experimental situations. If there were, as an option, the alternative

【Takasawa et al. (2019)】



【Hypothesis Model in Experiment 1】

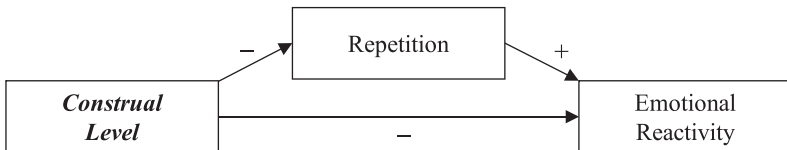


Fig 1. Causal models including Repetition as a mediator between independent and dependent variables. The upper-half model represents a causal relationship in that psychological distancing attenuates emotional reactivity, and Repetition mediates this link. The lower-half model represents a causal hypothesis model in that *construal level* would play the same role as psychological distancing as in the upper-half model.

strategy that might be easier to engage in than existing strategies for manipulating psychological distance in our daily life is to feasibly regulate one's emotion. Hence, we examine whether manipulating the levels of construal, which indirectly moderates psychological distance to the target, not directly manipulating the psychological distance, would affect the structure-bound manner and downstream consequences. In sum, examining the relationship between the construal level and the experiential manner—as an important variable of the theory of experiencing—not only extends the theoretical horizon but also has a beneficial impact on practice.

Experiment 1

We tested our hypothesis illustrated in the lower half of Figure 1. We predicted that higher construal level inhibits the structure-bound manner (Repetition), and that weakened Repetition itself reduces emotional reactivity; by contrast, lower construal level exacerbates Repetition, and strengthened Repetition itself increases emotional reactivity. For this purpose, we manipulated participants' levels of construal through abstract–concrete mindset induction (e.g., Freitas, Gollwitzer, & Trope, 2004). As elaborated below, participants were required to read three negative scenarios and then asked to indicate their emotional reactivity. The extent to which participants lapsed into Repetition was rated by two coders blind to the experimental conditions.

Method

Participants

Forty-four (30 females, $M_{age} = 21.82$, $SD_{age} = 3.04$) graduate and undergraduate students participated in Experiment 1. Participants completed experimental tasks individually. To reward their participation, they received course credit or

sweets equivalent in value to about one dollar.

Procedure

Before performing the experimental tasks, participants provided written and oral consent for the publication of this study. Participants were randomly assigned to either the high- or low-level construal condition. Both groups read the same three negative scenarios concerning a quarrel with a close friend, a lost love, and water overflowing from the bathtub, all drawn from previous research (see Watkins, Moberly, & Moulds, 2008). Participants were instructed to imagine that they were the main character in each scenario. The presentation order of the three scenarios was counterbalanced. Utilizing abstract-concrete mindset induction (e.g., Freitas, Gollwitzer, & Trope, 2004), participants in the high-level construal condition were prompted to repeatedly think about and to describe “why” the event had occurred. Taking the quarrel scenario by way of example, participants wrote why they had talked to their close friend (e.g., “A difference of opinion”), why they had disagreed with her/him (e.g., “My opinion was based on a critically important belief”), why their opinion had been based on such belief (e.g., “I couldn’t bend my belief because it related to my job and lifestyle”), and why it related to their job and lifestyle (e.g., “It had deeply impacted on my work method”). In contrast, participants in the low-level construal condition were prompted to repeatedly think about and to describe “how” the event occurred. For example, participants wrote how they had talked to their close friend (e.g., “Like the other day”), how they had been like the other day (e.g., “Slightly different”), how they had come to differ (e.g., “We couldn’t have changed the opinions”), and how they could not have changed their opinions (e.g., “I couldn’t have helped myself flying into a rage”). Next, in both the high- and low-level construal condition, participants were asked to indicate their emotional reactivity. Finally, they were debriefed and thanked.

Manipulation check measurement

To ascertain whether the abstract–concrete mindset induction successfully altered participants’ levels of construal, all the participants’ responses were rated by two coders (A and B) blind to the experimental conditions. They were instructed to code participants’ responses during the mindset induction using a scale ranging from 1 (*very concrete*) to 4 (*very abstract*). Responses including more central meanings, goals, reasons, and adjectives were scored relatively higher. In contrast, responses including more peripheral meaning, means, uses, and verbs were scored relatively lower. A higher score indicates that participants thought at a higher level of construal. The reliability of the two coders’ judgment was sufficient (ICC (interclass correlation coefficient) = .75, 95% CI (confidence interval) [.54, .86]), so we averaged the two coders’ scores to create a single index. Because we also expected the abstractness of the participants’ thoughts to become gradually higher when they repeated the “why” thoughts compared with when they repeated the “how” thoughts, we calculated the amount of change by subtracting the first abstractness score from the fourth one. Finally, we employed this scoring algorithm for the manipulation check of construal and predicted that the score of change would be higher in the high-level construal condition than in the low-level construal condition.

The Structure-bound Manner Measurement

Another two coders (C and D), also blind to experimental conditions, coded the extent to which participants lapsed into Repetition. Coders were instructed to judge the extent to which participants’ responses during the mindset induction were negative, using a scale ranging from 1 (*not at all negative*) to 4 (*very negative*). The mindset induction prompts participants to repeatedly think about negative scenarios (four times per one scenario, making 12 times in total). The reliability of the two coders’ judgment was high – ICC = .82, 95% CI

[.67, .90]), so we averaged their scores to create a single index. To ensure uniformity of the scoring algorithm for coded measurements within Experiment 1, we calculated the amount of change by subtracting the first Repetition score from the fourth one, as for the abstractness score. We predict that participants in the high-level construal condition will be judged to change less in their degree of Repetition compared to participants in the low-level construal condition.

Emotional Reactivity Measurement

We employed a 101-point scale to measure pleasant mood (0 = *absolutely unpleasant* and 100 = *absolutely pleasant*) and depressive mood (0 = *absolutely non-depressive* and 100 = *absolutely depressive*), which was drawn from previous research (Takasawa, 2016, Study 6). We created a composite index of emotional reactivity by reversing the scores of pleasant mood and by averaging depressive and reversed pleasant mood scores ($\alpha = .73$, 95% CI [.50, .85]). We predict that participants in the high-level construal condition will score lower on emotional reactivity compared with participants in the low-level construal condition.

Results

Manipulation Check

We examined the abstractness of participants' repeated thoughts about the three negative scenarios. An unpaired *t*-test revealed that participants prompted to repeatedly think "why" (i.e., high-level construal condition, $M = .48$, $SD = .47$) were led to greater abstractness in their thoughts ($t(36.23) = -2.46$, $p = .01$, $d = -.75$, one-tailed) than those prompted to repeatedly think "how" (i.e., low-level construal condition, $M = .03$, $SD = .71$), thus validating our manipulation of construal level.

Effect of Construal Level on the Structure-bound Manner and Emotional Reactivity

We analyzed participants' Repetition score through an unpaired *t*-test, and found that participants in the high-level construal condition ($M = -.76, SD = .53$) lapsed less into Repetition ($t(42) = 1.80, p = .039, d = .54$, one-tailed) than those in the low-level construal condition ($M = -.45, SD = .61$). We also tested emotional reactivity through an unpaired *t*-test, which revealed that participants in the high-level construal condition ($M = 39.45, SD = 19.06$) reported less distressed mood ($t(42) = 3.50, p = .0006, d = 1.06$, one-tailed) than those in the low-level construal condition ($M = 59.05, SD = 18.08$). These results suggest that higher construal level diminished both the structure-bound manner and emotional reactivity, thus replicating the effects of psychological distance in previous research (Takasawa et al., 2019).

Mediation Effect of the Structure-bound Manner between Construal Level and Emotional Reactivity

To test our hypothesis depicted in lower half of Figure 1, we ran bootstrapping method using the SPSS macro "Process" (Hayes, 2013). Random samples generating 95% CI were set on 5,000. This analysis revealed that, as depicted in Figure 2, high-level construal (coded as 2 vs. lower construal level coded as 1) had a significant negative impact on Repetition ($B = -.31, SE = .17, p = .039$, one-tailed), and Repetition had a significant positive impact on emotional reactivity when controlling the effect of construal level ($B = 8.45, SE = 4.90, p = .046$, one-tailed). More importantly, as expected, Repetition significantly mediated the causal link between construal level and emotional reactivity (mediation effect = $-2.63, SE = 2.52, 95\% \text{ CI } [-9.18, -.04]$ excluding zero). The impact of construal level on emotional reactivity remained significant when controlling the effect of Repetition ($B = -16.97, SE = 5.68, p = .002$, one-tailed), providing evidence of partial mediation. All reported *B*s

are non-standardized coefficients; descriptive statistics are reported in Table 1 and simple correlations in Table 2.

【Mediation Analysis in Experiment 1】

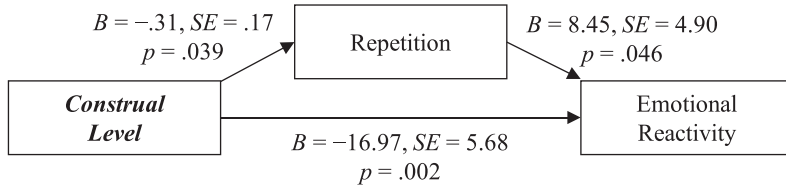


Fig 2. Results of mediation analysis in Experiment 1. Low-level construal condition was coded as 1 and high-level construal condition was coded as 2. *B*s represents non-standardized betas. Mediation Effect was -2.63 ($SE = 2.52$), and 95% CI (Confidence Interval) did not include zero: $[-9.18, -.04]$, indicating that Repetition mediated between construal level and emotional reactivity. These analyses were conducted under one-tailed test.

Table 1. Descriptive Statistics of Experiment 1

	High -level Construal		Low -level Construal	
	Mean	<i>SD</i>	Mean	<i>SD</i>
Abstractness	.48	.47	.03	.71
Repetition	-.76	.53	-.45	.61
Emotional Reactivity	39.45	19.06	59.05	18.08

Note. Abstractness and Repetition were calculated by subtracting first score from fourth score.

Table 2. Correlation Analysis in Experiment 1

	I	II	III	IV
I . Construal	-	.36 **	-.27 *	-.48 **
II . Abstractness		-	-.53 **	-.25 *
III . Repetition			-	.35 **
IV . Emotional Reactivity				-

* $p < .05$, ** $p < .01$, one-tailed.

Discussion

Findings from Experiment 1 supported our proposition that individuals who construe negative life events at a higher level thus attenuate the extent to which they lapse into repetitive thinking about the events, thereby diminishing their emotional reactivity. We also demonstrated the robust mediating role of Repetition, extending the prior finding that Repetition mediates between psychological distance and emotional reactivity (Takasawa et al., 2019), and it mediates between construal level and emotional reactivity. These findings are consistent with and extend prior research on emotion control. In other words, the higher construal level not only exacerbates the positivity of the representations (Williams et al., 2014) but also attenuates repetitive negative thoughts and emotional reactivity.

Experiment 2

While construal level influences the structure-bound manner (as demonstrated in Experiment 1), prior research has demonstrated that the structure-bound manner influences psychological distance to negative representations (Takasawa, 2016, Study 6). Because psychological distance is associated with construal level, the opposite direction of causality from that found in Experiment 1 may also hold true. We thus propose the reverse causality of the structure-bound manner influencing construal level (Figure 3) to present the strong bidirectional link between these variables. In Experiment 2, we hypothesized that participants in the Repetition condition have more concrete negative thoughts, in turn increasing emotional reactivity, whereas those in the non-Repetition condition have less concrete negative thoughts, in turn diminishing emotional reactivity. We first manipulated participants' manner of experiencing (Repetition vs. non-Repetition condition), after which

【Hypothesis Model in Experiment 2】

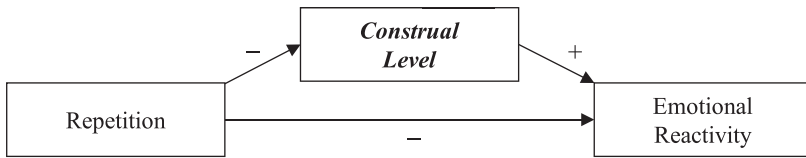


Fig 3. In this hypothesis model, *construal level* would mediate a causal link between Repetition and emotional reactivity. *Construal level*, functioning as an independent, experimentally manipulated variable in Experiment 1, is measured as a continuous variable and is utilized as a mediational factor in Experiment 2. In contrast, Repetition, functioning as a mediational, continuous variable in Experiment 1, is experimentally manipulated as an independent variable in Experiment 2.

participants rated their emotional reactivity. The extent to which participants' responses are concrete was rated by two coders blind to the experimental conditions.

Method

Participants

One hundred and twenty-six (46 females, 1 unreported gender; $M_{age} = 18.82$, $SD_{age} = .98$) undergraduate students participated in Experiment 2 in partial fulfillment of a course requirement. Participants completed experimental tasks in small (15-30) or medium-sized (31-60) groups. Seven participants were excluded from the analyses: two did not report the period when the stress-inducing event occurred, four used illustrations instead of writing sentences, and one in the Repetition condition reported that the memory is not distressing ("I don't care a rap."). This left a total of 119 participants (45 female, 1 unreported gender; $M_{age} = 18.83$, $SD_{age} = 1.00$) in Experiment 2.

Procedure

Before performing the experimental tasks, participants provided written and oral consent for the publication of this study. All participants were asked to recall a stress-inducing event about which they remained distressed and to report when it occurred (first phase). They were then randomly assigned to either the Repetition condition, in which they were asked to repeatedly think and write about the negative event, or to the non-Repetition condition, in which they were asked to imagine and write about a ship crossing the Pacific (second phase: stream-of-thoughts task). Participants completed the first phase task at their own pace, but the second phase was subject to a 5-minute time limit. They then completed the emotional reactivity measure, before finally being debriefed and thanked.

The Period When the Stress-Inducing Event Occurred.

Participants specified a number and selected days, weeks, months, or years to indicate how long ago the event occurred. For uniformity, we measured periods in days, so the submitted numbers were multiplied by 1, 7, 30, or 365, as in previous research (Bruehlman-Senecal & Ayduk, 2015; Takasawa et al., 2019, Experiment 2). Across all participants, the average period since the event occurred was 205.61 days ($SD = 530.54$, $Range = 1-2920$). These periods did not statistically differ between experimental conditions (Repetition: $M_{\text{days}} = 185.61$, $SD = 486.12$; non-Repetition: $M_{\text{days}} = 226.66$, $SD = 577.13$; $t(117) = -.42$, $p = .68$, $d = .08$).

Manipulation Check and Concreteness Measurement

To ensure that participants completed second phase tasks consistently with their assigned manner of experiencing, their stream-of-thoughts were coded by two coders (B and C) blind to the experimental condition. Across all participants, the average number of sentences generated was 4.90 ($SD = 2.35$,

Range = 1-12). The number of sentences did not statistically differ between experimental conditions (Repetition: $M = 4.82$, $SD = 2.41$; non-Repetition: $M = 4.98$, $SD = 2.30$; $t(117) = -.38$, $p = .71$, $d = .07$). Coders were instructed to code the valence of each individual sentence on a 3-point scale: -1 (*negative*), 0 (*neutral*), and 1 (*positive*). As the two coders' showed sufficiently reliable judgment ($ICC = .75$, 95% CI [.70, .78]), we averaged the judged number of sentences for each valence. We predicted that participants in the Repetition condition would produce a greater number of negative sentences and smaller numbers of neutral and positive sentences, as compared with participants in the non-Repetition condition.

Coders B and C also coded the concreteness of participants' sentences for each valence, using a scale ranging from 1 (*not at all concrete*) to 4 (*very concrete*). As the two coders' judgment was sufficiently reliable ($ICC = .69$, 95% CI [.64, .74]), we averaged their concreteness scores for each valence. We predicted that participants in the Repetition condition would have higher concreteness scores for negative sentences and lower concreteness scores for neutral and positive sentences, as compared with participants in the non-Repetition condition.

Emotional Reactivity Measurement

After the second phase, participants rated their emotional reactivity using a measure of anticipatory and outcome-related emotion (Folkman & Lazarus, 1985). As in previous research (Bruehlman-Senecal & Ayduk, 2015; Takasawa et al., 2019), we excluded the "guilty" item to align the number of items and ease participants' burden, leaving a total of 14: seven positive (e.g., hopeful) and seven negative emotion (e.g., disappointed). We also created a single index of emotional reactivity by reversing the scores of the seven positive items and then averaging the seven negative items and seven reversed positive items ($\alpha = .64$, 95% CI [.54, .73]).

Results

Manipulation Check

The 2 (Repetition vs. non-Repetition) \times 3 (negative vs. neutral vs. positive) mixed model ANOVA on the number of sentences, valence as within variable, revealed a significant interaction ($F(1.78, 208.44) = 160.02, p < .0001$, partial $\eta^2 = .58$). Follow-up analyses revealed that, as predicted, participants in the Repetition condition generated more negative sentences ($M = 3.16, SD = 1.76$ vs. $M = .22, SD = .49, F(1, 117) = 150.88, p < .0001$, partial $\eta^2 = .56$, 95% CI [2.47, 3.42]), but fewer neutral sentences ($M = 1.57, SD = 1.07$ vs. $M = 4.17, SD = 2.10, F(1, 117) = 73.59, p < .0001$, partial $\eta^2 = .39$, 95% CI [-3.20, -2.00]) and positive sentences ($M = .09, SD = .28$ vs. $M = .63, SD = .59, F(1, 117) = 31.08, p < .0001$, partial $\eta^2 = .21$, 95% CI [-.73, -.35]) than those in the non-Repetition condition. These results indicate that participants' manner of experiencing was successfully manipulated.

Effect of the Structure-bound Manner on Construal Level and Emotional Reactivity

The 2 (Repetition vs. non-Repetition) \times 3 (negative vs. neutral vs. positive) mixed model ANOVA on the concreteness of sentences, valence as within variable, revealed a significant interaction ($F(1.63, 190.48) = 156.55, p < .0001$, partial $\eta^2 = .58$). As predicted, follow-up analyses revealed that in the Repetition condition, negative sentences were more concrete ($M = 6.35, SD = 3.60$ vs. $M = .71, SD = 1.57, F(1, 117) = 120.88, p < .0001$, partial $\eta^2 = .51$, 95% CI [4.63, 6.66]), neutral sentences were less concrete ($M = 3.45, SD = 2.42$ vs. $M = 12.95, SD = 6.40, F(1, 117) = 116.83, p < .0001$, partial $\eta^2 = .50$, 95% CI [-11.24, -7.76]) and positive sentences were also less concrete ($M = .22, SD = .70$ vs. $M = 2.20, SD = 2.37, F(1, 117) = 38.87, p < .0001$, partial $\eta^2 = .25$, 95% CI [-2.61, -1.35]) than those in the non-Repetition condition. Furthermore,

an unpaired t -test revealed that participants' emotional reactivity in the Repetition condition ($M = 60.08$, $SD = 14.12$) was higher than in the non-Repetition condition ($M = 50.72$, $SD = 14.16$), $t(117) = 3.61$, $p < .0001$, $d = .67$. These results suggest that the structure-bound manner strengthened the concreteness of negative representations and emotional reactivity. In particular, we provided evidence of bidirectional causality between construal levels and the structure-bound manner.

【Mediation Analysis in Experiment 2】

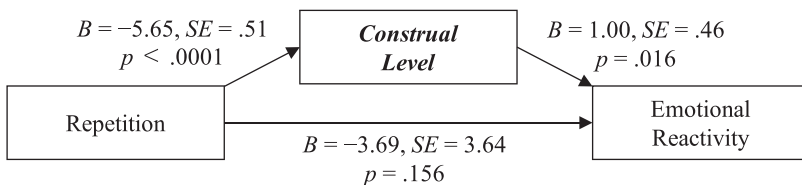


Fig 4. Results of mediation analysis in Experiment 2. Repetition condition was coded as 1 and non-Repetition condition was coded as 2. B s represents non-standardized betas. As opposed to Experiment 1, because *construal level* in Experiment 2 was measured by concreteness, higher scores indicate that participants generated more concrete responses in the stream-of-thought task. Mediation Effect was -5.66 ($SE = 2.26$), and 95% CI did not include zero: $[-9.69, -2.03]$, indicating that *construal level* mediated between structure-bound experiencing (Repetition) and emotional reactivity. These analyses were conducted under one-tailed test.

Mediational Effect of Construal Level between the Structure-bound Manner and Emotional Reactivity

We hypothesized a modified mediational model, as depicted in Figure 3. To examine whether this model was validated, we ran the bootstrapping method as in Experiment 1. We modified the Experiment 1 method by switching the independent and mediational variables, coding the Repetition condition as 1 and the non-Repetition condition as 2, and measuring *construal level* by the

concreteness of negative sentences. As depicted in Figure 4, the results show that the structure-bound manner had a significant negative impact on construal level ($B = -5.65$, $SE = .51$, $p < .0001$, one-tailed), and that construal level had a significant positive impact on emotional reactivity when controlling the effect of the structure-bound manner ($B = 1.00$, $SE = .46$, $p = .016$, one-tailed). More importantly, and as expected, construal level significantly mediated the causal link between the structure-bound manner and emotional reactivity (mediation effect = -5.66 , $SE = 2.26$, 95% CI [-9.69 , -2.03] excluding zero). The impact of the structure-bound manner on emotional reactivity became nonsignificant when controlling the effect of construal level ($B = -3.69$, $SE = 3.64$, $p = .156$, one-tailed), providing evidence of absolute mediation. Descriptive statistics are reported in Table 3 and simple correlations in Table 4.

Discussion

Results obtained in Experiment 2 supported our hypothesis that individuals who lapse into the structure-bound manner become more inclined to represent negative events concretely, thereby exacerbating their emotional reactivity. In contrast, non-structure-bound individuals represent negative events abstractly, thereby lessening their emotional reactivity. These findings imply that there is a strong link between the structure-bound manner and construal level by bidirectional causality. Based on these insights, practitioners guiding focusers/clients either stuck in or tending to lapse into the structure-bound manner (resulting in high emotional distress) could prompt them to shift to a higher construal level of representations about negative life events.

Table 3. Descriptive Statistics of Experiment 2

	Non-repetition Condition		Repetition Condition	
	Mean	<i>SD</i>	Mean	<i>SD</i>
The Periods when the Event Occurred	226.66	577.13	185.61	486.12
Number of Sentences	4.98	2.30	4.82	2.41
Negative	.22	.49	3.14	1.76
Neutral	4.17	2.10	1.57	1.07
Positive	.63	.59	.09	.28
Concreteness of Sentences				
Negative	.71	1.57	6.35	3.60
Neutral	12.95	6.40	3.45	2.42
Positive	2.20	2.37	.22	.70
Emotional Reactivity	50.72	14.16	60.08	14.12

Table 4. Correlation Analysis in Experiment 2

	Number of Sentences				Concreteness of Sentences			
	I	II	III	IV	V	VI	VII	VIII
I . Condition	-	-.75 **	.62 **	.46 **	-.71 **	.71 **	.50 **	-.32 **
Number of Sentences								
II . Negative		-	-.38 **	-.34 **	.95 **	-.49 **	-.38 **	.34 **
III . Neutral			-	.28 **	-.37 **	.97 **	.32 **	-.24 **
IV . Positive				-	-.33 **	.29 **	.94 **	-.20 *
Concreteness of Sentences								
V . Negative					-	-.45 **	-.35 **	.36 **
VI . Neutral						-	.35 **	-.23 **
VII . Positive							-	-.18 *
VIII . Emotional Reactivity								-

* $p < .05$, ** $p < .01$, one-tailed.

General Discussion

Whereas the theory of experiencing has provided the important perspective of personality change, that is, the manner of experiencing affects on an adaptive personality development, recent research (e.g., Takasawa et al., 2019) relates psychological distance and the structure-bound manner to emotional reactivity such as distress and intrusive thought. In the present study, we proposed two hypothesized models. First, we predicted that construal level has causal impacts on the structure-bound manner and emotional reactivity; we also predicted that the structure-bound manner mediates the causal relationship between construal level and emotional reactivity. Consistent with our model, Experiment 1 revealed that participants who represent negative events at a higher level (i.e., the “why” aspect) less lapsed into the structure-bound manner (Repetition) and, thus, weaker emotional reactivity, compared to participants who represent negative events at a lower level (i.e., the “how” aspect). Furthermore, to confirm the strong links among these variables, we proposed a modified causal model in which the structure-bound manner impacts on construal level and emotional reactivity, and construal level mediates the causal relationship between the structure-bound manner and emotional reactivity. As predicted, Experiment 2 demonstrated that participants who lapse into repetitive and negative thoughts (Repetition condition) showed a lower construal level and, thus, larger emotional reactivity, compared to participants who divert their attention away from negative thoughts (non-Repetition condition).

We marshal several arguments to explain why construal level causally influences the structure-bound manner. As mentioned above, psychological distance and construal level are interrelated: individuals construe distant objects at a higher level and proximal objects at a lower level, the converse being that individuals perceive objects as more distant when construing them at

a higher level but more proximal when construing them at a lower level (Trope & Liberman, 2010). Prior literature on emotion control has affirmed that psychological distancing from negative targets attenuates emotional reactivity (Ayduk & Kross, 2010b; Kross & Ayduk, 2017). In the context of experiential manner, Takasawa et al. (2019) previously showed that the structure-bound manner mediates between psychological distance and emotional reactivity. Hence, we proposed that a higher construal level would lower emotional reactivity, and that this link would be mediated by the structure-bound manner. The findings from Experiment 1 supported our expectations. Based on prior research on CLT, higher construal level makes the downstream consequences of individuals' construal become more positive because it is associated with favorable evaluation of the object (Eyal et al., 2004) and desirable behavior (Fujita et al., 2006); we thus predicted that higher construal level should inhibit individuals' emotional reactivity to negative events and lower construal level should not.

This study's findings suggest that construal level is compatible with the theory of experiencing. While many researchers have previously emphasized the therapeutic benefit of clearing a space (Grindler Katonah, 2010, 2012), there may be cases in which someone does not think they understand how to clear their inner space, presumably because of not being habituated to or not being good at imagining the space. This inference is based on Kross and Ayduk's (2017) explanation for people not using psychological distancing in that they cannot feasibly engage in psychological distancing when they confront a negative event in their daily life. In these cases, therapists can use the manipulation of construal level (inducing higher level of construal), instead of clearing a space. For example, if there is something a client wants to distance but she/he cannot easily imagine so, expressing it in an abstract word may help distance them from it (using a word "mistake" to rephrase what she/he concretely did).

Taken together, this study is among the first to illustrate the relationship between construal level and the structure-bound manner. Both the variables mutually affect each other: their impact on emotion regulation and the mediating role of them. In addition, findings in this study propose that if a client was not good at using a psychological distancing strategy such as clearing a space, she/he can express her/his experiences by higher-level words or phrases as an another option to indirectly distance themselves from the negative representations.

Limitation

A limitation of the present study is that only young college students participated in the two experiments. It is possible that other samples would not be able to replicate the results in this study. However, CLT (Trope & Liberman, 2010) does not assume that age determines the ability to alter a construal level of targets. Moreover, CLT has explored the prediction, evaluation, and planning in a broader context of social behavior, which gives us confidence that the results obtained in this study are reliable, irrespective of participants' developmental stage.

Future Directions

The detailed mechanism through which higher construal level inhibits Repetition (i.e., the structure-bound manner) still needs to be revealed. Prior research demonstrates that the structure-bound manner activates the semantic network of negative representations, whereas distraction (i.e., non-structure-bound manner) does not (Takasawa, 2016, Study 7). Based on this perspective, we assume that lower level construal leads individuals to activate the negative semantic network, resulting in their lapse into the structure-bound manner. As

mentioned above, Agrawal and Wan (2009) revealed a causal link between low-level construal and feelings of fatigue. It is possible that these feelings can activate the negative semantic network. In contrast, because high-level construal is strongly linked with favorable evaluation of the object (e.g., Eyal et al., 2004) and desirable behavior (e.g., Fujita et al., 2006), it should lead an individual to activate the positive semantic network. It would consequently have a prevention or buffering effect, based on which negative semantic network would spread and experiential manner would be drawn into a cycle of structure-bound patterns. This proposition should be examined in future research.

Another question which this study gives rise to is how exactly the structure-bound manner causes low-level construal for stress-inducing events. We speculate that this mechanism is based on perspectives of self-control. For example, individuals who construe the situation where they are needed to exert self-control at a higher level succeed in subsequent self-control tasks, whereas those who construe at a lower level fail to exert subsequent self-control tasks (Agrawal & Wan, 2009). It is assumed that when an individual's resources are already depleted, low-level construal prompts them to focus on the feeling of fatigue, resulting in a failure to exert self-control. In contrast, because high-level construal prompts the individual to focus on goals, rather than their resources or feeling of fatigue, they are able to exert self-control. Furthermore, initial depletion induces a subsequent greater preference for the lower level features of targets relative to when there is no initial depletion (Wan & Agrawal, 2011). It is plausible that depleted individuals' experiencing becomes structure-bound, because resource depletion makes it difficult for them to respond to fresh and new inputs or to become modifiable, with low-level construal drawing their attention to the feeling of fatigue. They may repeatedly think a single negative thought and drop into one-sidedness that is not in-process experiencing. In other words, they (believe they) cannot divert

their attention from negative thoughts due to depleted resources. If the principle of depletion is applicable to the concerned mechanism, then individuals who lapse into the structure-bound manner then consume substantial resources that are needed to exert self-control. It is assumed that individuals who repeatedly think about a negative autobiographical memory will respond to it in a one-sided and thus structure-bound manner. We also propose that because repetitive negative thoughts threaten the self, such individuals are motivated to stop thinking negative thoughts or to eliminate the causes of the underlying problems. This would consume substantial resources, thus exhausting individuals who attempt the feat, and drawing their attention to the feeling of fatigue. Investigating this mechanism is another subject for future research.

Conclusions

Prior research has provided convergent evidence that psychological distance reduces emotional reactivity and that the structure-bound manner mediates this causal process (Takasawa et al., 2019). The present study explored a further mediation role of the structure-bound manner, whereby *construal level* diminish emotional reactivity. In addition, our data validate a modified causal model in which construal levels mediate the path from the structure-bound manner to emotional reactivity. These findings indicate the need to further investigate information processing between construal levels and the structure-bound manner.

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A CONFLICT OF INTEREST STATEMENT:

The authors declare no conflicts of interest associated with this manuscript.

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