

Construal Level and Procrastination

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Final published version: <http://pss.sagepub.com/content/19/12/1308.short>

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Abstract

According to Construal Level Theory, events that are distant in time tend to be represented more abstractly than are events that are close in time. This mental association between level of abstractness and temporal distance is proposed to be a bi-directional relationship, such that level of representation of the event should also have effects on the time of activity enactment. In the present studies, participants were asked to respond to a questionnaire via email within three weeks. The questionnaire was designed to induce either an abstract or a concrete construal. Using a variety of manipulations of construal level, the studies supported the predictions of CLT. Individuals were less likely to procrastinate the task when it induced a more concrete construal. Furthermore, this effect did not depend on the attractiveness, importance, or perceived difficulty of the task.

### Construal Level and Procrastination

Why do people wait until the last minute to get started on tasks? It may be only when a deadline is looming that we first begin to consider the specifics of a task, including what will be required to complete it, the context in which it will take place, and other details. If thinking about a task more concretely enables people to get started, manipulating this variable directly should affect the likelihood that they complete it sooner. For example, would thinking of writing a review in concrete terms (e.g., "writing a page of comments") make one do it sooner than thinking of the same action in abstract terms (e.g., "contributing to the scientific feedback process")? We would like to suggest a positive answer based on our research. Specifically, we propose that forming a concrete representation of a task will reduce procrastination, independent of any effects of planning or understanding of the task.

Construal Level Theory (CLT, Liberman & Trope, 1998, Liberman, Trope & Stephan, 2007; Trope & Liberman, 2003) holds that psychological distance is associated with more abstract, high level construals, such that distal objects are represented on a higher level, and also, objects that are represented on a higher level seem more distant. A number of studies have demonstrated that events and behaviors in the distant future are more likely to be represented in terms of superordinate goals (Liberman & Trope, 1998), are placed into a smaller number of broader categories (Liberman, Sagristano, & Trope, 2002), and are explained using more abstract dispositional traits (Nussbaum, Trope, & Liberman, 2003). Showing the reverse direction of influence, Liberman, Trope, McCrea, and Sherman (2007) found that higher level construals foster a perception of more distal times. Participants across several studies were more likely to report that they would engage in an activity later in time when it was described in abstract (rather than concrete) terms, when they had first considered why (rather than how) they would engage in the activity, and when they had first indicated which traits are implied by the activity (rather than which objects one would use to engage in

the activity). These effects held both for predictions of participants' own behavior as well as the behavior of others. Furthermore, effects of construal level were not mediated by differences in the perceived importance, pleasantness, or frequency of engaging in the activity.

The association between distance and level of construal is assumed to have developed into a heuristic based on what individuals typically know about and need to do with respect to near and distant future events (Trope & Liberman, 2003). Individuals typically first decide whether to engage in behaviors based upon their desirability and likelihood of fulfilling overarching goals. Oftentimes, only these general aspects of the activity are available when it is still distant. As the activity nears, it becomes important to plan action and the context in which the event will occur becomes clearer. This movement over time from deliberation of whether to engage in a behavior to implementation of action is also consistent with the model of action phases (Heckhausen & Gollwitzer, 1987). Because of the generalized nature of these mental associations, it is assumed that links between level of construal and distance become habitual and automatic (see Bar-Anan, Liberman, & Trope, 2006, for a demonstration of an association between distance and level of construal using an Implicit Associations Test).

Although past research has shown that more concrete construals of difficult tasks (Vallacher, Wegner, & Somoza, 1989) and more specific plans (Gollwitzer & Sheeran, 2006) result in better task performance, it remains an open question whether concrete representations of a task lead to earlier enactment times. Research on planning provides some initial support for this hypothesis. Placing individuals into an implemental mindset leads to earlier anticipated action than does placing individuals into a deliberative mindset (Gollwitzer, Heckhausen, & Ratajczak, 1990), and forming concrete plans concerning the when, where, and how of pursuing a goal (called implementation intentions) leads to earlier enactment and goal completion (Bamberg, 2002; Gollwitzer & Brandstätter, 1997). Unique to

the present research is the idea that a concrete construal of the task, beyond the formation of plans or receipt of more specific information about the task, leads to its more timely completion.

#### *Overview of studies*

The goal of the present studies was to extend the findings of Liberman et al. (2007) to the actual completion time of activities. Thus, we examined whether manipulations of construal level would influence whether individuals completed a task for a reward sooner. Participants in the present studies were given the goal to complete a task prior to a deadline (cf., Bamberg, 2002; Gollwitzer & Brandstätter, 1997). Because delaying the task increased the risk that one would not receive compensation, and at a minimum delayed receipt of the award, we viewed task delay as indicative of procrastination, consistent with previous definitions of procrastination as maladaptive (cf., Ferrari, 2001; Sigall, Kruglanski, & Fyock, 2000). At the same time, we did not conceptualize timely completion of the task in the present studies as necessarily reflecting the successful application of self-control. Self-control involves overcoming temptations to fulfill an obligation or higher-order goal. For example, the classic self-control problem of delaying gratification requires overcoming the temptation to take a smaller reward immediately rather than to wait for a larger reward in the future (Mischel, Shoda, & Rodriguez, 1989). CLT predicts that the application of self-control should be aided by more abstract task construals that remind individuals of the superordinate goals that are fulfilled by engaging in the task (Fujita, Trope, Liberman, & Levin-Sagi, 2006). We designed the tasks in our experiments to be relatively easy to complete and only moderately important to participants. Manipulating construal level should therefore have little effect on the value of engaging in the task, and the task should not induce a self-control conflict.<sup>1</sup> Rather, based on past findings (Liberman et al., 2007), we predicted that inducing a more concrete construal of

the task would result in completing it sooner via a simple association between level of construal and temporal distance.

We tested this hypothesis with a take-home task (a questionnaire) that participants were asked to complete via email within a three week period. The questionnaire also contained a manipulation of construal level, either through the task itself (Studies 1 and 2) or through a prime embedded in the questionnaire (Study 3). Importantly, the construal level inductions were designed such that all participants received the same instructions regarding composing an email message with responses within a three week period.

#### Study 1 – Traits vs. Means

In an initial study, participants received a questionnaire designed to induce an abstract or a concrete construal. Specifically, participants wrote how one would go about (concrete construal) or what traits are implied by (abstract construal) engaging in various activities (cf., Fujita et al., 2006).

#### Method

##### *Participants and design*

Participants were 34 students at the University of Konstanz. They received 2.50 Euros or a half-hour of research participation credit upon completion of the study. Participants were randomly assigned to one of two construal level conditions.

##### *Questionnaire*

The questionnaire listed ten activities (e.g., write in a diary, open a bank account, see also Liberman et al., 2007). In the abstract construal condition, participants were asked to write two sentences describing what characteristics are implied by the activity. In the concrete construal condition, participants were asked to write two sentences concerning how one would go about the activity. They were asked to write these descriptions for each of the ten activities. Participants in both conditions were then asked to rate how important, difficult,

pleasant, and convenient it was for them to complete the task via email. Responses were given on a 1 (not at all) to 7 (very much) scale.

### *Procedure*

Participants were recruited to participate in a “pretest” of materials for a future study, and were told the researchers were examining whether such studies could be conducted using email. Therefore, participants were asked to take a short questionnaire with them and return their responses via email within the next three weeks. After receiving the email message, an appointment would be scheduled for the participant to receive his or her compensation.

After agreeing to participate and providing their email address, participants randomly received either the abstract (traits implied) or concrete (how) questionnaire. The experimenter explained the nature of the task and told participants to include all of their responses in the email message. Thus, upon leaving the lab, participants were aware of what the task required, ensuring that the manipulation of construal level would be salient. The experimenter noted the date and time that the participant had received the questionnaire.

Upon receiving the email response, the experimenter recorded the date and time stamp of the message, and an appointment was made with the participant via email to provide compensation and a complete debriefing as to the purpose of the experiment.

## Results and Discussion

### *Task ratings*

Among those who sent a response ( $N = 30$ ), there were no differences by condition in ratings of task importance, difficulty, pleasantness, and convenience (see Table 1), all  $t_s < 1$ , ns.

### *Procrastination*

We examined procrastination in two ways. First, responses were categorized relative to the task deadline. Cases in which the response was received prior to the due date were

assigned a score of 1, cases in which the response was received on the due date were assigned a score of 2, cases in which the response was received after the deadline were assigned a score of 3, and cases in which no response was received were assigned a score of 4 (see Table 2).<sup>2</sup> Scores were thus ordered with regard to amount of delay, allowing us to more conservatively treat cases in which participants failed to respond (see Rummel, 1970). A Mann-Whitney test (using the normal approximation and correcting for ties, see Bergmann, Ludbrook, & Spooren, 2000) revealed that participants, as predicted, were more likely to respond in a timely fashion in the concrete construal condition than in the abstract construal condition,  $z = 2.02$ ,  $p_{\text{one-tailed}} = .02$ ,  $p_{\text{rep}} = .92$  (see Table 2).

Second, the number of hours elapsed between the experimental session and the receipt of the email was calculated ( $M = 206.01$  hr,  $SD = 261.94$ , minimum = 0.45 hr, maximum = 1007.37 hr). When no response was ever received, a score reflecting the maximum observed delay plus an additional two weeks was assigned (1343.37 hr; after replacement  $M = 339.82$  hr,  $SD = 445.70$ ).<sup>3</sup> To reduce skewness, scores on this measure were transformed by calculating the square root ( $M = 14.69$ ,  $SD = 11.31$ ).<sup>4</sup> Participants responded sooner in the concrete construal condition than in the abstract construal condition,  $t(32) = 2.57$ ,  $p_{\text{one-tailed}} = .007$ ,  $p_{\text{rep}} = .96$ ,  $\eta^2 = .17$  (see Table 2).

### Study 2 – Examples vs. Categories

One could argue that initial perceptions of the task (rather than perceptions of the task after it was completed) are more relevant for the prediction of procrastination. Therefore, Study 2 was designed to replicate these findings, measuring perceptions of the task at the initial experimental session. We also utilized a different manipulation of construal, generating examples (concrete condition) or category labels (abstract condition) for a variety of objects (Fujita et al., 2006).

### Method



### *Participants*

Participants were 50 University of Konstanz students, paid 2.50 Euros as compensation.

### *Questionnaire*

The questionnaire listed twenty sentence fragments involving various objects. In the concrete construal condition, participants were asked to complete the sentence by providing an example of the category (e.g., An example of a bird is \_\_\_\_\_). In the abstract construal condition, participants were asked to complete the sentence by providing a category label (e.g., A bird is an example of \_\_\_\_\_).

### *Procedure*

The procedure was largely identical to Study 1, with participants randomly assigned to receive either the concrete (examples) or abstract (category labels) questionnaire. However, after explaining the procedure to participants, the experimenter asked them to complete an additional questionnaire. Participants in both conditions were asked to rate how important, difficult, pleasant, convenient, and interesting it would be to complete the task via email, using a 1 (not at all) to 7 (very much) scale. They also indicated how often they checked their email, using a scale ranging from 1 (less than once a week) to 6 (more than ten times a day) and how long (in minutes) they thought it would take to complete the task. The remainder of the procedure was the same as in Study 1.

## Results and Discussion

### *Pre-task ratings*

There were no differences by condition in pre-task ratings of how important, difficult, pleasant, convenient, and interesting the task would be, as well as anticipated time needed to complete the task, and frequency of email use (see Table 1), all  $t_s < 1.77$ ,  $p_s > .08$ .

### *Procrastination*

Responses were categorized relative to the due date and analyzed as in Study 1 (see Table 3). Participants were more likely to respond in a timely fashion in the concrete construal condition than in the abstract construal condition,  $z = 2.34$ ,  $p_{\text{one-tailed}} = .01$ ,  $p_{\text{rep}} = .97$ .

The number of hours elapsed between the experimental session and the receipt of the email was also calculated ( $M = 207.55$  hr,  $SD = 223.10$ , minimum = 1.23 hr, maximum = 744.18 hr). Missing responses were assigned a score reflecting the maximum observed delay plus two weeks (1080.18 hr; after replacement  $M = 416.98$ ,  $SD = 423.46$ ). Individuals responded sooner in the concrete construal condition than in the abstract construal condition,  $t(48) = 1.98$ ,  $p_{\text{one-tailed}} = .03$ ,  $p_{\text{rep}} = .91$ ,  $\eta^2 = .08$  (see Table 3).

### Study 3 – Priming construal level

In the prior studies, the task contained the manipulation of construal level. Although we controlled for a wide range of variables, it is possible the tasks differed in some other unforeseen way. To rule out this possibility, we conducted a final study in which the task itself was held constant for all participants. Construal level was manipulated via a visual prime on the cover sheet of the questionnaire. We utilized a color print of a painting by Seurat, drawing participants' attention to the technique of pointillism (concrete condition) or the desired effect of the painting (abstract condition). All participants then completed the same rating task, responding by email. As in prior studies, we predicted more procrastination in the abstract condition than in the concrete condition.

### Method

#### *Participants*

Participants were 51 University of Konstanz students, paid 2.50 Euros as compensation.

#### *Procedure*

The procedure was largely identical to previous studies. Participants were told that the study concerned pretesting materials for future experiments on the topic of art preferences. In

the abstract condition, the cover sheet of the questionnaire was titled “Art and color: A general overview” and had a color print of the painting *La Parade* (1889) by Seurat. Below the painting was a note that this painting “demonstrates Neo-Impressionism. The artist used color in order to evoke harmony and emotion.” In the concrete condition, the cover sheet of the questionnaire was titled “Art and color: A detailed examination” and had a color print of a close-up from the painting *La Parade* (1889) by Seurat. The picture presented the detail of a man’s face, such that one could see individual points of color. Below the painting was a note that the detail of this painting “shows how the artist used contrasting points of color as part of the pointillism technique.”

The remainder of the questionnaire was the same for all participants. Participants were to rate how important a role color played in thirteen different works of art, using a scale from 1 (not at all important) to 7 (very important). During the initial session in which they received the questionnaire, participants completed the pre-task ratings as in Study 2.

## Results and Discussion

### *Pre-task ratings*

There were no differences by condition in pre-task ratings of how important, difficult, pleasant, and convenient the task would be, as well as anticipated time needed to complete the task and frequency of email use (see Table 1), all  $t_s < 1.23$ ,  $p_s > .22$ . However, the task was rated as more interesting in the abstract condition ( $M = 4.84$ ,  $SD = 1.11$ ) than in the concrete condition ( $M = 4.08$ ,  $SD = 1.49$ ),  $t(49) = 2.07$ ,  $p = .04$ ,  $p_{rep} = .92$ ,  $\eta^2 = .08$ .

### *Procrastination*

Responses were categorized relative to the due date and analyzed as in the prior studies. Participants were more likely to respond in a timely fashion in the concrete construal condition than in the abstract construal condition,  $z = 1.69$ ,  $p_{one-tailed} = .04$ ,  $p_{rep} = .88$  (see Table 4). An ordinal regression revealed no effect of pre-task interest, odds ratio = 0.68, Wald

criterion  $z = 2.75$ ,  $p = .10$ . The construal level effect remained significant when controlling for this variable, odds ratio = 3.75, Wald criterion  $z = 4.30$ ,  $p_{\text{one-tailed}} = .02$ ,  $p_{\text{rep}} = .93$ .

The number of hours elapsed between the experimental session and the receipt of the email was calculated ( $M = 80.18$  hr,  $SD = 130.78$ , minimum = 0.23 hr, maximum = 483.33 hr), and missing responses were assigned a score reflecting the maximum observed delay plus two weeks (819.33 hr; after replacement  $M = 413.52$ ,  $SD = 383.69$ ). Individuals tended to return their responses sooner in the concrete condition than in the abstract condition,  $t(49) = 1.43$ ,  $p_{\text{one-tailed}} = .08$ ,  $p_{\text{rep}} = .84$ ,  $\eta^2 = .04$  (see Table 4). Controlling for pre-task interest in an ANCOVA revealed a significant construal level effect,  $F(1,48) = 2.89$ ,  $p_{\text{one-tailed}} < .05$ ,  $p_{\text{rep}} = .88$ ,  $\eta^2 = .06$ , and no effect of pre-task interest,  $F(1,48) = 1.27$ ,  $p = .27$ .

### General Discussion

To date, there has been relatively little experimental investigation of situational influences on procrastination. Research has rather examined personality characteristics associated with chronic procrastination behavior (for a review see Steel, 2007). Studies of the effects of task characteristics have focused on the desirability and utility of engaging in the task, suggesting that individuals tend to avoid tasks that are unpleasant (e.g., Milgram, Sroloff, & Rosenbaum, 1988). Similarly, hyperbolic temporal discounting (Loewenstein & Prelec, 1992) suggests that individuals prefer to delay difficult or costly tasks, particularly when there is no incentive to finish early (O'Donoghue & Rabin, 1999; Steel & König, 2006).

The present research adds a new perspective to this literature, showing that the way the task is represented influences when individuals complete it. Across a variety of manipulations of construal level, we observed that procrastination was reduced when participants were induced to construe the task more concretely. The present research demonstrates that level of construal affects not only expected enactment times as shown by Liberman et al. (2007), but also actual completion times. Replicating the findings of Liberman et al. (2007), our effects

were not mediated by the perceived importance, attractiveness, or difficulty of the task.

Rather, we think that the effect of construal level on enactment time reflected an association between concrete construal and sooner time.

The results are consistent with other theoretical perspectives suggesting that goal pursuit is more successful when individuals represent the task at a more concrete level. For example, according to Action Identification Theory (Vallacher & Wegner, 1987), individuals are likely to think about the task at a more specific level when a problem arises, and performance on difficult tasks is improved when the task is represented more concretely (Vallacher et al., 1989). Setting more specific subgoals increases the utility of action by reducing the delay of rewards (Steel & König, 2006). Forming implementation intentions has also been shown to facilitate goal pursuit by allowing the individual to delegate action control to the situation (Gollwitzer, 1999). As a result, individuals are quicker to identify opportunities to act (Parks-Stamm, Gollwitzer, & Oettingen, 2007; Webb & Sheeran, 2004), initiate responses (Orbell & Sheeran, 2000; Parks-Stamm et al., 2007), and complete assigned tasks prior to a deadline (Bamberg, 2002; Gollwitzer & Brandstätter, 1997).

In contrast to these findings, Fujita et al. (2006) argued that higher level construals can improve self-control by allowing the individual to focus on the reasons why he or she is engaging in a difficult behavior (e.g., dieting or strenuous exercise). One might question why more abstract construals were not more beneficial in the present research, or, in other words, what is the critical difference between the self-control tasks examined by Fujita et al. (2006) and the tasks examined here. We think that this difference is best explained by CLT terms. Specifically, we think that, in classic self-control situations, a high level construal of a self-control action leads to a more positive evaluation than a lower level construal of the same action. This was not the case in our tasks –level of construal did not affect task valence. Indeed, we designed the tasks to be relatively easy and only moderately important to

participants in order to minimize self-control conflict. Furthermore, although delaying the task past the deadline represented procrastination in the sense that participants lost the chance to receive a reward, we cannot be certain that delaying the task represented a self-control failure. Participants may have had other, more important tasks to complete. In principle, in some cases inducing a high level of construal may reduce procrastination by increasing the value of completing the task by the deadline and emphasizing the importance of adhering to duties and obligations. Obviously, this was not the case in our studies. Rather, a high level of construal of a task made participants think that the distant future would be more appropriate for completing it. Future research should examine the role of possible moderators of construal level effects on procrastination, such as the evaluative effects of high vs. low level construals. Thus, in our example of writing a review, a concrete representation may lead to less procrastination so long as “writing a page of comments” is not viewed as aversive. On the other hand, to the extent that writing comments is perceived negatively, being reminded of the importance of feedback to the scientific process (the abstract framing) may reduce procrastination.

Researchers should also extend these findings to individual differences in chronic procrastination (see Ferrari, Driscoll, & Diaz-Morales, 2007; McCown & Johnson, 1991). Our results would suggest that these individuals are more likely to represent tasks abstractly. Dewitte and Lens (2000) found however that chronic procrastinators represent tasks less abstractly than do nonprocrastinators. They argue that chronic procrastinators focus on task details to the extent that they feel overwhelmed. Alternatively, tendency to represent tasks concretely may increase the salience of task delay and thus inflate self-reports of procrastination. Future research should examine these issues further, including the possibility that the value of high vs. low level construals moderates the relationship between chronic procrastination and construal level.

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The authors thank Caroline Diziol, Miriam Geiser, and Iuliana Lupu for serving as experimenters.

## Footnotes

<sup>1</sup> Although we tend to term every maladaptive failure to complete a task as procrastination, not every task completion is indicative of successfully applying self-control. Tasks may be completed early for other reasons, such as a better fit with daily activities or impulsiveness (which is typically seen as a self-control failure).

<sup>2</sup> Emails received on the due date were separately coded to reflect “last minute” responding. When these responses were coded as received prior to the deadline, significant construal level effects were still observed in all three studies.

<sup>3</sup> Analyses in which we replaced missing responses with the maximum delay observed across the samples (1007.37 hr) also revealed significant construal effects in all three studies.

<sup>4</sup> Skewness was not problematic in Studies 2 and 3. Analyzing raw scores in Study 1 (as was done in these studies) also revealed a significant construal level effect,  $t(32) = 2.28$ ,  $p_{\text{one-tailed}} = .01$ ,  $p_{\text{rep}} = .94$ ,  $\eta^2 = .14$ .

Table 1

*Task ratings*

Sample	Important	Difficult	Pleasant	Convenient	Interesting	Duration	Email
Study 1							
Post-task ratings	2.79 (0.98)	2.48 (1.38)	3.90 (1.23)	5.14 (1.66)	-	-	-
Study 2							
Pre-task ratings	2.94 (1.61)	1.96 (1.21)	4.42 (1.23)	4.62 (1.76)	3.82 (1.84)	8.86 min (4.35)	3.34 (0.94)
Study 3							
Pre-task ratings	2.90 (1.43)	2.65 (1.45)	4.53 (1.10)	5.31 (1.70)	4.45 (1.36)	15.62 min (11.77)	3.45 (1.08)

Table 2

*Study 1 results*

Condition	Response time in hours	Response time transformed (sq. root)	Frequency				Mean rank
			Returned before due date	Returned on due date	Returned after due date	Not returned	
Concrete	175.78 (320.68)	10.07 (8.89)	16	0	0	1	15.09
Abstract	503.85 (499.70)	19.30 (11.81)	11	1	2	3	19.91

Table 3

*Study 2 results*

Condition	Response time in hours	Frequency				Mean rank
		Returned before due date	Returned on due date	Returned after due date	Not returned	
Concrete	301.76 (313.76)	19	1	3	2	21.34
Abstract	532.20 (489.89)	12	1	2	10	29.66

Table 4

*Study 3 results*

Condition	Response time in hours	Frequency			Not returned	Mean rank
		Returned before due date	Returned on due date	Returned after due date		
Concrete	338.75 (371.47)	17	0	0	9	23.00
Abstract	491.29 (388.08)	10	1	0	14	29.12