



## The Relative Effects of Abstract Versus Concrete Processing on Proactivity in Depression

Shanta Dey

Ben R. Newell

Michelle L. Moulds\*

The University of New South Wales

Low levels of proactivity are characteristic of individuals with depression. Two studies were conducted to compare the relative effects of abstract versus concrete processing on proactivity in high dysphoric individuals. In Study 1, participants read information about an upcoming research study and were then randomly allocated to a writing task that induced them to think about participating in that study in either an abstract (e.g., Why you would participate in the study?;  $n = 25$ ) or concrete (e.g., How you will participate in the study?;  $n = 25$ ) way. Participants were then asked to indicate whether they would sign up to the study. As expected, more participants indicated that they would take part in the study in the concrete condition (76%) than in the abstract condition (36%). In Study 2, high dysphoric participants were asked to identify their ideal part-time job and were then randomly allocated to a writing task that induced them to think about applying for the job in an abstract ( $n = 26$ ) or concrete ( $n = 25$ ) way. There was no difference between conditions in self-reported intentions of proactivity. However, significantly more participants in the concrete condition opted to look at an employment assistance website and returned to the lab to collect a job application package. Overall, these findings suggest that abstract processing could contribute to low levels of

proactivity in depression, and that facilitating the use of concrete processing could help to alleviate this problem. Our results also point to the need for greater conceptual clarification of the distinction between concrete processing about proactive behavior and implementation intentions (identifying specific steps for completing an action/goal).

*Keywords:* processing mode; decision-making; proactivity; depression

ANHEDONIA, FATIGUE, BEHAVIORAL AVOIDANCE, passivity, and withdrawal are all key features of depression (DSM-5, American Psychiatric Association, 2013; Clark & Watson, 1991; Ottenbriet & Dobson, 2004). It is therefore not surprising that another characteristic of depressed patients that clinicians frequently note is low levels of proactivity (Watkins, 2016). That is, depressed individuals often report a low level of willingness to engage in self-initiated behavior in response to a current or future situation. Common displays of poor proactivity in depression include a lack of effort to engage in social activities, to exercise, and to seek or continue treatment (Schwartz & Petersen, 2016). A diminished ability to engage in proactive behavior may reinforce a depressed individual's negative self-perception, for example, by making them feel even more incapable of positively shaping their future and by leading to or reinforcing their tendency to avoid initiative-taking altogether. This avoidance of initiative taking could then contribute to a depressed individual's low likelihood of engaging in functional activities or withdrawing from maladaptive tendencies, both of which are imperative for recovery (Leahy, 2001).

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Address correspondence to Michelle L. Moulds, Ph.D., School of Psychology, The University of New South Wales, Sydney, NSW 2052, Australia; e-mail: [m.moulds@unsw.edu.au](mailto:m.moulds@unsw.edu.au)

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Clearly proactivity is important to address in the context of treatment, yet minimal research has tested potential factors that may contribute to low proactivity in depression. One possibility that has been suggested in the literature is rumination (Watkins, 2016), a style of thinking that involves passive repetitive thoughts about one's self, concerns, and experiences (Lyubomirsky & Tkach, 2004). For individuals with depression, there is evidence that rumination exacerbates current depressive symptoms (e.g., sad mood), predicts the development of future depressive episodes, and interferes with the ability to engage in functional behavior (for a review, see Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008).

Watkins (2004) made an important theoretical distinction between two types of rumination, namely, abstract rumination and concrete rumination. Abstract rumination is characteristic of depressed individuals, and involves processing the higher-order aspects of a situation, such as the meaning and consequences of a situation (Watkins, 2004). In depression, the content of such thoughts is usually negative and focused on trying to make sense of one's low mood state (Nolen-Hoeksema et al., 2008). Abstract ruminative thoughts typical of depressed individuals include, *Why do I feel so down? Why can't I handle this better? and What is wrong with me?* (Watkins, 2008). This style of processing is antithetical to concrete rumination, which involves processing the low-level specific details of a situation (Watkins, 2004). Concrete ruminative thoughts include, *What happened here? How did it occur? and What steps do I take to address the situation?* Watkins (2004) proposed that relative to concrete rumination, abstract rumination has maladaptive consequences.

Consistent with this proposal, there is evidence that following an abstract processing induction, depressed individuals report more self-worthlessness and incompetency (Rimes & Watkins, 2005), and poorer social problem-solving skills (Watkins & Moulds, 2005), relative to those who received a concrete processing induction. There is also evidence that recalling positive memories in an abstract way (i.e., focusing on the causes, meanings, and consequences of the recalled situation) maintains low mood in depressed and formerly depressed individuals, while focusing on concrete, specific details while recalling a positive memory improves mood (Werner-Seidler & Moulds, 2012). In addition, abstract processing increases negative future thinking in depression (Lavender & Watkins, 2004) and interrupts emotional recovery from past failures (Moberly & Watkins, 2006).

The relative effects of abstract versus concrete processing on decision-making have, however, been minimally investigated. The findings of such research have scope to shed light on the basis of depressed individuals' poor proactivity. Recently, Watkins (2016) theorized that engaging in abstract processing may prompt overly general or analytical representations of the decision scenario, such as the general meanings and implications that each choice option may have for one's life, and that such abstract representations may undermine the individual's capacity to arrive at a decision. He proposed that concretely processing the low-level elements of the decision scenario, such as the steps required to make a decision, is more likely to facilitate decision-making.

To our knowledge, only one study in the published literature has investigated the relationship between abstract processing and indecisiveness, as well as the relative effects of abstract versus concrete processing on decision-making in depression. Specifically, Schiena, Luminet, Chang, and Pierre (2013) found that the tendency to think in an abstract way was correlated with more trait indecisiveness, whereas a tendency to think in a concrete way was correlated with less trait indecisiveness. In a follow-up experimental study, high dysphoric individuals who were instructed to engage in abstract processing demonstrated longer decision-making times relative to those who were instructed to engage in concrete processing. In addition, there was a trend for participants in the abstract condition to report that they found the decision-making process more difficult than did participants in the concrete condition. Building on and extending Watkins' (2016) account and the findings of Schiena et al. (2013), we propose that abstract processing may be less helpful in facilitating action, or, more specifically, proactivity, than concrete processing.

To our knowledge, no study to date has investigated the relative effects of abstract versus concrete processing on proactivity in depression. There is, however, some research outside of the clinical literature that has yielded findings in line with the prediction that processing a future scenario which requires proactive behavior in a concrete manner leads to higher levels of proactivity relative to processing the scenario in an abstract manner. Research from social psychology, for example, has demonstrated that increased specificity in goal-setting is associated with or leads to higher levels of goal commitment and performance outcomes (e.g., Armitage, 2004; Hall, Weinberg, & Jackson, 1987; Locke & Latham, 1990; Sheeran & Orbell, 1999, 2000). In some of these studies researchers have

specifically tested and demonstrated the effects of forming implementation intentions in facilitating goal enactment (for a meta-analysis see Gollwitzer & Sheeran, 2006). Implementation intentions are action plans that specify how people plan to achieve their goals (Gollwitzer, 1999). The low-level details required for implementation intentions (e.g., identifying how, when, and where to enact one's goal) mirror the type of thought required to engage in concrete processing (Watkins & Baracaia, 2002).

To test our hypothesis that abstract processing leads to lower levels of proactivity than concrete processing in depression, we conducted two studies with high dysphoric individuals. We tested samples of high dysphoric rather than clinically depressed individuals on the basis of evidence that analogue versus clinically depressed samples differ quantitatively rather than qualitatively, and also given that findings in high dysphoric samples are generally similar in clinically depressed individuals (Cox, Enns, Borger, & Parker, 1999; Flett, Vredenburg, & Krames, 1997; Vredenburg, Flett, & Krames, 1993). In both studies we presented participants with information about a task, instructed them to engage in either abstract or concrete processing about that task, and then indexed the proportion of participants in each condition who demonstrated proactivity (i.e., indicated their willingness to engage in the task). In Study 1, participants were asked to imagine that they had been invited to participate in a 3-week study that they were informed would be conducted by a researcher in the lab later in the year. All participants received the same information about the 3-week study and completed a writing task that led them to think either abstractly or concretely about the idea of participating in the study. They were then informed that they did in fact have the opportunity to sign up, and were asked to indicate whether or not they would sign up for the 3-week study. In order to obtain a better sense of how concrete processing might potentially drive proactivity relative to abstract processing, we also administered a number of rating items for participants to complete following their processing induction. These items indexed their experience of the decision-making process, as well as the extent to which they felt capable of being able to complete the 3-week study. We predicted that participants in the concrete condition would demonstrate a higher rate of sign-ups, higher ratings of capability and more positive outcomes on the items that indexed decision-making experience. In Study 2, we employed a similar methodology but examined a more personally relevant decision task. We examined the impact of processing style on the extent to

which participants self-reported and displayed behaviors that indicated proactivity towards applying for their ideal part-time job.

## Method

### PARTICIPANTS AND DESIGN

Sixty-nine first-year psychology students from The University of New South Wales (UNSW Sydney) completed Study 1 in return for course credit. The study received ethical approval from the UNSW Human Research Ethics Advisory Panel–Panel C (HREAP–Behavioral Sciences; approval number 2371). Participants were eligible to take part in the study if their prescreening score on the DASS-21 depression subscale met the criterion we used to identify high dysphoric participants (i.e., they had a score of  $> 14$  and thus at minimum a moderate level of depressive symptoms according to DASS-21 cutoffs; Lovibond and Lovibond, 1995). Participants were instructed to complete the DASS-21 again in the lab on the day of their scheduled study session, in order to ensure that their level of self-reported depression symptoms was still in the high dysphoric range. Of the 69 participants who completed the prescreening, only 50 were still in the high dysphoric range on the day of their participation. The 19 participants who did not meet criteria were excluded from the data analysis. The final sample therefore consisted of 50 participants (34 females, mean age = 18.60,  $SD = 1.81$ ) who were randomly assigned to either the abstract ( $n = 25$ ) or concrete ( $n = 25$ ) condition. Our sample sizes were based on previous studies that yielded a difference between abstract and concrete processing (e.g., Schiena et al., 2013; Watkins & Baracaia, 2002).

### MEASURES

*Depression Anxiety Stress Scale-21 (DASS-21; Lovibond & Lovibond, 1995)*

The DASS-21 is a self-report measure of depression, anxiety, and stress symptoms. Participants rate the extent to which each item (e.g., “I felt downhearted and blue”) applied to them over the past week. Ratings are indexed on a 4-point scale where 0 = *did not apply to me at all* and 3 = *applied to me very much or most of the time*. The DASS-21 has very good internal consistency in nonclinical samples (e.g., Sinclair et al., 2012). In this study, Cronbach's alpha was .72, .81 and .80 for the depression, anxiety, and stress subscales, respectively.

*Ruminative Response Scale (RRS) of the Response Styles Questionnaire (Nolen-Hoeksema & Morrow, 1991)*

The RRS is a self-report measure of one's tendency to ruminate in response to feeling down. Participants rate the frequency with which they engage in the ruminative response listed in each item (e.g., think "What am I doing to deserve this?") when feeling down, sad, or depressed. Ratings are provided on a 4-point scale, where 1 = *almost never* and 4 = *almost always*. The RRS has strong psychometric properties (e.g., Spasojevic & Alloy, 2001). In this study, alpha was .85.

#### *Information Sheet About Upcoming 3-Week Study*

Participants were presented with an information sheet that outlined a 3-week experiment that they were informed would be conducted by researchers in the lab in the following semester. The experiment was described as a study of how thinking styles influence the way in which individuals approach and reflect upon decision scenarios. The information sheet (provided in Appendix A) outlined that during the 3-week study, participants would be required to record 6 important decision scenarios that they were facing in their personal life, the thoughts that they were having during the decision-making process for each scenario, and the final decision that they made for each scenario. Participants were also informed that they would need to come into the lab again at the end of the 3-week period in order to complete a few questionnaires and answer questions about the decision scenarios that they recorded in their diary. The information sheet also outlined the expected length of time required to participate in the study (i.e., 3 hours), as well as the amount of money that participants would be reimbursed for their time (\$15/hour).

#### *Abstract Versus Concrete Processing Manipulation*

Participants were instructed to spend 10 minutes on a writing task that induced either abstract or concrete processing about participating in the 3-week study. Participants in the abstract condition were asked to answer questions such as, "Why would you be willing to participate in the study?" and "What are some potential consequences of participating in this study?" Participants in the concrete condition answered questions such as, "Write out the steps you would have to take to work this study into your schedule alongside your other commitments (e.g., social/work/personal life etc.)" and "List the specific steps you could take to make sure you complete all the study requirements (e.g., diary journaling requirements) that you will be asked to do before coming into the lab for the final session of the study." See Appendix B for a complete list of the abstract and concrete processing prompts.

#### *Sign-up Sheet for Future 3-Week Study*

Participants were provided with a decision sheet on which they were instructed to indicate whether or not they would sign up to take part in the 3-week study. Participants who provided consent to partake in the study also completed a section on the sheet that requested contact details (email address and mobile number).

#### *Self-Report Ratings*

Participants rated their level of (a) indecision, and (b) stress that they experienced when making the decision as to whether they would sign-up; (c) the level of confidence, (d) regret, and (e) satisfaction that they felt with their decision to sign up/not sign up; (f) the extent to which they believed signing up would be the right thing to do; and (g) the extent to which they felt capable of being able to complete the 3-week study. Ratings were provided on a 5-point scale, where 1 = *not at all*, and 5 = *very much*.

#### PROCEDURE

Participants were tested individually at the lab. Upon arrival, they provided informed consent to take part in the study, and then completed the DASS-21 and RRS. The experimenter then informed participants that there was another experimenter in the lab who would be running a 3-week-long study next semester, and asked them to imagine that they were given the opportunity to participate in that study. Participants were asked if they would still be at UNSW Sydney in the following semester; all participants responded yes. Participants were provided with the information sheet about the study, and then given 10 minutes to complete the writing booklet that induced either abstract or concrete processing about participating in this later study.

After completion of the writing booklet, participants were informed that they did in fact have the opportunity to sign up to take part in the study, and were presented with the sign-up sheet. In order to minimize demand effects, the experimenter told participants that after they indicated their decision about whether they would sign up, they should fold the sign-up sheet in half and seal it in the envelope on the table. The experimenter stated that the sealed envelope would be delivered to the other experimenter in the lab who would run the 3-week long study. The experimenter left the room to allow the participant to make the decision alone, but before doing so instructed participants to press the room buzzer once they had sealed the envelope with their decision. Upon leaving the room, the experimenter immediately began surreptitiously timing how long it took for the participant to press the room buzzer

as an index of decision-making time. After the room buzzer was pressed, the experimenter stopped the timer and returned to the room to administer the final rating items. Finally, participants were debriefed and informed that an experimenter in the lab was indeed intending to conduct the 3-week study the following semester and that if they consented to take part they could be contacted near to the time of the study administration. During debriefing, all participants received a referral sheet that listed the contact details of relevant psychological services. Any participants who obtained high scores on the DASS-21 depression items also received an additional debriefing that included the experimenter offering to arrange for them to talk to a clinical psychologist.

## RESULTS

For all statistical analyses an alpha level of .05 was used. Effect sizes for independent samples *t*-tests are reported, whereby values up to .2 refer to small, .5 to moderate, and .8 to large effect sizes (Cohen, 1988).

### Sample Characteristics

Means and standard deviations of sample characteristics are presented in Table 1. Participants had a mean DASS-21 depression score of 20.48 ( $SD = 7.29$ ), suggesting that overall the final sample had a

“moderate” level of depressive symptoms according to DASS-21 cutoffs (Lovibond and Lovibond, 1995). To ensure that there were no preexisting between-condition differences, a series of independent samples *t*-tests was conducted. Age, DASS-21 depression, DASS-21 anxiety, DASS-21 stress and RRS were entered as dependent variables. There were no between-condition differences in age,  $t(48) = 1.41$ ,  $p = .17$ , DASS-21 depression,  $t(48) = 1.73$ ,  $p = .09$ , DASS-21 anxiety,  $t(48) = 1.28$ ,  $p = .21$ , DASS-21 stress,  $t(48) = .67$ ,  $p = .51$ , or RRS,  $t(38.87) = 1.64$ ,  $p = .11$  (test statistic reported on adjusted df due to lack of homogeneity of variances, based on Levene’s test). A Pearson’s chi-square analysis revealed that the conditions were also comparable in gender,  $\chi^2(1, N = 50) = 1.47$ ,  $p = .23$ .

### Abstract Versus Concrete Processing Manipulation Check

Participants’ written reflections for each writing task were coded for levels of abstract versus concrete processing using a coding scheme that was developed by Stöber, Tepperwien, and Staak (2000) and which has been employed in multiple studies in the depression literature (e.g., Watkins, Moberly, & Moulds, 2008; Watkins & Moulds, 2005). The coding scheme defines *abstract thought* as “indistinct, cross-situational, equivocal, unclear, aggregated” and *concrete thought* as “distinct, situationally specific, unequivocal, clear, singular,” with ratings provided on a 5-point scale, where 1 = *abstract*, 2 = *somewhat abstract*, 3 = *neither abstract nor concrete*, 4 = *somewhat concrete*, and 5 = *concrete*. Examples of differences between abstract versus concrete thought reported in previous studies that employed abstract versus concrete processing inductions (e.g., Watkins & Baracaia, 2002) were provided to raters to further clarify and supplement Stöber et al.’s (2000) definitions. Interrater reliability between the two coders who were trained in the coding system and blind to condition was high, with an intraclass correlation of .94.

The mean rating of abstract versus concrete processing, across the two coders, was 1.51 ( $SD = 0.39$ ) for the abstract condition and 4.48 ( $SD = 0.32$ ) for the concrete condition. The between-condition difference was significant, demonstrating that the processing manipulation was effective,  $t(48) = -29.45$ ,  $p < .001$ ,  $d = 8.33$ .

### Decision-Making Measures

The next analysis tested the primary hypothesis that participants in the concrete condition would be more likely to sign up for the study relative to those in the abstract condition. Nineteen of the 25 participants in the concrete condition signed up

Table 1  
Study 1 Means and Standard Deviations for Participant Characteristics, Decision-Making Time, and Self-Report Rating Items

	Condition			
	Abstract processing ( $n = 25$ )		Concrete processing ( $n = 25$ )	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age	18.80	2.43	18.40	0.82
DASS-21 depression	21.92	7.67	19.04	6.74
DASS-21 anxiety	12.72	8.96	9.92	6.26
DASS-21 stress	19.52	9.75	17.84	7.81
RRS	57.16	11.80	52.68	6.95
Time (secs)*	228.72	66.16	177.48	54.00
Right thing to do belief	3.68	0.80	3.52	1.19
Completion capability*	2.32	0.95	3.24	1.09
Indecision*	3.00	1.15	2.16	0.85
Stress*	2.72	1.14	1.76	0.93
Regret	2.20	1.08	1.64	0.95
Satisfaction	2.72	0.84	3.24	1.09
Confidence	3.32	1.11	3.48	0.92

Note. Self-report ratings were provided on a 5-point scale, where 1 = *not at all*, and 5 = *very much*. An asterisk (\*) against a variable denotes a statistically significant difference between experimental conditions

for the 3-week study compared to 9 of the 25 in the abstract condition. A Pearson's chi-square analysis indicated a significant association between experimental condition and whether participants signed-up, in the expected direction,  $\chi^2(1, N = 50) = 8.12$ ,  $p = .004$ . The odds ratio was such that participants in the concrete condition were 5.63 times more likely to sign up compared to those in the abstract condition. There was no between-condition difference in participants' belief that signing up to the study would be the right thing to do,  $t(48) = 0.56$ ,  $p = .58$ .

A series of independent samples  $t$ -tests tested whether the experimental conditions differed on decision-making time and self-report rating items (see Table 1 for means and standard deviations). As expected, participants in the abstract condition took longer than those in the concrete condition to decide whether they would sign up to take part in the 3-week study,  $t(48) = 3.00$ ,  $p = .004$ ,  $d = 0.85$ , reported feeling less capable of completing the study,  $t(48) = -3.19$ ,  $p = .003$ ,  $d = 0.90$ , and experienced more indecision,  $t(48) = 2.93$ ,  $p = .005$ ,  $d = 0.83$ , and stress,  $t(48) = 3.27$ ,  $p = .002$ ,  $d = 0.92$ , during the decision-making process. There was also a trend towards significance for participants in the abstract condition reporting more regret,  $t(48) = 1.95$ ,  $p = .06$ ,  $d = 0.55$ , and less satisfaction with their decision,  $t(48) = -1.89$ ,  $p = .07$ ,  $d = 0.53$ . There was, however, no difference between the abstract and concrete conditions in participants' ratings of how confident they felt with their decision,  $t(48) = -0.56$ ,  $p = .58$ . On account of the condition differences on the DASS-21 depression and RRS approaching significance, we re-ran the analyses on each decision-making measure with both variables included as covariates. The pattern of findings remained the same with these variables entered as covariates.

## DISCUSSION

Study 1 aimed to test whether concrete processing would lead to higher levels of proactivity than abstract processing in a sample of high dysphoric individuals. As expected, significantly more participants in the concrete condition signed up to take part in the 3-week study. This difference emerged despite the fact that there was no difference in the extent to which participants in the two conditions believed that signing-up was the right thing to do.

The higher levels of proactivity in the concrete condition compared to the abstract condition are consistent with other differences observed between the conditions. Specifically, participants in the abstract condition reported lower levels of belief

in their capability to complete the 3-week study relative to those in the concrete condition. This finding might be explained by evidence that abstract processing increases negative self-evaluations in depression (Rimes & Watkins, 2005) and is also associated with higher levels of worry (Stöber & Borkovec, 2002; Stöber et al., 2000). Indeed, negative self-beliefs and worry about the idea of participating in the 3-week study were more apparent in the statements written by participants in the abstract condition during the induction. For example, one participant wrote: "*I worry that taking on such a huge commitment will overwhelm me with the amount of work I will need to do for the study every day.*" We also found that participants in the abstract condition reported that they experienced more stress and indecision during the decision-making process, and took longer to arrive at a decision, compared to participants in the concrete condition. This finding is consistent with the results of Schiena et al. (2013) who reported that (a) indecision was positively correlated with abstract processing and negatively correlated with concrete processing, and that (b) abstract processing leads to longer decision-making times than concrete processing. A greater sense of stress and indecision during the decision-making process may have increased the likelihood of participants defaulting to the noncommittal choice option of not signing up to take part in the 3-week study. In line with this notion is evidence that worry is positively correlated with avoidance (Dickson, Ciesla, & Reilly, 2012).

It was interesting and unexpected, however, that participants in the abstract and concrete conditions did not differ in the extent to which they felt regret, satisfaction, or confidence with their decision (although we note the trend towards participants in the abstract condition experiencing more regret and less satisfaction). It is possible that significant effects did not emerge on these variables because all three were rated immediately after participants made their choice, which may not have allowed sufficient time for participants to reflect on how they felt about their decision. Perhaps with more of a time lag between decision-making and the administration of these postdecision measures, the overly analytical nature of abstract processing in combination with the negative affect present in dysphoria may lead to higher ratings of regret and lower ratings of satisfaction and confidence. It is also possible that the decision task (i.e., to sign up or not sign up to participate in a 3-week study) was not sufficiently personally relevant for the processing inductions to have a differential impact on decisional regret, satisfaction, or confidence. Future

research should test this possibility using a longitudinal design, and utilizing more personally relevant decision scenarios.

Overall, Study 1 demonstrated that when high dysphoric individuals engage in concrete processing they are more proactive than when they engage in abstract processing. However, we note that these findings emerged when participants completed a standardized, prescribed decision task (i.e., whether or not to sign up to a future study) in an experimental context. Accordingly, we cannot conclude that the abovementioned relative effects of abstract and concrete processing would also be observed when participants were faced with personally relevant decision scenarios. It is important that we test this question in order to increase our confidence in the ecological validity and clinical utility of our findings.

### Study 2

We conducted a second study to assess whether concrete processing leads to a higher level of proactivity than abstract processing on a decision task that participants identified as personally relevant. To do this, participants were asked to identify the ideal part-time job that they would want to apply for, underwent a processing induction that guided them to think about applying for the job in an abstract or concrete way, and were presented with measures that indexed proactive behaviors that would maximize their chances of securing the job.

In order to extend and improve upon Study 1, in which we indexed only one measure of proactivity (i.e. study sign-ups), in Study 2 we indexed self-report intentions of proactivity as well as behavioral measures of proactivity. Specifically, we asked participants to estimate the number of days before the job application submission deadline that they would (a) start working on their application and (b) submit their completed application. We then surreptitiously recorded the number of participants who elected to (a) remain in the lab after they believed that the experiment was complete so that they could peruse an employment assistance website, and (b) return to the lab at later date to collect a job application assistance package from the experimenter. On the self-report measures, we hypothesized that participants in the concrete condition would indicate earlier start and completion dates than participants in the abstract condition. For the behavioral measures, we expected that more participants in the concrete condition would opt to look at the website and collect the assistance package.

### METHOD

#### *Participants and Design*

First-year psychology students from The University of New South Wales (UNSW Sydney) participated in the study in return for course credit. The study received ethical approval from the UNSW Human Research Ethics Advisory Panel- Panel C (HREAP – Behavioral Sciences; approval number 2606). Participants were eligible to sign up if their prescreening score on the DASS-21 depression subscale met the criterion used to identify high dysphoric participants in Study 1 (i.e., a score of  $> 14$ ). Participants were re-administered the DASS-21 depression subscale on the day of their participation, and those who again met the criterion for high dysphoria were retained in the final sample. We continued to test participants until we recruited at least 25 high dysphoric participants in each of the two conditions so as to parallel the sample size tested in Study 1. Overall, we tested 77 participants to arrive at a final sample of 51 high dysphoric participants (34 females, mean age = 19.67,  $SD = 3.41$ ). Participants in the final sample were randomly assigned to either the abstract ( $n = 26$ ) or concrete ( $n = 25$ ) condition.

#### *Measures*

*Questionnaires.* The DASS-21 and RRS were administered to rule out the possibility that any difference between conditions on the post-manipulation measures were due to a preexisting difference in respondents' symptoms of depression, anxiety, and stress or in their tendency to ruminate in response to sad mood. Cronbach's alpha was .72, .79, and .77 for the DASS-21 depression, anxiety, and stress subscales, respectively; and .88 for the RRS.

*Ideal Job Identification Task.* Participants were asked if they were currently working part-time, and if so, to indicate their current part-time position. These participants were then asked to identify another part-time job that they would consider to be more ideal for them. Those who were not currently working part-time were simply asked to identify their ideal part-time job. Participants were informed that this ideal job should be one that they could feasibly carry out from the following semester onwards. Those participants who were already working part-time were instructed to imagine that they would be assuming this new ideal job (i.e., rather than working in their current position). The experimenter ensured that participants provided a specific job position (e.g., a position at the health psychology lab at UNSW) rather than one that was overly general (e.g., working in research), as we

reasoned that specific job positions would be more amenable to the experimental manipulations.

*Abstract Versus Concrete Processing Manipulation.* Participants were instructed to complete a writing task designed to induce either abstract or concrete processing. First participants were asked to imagine that the ideal job position that they had just described to the experimenter was currently being advertised, and that for the job application they would need to submit a 1,000-word personal statement, an up-to-date resume, and 2 letters of recommendation. Participants in the abstract condition then received the following instructions: *Write out in the box below why you would want to apply for this ideal job position. Come up with as many reasons as possible, and fully explain each reason in as much detail as possible.* Participants in the concrete condition were provided with the following instructions: *Write out in the box below what steps you would take to prepare for and complete the job application. Come up with as many steps as possible, writing out the specific actions you would need to take for each step, in as much detail as you can.* Participants in both conditions were instructed to spend 10-15 minutes writing their response to the assigned task without concern for grammar, punctuation, or sentence structure.

*Self-report Intentions of Proactivity.* Participants were instructed to imagine that the deadline for the application was exactly 2 months away and were asked to provide a realistic estimate of how many days before this deadline they would start working on their application. They were then asked to provide an estimate of the number of days before the 2 month deadline they would be likely to submit their application.

*Additional Ratings Items.* Participants were instructed to rate on 5-point Likert scales (1 = *not at all*, 5 = *very much*) the extent to which they felt capable of: (a) securing the job, (b) being able to start preparing the job application by their estimated date, (c) being able to submit the final application by their estimated date; and also rated the (d) extent to which they felt motivated to apply for the job.

*Behavioral Measures of Proactivity.* The study was designed so that although participants were informed that the study would take an hour to complete, it would in fact take a maximum of 40 minutes. Immediately after participants completed the rating items on proactivity, the experimenter

informed them that before they would be debriefed about the study they would be given some information that would hopefully be of service to them. The experimenter truthfully explained that she was completing her master's degree in organizational psychology, and that she worked as a careers consultant for some time during the previous year. She explained that most of her clients were university students who were unaware that the university provides free resources that can assist them with the process of finding a job. The experimenter then opened the university's careers and employment website on the computer, and explained to the participant that by logging into the website with their student ID they could access a range of resources, including interview and resume-writing workshops, as well as tips on how to best apply for jobs. The experimenter explained that due to the fact that they completed the study early, they could spend some time viewing the website in the lab if they wished. The experimenter also informed participants that due to her background in careers consulting, she had access to a package of documents that could assist them in applying for jobs, and that if they wished, they could email her sometime during the week to arrange to collect this (free) information package. The experimenter then reminded the participant that they were welcome to spend some time on the university's careers and employment website, or could instead leave early. The experimenter surreptitiously recorded which participants chose to look at the website, and for how long. The experimenter also recorded which participants later returned to the lab to collect the application-assistance package, and how long after their scheduled study session they sent the email to arrange to pick up the package.

#### *Procedure*

Participants provided informed written consent, and then completed the DASS-21 and RRS. They next indicated their ideal job, and then completed the writing task that prompted them to process the idea of applying for the job position in either an abstract or concrete way. As the writing task was completed online, the experimenter was blind to each participant's condition. After the writing task, participants completed the self-report measures of proactivity as well as additional rating items, after which the experimenter informed them that the study was complete. Participants were given information regarding the university's careers and employment website, and at the end of the debriefing were given the option to stay back to peruse the website or to leave the lab early. They were also informed that they could email the experimenter to

arrange to collect a job-application assistance package at a later date. After the debriefing (during which participants were informed about the broad goals of the study, but not the specific hypothesis about a between-condition difference in the likelihood of collecting the job application package), participants were thanked for their participation.

## RESULTS

For all statistical analyses an alpha level of .05 was again used.

### Sample Characteristics

Means and standard deviations of sample characteristics are presented in Table 2. The final sample had a mean DASS-21 depression score of 22.31 ( $SD = 6.54$ ), suggesting that on average participants had a “severe” level of depressive symptoms (according to DASS-21 depression cutoffs; Lovibond and Lovibond, 1995). To check that there were no preexisting between-condition differences, a series of independent samples  $t$ -tests was conducted with age, DASS-21 depression, DASS-21 anxiety, DASS-21 stress, and RRS as the dependent variables. Randomization was effective; that is, there were no between-condition differences in age,  $t(49) = 0.05$ ,  $p = .96$ , DASS-21 depression,  $t(49) = -1.21$ ,  $p = .23$ , DASS-21 anxiety,  $t(49) = -0.39$ ,  $p = .70$ , DASS-21 stress,  $t(49) = -0.91$ ,  $p = .37$ , or the RRS,  $t(49) = -0.60$ ,

$p = .55$ . A Pearson’s chi-square analysis revealed that there was no difference in gender distribution between the two conditions,  $\chi^2(1, N = 51) = 0.04$ ,  $p = .84$ .

### Manipulation Check

Using the same coding scheme employed in Study 1, two coders blind to condition rated the extent to which participants’ responses on the writing task were abstract versus concrete. Interrater reliability was high, with an intraclass correlation of .94. As anticipated, the written responses of participants in the abstract condition were rated as significantly more abstract ( $M = 1.69$ ,  $SD = 0.63$ ) than those in the concrete condition ( $M = 4.64$ ,  $SD = 0.59$ ),  $t(49) = -17.22$ ,  $p < .001$ ,  $d = 4.83$ .

### Self-Report Intentions of Proactivity

The next set of analyses tested the hypothesis that participants in the abstract condition would demonstrate less proactivity in their responses on the self-report measures. A series of independent samples  $t$ -tests was carried out with the variables listed in Table 2 as the dependent variables. Contrary to expectations, there was no significant difference between participants in the abstract and concrete conditions in the number of days prior to the deadline that they estimated they would start drafting their application,  $t(44) = -1.32$ ,  $p = .19$ , or in the number of days prior to the deadline that participants indicated that they planned to submit their final application,  $t(46) = 0.46$ ,  $p = .65$ . A number of participants ( $n = 5$  for first item;  $n = 9$  for second item) provided an estimated time range (e.g., 2–3 days) rather than a specific number of days (e.g., 2). In such cases, we used the median value. There were also several participants ( $n = 4$  for first item;  $n = 3$  for second item) who provided time estimates that were ambiguous and not possible to interpret (e.g., “as soon as possible, at least a week before the deadline”). Participants who provided such responses were excluded from the analyses for this item.

### Additional Rating Items

There were no significant differences between conditions in participants’ ratings of how capable they felt of being able to commence the job application by their estimated date,  $t(49) = -0.31$ ,  $p = .76$ , and in how capable they felt of being able to submit the final application by their estimated date,  $t(42.81) = -1.06$ ,  $p = .30$ . In addition, there was no significant between-condition difference in ratings of how capable they felt of being able to obtain the job position,  $t(49) = -1.19$ ,  $p = .24$ , nor in their ratings of how motivated they felt to apply for the job,  $t(43.63) = -0.99$ ,  $p = .33$ .

Table 2  
Study 2 Means and Standard Deviations for Participant Characteristics, Self-report Intentions of Proactivity, and Additional Rating Items

	Condition			
	Abstract processing ( $n = 26$ )		Concrete processing ( $n = 25$ )	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age	19.69	2.60	19.64	4.14
DASS-21 depression	21.23	5.66	23.44	7.29
DASS-21 anxiety	13.46	8.86	14.40	8.12
DASS-21 stress	20.08	8.59	22.16	7.70
RRS	59.00	9.97	60.72	10.61
Draft application	20.81	16.71	27.89	19.58
Final submission	10.65	14.18	9.02	10.26
Job capability	2.54	0.95	2.88	1.09
Draft application capability	3.54	1.21	3.64	1.11
Final submission capability	3.65	1.23	3.96	0.79
Job motivation	3.62	1.30	3.92	0.86

*Note.* *Draft application* = estimated number of days pre-deadline that participants estimated they would start drafting an application; *Final submission* = estimated number of days pre-deadline that participants estimated they would submit the final application. For remaining items, ratings were provided on a 5-point scale, where 1 = *not at all*, and 5 = *very much*.

Table 3  
Study 2 Outcomes for Behavioral Measures of Proactivity

	Condition			
	Abstract processing ( <i>n</i> = 26)		Concrete processing ( <i>n</i> = 25)	
	<i>n</i>	%	<i>n</i>	%
Number who visited the careers website*	4	15	14	56
Number who collected assistance package*	2	8	9	36
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Time spent on careers website (secs)	138.75	38.05	338.79	100.26
Number of days to send e-mail requesting package	1.50	0.71	1.33	0.50

Note. An asterisk (\*) against a variable denotes a statistically significant difference between experimental conditions. Cell sizes for 'time spent on careers website (secs)' were too small to permit statistical analysis for this particular variable.

### Behavioral Measures of Proactivity

With respect to the behavioral measures, the findings were as expected (see Table 3 for means). The odds ratio was such that participants in the concrete condition were 7 times more likely to look through the careers and employment website at the completion of the experiment compared to those in the abstract condition,  $\chi^2(1, N = 51) = 9.21, p = .002$ . Of those participants who chose to look at the website, participants in the concrete condition appeared to have spent more time on the website than those in the abstract condition. We based this inference on patterns of means as cell sizes ( $n = 4$  for abstract condition;  $n = 14$  for concrete condition) were too small to permit statistical analysis. Compared to the abstract condition, participants in the concrete condition were also 6.75 times more likely to return to the lab to pick up the careers application assistance package,  $\chi^2(1, N = 51) = 6.04, p = .01$ . Of those who did email the experimenter, there was no difference between conditions in the number of days that participants took to send an e-mail to arrange to pick up the package,  $t(9) = .41, p = .70$ . All participants in both conditions collected the package on their scheduled date.

### DISCUSSION

In Study 2 we tested the effects of abstract versus concrete processing on the extent to which participants self-reported and displayed behaviors that illustrated proactivity in applying for their ideal part-time job. We unexpectedly found no impact of processing style on the self-report intentions of

proactivity, nor on the rating items that indexed capability and motivation. However, we observed an effect of condition on the behavioral measures of proactivity, in line with our predictions. Relative to the abstract condition, a greater number of participants in the concrete condition opted to stay back after the experiment to search an employment assistance website and to later return to the lab to collect a job application assistance package. This pattern of findings is consistent with those of Study 1, in which we found that relative to the abstract condition, a greater number of participants in the concrete condition signed up to a future 3-week study. That is, in both studies high dysphoric participants demonstrated greater levels of behavioral proactivity following a concrete processing induction compared to an abstract processing induction. Our results have relevance for the literature on the effects of abstract versus concrete processing in depression, as well as potential implications for the treatment of individuals suffering from this disorder.

### General Discussion

We sought to compare the relative effects of abstract versus concrete processing on proactivity in depression. Investigations of the consequences of abstract versus concrete processing in depression have primarily been limited to examining their effects on cognitive or emotional indices, such as measures of self-evaluation (e.g., Rimes & Watkins, 2005) and mood (e.g., Werner-Seidler & Moulds, 2012), rather than their effects on actual behavior. The study by Schiena et al. (2013) is one exception, with the length of time taken to arrive at a decision being an outcome of interest. On the basis of their findings, Schiena et al. theorized that abstract processing may result in overly analytical representations of the decision scenario that are not conducive to arriving at a decision. Our findings extend this interpretation and suggest that, relative to concrete processing, engaging in abstract processing may also impede decision-making to the extent that it inhibits action.

Although conducted with an undergraduate, nonclinical sample, the findings of our study are nonetheless relevant to the predictions of Watkins' (2008) processing mode theory of rumination. Specifically, this account states that a processing mode characterized by high-level construals, consistent with those observed in depressive rumination (i.e., abstract processing), results in worse outcomes than an antithetical, concrete processing mode characterized by low-level construals. Our findings also add to the increasing number of studies to have demonstrated that concrete

processing results in beneficial outcomes over abstract processing (e.g., Lavender & Watkins, 2004; Watkins & Moulds, 2005; Watkins & Teasdale, 2001, 2004), with ours being the first to show that this pattern of findings extend to behavioral proactivity.

The similarities between forming an implementation intention and engaging in an action-oriented concrete style of processing could provide one potential account of why in the present research concrete processing, relative to abstract processing, led to greater levels of behavioral proactivity. Forming an implementation intention involves specifying when, where, and how one will follow a goal-directed behavior. This is comparable to the requirements of the writing task that participants in the concrete condition completed as their processing induction: participants were asked to write about how they would participate in the 3-week study or apply for their ideal job, answering questions such as “*Write out the steps you would have to take to...*” In studies that have examined the effects of forming implementation intentions, individuals who form such intentions are more motivated to follow through with their intention, and indeed more likely to actually do so, compared to those who do not (e.g., Armitage, 2004; Sheeran & Orbell, 1999, 2000). Given that the format of producing an implementation intention mirrors the instructions of the concrete processing induction in our two studies, it is possible that the motivational effects of implementation intentions played a role in our finding of greater behavioral proactivity in the concrete conditions.

To test the possibility that it is the implementation planning that is driving the observed benefits of the concrete processing induction in the present research, a future study could include a second concrete processing condition. For this comparison condition, the induction instructions should make no explicit mention of action-planning and instead instruct participants to write in detail about what they would see, hear, feel, and do when participating in the 3-week study/applying for the job. Evidence of increased behavioral proactivity in the implementation-planning condition only would indicate that it is the specific action-planning component of concrete processing that accounts for the observed effects in our present studies. Future research of this kind will help to dismantle concrete processing and clarify the specific ingredient/s responsible for its effects. Such findings are important both theoretically and clinically and will have scope to inform the focus and delivery of interventions that encourage concrete processing.

We also acknowledge that in addition to concrete processing facilitating behavioral proactivity, it is also possible that the evaluative nature of abstract processing inhibited action. Abstractly processing a scenario (e.g., thinking about the meaning and consequences of certain actions) may in the context of high levels of depressive symptoms generate overly analytical or negative thoughts (e.g., “Why would I want to add more work to my life?”) that may serve to dissuade an individual from engaging in proactive behavior. This possibility is consistent with evidence that abstract processing is linked to worry (Stöber & Borkovec, 2002; Stöber et al., 2000), indecisiveness (Schiena et al., 2013), as well as more likely to promote negative self-evaluations (Rimes & Watkins, 2005) and negative future thinking (Lavender & Watkins, 2004) relative to concrete processing.

Another possibility is that the implicit demand characteristics in the concrete processing instructions may have influenced the findings of both experiments. Specifically, the instructions in the concrete condition were worded in such a way that they suggest the participant has already made the decision to sign up to the 3-week study/apply for the job (e.g., “write out how you would incorporate the study into your schedule/prepare for and complete the job application”). Accordingly, we cannot rule out the possibility that the wording of the induction may have played a role in the increased proactivity demonstrated by participants in the concrete condition. This highlights the importance of precise and specific wording in experimental instructions, and is an important issue for future researchers to consider in this line of work.

While our findings regarding the impact of abstract versus concrete processing on behavioral proactivity were as expected, it was surprising that there was no effect of processing induction on the self-report intentions of proactivity in Study 2. Perhaps this dissociation was due to the personal relevance of the decision scenario in Study 2. That is, given that in both conditions participants were instructed to think about a job they wanted (and presumably knew something about), perhaps they had similar levels of insight into their ability to complete the application process—and, as such, their self-reported measures of proactivity were not influenced by the mode of processing they had been instructed to adopt. However, when the opportunity to take action (i.e., to peruse the website or pick up an assistance package) arose, perhaps participants in the concrete condition were more ready to explore those steps than those in the abstract condition. This hypothesis is of course speculative,

and requires further testing. Future studies with longitudinal experience sampling design could be particularly useful to more rigorously test the impact of abstract versus concrete processing on self-report versus behavioral measures of proactivity, and to help tease apart the observed dissociation.

Another possibility is that, for depressed individuals, processing mode does not influence self-reported intentions and beliefs about proactively engaging in future activities, but does influence actual behavior. For example, it is possible that for high dysphoric participants in the concrete condition, thinking about all of the specific steps they needed to take in order to apply for a job generated negative thoughts regarding their capability, motivation, and/or intentions. These negative thoughts may have then lowered outcomes on these measures such that they matched the outcomes observed in the abstract condition. These hypotheses are of course speculative and require testing in future studies.

In the absence of a no-instruction control condition, we cannot be clear about the direction of the effects of receiving an abstract or concrete processing induction, relative to receiving no instruction at all. However, it is possible that the inclusion of a no-instruction condition in which participants are asked to freely think and write about participating in the 3-week study or applying for their ideal job might operate similarly to an abstract processing condition—given that high dysphoric individuals often naturally default to abstract processing (Watkins, 2016). Indeed, Watkins et al. (2008; Experiment 2) reported no difference in the ratings of the abstractness of responses to problem vignettes for participants in the no-instruction control condition and those in the abstract condition.

Another limitation of the study is the relatively small sample. The sample sizes tested in the present studies were guided by previous studies that yielded effects of abstract versus concrete processing (e.g., Schiena et al., 2013; Watkins & Baracaia, 2002). Despite the size of the effects observed in Studies 1 and 2, future studies could include larger samples for even greater statistical power. We also acknowledge that we did not index participants' mood before and after the experimental inductions. Accordingly, we cannot rule out the possibility that the inductions manipulated mood such that abstract processing worsened mood, and this in turn led participants in this condition to be less proactive. While this is a possibility, we note that in numerous studies (e.g., Moberly & Watkins, 2006; Watkins et al., 2008; Watkins & Teasdale, 2001,

2004) these manipulations did not have differential effects on mood. Nonetheless, in future studies researchers should obtain pre- and post-manipulation ratings of mood in order to rule out the possibility that differential mood effects account for the between-condition differences in behavioral proactivity. Also, we acknowledge that without having included a low dysphoric group we cannot conclude that our findings are unique to individuals with high levels of dysphoria. That is, concrete processing may facilitate proactivity in comparison to abstract processing for all individuals, regardless of dysphoria level. Future replications should include a low dysphoric group in order to permit conclusions about the specificity of the findings to high dysphoric individuals.

Our findings nonetheless speak to clinical implications, given the tendency of depressed individuals to engage in abstract processing (Watkins, 2016). Specifically, they support the use of existing intervention methods (e.g., concreteness training) that train depressed individuals to adopt a more concrete, less abstract style of processing. There is evidence that training individuals to adopt a concrete step-by-step style of processing during decision-making may produce numerous benefits, beyond increasing proactivity. Coote and MacLeod (2012) demonstrated that a goal-setting and planning intervention led to increased well-being and reduced depressive symptoms of depressed individuals. MacLeod and Conway (2005) also found that the number of preplanned steps participants identified for achieving a future goal significantly predicted the extent to which they reported feeling positive about the future. Our findings raise the possibility that teaching depressed individuals to engage in concrete processing may have potential to increase their motivation to engage in a proactive behavior. This could have particularly important implications given that withdrawal and inactivity are features of depression, and given that depressed individuals' decisions to partake in adaptive activities (e.g., to seek treatment) are critical for their recovery from the disorder. In addition to potentially increasing behavioral commitment to action, it is also possible that with enough practice of concrete processing and enough positive reinforcement from the benefits of its application, adopting more of a concrete mode of processing may help depressed individuals become unstuck from their usual and dysfunctional mode of abstract ruminative processing (Nolen-Hoeksema et al., 2008; Watkins, 2016).

In conclusion, in two studies we found that in comparison to abstract processing, concrete processing facilitates behavioral proactivity. Our

findings highlight the value of clinicians explicitly encouraging depressed individuals to engage in concrete processing as a means by which to increase proactive behavior. Indeed, evidence-based therapies for depression include strategies that encourage concrete planning (e.g., goal setting, activity scheduling). Our recommendation is that clinicians specifically guide depressed clients to adopt a concrete processing style when encouraging them to engage in proactive behavior. This guidance should help patients to avoid defaulting to more habitual abstract processing (i.e., focusing on causes, meanings, consequences). We acknowledge, however, that these findings need to be replicated with a clinically depressed sample before our suggestions for clinical implications can be considered relevant to translation into practice. Nonetheless, our findings provide an initial indication of the benefits of concrete processing in facilitating proactivity. Furthermore, they also point to the usefulness of conducting future work that aims to explore the difference between concrete processing and implementation intentions in order to better understand the specific ingredients underlying the fruitful effects of the concrete processing inductions administered in our studies.

#### Conflict of Interest Statement

The authors declare that there are no conflicts of interest.

### Appendix A. Information Sheet for 3-Week Study

#### *Aim*

Our research team will be running a study some time later this year that will aim to understand how different cognitive processes (specifically, different thinking styles) influence the way that individuals approach decision scenarios and later reflect on the decisions they have made.

#### *Procedure*

To participate in the study, you will be asked to:

1. *Record in a diary across 3 weeks:*
  - 6 important decision scenarios you are facing in your personal life
  - Thoughts you have during the decision-making process for each scenario
  - The final decision you make for each scenario

In addition to the diary, you will be provided an information sheet that briefly describes 2 different styles of thinking. You will need to regularly consult this information sheet because you will need to indicate in your diary the extent to which you adopted either thinking

style when making your decision for each scenario.

It is estimated that you would be required to spend 15-20 minutes of writing per scenario (maximum of 2 hours).

2. *Come into the lab* (at level 13, Mathews Building) at the end of the 3 weeks to complete a few questionnaires and answer some questions about the decision scenarios you recorded in your diary. This lab session will take about maximum 60 minutes.

Please note that if you decide to participate, it is estimated that it will take maximum 3 hours to complete this study. You will either be credited 1 hour of course credit/hour or reimbursed \$15/hour.

### Appendix B. Induction Questions for Abstract Versus Concrete Processing

#### Abstract Condition:

- Can you list some reasons why you would be willing to participate in this study?
- In what ways do you think participating in this study could impact you in your personal life?
- What self-insight do you think participating in this study could provide you?
- In what ways do you think this kind of research might be important to conduct for society or for specific groups of people such as those who struggle with decision-making?
- What are some potential consequences of participating in this study?
- In what ways might participating in this study influence the way you think about decisions you make later on in the future?

#### Concrete Condition:

- Write out the steps you would have to take to work this study into your schedule, alongside your other commitments (e.g., social/work/personal life etc.). This pertains to the 3 weeks of diary journaling and scheduling in the day you can come into the lab to complete the final 60 minutes of the study.
- Assume that you are able to participate in that study. What steps will you need to take in order to get to university that day (e.g., how long will the commute take, what mode of transportation will you take?)
- List the specific steps you could take to make sure you complete all the study requirements (i.e., diary-journaling requirements) you will be asked to do before coming into the lab for the final session of the study.

- You will be asked to record in a diary the thoughts you have during the decision-making process for each of the 6 decision scenarios. These thoughts should be recorded (as much as possible) in real-time (i.e., recorded as close as possible to the time you have the thoughts). However, we understand you will not keep your diary with you at all times. Outline different ways you could document your thinking about the 6 decision scenarios if you don't have the diary on hand with you so that you can later transfer it to your diary.
- In addition to the diary, you will be provided an information sheet that briefly describes 2 different styles of thinking. You will need to consult this information sheet because you will be asked to indicate in your diary the extent to which you adopted either thinking style when making your decision for each scenario. Outline some ways you can make sure that you can make note of the thinking style you adopt for each scenario without always having the information sheet on hand with you.
- Outline step-by-step what a day might look like during your participation in the 3-week study (i.e., a day during the 3-week journaling phase of this study).

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