

FORECASTING YOUR FINANCIAL FUTURE:
A CONSTRUAL LEVEL THEORY PERSPECTIVE ON ECONOMIC STRESS AND COPING

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A THESIS SUBMITTED TO
THE FACULTY OF GRADUATE STUDIES
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
MASTER OF ARTS

GRADUATE PROGRAM IN PSYCHOLOGY
YORK UNIVERSITY
TORONTO, ONTARIO

OCTOBER 2021

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Abstract

With the onset of the COVID-19 pandemic, young Canadians are facing an uncertain employment future. This project sought to investigate how mental representations of prospective stressors impact perceptions of threat. Using Construal Level Theory (Trope & Liberman, 2010) and Stress and Coping Theory (Lazarus & Folkman, 1984) as conceptual frameworks, the present research examined the relationship between construal, psychological distance, and stress appraisal in the domain of economic stress. Results indicated that construing a stressor in abstract terms attenuates the relationship between psychological distance and perceived threat. Further, psychological distance from a stressor was associated with predicted future affect and financial resources. There was no significant association between psychological distance and social support resources. Contrary to expectations, no association was found between psychological distance and construal. The implications and limitations of these findings are discussed.

Acknowledgements

I would like to express my sincere gratitude to my supervisor, Dr. Esther Greenglass, for her immense support, patience, and thoughtful mentorship throughout my Master's degree. Her enduring passion and enthusiasm for research, teaching, and service to the academic community has been an enormous inspiration to me. I am extraordinarily grateful to have had Dr. Greenglass's mentorship in research and expertise in stress and coping to help me cope with a particularly stressful year for research. I would like to thank her for always encouraging me to pursue my interests, and for believing that I have the ability to do so.

I would also like to thank Dr. Shayna Rosenbaum for her help and insightful feedback throughout the creation of my thesis. To the rest of my examining committee, Drs. Raymond Mar and Suzanne MacDonald, thank you for your time and for making my defense such an enjoyable experience.

Thank you to Ronda Lo, Chantelle Ivanski, Dr. Joey Cheng, Dr. Julie Conder, and Dr. Jodi Martin for their scholarly and emotional support throughout my master's. I would also like to thank members of the Greenglass Lab and the rest of my graduate student friends and colleagues.

I would like to thank my parents and brother for always being my biggest supporters. And finally, I would like to thank my partner, Chris, for making each day great.

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Introduction

On March 11, 2020, the World Health Organization (WHO) declared a global pandemic due to COVID-19. As a result of the pandemic, Canada has entered an economic downturn, leaving young Canadians fearful and uncertain about their financial future, due mainly to business closures and high unemployment. Projections of lingering negative economic consequences post-outbreak are a constant presence in various forms of media. Although COVID-19 has brought economic precarity to the forefront, predictions of future financial hardship have long plagued young Canadians. Relatively high unemployment rates and increases in student debt (Statistics Canada, 2014), as well as media reinforcements of job insecurity and grim financial prospects (Grant & McFarland, 2012, October 27; Scoffield, 2020, April 14) have an enduring presence in Canadian society. These forecasts of future financial difficulty can be psychologically distressing, and induce a fearful, anxious uncertainty about one's financial situation (Chiacchia et al., 2018). This response, known as "financial threat" (Marjanovic et al., 2013) can be understood through the transactional model of stress (Lazarus & Folkman, 1984). As outlined by this model, the appraisal of a stressor begins with individuals evaluating their stake in a situation and assessing their resources to cope with or manage the situation. These judgements then determine the perceived intensity of the stressor. With forecasts of future financial difficulties looming, the present research sought to explore some of the cognitive factors that influence perceptions of prospective threat.

Our perceived stake in a situation is impacted by our relative psychological distance from an object or event (Todorov et al., 2007). Psychological distance is defined as the experienced subjective distance of an object or event relative to the self, here and now. It refers to the space between the referent (i.e., the perceiver) and the object/event in time, space, social, and

hypothetical distance. These dimensions of psychological distance are believed to be positively related and vary together (Trope & Liberman, 2010). The perception of an object or event being psychologically distant implies that the object or event has a low probability of impacting the perceiver, and instead will impact other people, in other places, at another point in time.

This de-investment from the situation on the part of the perceiver through the increase of psychological distance has been found to reduce the intensity of negative feelings about the event (Ayduk & Kross, 2008). Further, findings would suggest that we infer the intensity of our emotions from our perceived psychological distance from the event. Kross et al. (2005) found that asking a participant to distance themselves from a negative event (e.g., “move away from your experience”) reduced negative feelings associated with the event. This relationship between affect and psychological distance would suggest that distal (vs. proximal) stressors are less affect-laden and, potentially, less threatening. Considering the relationship between psychological distance and emotion, it is important to explore how psychological distance relates to threat appraisal.

Psychological distance is often studied through the lens of construal level theory (CLT; Trope & Liberman, 2010), which posits that psychological distance is related to *construal level* (i.e., the abstraction level of the mental representation). That is, the more psychologically distant an object or event is, the more abstract the resultant mental representation becomes. The relationship between psychological distance and construal level has been found to be reliable and bidirectional (Soderberg, et al., 2015). While representations of objects or events can spontaneously shift between a low level of construal (concrete representations) and a high level of construal (abstract representations), they can also be experimentally manipulated through framing (Freitas et al., 2004). When people think at a low level of construal (i.e., concretely),

they are concerned with “how” they should approach a situation (Eyal et al., 2009). When thinking at a high level of construal (i.e., abstractly), people are more concerned about “why” they should approach a situation. The framing of an event as either a “how” or a “why” has been found to manipulate construal level and subsequently influence psychological distance judgements of imagined future events (e.g., Griffioen et al., 2019). It has been postulated that this effect is created by shifting attention between general (i.e., abstract) and specific (i.e., concrete) information (Freitas et al., 2004). According to the constructive episodic simulation hypothesis (Schacter & Addis, 2007), when imagining future events, we rely on our episodic memory to construct possible scenarios. To do so, we flexibly retrieve and recombine information to simulate a predicted future. It has been found that when imagining a near-future (vs. far-future) event, the resultant mental representation is more detailed (Addis et al., 2008), which supports the idea that the information we attend to can influence mental representations of predicted futures.

The present research sought to apply CLT (Trope & Liberman, 2010) and stress and coping theory (Lazarus & Folkman, 1984) to the study of economic stress, particularly regarding the threat of future financial hardship and unemployment for young Canadians. According to the transactional theory of stress and coping, threat appraisal depends on both the personal relevance of the stressor (i.e., primary appraisal) and an assessment of one’s resources to cope with a stressor (i.e., secondary appraisal). I proposed that construal framing would impact one’s psychological distance from a future stressor, which in turn, would influence threat appraisal through both primary and secondary appraisal. This research was aimed at investigating whether a CLT process underlies threat appraisal to gain a greater understanding of how we can leverage cognitive framing for coping value.

Psychological Distance

Psychological distance is conceptualized as four different, but related, elements: temporal distance, hypothetical distance, social distance, and spatial distance (Trope & Liberman, 2010). The four dimensions refer to the perceived distance in time, space, social relevance, and likelihood between a person in the here and now, and an object or event. Generally, correlations among the four psychological distance elements have been significantly positive (e.g., Stephan et al., 2011; Yan, 2014; Won et al., 2017). Thus, the four elements are considered to positively covary with each other. However, only temporal and hypothetical distance will be examined in this study, as they are the most relevant when considering a future financial event.

Temporal Distance

Temporal distance refers to distance in time between an object/event and the referent. An event that is temporally distant could either be something that has happened in the distant past or something that will happen in the distant future. An event that is temporally close is either something that has happened in the near past, or something that will happen in the near future. It is important to note that temporal distance judgements are based on *perceived* distance rather than *actual* distance. These judgements can be applied to both past and future events, although past events have a known date and probability of occurrence, whereas future events can vary in terms of date and probability. The dimension of time is a relevant factor when appraising a threat to one's financial situation. If a negative financial event is farther away in time, it should be less salient in the here and now, therefore, less of a threat to a person, and less likely to generate anxiety in the present. According to the transactional theory of stress, secondary stress appraisal involves the evaluation of available resources for coping with the stressor (Lazarus & Folkman, 1984). When a negative event is farther away in time, we have more time to acquire more

resources (e.g., social support), which will enable more effective coping with the event. By measuring perceptions of temporal distance, we will examine how framing a negative financial event can influence a person's belief of when it will happen (i.e., how far in the future it will occur).

Hypothetical Distance

Hypothetical distance refers to the perceived likelihood of an event occurring. A hypothetically close event has a high probability of happening, and a hypothetically distant event has a low probability of occurring (Trope & Liberman, 2010). For instance, snow in the winter would be considered a hypothetically close event, whereas snow in the summer would be a hypothetically distant event. Thus, hypothetical distance refers to the probability that something will occur. Hypothetical distance is relevant when appraising an economic stressor, as it refers to the likelihood of the event occurring from the perceiver's perspective. In this study, we will examine hypothetical distance of a negative financial event and determine how construal framing impacts perceived probability of an event occurring.

Construal Level Theory of Psychological Distance

Construal Level Theory (CLT) posits that psychological distance is associated with construal level. That is, psychologically close events are represented more concretely (low-level construal), and psychologically distant events are represented more abstractly (high-level construal; Trope & Liberman, 2010). High-level construals are primary, abstract, simple, mental representations. Conversely, low-level construals are secondary, concrete, complex mental representations (Trope & Liberman, 2010). Information tends to be construed at a higher level when it pertains to psychologically distant items, and at a lower level when it pertains to psychologically close events. People will use these higher-level construals as psychological

distance increases because high-level construals are more likely than low-level construals to remain unchanged with the increase or decrease in distance (Trope & Liberman, 2010). For instance, a higher-level action of preparing for a dinner party will remain stable over time, even as you complete lower-level actions (e.g., inviting guests, purchasing food, cleaning the house). It is more useful to construe psychologically distant actions at a higher level, as they subsume smaller, more concrete actions. The reversal of this is also true; when psychological distance decreases, low-level construals tend to be used because it allows the individual to attend to the task at hand. For example, if you are studying for a test, it is more useful to construe that action as reading the material (low-level construal) rather than getting a degree (high-level construal).

Construal-level theorists argue that psychological distance and construal level have become related through learned association (Liberman & Förster, 2009). While it has been established that psychological distance influences construal level through experimental research, more recent research has also found evidence for the reverse link (Trope & Liberman, 2010; Duan et al., 2019). As high-level construals are more abstract and general, they elicit more distal classifications of an object or event. That is, when an object or event is construed abstractly, it is thought to be farther away in time and more hypothetical. Low-level construals are more concrete and context-specific and elicit more proximal classifications of an object or event. When an object or event is construed more concretely, it is thought to be closer in time and less hypothetical (i.e., more probable).

Affective Consequences of Construal

Construal-level and psychological distance are thought to influence both the intensity and valence of affect (Williams & Bargh, 2008). Past research has shown that construing an action at a higher level (i.e., more abstractly) by thinking about performing an action in the distant future,

prompts a person to evaluate the action as more favourable than when the same action was construed at a lower level (i.e., more concretely; Eyal et al., 2004). It has been suggested that abstract (vs. concrete) thinking shifts focus to overarching goals, which are generally seen as positive and desirable, rather than feasibility concerns, which often prompt negative emotions (Fujita et al., 2006; Carver and Scheier, 1990). For example, the concrete construal of the prospect of giving blood (e.g., pain, discomfort) would be more negative than the abstract consideration of the same event (e.g., saving a life). This has been supported by research that has found that psychological distance/abstract thinking improves evaluations of a negative event by decreasing negative affect and increasing positive affect (Williams et al., 2014). Further, thinking abstractly has been found to decrease the intensity of felt affect (Metcalfe & Mischel, 1999; Ayduk & Kross, 2008).

CLT and Threat Appraisal

Since its inception, CLT has often been used as a framework for understanding perceptions of threat (e.g., Spence et al., 2012; Duan et al., 2019). The perception of an object or event being psychologically distant implies that the object or event has a low probability of impacting the perceiver (Trope & Liberman, 2010). This would suggest that if a threat is psychologically distant, it will not be evaluated as relevant to the perceiver and will not be appraised as a threat (Lazarus & Folkman, 1984). Further, when a negative event is farther away in time, we have greater time to acquire resources to prepare for coping effectively with the threat. According to Lazarus and Folkman (1984), resources are assessed during secondary stress appraisal and may be internal or external. External resources refer to the amount of support that people perceive is available to them when they need it. Social support can be in the form of information, practical or tangible assistance, and/or emotional support. It is expected that when

people perceive that a negative event is in the distant future, they are more likely to perceive the availability of external resources or social support than when they perceive the event as in the near future. When someone perceives a greater amount of time to prepare for a negative event, they should also estimate a greater accumulation of resources to cope with the event. With greater external resources, the negative event should be perceived as less threatening.

Study Overview

The purpose of this study was to investigate stress appraisal using Construal Level Theory (Trope & Liberman, 2010) as a theoretical framework. The first objective of this study was to explore the effect that construal of a prospective stressor had on stress appraisal in the context of economic stress (i.e., financial threat). The second objective was to investigate whether a construal level theory process occurs when confronted with a stressor. That is, whether one's construal of the event (i.e., level of abstraction) influenced one's psychological distance from the event. The third goal of this study was to examine the associated consequences of psychological distance from a negative future event – specifically, the associations between psychological distance and predicted future affect and resources.

This study utilized a 2x2 between-subjects design, with economic stress (stress and control) and construal level (low/concrete and high/abstract) as the two independent factors. Economic stress was manipulated through an article, with the stress article forecasting a poor economic future, including high unemployment for young Canadians, and the control article describing the possibility of phasing out the nickel. Construal level was manipulated through a framing scenario that asked the participant to describe either “how” (low-level/concrete) or “why” (high-level/abstract) one should prepare for the events depicted as happening in the future in the bogus article. This experiment allowed us to investigate the following hypotheses:

H1: When confronted with a stressor, one's construal of the stressor will affect financial threat. Specifically, low-level/concrete (vs. high-level/abstract) construals will elicit greater financial threat.

H2: Construing an event abstractly (vs. concretely) would result in greater psychological distance from that event.

H3: When exposed to a stressor, greater psychological distance from the stressor will be associated with less negative affect and more positive affect.

H4: Greater temporal distance from a future stressor will be associated with greater perceived social and financial resources to cope with the event.

H5: Psychological distance from a stressor will explain the relationship between construal and financial threat. It is expected that psychological distance will fully mediate the relationship between construal and financial threat.

Method

Procedure

Participants were recruited through the York University Undergraduate Research Participant Pool (URPP) in March through May 2021. This study required the participants to be 18 years or older and to have not participated in a study from the Greenglass lab in the past two years¹. Once participants chose to take part in our study, they were given a URL which redirected them to a survey hosted on Qualtrics. Participants were asked to read the informed consent waiver, where they were informed that this study aimed to examine their perception of future events. The full purpose of this study was not revealed until after participants had

¹ Other studies from the Greenglass lab in the past two years have used a similar economic stress manipulation. These participants were excluded from the study to prevent any recognition of the manipulation as fictional.

completed the survey to minimize demand characteristics. Once participants gave their consent, they were randomly assigned to one of four groups: economic-stress-low-construal, economic-stress-high-construal, control-low-construal, and control-high-construal. Participants were asked to read an article (stress or control), complete a writing exercise (low or high construal), and answer survey questions. Participants were then given a debrief, where the true purpose of the study was revealed. Since deception was used in this study, participants were asked to either confirm or withdraw their consent after receiving the debriefing form. Participants were compensated with course credit (0.5 URPP credits). The procedure and materials were approved by the Human Participants Review Sub-Committee of the York University Office of Research Ethics (approval code: STU 2021-027) prior to any data collection. The study was also pre-registered on the [Open Science Framework \(OSF\)](#) prior to data collection. The full protocol and materials can be found in Appendix A.

Participants

Pre-registered Power Analysis

Across two rounds of data collection, a total of 498 participants were recruited through the URPP. Three hundred and fifty-nine participants were recruited during the first round of data collection (March 30th to April 12th, 2021), and 139 participants were recruited during the second round of data collection (May 13th to May 24th, 2021). While I had originally indicated in my pre-registration that there would only be one round of data collection, a second round was deemed necessary after deletions left only 53% of the data ($N = 190$; see data deletion criteria below under “Pre-Registered Data Deletion”). I conducted a *post-hoc* power analysis in G*Power (Faul et al., 2007) to estimate the statistical power of the first sample. The results of

this test indicated that 190 participants would yield 61.9% power, which would have been insufficient to detect the hypothesized effect ($f = .20$).

Before the first round of data collection, I had pre-registered a sample size of $N = 340$. This number was determined by running an *a priori* power analysis in G*Power (Faul et al., 2007), under, “ANOVA: Fixed effects, special, main effects and interactions,” with four conditions, using an expected effect size of $f = .20$, $\alpha = .05$, and 80% power. The expected effect size was obtained from a meta-analysis of the CLT literature, where a mean effect size of $g = .475$, 95% CI [.405, .545] was found (Soderberg et al., 2015). While an effect size of $g = .475$ is considered a medium-sized effect, approximately equivalent to $f = .25$ (Cohen, 1992), I chose to use a more conservative estimated effect size of $f = .20$ because of the wide confidence interval around Soderberg’s reported mean effect size. The results of the *a priori* power analysis indicated a requisite 280 participants (70 per condition; 4 conditions) based on the previously specified criteria. To account for attrition based on data quality measures (e.g., attention check), I planned to over sample by approximately 20%, and aimed for a total sample of $N = 340$.

The second round of data collection began 31 days after the first round ended. Data could not be collected until May 13th because of the URPP closure between the winter and spring semesters. To reach the requisite sample size of $N = 280$, I needed to collect 90 additional participants. To account for attrition, I over sampled by about 50% (based on the 47% attrition from round one) and collected 139 additional participants. After data cleaning, the two samples were combined, and I tested for group differences on all demographic and study variables by conducting independent samples *t*-tests on all of the study variables and continuous demographic variables, and chi-squared independence tests on the categorical demographic variables (see Appendix B).

Demographic Characteristics

The final sample consisted of 288 undergraduate students, primarily in their first (49%, $n = 141$) or second (26%, $n = 75$) year of university (see Table 1). Participants were mostly young ($M_{\text{age}} = 20.97$, $SD = 4.86$, range = 18-55 years) women (65%, $n = 186$), who were born in Canada (64%, $n = 183$). Of the 36% ($n = 105$) participants who were not born in Canada, 68% were born in Asia ($n = 71$) and had spent an average of 8.54 years ($SD = 6.40$) years in Canada. The majority of participants were not employed (50%, $n = 143$) or were employed on a part-time basis (38%, $n = 108$). Since this study was conducted in the midst of the COVID-19 pandemic, participants were asked if they received COVID-19 relief benefits in the past year. About two-thirds of the sample received either the Canadian Emergency Response Benefit (CERB; 31%, $n = 88$) or the Canadian Emergency Student Benefit (CESB; 32%, $n = 92$).

Participants were randomly assigned to one of four conditions: economic-stress-low-construal ($n = 79$), economic-stress-high-construal ($n = 83$), control-low-construal ($n = 61$), or control-high-construal ($n = 65$; see Table 2 for demographics by condition). I tested for group differences among the four conditions on all demographic variables by conducting a series of two-way ANOVAs to test for group differences within each continuous demographic variable, and a series of chi-squared independence tests for each categorical variable. There were no statistically significant group differences found on any of the demographic variables (i.e., gender, age, place of birth, year of study, employment status, receipt of COVID-19 benefits).

Design

A 2x2 design was used for this experiment, with construal level (low/concrete and high/abstract) and economic stress (stress and control) as the independent variables (see Figure 1). The dependent variables were psychological distance, financial threat, negative and positive

affect, and social support. The covariates were socioeconomic status (SES), current finances, finances during COVID-19, and current level of social support. Participants were randomly assigned to either a control or economic stress condition by receiving one of two articles to read. This was followed by an attention check of the article they read, followed by a manipulation check. Participants were then randomly assigned to a construal level condition (high-level/abstract or low-level/concrete). To manipulate construal, participants were asked to write about either *how* they should prepare for the described future scenario (low-level construal) or *why* they should prepare for the described future scenario (high-level construal). This 2 x 2 design yielded four conditions: 1) control-low-construal, 2) control-high-construal, 3) stress-low-construal, 4) stress-high-construal. After completing the writing task, psychological distance, financial threat, social support, affect, demographics and covariates were measured (see Appendix A for study procedure)

Experimental Manipulations

Economic Stress Manipulation

Participants were randomly assigned to either an economic stress or control condition. The stress manipulation consisted of an article adapted from Chiacchia et al. (2018) and Wohl et al. (2013) which forecasts an indefinite economic decline including high unemployment for young, recent university graduates. The article described the potential deterioration of the job market for young Canadians, and an increase in unemployment due to the advent of the pandemic. Participants in the control condition read an article describing a potential phasing out of the nickel by the Canadian Mint.

Manipulation Check. The *threat* subscale of the Stress Appraisal Measure (SAM-T; Peacock & Wong, 1990) was used as a manipulation check and administered to both the stress

and control conditions. The four-item measure was aimed at determining the extent to which the participant perceived the presented scenario (either the phasing out of the nickel or the economic stress scenario) as capable of causing harm or loss to themselves on a scale from 1 = *Not at all* to 5 = *Extremely*. The subscale had acceptable reliability, $\omega = .96$, 95% CI [.95, .97].

Construal Level Manipulation

Construal level was manipulated through a writing exercise. As found by Freitas et al. (2004), level of abstraction can be manipulated in participants by asking them to either focus on the low-level “how” (the process) or the high-level “why” (the purpose) of an event that is depicted as happening in the future. Participants were randomly assigned to either a low (concrete) or high (abstract) construal condition. To establish a low-level (concrete) construal, participants were asked to provide written answers for successive “how” questions regarding the future events described in the article they read. To establish a high-level (abstract) construal, participants were asked to provide written answers for successive “why” questions. For example, if the participant was assigned to the concrete condition, they would be asked how they would prepare for seeking a job. The participant would then write their answer in the box. After writing their answer, they would then be asked “How?” in reference to their previous answer. The participants repeated this procedure four times in total. Participants who did not follow the exercise fully by responding meaningfully to each question were excluded from the analysis.

Manipulation Check. As an experimental manipulation check, the content of the final written responses (i.e., final box in the construal-level manipulation) were analyzed for abstraction level (i.e., the degree to which their response was concrete or abstract) using an automated version of the Linguistic Category Model (LCM; Semin & Fiedler, 1988; Semin & Fiedler, 1992, Semin et al., 2002). This method was created and validated by Seih et al. (2017),

where they were able to use an automated linguistic category model to identify linguistic differences consistent with Construal Level Theory (CLT). The LCM is a theoretical framework which categorizes different parts of speech as concrete or abstract. For instance, nouns are considered to be the most abstract word category, as they focus on decontextualized features. A score of 1 was given for descriptive action verbs (DAV), 2 for interpretive action verbs (IAV), 3 for state verbs (SV), 4 for adjectives (ADJ), and 5 for nouns (N; Semin et al., 2002).

To eliminate the need for independent coders, I used a script in R to automate this process. For each response, individual words were tagged with their word category using the *TreeTagger* program via the *korpus* package in R (Schmid, 1994; Michalke, 2021; R Core Team, 2021). The *TreeTagger* program identifies parts of speech (e.g., noun) with 97% accuracy (Schmid, 1994). Since *TreeTagger* can only identify the fundamental parts of speech (e.g., noun, verb), I then had to identify and categorize verbs according to their verb type (e.g., DAV). To do this, I used a Linguistic Category Model verb dictionary created by Seih et al. (2017), which consists of 7,489 verbs and their corresponding verb type (i.e., DAV, IAV, SV). Once each word was tagged, the parts of speech were counted and plugged in to the LCM algorithm (Semin et al., 2002; Carnaghi et al., 2008; Seih et al., 2017):

$$LCM\ score = \frac{[(DAV \times 1) + (IAV \times 2) + (SV \times 3) + (ADJ \times 4) + (N \times 5)]}{(DAV + IAV + SV + ADJ + N)}$$

LCM scores range from 1 (very concrete) to 5 (very abstract). A lower mean LCM score in the low construal (concrete) condition compared to the high construal (abstract) condition would indicate a successful construal manipulation. Previous research by Seih et al. (2017) found this procedure to be effective in revealing linguistic differences in concreteness consistent with construal level theory (Trope & Liberman, 2010)

Materials

Psychological Distance

Two dimensions of psychological distance were measured: temporal and hypothetical distance. For each distance dimension, participants were presented with five items pertaining to the content of their assigned article. Items were adapted from Liberman and Förster's (2009) one-item measure of psychological distance. In the past, this one-item measure has been used to measure psychological distance from a holistic concept (e.g., climate change). The measures were expanded to five items to reflect different elements of the article and to improve reliability. Similar to Liberman and Förster, the items reflected components of the presented future scenario, and participants rated their perceived likelihood and distance in time from the event. To measure temporal distance, participants were asked to report how far into the future they envision various elements of the article's predicted future happening on a sliding scale from 0 = *Very Soon*, to 100 = *Very Far Off*. To measure hypothetical distance, participants were presented with the same items, but asked to rate the likelihood of the predicted future happening on a sliding scale from 0 = *Extremely Unlikely*, to 100 = *Extremely Likely*². The hypothetical distance scales showed acceptable reliability in the economic stress condition ($\omega = .71$, 95% CI [.63, .78]) and the control condition ($\omega = .74$, 95% CI [.60, .82]). The temporal distance scales also showed acceptable reliability in the control condition ($\omega = .90$, 95% CI [.87, .93]) but had borderline acceptability in the economic stress condition ($\omega = .67$, 95% CI [.58, .76]).

² Hypothetical distance scores were reverse coded. Greater hypothetical distance is equivalent to a lower likelihood.

Financial Threat

Participants completed the five-item financial threat scale (FTS; Marjanovic et al., 2013). The FTS measures extent of anxious uncertainty associated with the security and stability of one's finances. Participants were asked to rate how they feel about their future financial situation. A sample item is, "How much do you feel at risk?" Each item is rated on a 5-point Likert scale from 1= *Not at All* to 5 = *A Great Deal/Extremely*. The FTS had acceptable reliability, $\omega = .90$, 95% CI [.88, .92].

Affect

Positive and negative affect were measured using the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988). The PANAS consists of 20, single-word items, with ten words describing positive affect, and ten words describing negative affect. For instance, a sample negative affect item was "nervous," and a sample positive affect item was "inspired." Participants were asked to rate how much they would feel each emotion in the future while seeking employment from 1= *very slightly or not at all*, to 5 = *extremely*. Positive affect showed acceptable reliability ($\omega = .89$, 95% CI [.87, .91]), as did negative affect ($\omega = .95$, 95% CI [.94, .95]).

Predicted Social Support

Predicted future social support was measured using the combined practical and informational support subscales of Caplan's social support measure (1980). Participants were asked to predict their levels of social support when seeking employment in the future. The measure consists of six items, rated on a scale from 1 = *Not at all*, to 4 = *Very much*. A sample item is "how much will people go out of their way to make things easier for you?" The scale had acceptable reliability ($\omega = .86$, 95% CI [.83, .88]).

Predicted Future Financial Resources

Predicted future financial resources were measured using a series of Likert-scale questions. Participants were asked to estimate the likelihood that they will possess the resources to have secure finances in the future on a sliding scale from 0 = *Extremely Unlikely* to 100 = *Extremely Likely*. An example item is “I will be able to secure a job in my field after graduation.” The scale showed acceptable reliability, $\omega = .91$, 95% CI [.89, .93].

Demographics and Covariates

Participants were asked to provide demographic information including their age, gender, citizenship, year of study, employment status, and whether they received COVID-19 related government assistance.³ Participants were also asked to provide information on any changes in household income due to COVID-19 (2 items), an assessment of their current finances (1 item), and a subjective judgement of their socioeconomic status (1 item). To report SES, participants were asked to rate their family’s social status using The MacArthur Scale of Subjective Social Status (SSS; Goodman et al., 2001). The SSS provides the participants with a picture of a ladder with ten rungs, with each rung representing a point on the scale. The bottom of the ladder is meant to represent those who are “worse off,” and the top rung is meant to represent those who are “best off” in society. Participants are asked to identify where their family would belong on the ladder. Current finances, current social support, and SES were included as covariates when theoretically relevant. Changes in household finances due to COVID-19 were tested for a relationship with other study variables.

³ To support individuals facing financial hardship due to the COVID-19 outbreak, the Canadian government created the Canada Emergency Response Benefit (CERB) and the Canada Emergency Student Benefit (CESB; Government of Canada, 2020). CERB provides unemployed or self-employed Canadians with \$2,000 per month, for an indefinite duration of time, based on financial need. CESB offers unemployed secondary and post-secondary students \$1,250 per month from May to August 2020, to compensate for lost seasonal wages.

Data Quality Measures

After reading their assigned article, participants were asked a question about the content of the article as an attention check. They were given four multiple-choice answers to choose from, one of which was correct. In order to detect participants who were randomly responding to measures, this study used the Conscientious Responders Scale (CRS; Marjanovic et al., 2014). The scale consists of five items, which ask the respondent to answer in a certain way (e.g., “please answer this question by choosing number 1”). Items from the CRS were distributed throughout the procedure (see Appendix A). Providing the incorrect response for more than two of the five items indicates random responding (Marjanovic et al., 2014), and thus, these participants were excluded from the analysis. Further, as there is some deception required for this study, there were also two questions which addressed demand characteristics. At the end of the study participants were asked to identify what they believed the purpose of the study was, and if anything appeared strange to them. Those who correctly identify the purpose of the experiment were excluded.

Pre-Registered Data Deletion

All data cleaning was completed prior to analysis. Participants were excluded from analysis if they did not consent (1.2%, $n = 6$), failed (12.8%, $n = 63$) or did not answer (5.83%, $n = 25$) the attention check, withdrew (4.95%, $n = 20$) or did not provide (3.13%, $n = 12$) post-debrief consent, responded randomly (2.42%, $n = 9$), guessed the purpose (0%, $n = 0$), took less than 5 minutes (.59%, $n = 2$) or more than 60 minutes (7.16%, $n = 26$) to complete the study, or did not complete the writing manipulation (left blank or random keystrokes; 14.03%, $n = 47$). Of the 498 participants recruited, across both rounds of data collection, 42.17% were deleted ($n = 210$). There were a greater proportion of participants deleted from Round 1 (47.08% of Round 1,

n = 169) than from Round 2 (29.50%, n = 41) Figure 2 provides a description of data deletions by round of data collection. I tested for group differences between the included and deleted participants using a series of pairwise t-tests on all study variables and continuous demographic variables and conducted chi-squared independence tests on all categorical demographic variables (see Appendix C).

Data Analysis Plan

The data were prepared using the Tableau prep builder software (Version 2.2, 2021) and the *tidyverse* package in R (Wickham et al., 2019). All statistical assumptions were checked prior to analysis. A series of independent samples t-tests were used to test hypotheses one and two. The Welch's t-test was used regardless of whether the data necessitated a robust test, because of its protection against Type I error rates (Delacre et al., 2017). Hypotheses three through five were tested using a series of Ordinary Least Squares (OLS) regression models. Assumptions were tested through inspection of diagnostic plots, which were created using the *ggfortify* package in R (Tang et al., 2016). Observations with standardized residuals that exceeded the absolute value of three were considered to be possible outliers (James et al., 2014). Outliers were considered to be influential in the model if they had a Cook's distance greater than $4/(n - p - 1)$, where n is the number of observations and p is the number of predictors. After calculating the model, observations that exceeded Cook's distance were excluded one by one from largest in magnitude to smallest. Models with multiple predictors were assessed for multicollinearity using variance inflation factors (VIF), Eigen values and Condition Indexes. A VIF < 5 and a Condition Index < 15 was considered to be acceptable (Akinnade et al., 2015). I calculated multicollinearity statistics using the *car* package in R (Fox & Weisberg, 2019). When needed, listwise deletion was used to handle missing data.

Results

Preliminary Analysis

Manipulation Checks

Economic Stress Manipulation. To ensure the efficacy of the economic stress manipulation, I examined group differences in perceptions of threat pertaining to the content of the assigned article (i.e., SAM-T scores). To compare SAM-T scores between the economic-stress and control groups, I performed a Welch’s independent samples *t*-test.⁴ Results showed that participants in the economic stress condition ($M = 3.80, SD = .82$) found the situation described in their article to be more threatening compared to those in the control condition ($M = 1.57, SD = .78$), $t(273.69) = 23.46, p < .001$. This confirmed that the economic stress manipulation was effective in presenting a threatening scenario.

Construal-Level Manipulation. To confirm that the construal manipulation effectively influenced participants’ construal (i.e., the degree to which they were thinking abstractly or concretely), I used an automated linguistic coding procedure, which scored the participants’ writing according to the Linguistic Category Model (Semin & Fiedler, 1988). These scores (henceforth referred to as “LCM scores”) indicate construal level, with lower scores denoting a lower (more concrete) construal level, and higher scores denoting a higher (more abstract) construal level. LCM scores were used to compare construal-levels between groups, to ensure that the construal manipulation was effective.

To create LCM scores, I used the koRpus package in R to act as a wrapper for “TreeTagger” (a parts-of-speech tagger), which identified nouns and adjectives,⁵ and used a

⁴ A Welch’s *t*-test was used as opposed to a traditional Student’s *t*-test because the data failed to meet the assumption of normality. The Welch’s *t*-test has been found to be more robust to violations of normality assumptions than the Student’s *t*-test or Yuen’s *t*-test (Delacre et al., 2017)

⁵ Tree-Tagger also identified other parts of speech (e.g., prepositions), but they were not used in this analysis.

Linguistic Category Model (LCM) dictionary to identify interpretive action verbs, descriptive action verbs, and state verbs.⁶ I wrote a script in R that would parse each text response into individual words, identify and tag the speech category for each word, and create a linguistic information summary for the text response by counting the number of words by category (e.g., nouns, state verbs). After the R loop ran for each participant, I plugged the linguistic information into the LCM algorithm (Semin et al., 2002; Carnaghi et al., 2008) to create individual LCM scores.

To compare construal levels between the low construal (concrete) and high construal (abstract) manipulation conditions, I performed an independent samples Welch's t-test using the LCM scores. The abstract condition ($M = 3.77$, $SD = .52$) had higher (i.e., more abstract) LCM scores compared to the concrete condition ($M = 3.69$, $SD = .62$), however this difference was not statistically significant, $t(269.17) = -1.06$, $p = .29$, $d = -.13$, 95% CI[-.36, .11]. Although the construal manipulation did produce the expected effect (i.e., higher LCM scores in the abstract/high-construal condition compared to the concrete/low-construal condition), the observed results were not statistically significant. Therefore, I could not conclude that the manipulation was strong enough to effectively manipulate construal. Since the manipulation may have not been strong enough to produce an effect, all analyses involving construal as an independent variable were run once with construal condition (low/concrete vs. high/abstract) as the construal variable, and once with LCM scores as the construal variable.⁷

⁶ To ensure the accuracy of the parts of speech tagger I created in R, I randomly selected 5 responses to code and calculate LCM scores by hand. All five hand calculated scores matched the scores produced by the R script.

⁷ Although the construal manipulation was not validated by the LCM scores, I still tested the relevant hypotheses with construal condition as an independent variable in order to follow my pre-registration.

Descriptive Statistics

Descriptive statistics of study variables and their psychometric properties are presented in Table 3. Correlations between study variables and covariates are presented in Table 4. A majority of statistically significant correlations were small to moderate in magnitude. As predicted by construal level theory (Trope & Liberman, 2010), hypothetical distance and temporal distance were positively associated with one another, and this relationship was statistically significant. Future financial threat had a significant positive correlation with future negative affect, $r(281) = .63, p < .001$. Unexpectedly, future financial threat had a significant positive correlation with future positive affect as well, $r(287) = .21, p < .001$. Future positive affect and negative affect were significantly positively correlated with each other, which may have been an indication of mixed emotions (Larsen, 2017). Predicted future financial resources were significantly negatively correlated with financial threat, $r(281) = -.32, p < .001$, and negative affect, $r(285) = -.25, p < .001$. Anticipating future social support was also positively correlated with future resources, SES, better finances during the pandemic, current finances, and current social support.

Primary Analysis: Pre-Registered Predictions

H1: When confronted with a stressor, one's construal of the stressor will affect financial threat.

To examine whether exposure to a stressor and construal of the stressor had an impact on financial threat, I conducted a two-way analysis of variance (ANOVA) with construal (low/concrete and high/abstract) and stress (stress and control) as the two factors, and financial threat as the dependent variable. I first examined whether the data met the assumption criteria for an ANOVA. Levene's test for equality of variance was non-significant, which indicated that the

data passed the equality of variance assumption, $F(3, 284) = 1.48, p = .22$. I then examined Q-Q plots, which indicated that the residuals for each group were normally distributed.

After checking the assumptions, I calculated the ANOVA and found a statistically significant difference in mean threat by stress exposure ($F(1) = 89.38, p < .001$; see Table 5). However, I did not find a significant main effect of construal ($F(1) = .01, p = .92$) or a significant interaction ($F(1) = 2.34, p = .13$). To investigate this finding further, I performed a *post-hoc t-test* of mean financial threat scores by stress condition. Results from the Welch's *t-test* showed a significant difference in mean financial threat scores, with higher financial threat in the economic stress condition ($M = 3.44, SD = .92$), compared to the control condition ($M = 2.37, SD = 1.01$), $t(256.19) = 9.30, p < .001, d = 1.11, 95\% CI [.86, 1.36]$.

Because the construal manipulation was not validated by the LCM scores, I ran a subsequent analysis using Ordinary Least Squares (OLS) Regression with LCM scores as the construal variable (see Table 6). I calculated a regression model with stress exposure, LCM scores, and their interaction as the independent variables predicting financial threat. In this model, the stress condition was dummy coded as 1, and the control condition was dummy coded as 0. I checked the assumptions of linear regression by examining diagnostic plots. Using a Cook's distance of .014 and a "Scale-Location" plot, 14 influential points were identified. The regression model ($R^2 = .26$) revealed a significant interaction between stress and LCM scores ($b = -.83, p = .03$) and a significant main effect of stress ($b = 1.34, p < .001$). I began to exclude influential values one by one from the largest Cook's distance to the smallest. However, after deleting all influential values, the only change in the model was the main effect of LCM becoming statistically significant. Since I was planning on interpreting the interaction which did

not change, and I had no reason to believe the influential cases were a result of error, I retained the influential cases in my model.

To explore the interaction further, I plotted the data (see Figure 3). The interaction plot indicated that the strength of the relationship between construal (i.e., LCM scores) and financial threat depended on one's exposure to stress. When exposed to the stressor, there was a negative association between threat and construal, whereby more concrete construals were associated with greater threat, and more abstract construals were associated with less threat. The plot also revealed the main effect of stress exposure on financial threat, with those in the stress condition experiencing more financial threat than those in the control condition.

H2: Construing an event abstractly (vs. concretely) would result in greater psychological distance from that event.

To test whether construal level had an effect on psychological distance, I conducted two Welch's *t*-tests to compare the temporal and hypothetical distance scores of low-construal (concrete) and high-construal (abstract) conditions.

Hypothetical Distance. I first examined whether the data passed the assumptions of normality and equal variances necessary for a *t*-test. I visually examined the distribution plots and saw that both conditions were positively skewed and platykurtic. This was confirmed by the descriptive statistics, which showed a positive skew for the low-construal condition (0.25, *SE* = 0.21) and the high-construal condition (0.38, *SE* = 0.20), as well as a negative kurtosis for both the low-construal (-0.10, *SE* = 0.41) and high-construal (-0.35, *SE* = 0.4) conditions. However, results from a Shapiro-Wilk test of normality found that only the high-construal condition significantly deviated from the normal distribution, $W_{high-construal} = 0.98, p = .014$; $W_{low-construal} = 0.99, p = 0.15$. The results of Levene's test of equal variances were non-significant, which

indicated that the variances were approximately equal, $F(1,274) = 1.15, p = 0.28$. Since the Welch's t -test is considered to be robust to minor deviations in normality, I concluded that the Welch test would be appropriate in this case. Those in the high-construal condition had higher hypothetical distance scores ($M = 35.59, SD = 19.77$) compared to those in the low-construal condition ($M = 35.19, SD = 18.18$), but this difference was non-significant and small in magnitude, $t(273.50) = 0.17, p = 0.86, d = 0.02, 95\% CI [-.22, .26]$.

Since the construal manipulation was not validated with the LCM scores, I re-ran the analysis for this hypothesis using LCM scores rather than participants' construal condition as the independent variable. To examine whether hypothetical distances depended on level of abstraction, I conducted a simple linear regression to predict hypothetical distance scores based on LCM concreteness scores. I first created diagnostic plots in R to check whether the data met the regression assumptions. The "Residuals vs. Fitted" plot displayed a horizontal line without a distinct pattern, which indicated a linear relationship between hypothetical distance and LCM scores. I then examined the "Q-Q Plot of Standardized Residuals," which revealed a pattern of normally distributed residuals (i.e., points following a horizontal line). Homoscedasticity was examined using a scale-location plot. The plot displayed a horizontal line with equally spread points, which indicated that the data passed the homogeneity of variance assumption. To identify outliers and influential cases, I examined a "Residuals vs. Leverage" plot, with a Cook's distance of .015. Ten influential cases were identified. After confirming that the data met the assumptions for a simple linear regression, I used regression analysis to test whether LCM concreteness scores significantly predicted hypothetical distance scores. The results of the regression indicated that LCM accounted for 2.1% of the variance in hypothetical distance ($R^2 = .003$), but LCM did not significantly predict hypothetical distance, $F(1,270) = .117, p = .73$. I ran the regression

analysis again after dropping each influential case until there were no influential cases left. However, this did not change the model. The results from testing this hypothesis indicate a positive, but non-significant relationship between construal and hypothetical distance. Therefore, the observed effect did not support this hypothesis.

Temporal Distance. To test whether temporal distance was impacted by construal condition, I conducted a Welch's t -test to compare temporal distance scores. I first examined whether the data met the assumptions for a t -test. A visual inspection of the distribution plots for each condition indicated that the data were approximately normal, and this was confirmed with the Shapiro-Wilk test of normality, $W_{high-construal} = 0.99, p = 0.38$; $W_{low-construal} = 0.99, p = 0.28$. The data also passed the equal variance assumption, which was indicated by yielding non-significant results from the Levene's test of equal variance, $F(1, 266) = 0.96, p = 0.33$. Results from a Welch's t -test found that the low-construal condition ($M = 48.13, SD = 21.30$) had higher temporal distance scores compared to the high-construal condition ($M = 47.78, SD = 22.16$), but this difference was non-significant and small in magnitude, $t(265.84) = 0.13, p = 0.90, d = 0.02$, 95% CI [-.22, .26].

I then re-tested this hypothesis using LCM scores instead of construal condition as the independent variable. To do this, I conducted a simple linear regression analysis with LCM scores as the predictor and temporal distance scores as the dependent variable. I first checked whether the data fulfilled the assumptions of a linear regression using diagnostic plots in R. The "Residuals vs. Fitted" plot displayed a horizontal line with randomly scattered data point, which indicated a linear relationship between LCM and temporal distance scores. The residuals were normally distributed, as confirmed by the data points following a horizontal line on the Q-Q plot. Homoscedasticity was examined using a scale-location plot. The plot displayed a horizontal line

with equally spread points, which indicated that the data passed the homogeneity of variance assumption. To identify outliers and influential cases, I examined a “Residuals vs. Leverage” plot, with a Cook’s distance of .015. Eight influential cases were identified. After confirming that the data passed the assumptions for a regression model, a simple linear regression model was calculated. The results of the regression revealed that LCM scores accounted for 7.1% of the variance in temporal distance ($R^2 = 0.005$), but LCM did not significantly predict temporal distance, $F(1, 262) = 1.34, p = .248$. I ran the regression analysis again after dropping each influential case until there were no influential cases left. However, this did not make a significant difference in the model. The results did not display the expected effect of a positive, significant relationship between construal and temporal distance, and therefore, did not support my hypothesis.

H3: When exposed to a stressor, greater psychological distance from the stressor will be associated with less negative affect and more positive affect.

I used Ordinary Least Squares (OLS) Regression analysis to examine whether psychological distance would predict future affect when exposed to a stressor. As this hypothesis is examining the affective consequences of being exposed to a stressor, this analysis was carried out within the economic stress condition. Since positive and negative affect are distinct constructs, two different models were created; one with positive affect as the dependent variable, and one with negative affect as the dependent variable. Hypothetical distance and temporal distance were the predictors for both models.

Positive Affect. I conducted a multiple regression model using the enter method to see whether temporal and hypothetical distance predicted future positive affect. I first tested the linear regression assumptions using diagnostic plots in R. The data met the assumption of

linearity, indicated by a random pattern of data points about a horizontal line on a “Residuals vs. Fitted” plot. The Q-Q plot showed that the data had normally distributed residuals, and the “Scale-Location” plots showed that the residuals had acceptable homoscedasticity. There were six influential cases identified using a Cook’s distance of 0.028. I investigated collinearity by examining VIF values, Eigen values, and condition indexes. Since no VIF value exceeded 5, and no Eigen value was considered to be close to 0 by the condition index (i.e., no condition index was >15), collinearity was not considered to be a problem for this model. Results from the multiple regression analysis indicated that there was a collective significant effect between hypothetical distance, temporal distance, and positive affect, $F(2, 144) = 4.75, p = .01, R^2 = 0.06$. I examined the individual predictors further, and found that hypothetical distance significantly predicted positive affect ($b = 0.28, t(146) = 2.87, p = .005$), however temporal distance did not predict positive affect ($b = -0.07, t(146) = -0.68, p = 0.50$). I ran the regression analysis again after dropping each influential case until there were no influential cases left. However, this did not change the model. The results indicate that greater hypothetical distance from a negative employment future (i.e., perceiving a negative employment future as less likely) is associated with expecting greater future positive affect.

Negative Affect. I conducted a multiple regression model using the enter method to investigate whether hypothetical and temporal distance would predict future negative affect. I used diagnostic plots in R to confirm that the data met the assumptions for linear regression. The “Residuals vs Fitted” plot indicated a linear relationship between the variables, and the Q-Q plot showed normally distributed residuals. The “Scale Location” plot indicated acceptable homogeneity of variance, and six influential cases were identified using a Cook’s distance of 0.03. I investigated collinearity by examining VIF values, Eigen values, and condition indexes.

Since no VIF value exceeded 5, and no Eigen value was considered to be close to 0 by the condition index (i.e., no condition index >15), collinearity was not considered to be a problem for this model. The results of the multiple regression analysis showed a significant collective effect between hypothetical distance, temporal distance, and negative affect, $F(2, 133) = 8.51, p < .001, R^2 = 0.11$. I then examined the predictors further, and found that hypothetical distance significantly predicted negative affect ($b = -0.27, t(135) = -2.91, p = 0.004$), however temporal distance did not significantly predict negative affect ($b = -0.08, t(135) = -0.79, p = 0.43$). I ran the regression analysis again after dropping each influential case until there were no influential cases left. However, this did not change the model. The results indicate that greater hypothetical distance from a negative employment future is associated with expecting lower future negative affect.

Taken together, the results from these analyses suggest a relationship between *hypothetical* distance from a negative employment future and one's predicted future affect. However, a relationship between *temporal* distance from a negative future event and one's predicted future affect was not observed.

H4: Greater temporal distance from a future stressor, will be associated with greater perceived social and financial resources to cope with the event.

I used Ordinary Least Squares Regression to examine whether greater temporal distance from a future negative event would predict participants perception of future resources to create a secure financial future. I tested two models: one with temporal distance predicting social support, and one with temporal distance predicting financial resources.

Social Support. I conducted a simple linear regression to determine whether temporal distance predicted perceived social support. To check if the data met the regression assumptions,

I examined the diagnostic plots in R. The “Residuals vs Fitted” plot showed no distinct pattern, indicating a linear relationship between temporal distance and social support. The Q-Q plot showed that the residuals were normally distributed, the “Scale-Location” plots showed that the residuals had acceptable homoscedasticity. Ten influential cases were found using a Cook’s distance of .027. The results of the regression analysis showed no significant effect between temporal distance and social support, $F(1, 150) = 0.29, p = .59, R^2 = .002$. I ran the regression analysis again after dropping each influential case until there were no influential cases left. However, this did not change the model.

Since the purpose of this model was to examine the unique relationship between temporal distance and predicted future social support, I ran a second model controlling for covariates. Current level of social support and socioeconomic status (SES) were considered to be theoretically relevant variables for making predictions about your future level of social support. I ran a multiple regression model with temporal distance, current level of social support and SES predicting future social support (see Table 7). Results from multiple regression model showed a significant collective effect between temporal distance, current social support, SES, and future social support, $F(3, 148) = 6.37, p < .001, R^2 = 0.11$. I examined the predictors further and found that neither temporal distance ($b = .02, t(152) = 0.31, p = .76$) nor SES ($b = .08, t(152) = 0.98, p = .33$) were significant predictors of future social support. However, current level of social support was found to be a significant predictor of future social support, $b = .30, t(152) = 3.76, p < .001$. Since temporal distance from a negative employment future was not a significant predictor of expected future social support, the results of this analysis did not support my hypothesis.

Financial Resources. To examine the relationship between temporal distance and future financial resources, I conducted a regression analysis with temporal distance as the predictor and future financial resources as the dependent variable. To ensure that the data met the assumptions for linear regression, I examined diagnostic plots in R. The “Residuals vs. Fitted” plot indicated a linear relationship between temporal distance and future resources, and the Q-Q plot displayed a pattern indicating normally distributed residuals. The “Scale-Location” plot showed that the data had acceptable homoscedasticity, and six influential cases were identified using a Cook’s distance of .031. The results of the regression model were significant, with temporal distance explaining 15% of the variance in future resources, $F(1, 130) = 22.95, p < .001, R^2 = .15$. Temporal distance significantly predicted future resources ($b = .39, t(131) = 4.79, p < .001$).

After running the first model, I calculated a second model where I included covariates. Since I wanted to examine the unique effect of temporal distance on perceived future resources, I tested a model controlling for socioeconomic status and the perceived current state of their finances (see Table 8). The regression model included temporal distance, current finances, and SES as predictors, and future resources as the dependent variable. The model was significant, with the predictors accounting for 22% of the variance in resources, $F(3, 128) = 11.87, p < .001, R^2 = 0.22$. Upon further examination of the predictors, I found that temporal distance significantly predicted future resources even when controlling for the covariates, $b = .36, t(131) = 4.54, p < .001$. Examination of the covariates revealed that SES significantly predicted future resources ($b = .29, t(131) = 2.72, p = .01$), but current finances did not significantly predict future resources ($b = -0.05, t(131) = -0.45, p = .65$). As temporal distance from a negative employment future was a significant predictor of expected future financial resources, the observed results supported my hypothesis.

H5: Psychological distance from a stressor will mediate the relationship between construal and financial threat.

To test this hypothesis, I set up a mediation with construal level condition (high vs. low) as the independent variable, psychological distance as the mediator, and financial threat as the outcome variable. I first tested the total effect by regressing construal on financial threat. I ran an OLS regression with financial threat as the dependent variable, and construal condition as the independent variable, with low-construal dummy coded 0 and high-construal dummy coded 1. This model was not significant, $F(1, 160) = 1.26, p = .26, R^2 = .01$.

Since the construal level manipulation was not validated with the LCM scores, I re-ran this model with LCM scores in place of the construal level condition as the independent variable. The results of the regression showed that LCM scores were a significant predictor of threat ($b = -0.20, t(156) = -2.56, p = .01$), and the overall model was significant, $F(1, 155) = 6.55, p = .01, R^2 = .04$. While mediation analysis does not necessarily require a significant relationship between the independent variable and the dependent variable (Hayes, 2018), based on the calculation of the total effect, I chose to use the LCM scores in the mediation.

To establish a mediation, I then tested whether LCM scores (i.e., the independent variable) significantly affected psychological distance (i.e., the mediator variable). I first calculated a linear regression model with LCM scores as the predictor and *temporal distance* as the dependent variable. The model was not significant, $F(1, 146) = .90, p = .35, R^2 = .01$, and LCM scores were not a significant predictor of temporal distance ($b = .08, t(147) = .95, p = .35$). I then calculated a second linear regression model with LCM scores as the predictor and *hypothetical distance* as the dependent variable. This model was not significant, $F(1, 149) = .38, p = .54, R^2 = .003$, and LCM scores were not a significant predictor of hypothetical distance (b

$=.05$, $t(150) = .62$, $p = .54$). Since mediation is predicated on a significant relationship between the independent variable and the mediator, and neither dimension of psychological distance had a significant relationship with LCM scores, I did not carry out this analysis any further.

Summary of Statistically Significant Findings Consistent with Hypotheses

The results from the planned analyses indicated a difference in financial threat by stress exposure, with those exposed to a stressor experiencing more financial threat ($M = 3.44$, $SD = .92$) than those who were not exposed to a stressor ($M = 2.37$, $SD = 1.01$), $t(256.19) = 9.30$, $p < .001$, $d = 1.11$, 95% CI [.86, 1.36]. Further, there was a significant interaction between construal level (as revealed by LCM scores) and stress exposure that predicted financial threat ($b = -.83$, $p = .03$). I found that hypothetical distance significantly predicted positive ($b = 0.28$, $p = .005$) and negative affect ($b = -0.27$, $p = 0.004$). Additionally, temporal distance from a stressor positively predicted expected future resources ($b = .39$, $p < .001$).

Exploratory Analysis

After conducting all of the planned analyses, I decided to explore some other interesting research questions, for which I had no prior hypotheses. I first wanted to explore the relationship between construal, psychological distance from a negative employment landscape, and financial threat. Since the hypothesized mediation could not be carried out, I wanted to examine the interaction between construal and psychological distance as a predictor of financial threat. I conducted a multiple regression analysis with financial threat as the dependent variable and LCM scores, hypothetical distance, and temporal distance as predictors. I also included “LCM * Hypothetical Distance” and “LCM * Temporal Distance” as interaction terms in the regression equation. The results from the multiple regression analysis, as displayed in Table 9, indicated that the model was significant, $F(5, 138) = 6.00$, $p < .001$, $R^2 = 0.18$. LCM scores and

hypothetical distance were significant predictors of financial threat, and there was a significant interaction between hypothetical distance and LCM scores ($b = 1.44$, $t(143) = 2.12$, $p = .04$). I plotted the regression model to explore the interaction (see Figure 4) and observed that the relationship between hypothetical distance and financial threat was stronger when responses were more concrete, and weaker when responses were more abstract. This would suggest that when a stressor is perceived as very likely to occur, it is appraised as more threatening when thinking concretely (vs. abstractly).

I also explored the correlations between study variables within the economic stress condition to examine the relationship between variables when participants were exposed to a stressor (see interrelations presented in Table 10). Predicted future financial resources were significantly negatively associated with financial threat, $r(160) = -.49$, $p < .001$. That is, the greater the financial threat in the present, the less people predicted future financial resources would be available to them. To examine this relationship further, I ran a multiple linear regression model with financial threat as the outcome variable and predicted financial resources as the predictor accounting for theoretically relevant covariates: SES, current finances, and pandemic finances (see Table 11). The model was significant, $F(4, 132) = 10.74$, $p < .001$, $R^2 = .25$. Upon further examination of the predictors, expected future financial resources were a significant predictor of financial threat, even when controlling for other relevant variables, $t(136) = -6.23$, $p < .001$. This finding is consistent with stress and coping theory (Lazarus & Folkman, 1984), which suggests that our evaluation of a stressor involves an assessment of our resources to cope with the stressor. In this case, predicting more resources was associated with lower financial threat, even when controlling for other factors that would impact the safety and security of our finances (i.e., SES, current and pandemic financial situation).

Discussion

The purpose of this project was to investigate whether a construal-level process underlies the appraisal of a potential future stressor. Specifically, whether one's construal of a prospective event can influence stress appraisal. According to Construal Level Theory, construal is positively related to psychological distance, such that low-level, concrete construals are perceived as less psychologically distant than high-level, abstract construals (Trope & Liberman, 2010). Past research has found that thinking about an action in high-level "why" terms rather than low-level "how" terms made it seem more distant in time, and less likely to occur (Liberman et al., 2007; Wakslak et al., 2006). I expected that when confronted with threatening information about the state of the job-market, one's construal of their job search as either a low-level, concrete activity or a high-level, abstract activity would influence their appraisal of the threat through changes in the temporal and hypothetical dimensions of psychological distance.

I proposed that a construal level process would underlie stress appraisal, as outlined by Lazarus & Folkman's transactional theory of stress and coping (1984). The transactional theory of stress and coping postulates that as we appraise stimuli, we do so using two main processes: primary and secondary appraisal. In primary appraisal, one determines whether or not something is a relevant threat to their well-being. During secondary appraisal, one identifies their coping resources and determines what can be done to manage the stressor (Folkman, 1984). I theorized that psychological distance would be related to primary appraisal, as an increase in temporal and hypothetical distance would allow the threat to be perceived as less relevant to the referent. Similarly, I posited that an evaluation of resources (i.e., secondary appraisal) would be related to temporal distance, as a stressor occurring farther in the future would allow for more time to

acquire resources. While all the hypotheses were not supported, there were some notable findings.

I found that both construal and psychological distance from a stressor were related to financial threat, however, not in the way I had hypothesized. I had expected the effect of construal on financial threat to be fully explained by psychological distance. Instead, I observed that when a future negative event was close in hypothetical distance (i.e., judged as very likely), low-level (concrete) construals were associated with greater threat than high-level (abstract) construals. As expected, hypothetical and temporal distance were positively correlated with each other, however, I did not observe a relationship between construal and psychological distance. Additionally, I found that financial resource evaluation and predicted future affect were associated with psychological distance from a stressor. While these findings generally support my original hypothesis that construal and psychological distance underlie stress appraisal, it is difficult to make firm conclusions based on these results alone.

Construal and Psychological Distance

A considerable amount of research has supported Construal Level Theory by demonstrating a relationship between psychological distance and construal (Soderberg, 2015). Because of this established relationship, I expected to observe greater psychological distance in the abstract condition compared to the concrete condition. However, this data did not support a relationship between the two constructs. Neither construal condition assignment, nor the subsequent analysis using LCM scores (i.e., abstraction scores created using linguistic analysis), yielded my predicted results.

Failure to Validate Construal Manipulation

Although I had planned to analyze differences in psychological distance by comparing construal conditions, I was unable to validate the construal manipulation with linguistic analysis. The construal manipulation I used consisted of a writing exercise intended to alter the participants' construal by writing about the concrete "how" or abstract "why" considerations of a given activity. This manipulation has been well tested (e.g., Liberman et al., 2007; Hansen & Trope, 2013; Yi et al., 2017) and validated by the Linguistic Category Model (Freitas et al., 2004) and the Behavioural Identification Form (Carrera et al., 2020). While I observed slightly higher mean LCM scores in the abstract condition, which was consistent with my expectation, this difference was not statistically significant, and the effect size was quite small ($d = -.13$). This was surprising, considering the large effect size Freitas et al. (2004) found when they had originally validated the manipulation with independent coders ($d = 1.47$).

There are a few possible explanations for why I was unable to validate this manipulation as previous studies have. First, it is possible that this manipulation does not work in every domain. Although this manipulation has been validated using a variety of mundane activities such as "doing the laundry" and "subscribing to the newspaper" (Yi et al., 2017), as well as more affect-laden, goal-relevant activities such as "maintaining personal relationships" (Fujita et al., 2009) and "improving and maintaining health" (Freitas et al., 2004), it does not necessarily produce the same effect for every task. The two activities, "getting a job after graduation" and "preparing for the nickel to be phased out" may have not been appropriate for this exercise. Further, it is possible that individuals' predisposition to a certain construal level biased the results. Past research has found individual differences in the tendency to use low versus high

levels of mental representations (Vallacher & Wegner, 1989). However, since I did not measure individual differences in construal level, I could not explore this explanation further.

The construal manipulation was meant to alter one's mental representation of an event by shifting focus to either its concrete or abstract features. Although the manipulation may have been effective in shifting one's construal, the shift may have been relative to a mental representation they already had. For instance, if someone was actively looking for a job when they participated in this experiment, they may have already spent a considerable amount of time thinking about that activity in concrete "how" terms, making a 5 to 10-minute writing exercise less effective than expected. Previous CLT research on climate change attitudes have had difficulty altering participants' construal, which has been attributed to pre-existing mental representations (Brügger et al., 2015; Schuldt et al., 2018). Similarly, my findings suggest that strongly formed pre-existing mental representations of a concept may make construal induction difficult. Since participants began the construal exercise having recently read an article, I may have inadvertently concretized the subject prior to the construal manipulation.

The disparity in effect sizes between my attempted validation of the manipulation and the original successful validation by Freitas et al. (2004), could also be explained by differences in our methods. While both studies used the Linguistic Category Model to reveal differences in linguistic concreteness/abstractness, there were a few key differences. Freitas et al. (2004) used Semin & Fiedler's original Linguistic Category Model (1998; 1992), however, Semin et al. (2002) had since revised their original model to include nouns as abstract features of language. Further research by Carnaghi et al. (2008) re-weighted Semin et al.'s (2002) LCM algorithm, classifying nouns as more abstract than adjectives (i.e., giving them a higher score). In my analysis, I used the updated Linguistic Category Model and LCM algorithm to create the LCM

scores. Freitas et al. (2004) utilized two independent coders to analyze responses by categorizing words, assigning them scores, and plugging the scores into the LCM algorithm. In contrast, I used an automated procedure, shown to reveal linguistic differences in abstraction consistent with Construal Level Theory (Seih et al., 2017), which eliminated the need for independent coders. These differences in methods may explain the discrepancies between my results and the original construal validation by Freitas et al., (2004).

While Freitas et al. (2004) were not the only researchers to validate this manipulation, to my knowledge, they were only one of two studies to validate this manipulation using the Linguistic Category Model. A study by Gong & Medin (2012) validated the construal manipulation using the same method as Freitas et al. (2004), however, their results showed the manipulation created only marginally significant differences in construal, with a much smaller effect size, $t(43) = 2.21, p = .033, d = .67$). Since the LCM validation method is particularly time consuming and arduous for independent coders, subsequent studies opted for other methods such as the Behavioural Identification Form (e.g., Carerra et al., 2020) or having independent coders judge whole responses as concrete or abstract (e.g., Fujita et al., 2006; Alper, 2018; McGowen et al., 2020). The results of this study suggest that the construal manipulation created by Freitas et al. (2004) may need to be re-evaluated, and further research should explore the efficacy of this method in manipulating construal level.

Psychological Distance

According to Construal Level Theory, the different dimensions of psychological distance are positively correlated with one another, and also have a positive association with construal. As I expected, temporal and hypothetical psychological distance were positively correlated with one another. In my correlational analysis of the full sample, and within each economic stress

condition, I observed a significant, positive correlation between temporal and hypothetical distance, which was small to medium in magnitude. Contrary to my predictions, I did not observe a relationship between construal and psychological distance. Following the pre-registration, we first individually tested whether temporal or hypothetical distance from a challenging job market differed based on construal condition. According to Construal Level Theory, we should expect that concrete construals would produce more proximal classifications in time and hypothetical distance (i.e., less hypothetical = greater likelihood), whereas abstract construals would produce more distal classifications. I did not observe greater temporal or hypothetical distance in the abstract condition compared to the concrete condition. Even upon further examination, running the *t*-tests within each stress condition (stress condition and control), I did not observe the expected effect. Since the construal manipulation was not validated by the linguistic analysis, I tested the relationship between construal and psychological distance again, with LCM scores replacing construal condition. Since the LCM scores are a rating of how concrete or abstract the participant's response was, I was fairly confident this score would be a valid substitute for condition assignment as the construal variable. However, the results of the linear regression models did not indicate a correlation between LCM scores and psychological distance. Overall, these results could not support the established positive association between psychological distance and construal.

There are several possible explanations for these results. It is possible that the 'robust' relationship between construal and psychological distance does not exist in every context. Although Construal Level Theory has been empirically supported in many different domains (Soderberg, et al., 2015), there have been an increasing number of contradictory findings as the theoretical framework has continued to be tested. For example, Wang et al., (2019) did not

observe a relationship between construal and psychological distance from climate change, even when using multiple different measures of psychological distance and construal. A recent paper by Calderon et al. (2020) failed to replicate the findings of Wakslak et al. (2006) in their seminal paper on the relationship between hypothetical distance and construal. After failing to replicate the original effect, the authors conducted a meta-analysis, where they recognized a pattern of declining effect sizes over time, as sample sizes have become larger. Calderon et al. (2020) also included a *p*-curve of published findings in the area, which showed a disproportionate number of *p*-values just below or at the .05 level. This distribution of *p*-values is considered indicative of selective-reporting, *p*-hacking, and/or publication bias (Simonsohn et al., 2014), which casts doubt over the robustness of this relationship.

While these results may add to a growing number of findings that challenge the association between construal and psychological distance, they are not without limitations. A major limitation for my study is the subjectivity of the psychological distance measure. To measure psychological distance, I had participants provide separate time and likelihood judgements pertaining to different elements of their assigned article on a sliding scale from 0 (very soon/very unlikely) to 100 (very far off/very likely). Because I did not use an objective measurement of time (e.g., years), both the temporal and hypothetical distance anchoring points were subject to personal interpretation and limit my ability to make between-subjects comparisons. Moreover, the construal exercise and psychological distance measurements in the economic stress condition were slightly mismatched, as I manipulated construal of one's future *job search*, but I measured psychological distance from a *challenging employment landscape*. I also did not consider the construal manipulation's impact on how believable the information in the article was to the participant, which could have influenced the results. Past research has

shown that believability can be influenced by construal, whereby concrete (vs. abstract) construals are rated as more believable (Hansen & Wanke, 2010). Conversely, more recent findings have suggested that abstract (vs. concrete) construals of online messages are more believable (Sungur et al., 2016). If an effect similar to Sungur et al.'s (2016) findings occurred, this may have created a situation where those in the abstract condition perceived the stress manipulation article as more believable than those in the concrete condition. This may have ultimately attenuated the expected effect of the construal manipulation on psychological distance, with the participants in the abstract condition finding the information in the article more believable, and therefore more likely to happen (i.e., less psychologically distant).

Encountering, Construing, and Appraising a Stressor

I expected that encountering an event (stressor or neutral) and one's subsequent construal of the event (low/concrete or high/abstract) would impact one's stress appraisal. Specifically, I predicted that encountering a stressor (i.e., an article forecasting a challenging job-market), and construing that stressor concretely would result in appraising greater financial threat. In the results of the 2x2 ANOVA I did not find the expected significant interaction between construal (low vs. high) and presence of a stressor (stress vs. control), and I did not observe a significant main effect of construal on financial threat. However, I did observe a significant main effect of stress condition on financial threat. When I ran a subsequent linear regression analysis predicting financial threat, with LCM scores replacing construal condition as the construal variable, the results differed slightly. I observed that both the stress condition and interaction term were significant predictors of financial threat. A visualization of this relationship revealed that for those who were exposed to a stressor (i.e., in the stress condition), financial threat and LCM scores were negatively associated. There was no association between financial threat and LCM

scores in the control condition. In the correlational analysis within the economic stress condition, I found a significant negative correlation between LCM and financial threat, with more concrete language being associated with higher financial threat.

The observed results have two main implications. First, I found that the mere presence of a stressor (i.e., an article forecasting a challenging job market) elicited fear for the safety and stability of one's future finances. These results were consistent with other findings in the area of economic stress. In a study by Morra et al. (2009) of Canadian medical students, they found that anticipating a future financial burden was correlated with levels of financial stress, even when controlling for the students' current financial situation. Similarly, Mahmud et al. (2021) found that students' fear about the COVID-19 pandemic was associated with future career anxiety. This is not surprising considering the high proportion of students that report concern for one's finances as a stressor (Trombitas, 2012; Heckman et al., 2014).

Second, I found that when confronted with a stressor, more concrete construals are associated with greater threat appraisals. This was consistent with my prediction that abstract thinking could buffer against the effects of a stressor. Past research has shown that abstract construals can increase people's readiness and willingness to confront challenges (Destin et al., 2018; Carrera et al., 2020), as well as improve creativity in solving complex situations (Isen, 2001). However, contrary to my expectations, the relationship between construal and financial threat was not mediated by psychological distance.

It was my expectation that the relationship between construal and threat appraisal would be explained by construal's impact on psychological distance. This prediction was based on the established relationship between construal and psychological distance (Trope & Liberman, 2010), and previous research that has shown that psychological distance can decrease negative

feelings (Kross et al., 2005; Ayduk & Kross, 2008; Ayduk & Kross 2009; Van Boven et al., 2010). In an experiment similar to this one, Thomas & Tsai (2012) found that activating an abstract construal made a task seem more psychologically distant, and therefore, less difficult. I expected that one's construal of a stressor would influence their psychological distance from that stressor. Further, one would infer their appraisal of that stressor from its psychological distance. Because I did not observe a relationship between construal and psychological distance, I could not perform my pre-registered mediation analysis.

In my exploratory analysis, I found a significant moderation effect, with more concrete construals strengthening the negative association between hypothetical distance and financial threat. The moderation effect I found suggests that when one perceives a stressor as likely to occur, the more abstractly it is construed, the less threatening it seems. While I posited that the relationship between construal and threat could be fully explained by construal's impact on psychological distance, my results suggest that this is not the case. Although this finding was surprising to us, the results converge with some other findings in the CLT literature. Some research suggests that when thinking abstractly, our ability to hold incompatible ideas is improved (Hong & Lee, 2010; Malkoc et al., 2005). This is a possible explanation for why when thinking abstractly, one could simultaneously believe a challenging job market is very likely (i.e., psychologically close) *and* this will not be an insurmountable threat to one's finances (i.e., lower financial threat).

Downstream Consequences of Psychological Distance

I predicted that psychological distance judgements would have other consequences associated with threat appraisal. Specifically, I expected that psychological distance would impact one's predicted future affect, social support, and financial resources.

Psychological Distance and Affect

I expected to observe a positive association between psychological distance and positive affect, and a negative association between psychological distance and negative affect. I found that only hypothetical psychological distance significantly predicted affect. Consistent with my predictions, hypothetical distance positively predicted positive affect and negatively predicted negative affect. This suggests that perceiving a future stressor as more likely to occur is associated with predicting greater negative and lower positive emotion in the future. These results converge with other findings that suggest a positive association between level of emotion attached to an event and perceived likelihood of the event occurring (e.g., Slovic & Peters, 2006; Tversky & Koehler, 1994). Contrary to my predictions, temporal distance did not significantly predict either positive or negative affect. This was a surprising finding, considering the past research in this area. People have a tendency to predict far-future events as more positive and less negative than near future-events (Lowenstein, 2003). Further, having a temporally distanced perspective has been found to reduce emotional distress (Kross et al., 2005; Schartau et al., 2009), and thinking about the distant future reduces the emotional distress of a stressor in the present (Bruehlman-Senecal & Ayduk, 2015). While I did find that hypothetical distance reduced the emotional distress associated with a challenging job market, I did not observe this relationship with temporal distance.

There are a few possible explanations for why I did not observe a relationship between temporal distance and affect. One possible explanation is that a “challenging job market” is not a stressor that is represented as a discrete event, but rather, a prolonged state of affairs. For instance, the death of one’s pet could exist in a single moment in time, and would be considered an acute stressor, whereas a challenging job market could be a chronic stressor that would exist

at several points in time. If participants thought of a challenging job market as happening both very soon *and* very far off, they may have arbitrarily chosen a point on the scale. In the psychometric analysis of the temporal distance scales, I saw a large discrepancy between the internal consistency coefficients of the stress and control groups, with the control group having a $\omega \sim .20$ higher than the stress group. The control group was judging the temporal distance of a discrete event (i.e., a decision to phase out the nickel), whereas the stress group was judging an event that could have been prolonged for an unknown period of time. To be consistent with the hypothetical distance scale, I used a sliding scale of 0 (very soon) to 100 (very far off) to measure temporal distance. However, unlike probability, the temporal distance scale had subjective end points which could have led to inconsistent interpretation among participants. For example, to some, “very far off” could have meant five years, and to others it could be 50 years. It possible that the subjective labels on the temporal distance scale may have impacted the results.

Psychological Distance and Resource Appraisal

This study also investigated the relationship between psychological distance and resource appraisal. As outlined by Lazarus & Folkman’s transactional theory of stress, assessing available resources to cope with a stressor is an integral component of stress appraisal. I expected that psychological distance from a stressor would be associated with perceived availability of resources in the future. Specifically, I expected that greater temporal distance from a stressor would be associated with greater perceived resources. I predicted that anticipating more time to prepare for a stressor would translate into more time to acquire resources. To test this, I evaluated participants’ expected future social support and financial resources. The results indicated that temporal distance was associated with appraising greater future financial

resources, however, I did not find a relationship between psychological distance and social support.

Social Support. I expected to observe a relationship between psychological distance from a stressor and social support. Contrary to my predictions, the results of the regression model showed that neither temporal nor hypothetical distance were significant predictors of social support. I had also included current levels of social support in this model, to examine the unique effect of psychological distance. In this model I found that current levels of social support significantly predicted levels of future social support. While this finding was unexpected, it may be interpreted as an indication of how we perceive social support. Since I found that current levels of social support were positively correlated with predicted future levels of support, this may imply that people view social support as a resource that remains unchanged in quantity and quality. Interestingly, *perceived* social support and actual *received* social support are only modestly correlated (Haber et al., 2007; Lakey et al., 2010). It has been suggested that individual differences in how we perceive the availability and quality of social support can explain this modest correlation. For example, those with a more “positive cognition” are more likely to evaluate their received social support as positive, regardless of quality or amount (Lakey & Cassady, 1990). Other work has found that perceptions of social support are strongly associated with one’s attachment style (Mikulincer & Shaver, 2009). If these individual differences have a strong impact on perceived social support, that may explain why cognitive reframing (through psychological distance) did not influence predicted future social support.

Financial Resources. Consistent with my expectations, I found that temporal distance from a stressor significantly predicted perceived future resources. The results indicated that viewing the stressor as occurring farther in the future was associated with perceiving greater

available resources, even when controlling for SES and one's current financial situation. This hypothesis was based on my expectation that a stressor that was farther away in time would allow for more opportunities to engage in preventive coping. Preventive coping is aimed at accumulating resources to cope with and reduce the severity of a stressor (Schwarzer, 2000). When faced with an impending stressor that is appraised as threatening, individuals will attempt to gather resources to reduce the impact of the threat (Schwarzer & Knoll, 2003). Temporal distance has been found to influence predictions of future performance. For example, participants expected to perform better on tasks that were temporally distant than temporally close (Savitsky et al., 1998). Further, we tend to be more optimistic about outcomes in the distant future than in the near future (e.g., Gilovich et al., 1993; Mitchell et al., 1997). In the exploratory analysis, I found that threat was negatively correlated with predicted future resources, such that expecting greater future resources was associated with less financial threat. This finding was compatible with the transactional theory of stress (Lazarus & Folkman, 1984), which states that an individual's assessment of resources influences threat appraisal. However, it is possible that self-esteem mediated this relationship, whereby those with lower financial threat may have higher perceived self-esteem, which may have resulted in the perception of greater future resources. This hypothesis could be tested in the future using an experimental design in which financial threat could be manipulated in the lab. At the same time, since the present results were correlational, limited conclusions can be made regarding the direction of the relationship between assessment of resources and threat appraisal.

General Implications, Limitations, and Future Directions

The over-arching objective of this project was to investigate the role that construal and psychological distance play in stress appraisal. To explore this question, I created an experiment

through which participants were either exposed to an article containing threatening or non-threatening information and asked to construe a relevant future activity in low-level “how” terms or high-level “why” terms. Overall, these results support the notion that construal level and psychological distance may be cognitive mechanisms that underlie stress appraisal. However, it is difficult to conclusively state how and to what extent.

The theoretical implication of this research is that Construal Level Theory may be a useful framework for understanding the cognitive basis of stress appraisal. I found that when confronted with a prospective stressful event, one’s construal (as revealed through linguistic analysis) and hypothetical distance judgements of that event both predict one’s perceptions of threat. Thinking in more concrete terms and believing the event to be more likely were associated with greater financial threat. Moreover, I found that construal moderates the relationship between hypothetical distance and threat, with more abstract construals attenuating the relationship. However, since the manipulation of construal was unsuccessful, and I used the LCM scores from the linguistic analysis to reveal construal, I cannot infer direction from these results, so reverse causation remains a possibility. Further, I found that greater hypothetical distance from a stressor predicted more positive and less negative affect, and greater temporal distance was associated with greater future financial resources. Taken together, these results suggest that thinking about a stressor abstractly and/or psychologically distancing oneself from a stressor can reduce perceptions of threat. Additionally, when one is psychologically distanced from a threat, one expects greater positive and less negative affect in the future, as well as greater available resources to cope.

Contrary to other research in the area of CLT, I did not find a significant positive association between construal and psychological distance. However, I cannot determine from

this data whether this finding was a result of measurement error, or an actual absence of effect. An important finding in this research was my failure to validate the construal manipulation created by Freitas et al. (2004). Since this was the first study to attempt to validate this manipulation with an automated linguistic coding procedure and a large sample size, future researchers should be wary of the efficacy of this manipulation and attempt to replicate this validation procedure.

These findings have a few key limitations. Because of the high rate of deletion from the first study, the data may not have been representative of the population. While I did not find any notable differences between the retained and deleted participants on any of the demographic variables, the list of demographic variables measured was not extensive, and may have not captured a dimension in which the groups differed. Further, these results may have been confounded by present mood. Past research suggests that positive (vs. negative) mood elicit high-level construals (Gasper & Clore, 2002), and have been found to increase one's openness to self-threatening information (Ragunathan & Trope, 2002; Trope & Neter, 1994).

I assumed that difficulty finding a job would be equivalent to a threat to one's finances, however, this is not necessarily the case. It is possible that for some, the security of one's finances and employment status are not linked in a meaningful way. I tried to account for this possibility by controlling for socioeconomic status in my analysis. However, socioeconomic status is a subjective judgement, which is often inaccurate. For example, an estimated 70% of Americans identify as "middle class" (Northwestern Mutual, 2017). In contrast, a study by the Pew Research Centre (2015) found that only 50% of families in the United States qualify as

middle class.⁸ Further, since my sample consisted solely of university students appraising what is presumably a salient, goal-relevant stressor (i.e., finding a job), it is unclear how generalizable these findings are. Future research should expand upon these findings by examining stress appraisal under different conditions.

Certain aspects of stress and coping were beyond the scope of this research and should be investigated in the future. For instance, I did not take into account individual differences such as optimism or self-efficacy that may have influenced threat appraisal. Further, I did not consider whether participants perceive finding a job as a threat or a challenge. Past research has demonstrated that interpretation of stressors as threats or challenges can influence one's emotions and subsequent coping (Nicholls et al., 2012). In this study, I measured only two dimensions of psychological distance (temporal and hypothetical distance) and omitted the other two (physical and social distance). Social distance may have been an important dimension of psychological distance when appraising the stress of a challenging future job market. Social distance describes the level of similarity or difference you feel between yourself and others, which may be a relevant factor when determining threat. For instance, seeing yourself as socially dissimilar to someone who would struggle to find a job may make a challenging job market less threatening. Future research should investigate threat appraisal while manipulating or measuring social distance.

Conclusions

The present research sought to explore whether a construal level process underlies threat appraisal. This study examined threat appraisal through the theoretical lens of Lazarus &

⁸ The Pew Research Center defined middle class as families with household incomes two-thirds to double the national median (i.e., \$42,000 to \$126,00 USD annually).

Folkman's Transactional Theory of Stress and Coping (1984), and Trope & Liberman's Construal Level Theory (2010), in the domain of economic stress. Although experimentally inducing construal did not produce differences in concrete/abstract thinking or psychological distance, the findings did suggest that changes in construal and psychologically distancing oneself from an approaching future stressor may be valuable strategies for coping with stress. Further research is necessary to establish whether construal or psychological distance reframing can have a causal effect on threat appraisal. Since the COVID-19 pandemic has left a potentially hostile economic landscape in its wake, future research should be directed towards a further understanding of the cognitive mechanisms that underpin stress and coping with prospective economic threats.

References

- Addis, D. R., Wong, A. T., & Schacter, D. L. (2008). Age-related changes in the episodic simulation of future events. *Psychological science*, *19*(1), 33–41.
<https://doi.org/10.1111/j.1467-9280.2008.02043.x>
- Akinwande, M., Dikko, H., & Samson, A. (2015) Variance Inflation Factor: As a Condition for the Inclusion of Suppressor Variable(s) in Regression Analysis. *Open Journal of Statistics*, *5*, 754-767. <http://doi.org/10.4236/ojs.2015.57075>
- Alper, S. (2018). An abstract mind is a principled one: Abstract mindset increases consistency in responses to political attitude scales. *Journal of Experimental Social Psychology*, *77*, 89–101. <https://doi.org/10.1016/j.jesp.2018.04.008>
- Ayduk, Ö., & Kross, E. (2008). Enhancing the pace of recovery: Self-distanced analysis of negative experiences reduces blood pressure reactivity. *Psychological Science*, *19*(3), 229-231. <http://dx.doi.org/10.1111/j.1467-9280.2008.02073.x>
- Ayduk, O., & Kross, E. (2009). Asking 'why' from a distance facilitates emotional processing: a reanalysis of Wimalaweera and Moulds (2008). *Behaviour research and therapy*, *47*(1), 88–92. <https://doi.org/10.1016/j.brat.2008.06.014>
- Bruehlman-Senecal, E. & Ayduk, O. (2015). This Too Shall Pass: Temporal Distance and the Regulation of Emotional Distress. *Journal of Personality and Social Psychology*, *108*(2), 356–375. <https://doi.org/10.1037/a0038324.supp>
- Brügger, A., Morton, T. A., & Dessai, S. (2016). ‘Proximising’ climate change reconsidered: A construal level theory perspective. *Journal of Environmental Psychology*, *46*(1), 125–142. <https://doi.org/10.1016/j.jenvp.2016.04.004>

- Calderon, S., Giolla, E. Mac, Ask, K., Granhag, P. A., Wakslak, C. J., Trope, Y., Liberman, N., & Alony, R. (2020). Subjective Likelihood and the Construal Level of Future Events: A Replication Study of Wakslak, Trope, Liberman, and Alony (2006). *Journal of Personality and Social Psychology: Attitudes and Social Cognition*, *119*(5), e27-237. <https://doi.org/10.1037/pspa0000214>
- Caplan, R. D., Cobb, S., French Jr, J. R. P., Harrison, R. V., & Pinneau Jr, S. R. (1980). *Job demands and worker health: Main effects and occupational differences*. Ann Arbor, MI: Survey Research Center, Institute for Social Research, University of Michigan.
- Carnaghi, A., Maass, A., Gresta, S., Bianchi, M., Cadinu, M., & Arcuri, L. (2008). Nomina sunt omina: On the inductive potential of nouns and adjectives in person perception. *Journal of Personality and Social Psychology*, *94*, 839-859. <http://doi.org/10.1037/0022-3514.94.5.839>
- Carrera, P., Fernández, I., Muñoz, D., & Caballero, A. (2020). Using Abstractness to Confront Challenges: How the Abstract Construal Level Increases People's Willingness to Perform Desirable But Demanding Actions. *Journal of Experimental Psychology: Applied*, *26*(2), 339–349. <https://doi.org/10.1037/xap0000244>
- Carver, C. S., & Scheier, M. F. (1990). Principles of self-regulation. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. 2, pp. 3–52). New York: Guilford.
- Chiacchia, D. J., Greenglass, E. R., Katter, J. K. Q., & Fiksenbaum, L. (2018). The role of self-compassion during difficult economic times. *Anxiety, Stress and Coping*, *31*(6), 611–625. <https://doi.org/10.1080/10615806.2018.1519703>

- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112(1), 155–159.
<https://doi.org/10.1037/0033-2909.112.1.155>
- Delacre, M., Lakens, D., & Leys, C. (2017). Why Psychologists Should by Default Use Welch's *t*-test Instead of Student's *t*-test. *International Review of Social Psychology*, 30(1), 92–101. <http://doi.org/10.5334/irsp.82>
- Destin, M., Manzo, V.M. & Townsend, S.S.M. (2018). Thoughts about a successful future encourage action in the face of challenge. *Motivation and Emotion*, 42, 321–333.
<https://doi.org/10.1007/s11031-017-9664-0>
- Duan, R., Takahashi, B., & Zwickle, A. (2019). Abstract or concrete? The effect of climate change images on people's estimation of egocentric psychological distance. *Public Understanding of Science*, 28(7), 828–844. <https://doi.org/10.1177/0963662519865982>
- Eyal, T., Liberman, N., Trope, Y., & Walther, E. (2004). The Pros and Cons of Temporally Near and Distant Action. *Journal of Personality and Social Psychology*, 86(6), 781–795. <https://doi.org/10.1037/0022-3514.86.6.781>
- Eyal, T., Sagristano, M. D., Trope, Y., Liberman, N., & Chaiken, S. (2009). When values matter: expressing values in behavioral intentions for the near vs. distant future. *Journal of Experimental Social Psychology*, 45(1), 35–43.
<http://dx.doi.org/10.1016/j.jesp.2008.07.023>
- Faul, F., Erdfelder, E., Lang, A.G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39, 175–191. <http://doi.org/10.3758/bf03193146>
- Fox J, Weisberg S (2019). *An R Companion to Applied Regression*, Third edition. Sage, Thousand Oaks CA. <https://socialsciences.mcmaster.ca/jfox/Books/Companion/>.

- Freitas, A. L., Gollwitzer, P., & Trope, Y. (2004). The influence of abstract and concrete mindsets on anticipating and guiding others' self-regulatory efforts. *Journal of Experimental Social Psychology, 40*(6), 739–752.
<https://doi.org/10.1016/j.jesp.2004.04.003>
- Fujita, K., Henderson, M., Eng, J., Trope, Y., Liberman, N. (2006) Spatial distance and mental construal of social events. *Psychological Science, 17*(4), 278–282.
<https://doi.org/10.1111/j.1467-9280.2006.01698.x>
- Fujita, K., & Han, H. A. (2009). Moving Beyond Deliberative Control of Impulses: The Effect of Construal Levels on Evaluative Associations in Self-Control Conflicts. *Psychological Science, 20*(7), 799-804. www.jstor.org/stable/40575102
- Gasper, K., & Clore, G. (2002). Attending to the big picture: Mood and global versus local processing of visual information. *Psychological Science, 13*(1), 34–40.
<https://doi.org/10.1111/1467-9280.00406>
- Gilovich, T., Kerr, M., & Medvec, V. H. (1993). Effect of Temporal Perspective on Subjective Confidence. *Journal of Personality and Social Psychology, 64*(4), 552–560.
<https://doi.org/10.1037/0022-3514.64.4.552>
- Gong, H., & Medin, D. L. (2012). Construal levels and moral judgment: Some complications. *Judgment and Decision Making, 7*(5), 628–638.
- Goodman, E., Adler, N. E., Kawachi, I., Frazier, A. L., Huang, B., & Colditz, G. A. (2001). Adolescents' perceptions of social status: Development and evaluation of a new indicator. *Pediatrics, 108*(2), 1-8. <http://doi.org/10.1542/peds.108.2.e31>
- Grant, T., & McFarland, J. (2012, October 27). Generation Nixed: Why Canada's youth are losing hope for the future. *The Globe and Mail*. Retrieved from

<https://www.theglobeandmail.com/report-on-business/economy/jobs/generation-nixed-why-canadas-youth-are-losing-hope-for-the-future/article4705553/>

- Griffioen, A. M., Handgraaf, M. J. J., & Antonides, G. (2019). Which construal level combinations generate the most effective interventions? A field experiment on energy conservation. *PLOS One*, *14*(1), 1–24. <https://doi.org/10.1371/journal.pone.0209469>
- Haber, M. G., Cohen, J. L., Lucas, T., & Baltes, B. B. (2007). The relationship between self-reported received and perceived social support: a meta-analytic review. *American journal of community psychology*, *39*(1-2), 133–144. <https://doi.org/10.1007/s10464-007-9100-9>
- Hansen, J., & Trope, Y. (2013). When time flies: How abstract and concrete mental construal affect the perception of time. *Journal of Experimental Psychology: General*, *142*(2), 336–347. <http://doi.org/10.1037/a0029283>
- Hansen, J., & Wänke, M. (2010). Truth From Language and Truth From Fit: The Impact of Linguistic Concreteness and Level of Construal on Subjective Truth. *Personality and Social Psychology Bulletin*, *36*(11), 1576–1588. <https://doi.org/10.1177/0146167210386238>
- Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd edition). New York: The Guilford Press.
- Heckman, S., Lim, H., & Montalto, C. (2014). Factors related to financial stress among college students. *Journal of Financial Therapy*, *5*(1), 19–39. <https://doi.org/10.4148/1944-9771.1063>
- Hong, J., & Lee, A. Y. (2010). Feeling mixed but not torn: The moderating role of construal level in mixed emotions appeals. *Journal of Consumer Research*, *37*, 456–472. <http://doi.org/10.1086/653492>

- Isen, A. (2001). An influence of positive affect on decision making in complex situations: Theoretical issues with practical implications. *Journal of Consumer Psychology, 11*(2), 75–85. http://dx.doi.org/10.1207/S15327663JCP1102_01
- James, G., Hastie, T., Witten, D., & Tibshirani, R. J. (2014). *An Introduction to Statistical Learning: With Applications in R*. Springer Publishing Company.
- Kross, E., Ayduk, O., & Mischel, W. (2005). When asking “why” does not hurt: Distinguishing rumination from reflective processing of negative emotions. *Psychological Science, 16*(9), 709–715. <https://doi.org/10.1111/j.1467-9280.2005.01600.x>
- Lakey, B. (2010). Social support: Basic research and new strategies for intervention. In J. E. Maddux & J. P. Tangney (Eds.), *Social psychological foundations of clinical psychology* (pp. 177–194). The Guilford Press.
- Lakey, B., & Cassady, P. B. (1990). Cognitive processes in perceived social support. *Journal of Personality and Social Psychology, 59*(2), 337–343. <https://doi.org/10.1037/0022-3514.59.2.337>
- Larsen, J.T. (2017). Holes in the Case for Mixed Emotions. *Emotion Review, 9*(2), 118-123. <https://doi.org/10.1177/1754073916639662>
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- Liberman, N., Trope, Y., McCrea, S.M., & Sherman, S.J. (2007). The effect of level of construal on the temporal distance of activity enactment. *Journal of Experimental Social Psychology, 43*(1), 143-149. <https://doi.org/10.1016/j.jesp.2005.12.009>
- Liberman, N., & Förster, J. (2009). Distancing from Experienced Self: How Global-Versus-Local Perception Affects Estimation of Psychological Distance. *Journal of Personality and Social Psychology, 97*(2), 203–216. <https://doi.org/10.1037/a0015671>

- Loewenstein, G., O'Donoghue, T., & Rabin, M. (2003). Projection Bias in Predicting Future Utility. *The Quarterly Journal of Economics*, *118*(4), 1209-1248.
<http://www.jstor.org/stable/25053938>
- Mahmud, S., Rahman, M., Hasan, M.U., & Islam, A. (2021) Does “Covid-19 phobia stimulate career anxiety? *Heliyon*, *7*(1), e06346. <https://doi.org/10.1016/j.heliyon.2021.e06346>
- Malkoc, S.A., Zauberan, G., & Ulu, C. (2005) Consuming Now or Later?: The interactive effect of timing and attribute alignability. *Psychological Science*, *16*(5), 411-417.
<https://doi.org/10.1111/j.0956-7976.2005.01549.x>
- Marjanovic, Z., Greenglass, E. R., Fiksenbaum, L., & Bell, C. M. (2013). Psychometric evaluation of the Financial Threat Scale (FTS) in the context of the great recession. *Journal of Economic Psychology*, *36*, 1–10. <https://doi.org/10.1016/j.joep.2013.02.005>
- Marjanovic, Z., Struthers, C. W., Cribbie, R., & Greenglass, E. R. (2014). The Conscientious Responders Scale: A new tool for discriminating between conscientious and random responders. *Sage Open*, *4*(3). <https://doi.org/10.1177/2158244014545964>.
- McGowan, L. J., Powell, R., & French, D. P. (2020). Older adults’ construal of sedentary behaviour: Implications for reducing sedentary behaviour in older adult populations. *Journal of Health Psychology*. Advance online publication.
<https://doi.org/10.1177/1359105320909870>
- Metcalf, J., & Mischel, W. (1999). A Hot/Cool System Analysis of Delay Gratification: Dynamics of Willpower. *Psychological Review*, *106*(1), 3–19.
<https://doi.org/10.1037/0033-295X.106.1.3>
- Michalke, M. (2021). *koRpus: Text Analysis with Emphasis on POS Tagging, Readability, and Lexical Diversity*. (Version 0.13-8). <https://reaktanz.de/?c=hacking&s=koRpus>.

- Mikulincer, M., & Shaver, P. R. (2009). An attachment and behavioral systems perspective on social support. *Journal of Social and Personal Relationships*, *26*(1), 7–19.
<https://doi.org/10.1177/0265407509105518>
- Mitchell, T. R., Thompson, L., Peterson, E., & Cronc, R. (1997). Temporal adjustments in the evaluation of events: The “rosy view.” *Journal of Experimental Social Psychology*, *33*(4), 421–448. <https://doi.org/10.1006/jesp.1997.1333>
- Morra, D.J., Regehr, G., & Ginsburg, S. (2009). Medical students, money and career selection: students’ perception of financial factors and remuneration in family medicine. *Family Medicine*, *41*(2), 105-110. <https://pubmed.ncbi.nlm.nih.gov/19184687/>
- Nicholls, A. R., Polman, R. C. J., and Levy, A. R. (2012). A path analysis of stress appraisals, emotions, coping, and performance satisfaction among athletes. *Psychology of Sport and Exercise*, *13*(3), 263– 270. <https://doi.org/10.1016/j.psychsport.2011.12.003>
- Northwestern Mutual. (2017, June 21). *70% of Americans Identify as Middle Class Despite a Prolonged Decline in Middle-Income Households in the US*.
<https://news.northwesternmutual.com/2017-06-21-70-of-Americans-Identify-as-Middle-Class-Despite-a-Prolonged-Decline-in-Middle-Income-Households-in-the-US>
- Peacock, E.J. & Wong, P.T. (1990) The stress appraisal measure (SAM): A multidimensional approach to cognitive appraisal. *Stress Medicine*, *6*(1), 227-236.
<https://doi.org/10.1002/smi.2460060308>
- Pew Research Center (2015, December 9). *The American Middle Class is Losing Ground*.
<https://www.pewresearch.org/social-trends/2015/12/09/the-american-middle-class-is-losing-ground/>

- R Core Team (2020). R: A language and environment for statistical computing. *R Foundation for Statistical Computing*. Vienna, Austria. <https://www.R-project.org/>
- Raghunathan, R., & Trope, Y. (2002). Walking the tightrope between feeling good and being accurate: Mood as a resource in processing persuasive messages. *Journal of Personality and Social Psychology*, *83*(3), 510-525. <http://doi.org/10.1037/0022-3514.83.3.510>
- Savitsky, K., Medvec, V. H., Charlton, A. E., & Gilovich, T. (1998). “What, me worry?” Arousal, misattribution and the effect of temporal distance on confidence. *Personality and Social Psychology Bulletin*, *24*(5), 529–536.
<https://doi.org/10.1177/0146167298245008>
- Schacter, D. L., & Addis, D. R. (2007). The cognitive neuroscience of constructive memory: remembering the past and imagining the future. *Philosophical transactions of the Royal Society of London. Series B, Biological sciences*, *362*(1481), 773–786.
<https://doi.org/10.1098/rstb.2007.2087>
- Schartau, P. E., Dalgleish, T., & Dunn, B. D. (2009). Seeing the bigger picture: Training in perspective broadening reduces self-reported affect and psychophysiological response to distressing films and autobiographical memories. *Journal of Abnormal Psychology*, *118*(1), 15–27. <http://dx.doi.org/10.1037/a0012906>
- Schmid, H. (1994): Probabilistic Part-of-Speech Tagging Using Decision Trees. *Proceedings of the international Conference on New Methods in Language Processing*. Manchester, UK.
Retrieved from: <https://www.cis.uni-muenchen.de/~schmid/tools/TreeTagger/>
- Schuldt, J. P., Rickard, L. N., & Yang, Z. J. (2018). Does reduced psychological distance increase climate engagement? On the limits of localizing climate change. *Journal of Environmental Psychology*, *55*(1), 147–153. <https://doi.org/10.1016/j.jenvp.2018.02.001>

- Schwarzer, R. (2000). Manage stress at work through preventive and proactive coping. In E. A. Locke (Ed.), *The Blackwell Handbook of Principles of Organizational Behavior* (pp. 342– 355). Oxford: Blackwell.
- Schwarzer, R., and Knoll, N. (2003). Positive coping: Mastering demands and searching for meaning. In S. J. Lopez and C. R. Snyder (Eds.), *Positive Psychological Assessment: A Handbook of Models and Measures* (pp. 393– 409). Washington, DC: American Psychological Association.
- Scofield, H. (2020, April 14). For young people, job prospects looked uncertain before COVID-19. Now they're downright grim. *The Toronto Star*. Retrieved from <https://www.thestar.com/politics/political-opinion/2020/04/14/for-young-people-job-prospects-looked-uncertain-before-covid-19-now-theyre-downright-grim.html>.
- Seih, Y.-T., Beier, S., & Pennebaker, J. W. (2017). Development and Examination of the Linguistic Category Model in a Computerized Text Analysis Method. *Journal of Language and Social Psychology*, 36(3), 343–355.
<https://doi.org/10.1177/0261927X16657855>
- Semin, G. R., & Fiedler, K. (1988) The cognitive functions of linguistic categories in describing persons: Social cognition and language. *Journal of Personality and Social Psychology*, 54, 558-568. <http://doi.org/10.1037/0022-3514.54.4.558>
- Semin, G. R., & Fiedler, K. (1992). The configuration of social interaction in interpersonal terms. In G.R. Semin & K. Fiedler (Eds.) *Language, interaction and social cognition* (pp. 58-78). London: Sage.

- Semin, G. R., Görts, C., Nandram, S., & Semin-Goossens, A. (2002). Cultural perspectives on the linguistic representation of emotion and emotion events. *Cognition and Emotion, 16*(1), 11-28. <http://doi.org/10.1080/02699930143000112>
- Simonsohn, U., Nelson, L. D., & Simmons, J. P. (2014). p-curve: A key to the file-drawer. *Journal of Experimental Psychology: General, 143*(2), 534–547. <http://dx.doi.org/10.1037/a0033242>
- Slovic, P. & Peters, E. (2006). Risk perception and affect. *Current Directions in Psychological Science, 15*, 322–325. <http://doi.org/10.1111/j.1467-8721.2006.00461.x>
- Soderberg, C. K., Callahan, S. P., Kochersberger, A. O., Amit, E., & Ledgerwood, A. (2015). The effects of psychological distance on abstraction: Two meta-analyses. *Psychological Bulletin, 141*(3), 525–548. <https://doi.org/10.1037/bul0000005>
- Spence, A., Poortinga, W., & Pidgeon, N. (2012). The Psychological Distance of Climate Change. *Risk Analysis, 32*(6), 957–972. <https://doi.org/10.1111/j.1539-6924.2011.01695.x>
- Statistics Canada (2014). *Graduating in Canada: Profile, Labour Market Outcomes and Student Debt of the Class of 2009-2010*. Statistics Canada Catalogue no. 81-595-M. Ottawa, Ontario. November 14. <https://www150.statcan.gc.ca/n1/en/catalogue/81-595-M2014101I> (accessed August 12, 2020).
- Stephan, E., Liberman, N., & Trope, Y. (2011). The effects of time perspective and level of construal on social distance. *Journal of Experimental Social Psychology, 47*, 397–402. <http://doi.org/10.1016/j.jesp.2010.11.001>

- Sungur, H., Hartmann, T., & van Koningsbruggen, G. M. (2016). Abstract mindsets increase believability of spatially distant online messages. *Frontiers in Psychology, 7*, Article 1056. <https://doi.org/10.3389/fpsyg.2016.01056>
- Tableau Software, L.L.C. (2021) Tableau Prep Builder [Computer software]. Retrieved from <https://www.tableau.com/>
- Tang Y, Horikoshi M, Li W (2016). “ggfortify: Unified Interface to Visualize Statistical Result of Popular R Packages.” *The R Journal, 8*(2), 474–485. <https://doi.org/10.32614/RJ-2016-060>
- Thomas, M., & Tsai, C. I. (2012). Psychological Distance and Subjective Experience: How Distancing Reduces the Feeling of Difficulty. *Journal of Consumer Research, 39*, 324–340. <https://doi.org/10.1086/663772>
- Todorov, A., Goren, A., & Trope, Y. (2007). Probability as a psychological distance: Construal and preferences. *Journal of Experimental Social Psychology, 43*(3), 473–482. <https://doi.org/10.1016/j.jesp.2006.04.002>
- Trombitas, K. (2012). Inceptia Snapshot of Financial Education Programming: How Schools Approach Student Success. *Council of Graduate Schools*. <https://cgsnet.org/snapshot-financial-education-programming-how-schools-approach-student-success>
- Trope, Y., & Liberman, N. (2010). Construal-Level Theory of Psychological Distance. *Psychological Review, 117*(2), 440–463. <https://doi.org/10.1037/a0018963>
- Trope, Y., & Neter, E. (1994). Reconciling competing motives in self- evaluation: The role of self-control in feedback seeking. *Journal of Personality and Social Psychology, 66*(4), 646–657. <https://doi.org/10.1037/0022-3514.66.4.646>

- Tversky, A., & Koehler, D. J. (1994). Support theory: A nonextensional representation of subjective probability. *Psychological Review*, *101*(4), 547–567. <http://doi.org/10.1037/0033-295X.101.4.547>
- Vallacher, R., & Wegner, D. (1989). Levels of Personal Agency: Individual Variation in Action Identification. *Journal of Personality and Social Psychology*, *57*(4), 660–671. <http://doi.org/10.1037/0022-3514.57.4.660>
- Van Boven, L., Kane, J., & Peter McGraw, A. (2010). Feeling Close: Emotional Intensity Reduces Perceived Psychological Distance. *Journal of Personality and Social Psychology*, *98*(6), 872–885. <https://doi.org/10.1037/a0019262>
- Wakslak, C. J., Trope, Y., Liberman, N., & Alony, R. (2006). Seeing the forest when entry is unlikely: Probability and the mental representation of events. *Journal of Experimental Psychology: General*, *135*(4), 641–653. <http://dx.doi.org/10.1037/0096-3445.135.4.641>
- Wang, S., Hurlstone, M. J., Leviston, Z., Walker, I., & Lawrence, C. (2019). Climate change from a distance: An analysis of construal level and psychological distance from climate change. *Frontiers in Psychology*, *10*, 1–22. <https://doi.org/10.3389/fpsyg.2019.00230>
- Watson, D., Clark, L. A., Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, *54* (6), 1063–1070. <http://doi.org/10.1037/0022-3514.54.6.1063>
- Wickham et al., (2019). Welcome to the tidyverse. *Journal of Open Source Software*, *4*(43), 1686, <https://doi.org/10.21105/joss.01686>

- Williams, L. E., & Bargh, J. A. (2008). Keeping One's Distance: The Influence of Spatial Distance Cues on Affect and Evaluation, *Psychological Science*, *19*(3), 302–308.
<http://10.1111/j.1467-9280.2008.02084.x>
- Williams, L. E., Stein, R., & Galguera, L. (2014). The Distinct Affective Consequences of Psychological Distance and Construal Level. *Source: Journal of Consumer Research*, *40*(6), 1123–1138. <https://doi.org/10.1086/674212>
- Wohl, M. J. A., Branscombe, N. R., & Lister, J. J. (2014). When the going gets tough: Threat increases financial risk taking in games of chance. *Social Psychological and Personality Science*, *5*(2), 211–217. <https://doi.org/10.1177/1948550613490964>
- Won, A., Shriram, K., & Tamir, D. I. (2017). Social Distance Increases Perceived Physical Distance. *Social Psychological and Personality Science*, *9*(3), 1–9.
<https://doi.org/10.1177/1948550617707017>
- Yan, D. (2014). Future Events Are Far Away: Exploring the Distance-on-Distance Effect. *Journal of Personality and Social Psychology*, *106*(4), 514-525.
<https://doi.org/10.1037/a0036066>
- Yi, R., Stuppy-Sullivan, A., Pickover, A., & Landes, R. D. (2017). Impact of construal level manipulations on delay discounting. *PLoSone*, *12*(5), e0177240.
<https://doi.org/10.1371/journal.pone.0177240>

Tables

Table 1. *Demographic Characteristics of Entire Sample (N = 288)*

	<i>n</i>	%	<i>M</i>	<i>SD</i>
Age			20.97	4.86
Gender, <i>n</i> (%)				
Male	100	34.72		
Female	186	64.58		
Gender Diverse	2	.69		
Born in Canada, <i>n</i> (%)				
Yes	183	63.54		
No	105	36.46		
Years in Canada			8.54	6.40
Place of Birth, <i>n</i> (%)				
United States	4	1.39		
Europe	7	2.43		
Caribbean	7	2.43		
South America	4	1.39		
Africa	10	3.47		
Asia	71	24.65		
Oceania	2	.69		
Pacific Islands	0	0		
Year of Study, <i>n</i> (%)				
First	141	48.96		
Second	75	26.04		
Third	36	12.50		
Fourth +	36	12.50		
Employment, <i>n</i> (%)				
Full-time	18	6.25		
Part-time	108	37.50		
Unemployed	143	49.65		
Other	19	6.60		
Benefits				
CERB	88	30.56		
CESB	92	31.94		
EI	6	2.08		
CERB & CESB	1	.35		
CERB & EI	4	1.39		
CERB, CESB, & EI	1	.35		
None	96	33.33		

Table 2. *Demographic Characteristics by Condition*

	Economic Stress Low/Concrete Construal (n = 79)	Economic Stress High/Abstract Construal (n = 83)	Control Low/Concrete Construal (n = 61)	Control High/Abstract Construal (n = 65)	Total Sample (n = 288)
Age					
<i>M</i>	20.22	21.42	21.00	21.31	20.97
<i>SD</i>	2.83	5.90	4.03	5.94	4.86
Range	18-33	18-55	18-35	18-50	18-55
Gender, <i>n</i> (%)					
Male	24 (30.38)	28 (33.74)	25 (40.98)	23 (35.39)	100 (34.72)
Female	55 (69.62)	55 (66.37)	36 (59.02)	40 (61.54)	186 (64.58)
Gender Diverse	0 (0)	0 (0)	0 (0)	2 (3.08)	2 (.69)
Born in Canada, <i>n</i> (%)					
Yes	49 (62.03)	47 (56.63)	41 (67.21)	46 (70.77)	183 (63.54)
No	30 (37.98)	36 (43.37)	20 (32.79)	19 (29.23)	105 (36.46)
Years in Canada					
<i>M</i>	8.24	8.22	9.29	8.69	8.54
<i>SD</i>	6.31	6.65	6.49	6.53	6.40
Range	0-20	0-25	0-19	0-20	0-25
Place of Birth, <i>n</i> (%)					
United States	1 (3.33)	2 (5.56)	0 (0)	1 (5.26)	4 (1.39)
Europe	1 (3.33)	3 (8.33)	1 (5.00)	2 (10.53)	7 (2.43)
Caribbean	2 (6.67)	4 (11.11)	1 (5.00)	0 (0)	7 (2.43)
South America	1 (3.33)	1 (2.78)	0	2 (10.53)	4 (1.39)
Africa	3 (10.00)	2 (5.56)	1 (5.00)	4 (21.05)	10 (3.47)
Asia	22 (73.33)	22 (61.11)	17 (85.00)	10 (52.63)	71 (24.65)
Oceania	0 (0)	2 (5.56)	0 (0)	0 (0)	2 (.69)
Pacific Islands	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Year of Study, <i>n</i> (%)					
First	38 (48.10)	38 (45.78)	31 (50.82)	34 (52.31)	141 (48.96)
Second	19 (24.05)	28 (33.74)	15 (24.59)	13 (20.00)	75 (26.04)
Third	8 (10.13)	13 (15.66)	8 (13.12)	7 (10.77)	36 (12.50)
Fourth +	14 (17.72)	4 (4.82)	7 (11.48)	11 (16.92)	36 (12.50)
Employment, <i>n</i> (%)					
Full-time	3 (3.80)	7 (8.43)	4 (6.56)	4 (6.15)	18 (6.25)
Part-time	30 (37.98)	29 (34.94)	23 (37.71)	26 (40.00)	108 (37.50)

Unemployed	43 (54.43)	37 (44.58)	31 (50.82)	32 (49.23)	143 (49.65)
Other	3 (3.80)	10 (12.05)	3 (4.92)	3 (4.62)	19 (6.60)
Benefits					
CERB	27 (34.18)	26 (31.33)	17 (27.87)	18 (27.69)	88 (30.56)
CESB	21 (26.58)	25 (30.12)	25 (40.98)	21 (32.31)	92 (31.94)
EI	1 (1.27)	2 (2.41)	3 (4.92)	0 (0)	6 (2.08)
CERB & CESB	0 (0)	1 (1.21)	0 (0)	0 (0)	1 (.35)
CERB & EI	0 (0)	1 (1.21)	1 (1.64)	2 (3.08)	1 (.35)
CERB, CESB, & EI	0 (0)	0 (0)	0 (0)	1 (1.54)	4 (1.39)
None	30 (37.98)	28 (33.74)	15 (24.59)	23 (35.39)	96 (33.33)

Table 3. *Descriptive Statistics and Psychometric Properties of Study Variables (N = 288)*

	<i>M</i>	<i>SD</i>	Range	Cronbach's α [95% CI]	McDonald's ω [95% CI]
Hypothetical Distance					
Economic Stress	43.22	15.49	14-82	.69 [.63, .75]	.71 [.63, .78]
Control	25.38	18.29	0-87	.73 [.68, .78]	.74 [.60, .82]
Temporal Distance					
Economic Stress	45.95	17.14	3-94	.65 [.58, .71]	.67 [.58, .76]
Control	50.58	26.36	0-100	.90 [.88, .92]	.90 [.87, .93]
Financial Threat	2.97	1.10	1-5	.90 [.88, .92]	.90 [.88, .92]
Affect					
Positive Affect	22.41	8.31	10-47	.89 [.86, .90]	.89 [.87, .91]
Negative Affect	21.24	9.94	10-45	.93 [.92, .94]	.95 [.94, .95]
Social Support	2.72	.62	1-4	.86 [.83, .88]	.86 [.83, .88]
Resources	57.08	20.90	0-100	.90 [.89, .92]	.91 [.89, .93]

Table 4. *Correlations of Study Variables from Total Sample (N = 288)*

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Hypothetical Distance										
2. Temporal Distance	.28***									
3. Financial Threat	-.18**	-.10								
4. Positive Affect	.26***	-.09	.21***							
5. Negative Affect	.25***	-.15*	.63***	.48***						
6. Future Social Support	-.09	-.08	-.01	.16**	-.03					
7. Future Resources	.15*	.10	-.32***	.09	-.25***	.29***				
8. Subjective SES	.05	.03	-.14*	.12*	-.03	.28***	.32***			
9. Subjective Pandemic Finances	-.08	.04	-.20***	-.04	-.09	.12*	.13*	.29***		
10. Current Finances	.004	.05	-.09	.08	.02	.19**	.23***	.62***	.42***	
11. Current Social Support	-.06	-.07	-.11	-.01	-.06	.39***	.22***	.33***	.33***	.36***
12. LCM Scores	.02	.07	-.05	.08	-.01	.01	.01	.07	.05	-.06

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 5. Means, Standard Deviations, and Two-Way ANOVA Statistics for Financial Threat

Variable	Stress		Control		ANOVA				
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	Effect	<i>F</i>	<i>df</i>	<i>p</i>	η^2
Low/Concrete Construal	3.53	.94	2.27	.96	Stress	89.38	1	< .001	.24
High/Abstract Construal	3.36	.91	2.46	1.07	Construal	.01	1	.92	< .001
Stress*Construal					Stress*Construal	2.34	1	.13	.01

Note. *N* = 288.

Table 6. *Regression Analysis Summary for Stress and LCM Scores Predicting Financial Threat*

Variable	<i>B</i>	95% CI for <i>B</i>		<i>SE B</i>	β	<i>t</i>	<i>p</i>
		LL	UL				
Constant	-0.75	-3.21	1.71	1.25		-0.60	0.55
Stress	2.69	1.20	4.18	0.76	1.22	3.55	< .001
LCM	0.55	-0.11	1.20	0.33	0.29	1.65	0.10
Stress x LCM	-0.43	-0.83	-0.04	0.20	-0.83	-2.15	0.03

Note. LCM = Linguistic Category Model; CI = confidence interval; LL = lower limit; UL = upper limit; Adjusted $R^2 = 0.25$

Table 7. *Regression Analysis Summary for Temporal Distance and Covariates Predicting Future Social Support*

Variable	<i>B</i>	95% CI for <i>B</i>		<i>SE B</i>	β	<i>t</i>	<i>p</i>
		LL	UL				
Constant	2.97	2.45	3.50	0.26		11.16	
Temporal Distance	.001	-0.01	.01	.003	0.02	0.31	0.76
Current Social Support	0.02	0.08	.27	0.05	0.30	3.76	< .001
SES	0.03	-0.03	.09	0.03	0.08	0.98	0.33

Note. SES = Socioeconomic Status; LL = lower limit; UL = upper limit; Adjusted $R^2 = .10$

Table 8. *Regression Analysis Summary for Temporal Distance and Covariates Predicting Future Financial Resources*

Variable	<i>B</i>	95% CI for <i>B</i>		<i>SE B</i>	β	<i>t</i>	<i>p</i>
		LL	UL				
Constant	16.64	1.65	31.63	7.58		2.20	0.03
Temporal Distance	0.43	0.24	0.62	0.10	0.36	4.54	< .001
Current Finances	-1.16	-6.27	3.94	2.58	-0.05	-0.45	0.65
SES	3.79	1.04	6.55	1.39	0.29	2.72	0.01

Note. SES = Socioeconomic Status; LL = lower limit; UL = upper limit; Adjusted $R^2 = .20$

Table 9. *Multiple Linear Regression Analysis for the Prediction of Financial Threat*

Predictors	<i>B</i>	95% CI for <i>B</i>		SE <i>B</i>	β	<i>t</i>	<i>p</i>
		LL	UL				
Intercept	8.27	4.90	11.64	1.70	--	4.86	<.001
LCM Scores	$\bar{1.04}$	-1.94	-0.15	0.45	-0.69	-2.30	0.02
Hypothetical Distance	$\bar{0.09}$	-0.17	-.02	0.04	-1.54	-2.48	0.01
Temporal Distance	.004	-0.06	0.07	0.03	0.07	0.12	0.91
LCM x Hypothetical Distance	.02	0.001	0.04	0.01	1.44	2.12	0.04
LCM x Temporal Distance	$\bar{.002}$	-0.02	0.02	0.01	-0.18	-0.27	0.79

Note. LCM = Linguistic Category Model score (i.e., construal); LL = lower limit; UL = upper limit; $R^2 = .18$

Table 10. *Correlations of Study Variables for Economic Stress Condition (N = 162)*

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Hypothetical Distance										
2. Temporal Distance	.56***									
3. Threat	-.32***	-.28***								
4. Positive Affect	.26***	.10	-.09							
5. Negative Affect	-.31***	-.22**	.62***	.18*						
6. Future Social Support	.05	.04	-.02	.23**	.07					
7. Future Financial Resources	.52***	.39***	-.49***	.32***	-.30***	.21*				
8. Subjective SES	.15	.17*	-.15	.22**	0	.16*	.31***			
9. Subjective Pandemic Finances	.03	.04	-.15	.05	-.02	.08	.08	.33***		
10. Current Finances	-.03	.10	-.14	.13	-.03	.18*	.16	.64***	.44***	
11. Current Social Support	0	-.02	.05	-.08	.04	-.33***	-.11	-.28***	-.36***	-.36***
12. LCM Scores	.05	.08	-.20*	.10	-.10	-.01	.18*	.05	.10	-.10

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 11. *Multiple Linear Regression Analysis for the Prediction of Financial Threat*

Predictors	<i>B</i>	95% CI for <i>B</i>		SE <i>B</i>	β	<i>t</i>	<i>p</i>
		LL	UL				
Intercept	4.96	4.27	5.64	.35	--	14.32	<.001
Resources	-.02	-0.03	-0.02	.004	-0.49	-6.23	<.001
SES	-.09	-0.05	0.20	0.06	0.13	1.24	0.22
Current Finances	.004	-0.31	0.53	0.12	-0.07	-0.63	0.53
Pandemic Finances	0.02	-0.31	0.05	0.09	-0.12	-1.42	0.16

Note. SES = Socioeconomic Status; LL = lower limit; UL = upper limit; $R^2 = .25$

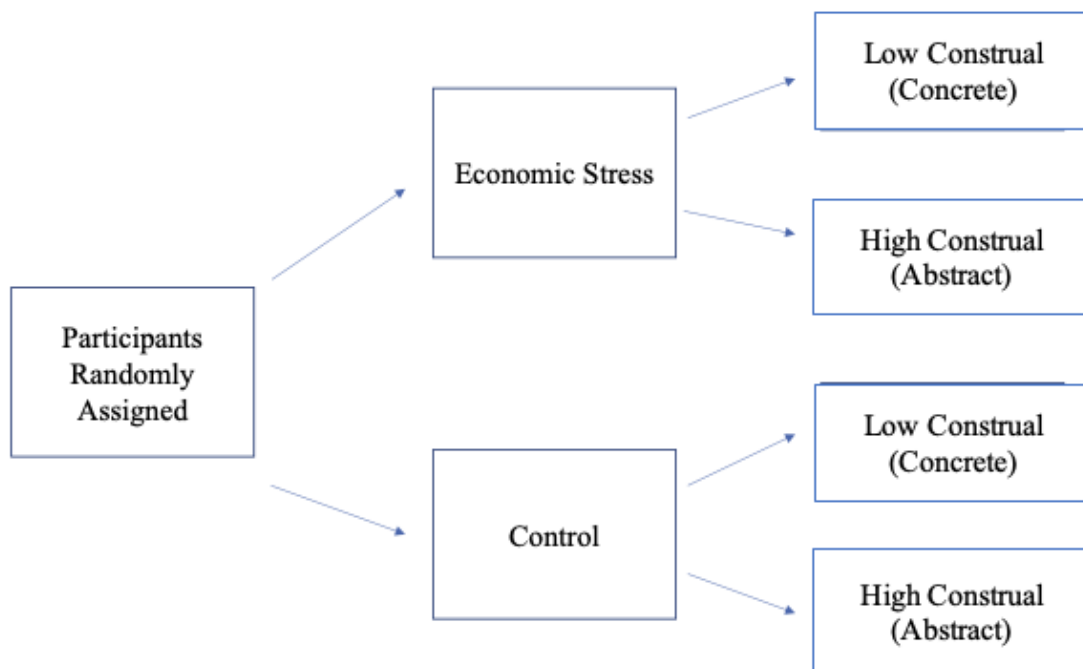
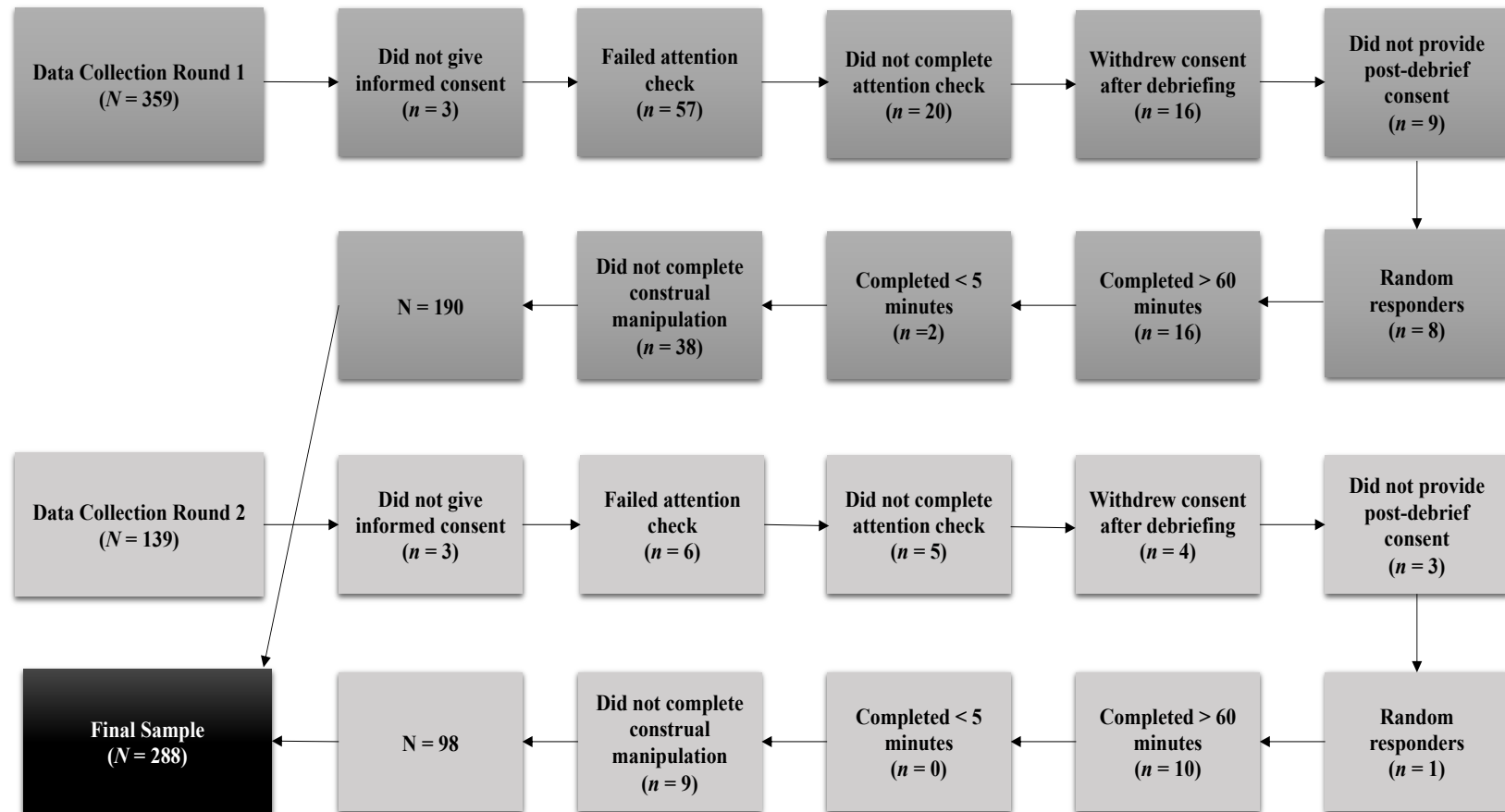
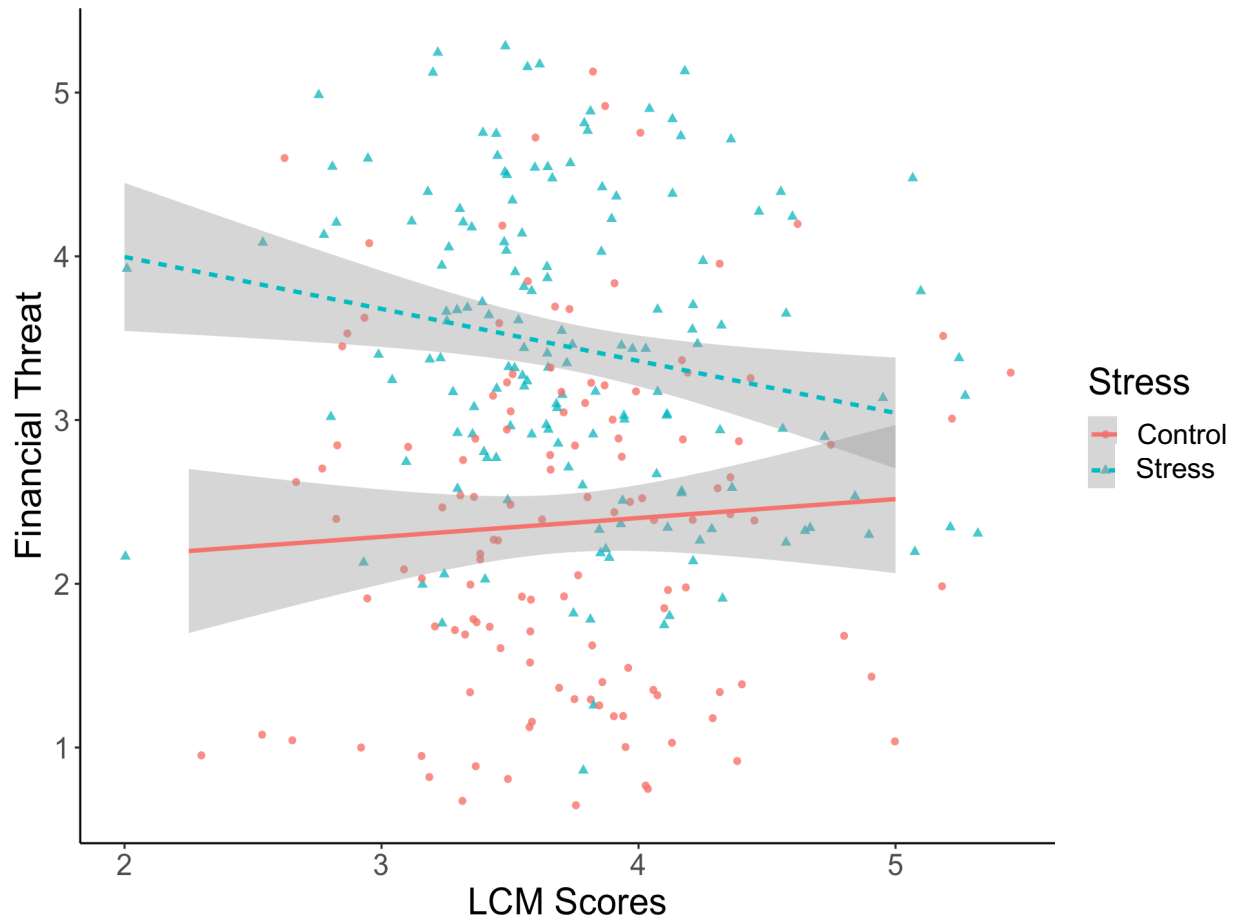
FiguresFigure 1: *Experimental Design*

Figure 2. *Data Collection and Deletion Procedure*

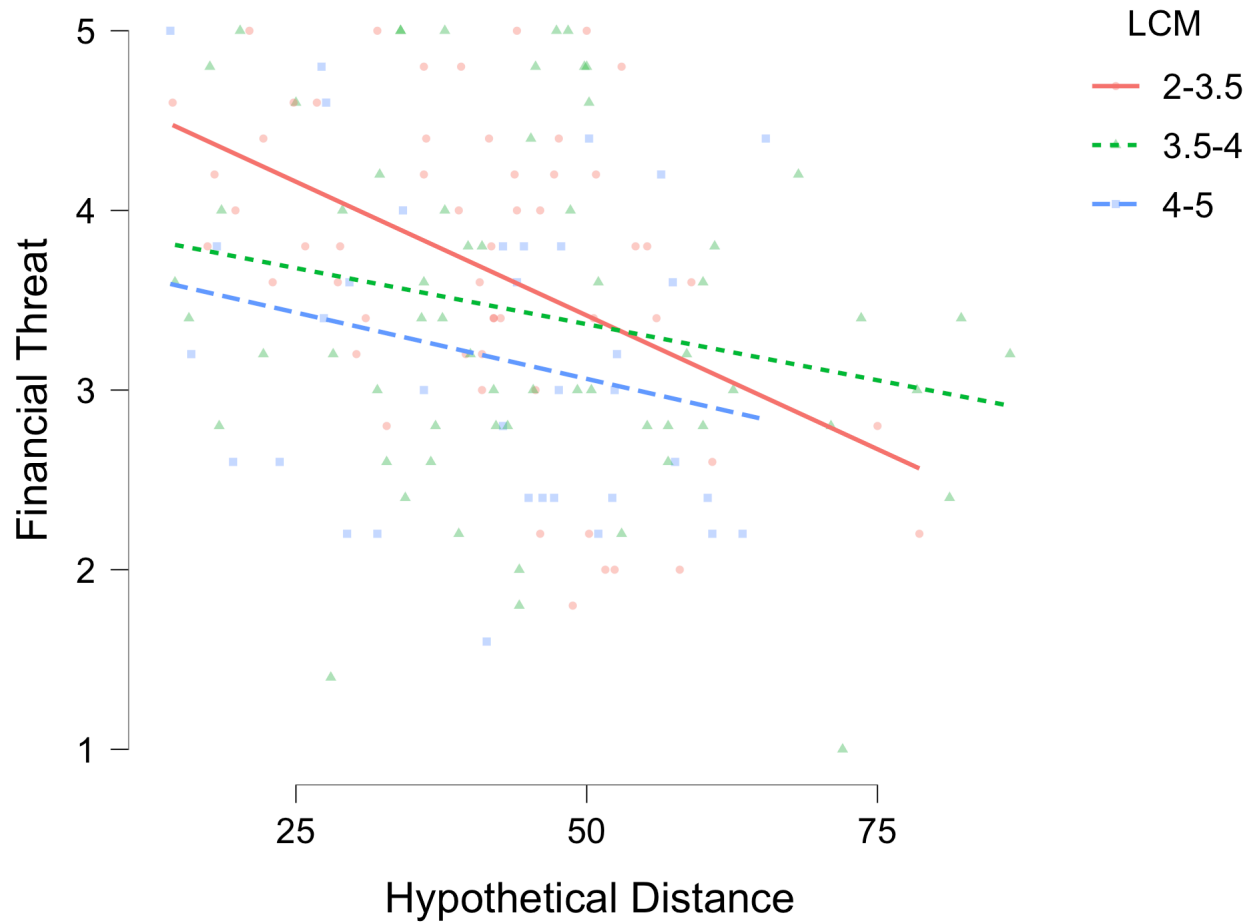
Note. Arrows indicate order of deletions.

Figure 3. *Plot of Interaction Between Stress & Construal Predicting Financial Threat*



Note. Plot of Regression Lines with 95% Confidence Bands; LCM = Linguistic Category Model (i.e., construal); Lower LCM Score = More Concrete; Higher LCM Score = More Abstract.

Figure 4. *Interaction between Hypothetical Distance from a Challenging Employment Landscape and LCM Predicting Financial Threat*



Note. Plot of Regression Lines; LCM = Linguistic Category Model (i.e., construal); Lower LCM Score = More Concrete; Higher LCM Score = More Abstract; Higher Hypothetical Distance = Less Likely; Lower Hypothetical Distance = More Likely.

Appendices

Appendix A: Study Procedure

1. Informed Consent (Agree to Participate)
 - 2 minutes
2. Economic Stress Manipulation⁹
 - 5 minutes
- 2a. Economic Stress Condition
- 2b. Control Condition
3. Attention Check (article content question)
 - 1 item; < 1 minute
4. Manipulation Check (SAM-T; Peacock & Wong, 1990)
 - 4 items; 1 minute
5. Construal Level Manipulation (Freitas et al., 2004) *
 - 4 written responses; 8 minutes
- 5a. Abstract-Economic Stress Condition
- 5b. Concrete-Economic Stress Condition
- 5c. Abstract-Control Condition
- 5d. Concrete-Control Condition
6. Psychological Distance Questions (Lieberman & Förster, 2009) *
 - 10 items; 3 minutes
- 6a. Economic Stress Condition
- 6b. Control Condition
7. Financial Threat Scale (FTS; Marjanovic et al., 2013)
 - 5 items; 1 minute
8. Positive and Negative Affect Schedule (PANAS; Watson et al., 1988)
 - 20 items; 3 minutes
9. Informational and Practical Support (Caplan et al., 1980)
 - 6 items; 2 minutes
10. Predicted Amount of Future Financial Resources
 - 6 items; 2 minutes
11. Demographics and Subjective Social Status (SSS; Goodman et al., 2001)
 - 10-12 items; 2 minutes
12. Demand Characteristics Checklist
 - 2 items; 1 minute
13. Conscientious Responders Scale (CRS; Marjanovic et al., 2014)
 - 5 items; 1 minute
 - Represented as a highlighted item throughout Appendix
14. Debriefing Forms
 - 2 minutes

Total time: ~34 minutes

Total items: 66-68

* Indicates participants will receive different instructions for the section depending on randomly assigned condition.

1. Informed Consent

Date: December 29, 2020

Study Name: Thinking about the Future

Researcher name: My name is Miranda Too and I am a Master of Arts student in the Social and Personality Psychology program at York University. I am the Principal Investigator for this research. You can contact me at mtoo@yorku.ca.

Purpose of the Research: The purpose of this study is to examine how people think about the future. This study will be conducted online. This research project is a partial requirement for my master's thesis and will be written up and presented to a committee. The results of this study may be presented at academic conferences and/or in academic journals; however, this research will not be used for commercial purposes.

What You Will Be Asked to Do in the Research: In this study, you will be asked to read an online news article. After reading the article, you will be asked to complete a thought exercise where you will answer questions in writing. You will then be asked to complete a questionnaire, which includes measures of your emotions and thoughts about the future. This study should take approximately 32 minutes to complete and you are eligible to receive 0.5 experimental credit from the URPP for your participation.

Risks and Discomforts: We foresee minimal risk of discomfort from your participation in this study. However, if any of the materials in this study remind you of difficult issues that you would like to discuss, you may contact Student Counselling & Development (SCD) at York University. SCD provides free, confidential counseling about personal issues on an individual basis. You can contact SCD by telephone at 416-736-5297 between 9:00 a.m. and 4:00 p.m. Monday-Friday. More detailed information on SCD is available at <https://counselling.students.yorku.ca>. Alternatively, if you require after hours support, you may contact Good2Talk at 1-866-925-5454 or text GOOD2TALKON to 686868.

Benefits of the Research and Benefits to You: Your participation in this study will provide you with an opportunity to reflect on your thinking and learn more about the process of psychological research. Your participation will also help advance scientific understanding in social psychological research.

Voluntary Participation and Withdrawal: Your participation in the study is completely voluntary and you may choose to stop participating at any time. Your decision not to volunteer, to stop participating, or to refuse to answer particular questions will not influence the nature of the ongoing relationship you may have with the researchers or study staff, or the nature of your relationship with York University either now, or in the future. If you decide to stop participating, you may withdraw without penalty, and you will still receive the promised credit.

In the event you withdraw from the study, all associated data collected will be immediately destroyed wherever possible. Should you wish to withdraw after the study, you will have the option to also withdraw your data up until the analysis is complete.

Confidentiality: All information you supply during the research will be held in confidence.

Your data will be collected online and will be safely stored electronically in a locked computer file, and only research staff will have access to this information. Your name or any identifying information is not stored with your data. The data will be archived in a publicly accessible electronics repository on the Open Science Framework (<https://www.cos.io/products/osf>). Researchers will have access to the data although your data will be anonymous. Confidentiality will be provided to the fullest extent possible by law.

The data collected in this research project may be used – in an anonymized form - by members of the research team in subsequent research investigations exploring similar lines of inquiry. Such projects will still undergo ethics review by the HPRC, our institutional REB. Any secondary use of anonymized data by the research team will be treated with the same degree of confidentiality and anonymity as in the original research project.

The researchers acknowledge that the host of the online survey (i.e., Qualtrics) may automatically collect participant data without their knowledge (i.e., IP addresses). Although this information may be provided or made accessible to the researchers, it will not be used or saved without participant's consent on the researcher's system. Further, because this project employs e-based collection techniques, data may be subject to access by third parties as a result of various security legislation now in place in many countries and thus the confidentiality and privacy of data cannot be guaranteed during web-based transmission.

Questions About the Research? If you have questions about the research in general or about your role in the study, please feel free to contact me at mtoo@yorku.ca or my supervisor, Esther Greenglass at estherg@yorku.ca.

This research has received ethics review and approval by the Delegated Ethics Review Committee, which is delegated authority to review research ethics protocols by the Human Participants Review Sub-Committee, York University's Ethics Review Board, and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any questions about this process, or about your rights as a participant in the study, please contact the Sr. Manager & Policy Advisor for the Office of Research Ethics, 5th Floor, Kaneff Tower, York University (telephone 416-736-5914 or e-mail ore@yorku.ca).

Legal Rights and Signatures:

I, consent to participate in *Thinking about the Future* conducted by Miranda Too. I have understood the nature of this project and wish to participate. I am not waiving any of my legal rights by agreeing to participate in this study. Clicking 'I agree' below indicates my consent to participate. Clicking 'I do not agree' indicates that I do not agree to participate.

- I agree to participate
- I do not agree to participate

Stem to Threat Manipulation

You will now be presented with an article taken from a recent edition of a major Canadian news magazine. Please read this article carefully and answer the associated questions.

2. Economic Stress Manipulation

2a. Economic Stress Article:



A Student's Employment Future: Foreseeable Difficulty Securing a Job

Students attending university in Canada may have more than grades to worry about as employment reaches a new low. Recently released information suggests that job prospects may continue to decline with no end in sight.

In March 2020, Canada began an economic shutdown in response to the spread of COVID-19. According to a report by Statistics Canada, over 2-million jobs were lost, and employment showed the greatest decline for those ages 15-24. Statistics Canada predicts this loss will have an enduring impact on the Canadian job market.

Although some of these jobs have returned since the country has begun to reopen, experts say that the employment rate may not recover. "The unemployment problem will not be magically fixed by re-opening" says Ralph Miller, a professor of economics at Queen's University, "the shutdown has done irreversible damage to many industries, some of which will not be able to rebound."

While tourism, retail, and entertainment have been hit the hardest by the pandemic, industries across the board will be looking to cut costs. "Young people in Canada are looking at a tough job market when they graduate" says Jenna Kahn, Chair of Youth Employment Services, "we're seeing a decline in entry-level jobs for university graduates; they're the first to go when there's an economic downturn. I don't know if students will be able to secure a job at all, let alone a job in their field."

In addition to the effects of COVID-19 on employment, many jobs have continued to disappear altogether with the advancement of technology. Many companies have chosen to move their businesses online or abroad to cut costs, which has had a significant impact on both full and part-time jobs. As industries look to cut costs, many businesses may accelerate the displacement of Canadian jobs. With positions continuing to disappear, students graduating over the next few years will face an uncertain job market and should expect considerable difficulty securing employment.



2b. Control Article:

SECTIONS ▾ AUTHORS ▾ SUBSCRIBE ▾

FOLLOW ▾ SIGN IN / SIGN UP

In for a Penny, in for a Pound: Get Ready to say Goodbye to the Nickel

In 2013, the Canadian Government made the decision to cease production of Canada's one-cent coin, citing its low purchasing power, compared with the rising cost of materials and handling costs. A new report from the Royal Canadian Mint suggests that the nickel may face a similar fate.

According to the Mint, each five-cent coin costs 11.2 cents to produce; a 28% increase since 2016. "It's only a matter of time before the government takes the nickel out of circulation," says Ralph Miller, a professor of economics at Queen's University "they simply cannot justify the expense of its existence." With the cost of COVID-19, the Government is facing mounting pressure to make cuts to the budget, which could mean an uncertain future for the nickel. The Mint estimates that eliminating the nickel would save the taxpayer \$11 million per year.

In addition to taxpayer savings, many businesses could also benefit from removing the nickel. In a 2020 report from the Royal Bank of Canada, it was found that cash transactions on purchases less than \$10 are down 150% since the onset of COVID-19. For businesses that frequently have small transactions, a reduction in coin denominations could mean saving both time and money. "Having all sorts of coins is more trouble than it's worth," says Jenna Kahn, owner of the Avenue Road Café, "It's a pain to have to keep the cash registers stocked with five different types of coins, while since the pandemic started, most people use credit or debit".

Phasing out low-denomination coins has become commonplace around the world, with other nations such as New Zealand, South Africa, and Norway eliminating their equivalent 1 and 5-cent coins. With the nickel becoming increasingly expensive to maintain, Canadians may have to say goodbye to the five-cent piece.



3. Attention Check

Think about the article you just read. What was it about?

- Unemployment in the future
- Climate change
- Phasing out the nickel
- I don't know

4. Manipulation Check for Economic Stress and Control Articles
(SAM-T; Peacock & Wong, 1990)

Continue to imagine yourself in the situation you just read about in the article. Using the scale below, please respond according to how you think you would feel if you were in that situation.

Not at all	A little	Moderately	Quite a bit	Extremely
1	2	3	4	5

1. Would this situation make me feel anxious?
2. How threatening would this situation be?
3. Would it have a negative impact on me?
4. Would the outcome of the situation be negative?

5. Construal-Level Manipulation (adapted from Freitas et al., 2004)

5a. Abstract-Economic Stress Condition

For everything we do, there always is a reason why we do it. Moreover, we often can trace the causes of our behavior back to broad life-goals that we have. For example, you currently are participating in a psychology experiment. Why are you doing this? Perhaps to satisfy a course requirement. Why are you satisfying the course requirement? Perhaps to pass a psychology course. Why pass the course? Perhaps because you want to earn a college degree. Why earn a college degree? Maybe because you want to find a good job, or because you want to educate yourself. And perhaps you wish to educate yourself or find a good job because you feel that doing so can bring you happiness in life. Research suggests that engaging in thought exercises like that above, in which one thinks about how one's actions relate to one's ultimate life goals, can improve people's life satisfaction. In this experiment, we are testing such a technique. This thought exercise is intended to focus your attention on why you do the things you do. For this thought exercise, please consider the following activity: Getting a job following graduation

Please respond to each question in the box below:

Getting a job following graduation. Why?

after filling in the box, the participant will press “next,” which will lead them to a new page. Using the [pipe text function](#) on Qualtrics, the text written by the participant in the previous box will be quoted back to them, and they will be asked “why?”

“_____” **Why?**

new page on computer screen

“_____” **Why?**

****new page on computer screen****

“ _____ ” **Why?**

5b. Concrete-Economic Stress

For everything we do, there always is a process of how we do it. Moreover, we often can follow our broad life-goals down to our very specific behaviors. For example, like most people, you probably hope to find happiness in life. How can you do this? Perhaps finding a good job, or being educated, can help. How can you do these things? Perhaps by earning a college degree. How do you earn a college degree? By satisfying course requirements. How do you satisfy course requirements? In some cases, such as today, you participate in a psychology experiment. Research suggests that engaging in thought exercise like that above, in which one thinks about how one’s ultimate life goals can be expressed through specific actions, can improve people’s life satisfaction. In this experiment, we are testing such a technique. This thought exercise is intended to focus your attention on how you do the things you do. For this thought exercise, please consider the following activity: Getting a job following graduation

Please respond to each question in the box below:

Getting a job following graduation. How?

****new page on computer screen****

“ _____ ” **How?**

****new page on computer screen****

“ _____ ” How?

****new page on computer screen****

“ _____ ” How?

5c. Abstract-Control Condition

For everything we do, there always is a reason why we do it. Moreover, we often can trace the causes of our behavior back to broad life-goals that we have. For example, you currently are participating in a psychology experiment. Why are you doing this? Perhaps to satisfy a course requirement. Why are you satisfying the course requirement? Perhaps to pass a psychology course. Why pass the course? Perhaps because you want to earn a college degree. Why earn a college degree? Maybe because you want to find a good job, or because you want to educate yourself. And perhaps you wish to educate yourself or find a good job because you feel that doing so can bring you happiness in life. Research suggests that engaging in thought exercises like that above, in which one thinks about how one’s actions relate to one’s ultimate life goals, can improve people’s life satisfaction. In this experiment, we are testing such a technique. This thought exercise is intended to focus your attention on why you do the things you do. For this thought exercise, please consider the following activity: Preparing for the nickel to be phased out.

Preparing for the nickel to be phased out. Why?

****new page on computer screen****

“ _____ ” **Why?**

****new page on computer screen****

“ _____ ” **Why?**

****new page on computer screen****

“ _____ ” **Why?**

5d. Concrete-Control Condition

For everything we do, there always is a process of how we do it. Moreover, we often can follow our broad life-goals down to our very specific behaviors. For example, like most people, you probably hope to find happiness in life. How can you do this? Perhaps finding a good job, or being educated, can help. How can you do these things? Perhaps by earning a college degree. How do you earn a college degree? By satisfying course requirements. How do you satisfy course requirements? In some cases, such as today, you participate in a psychology experiment. Research suggests that engaging in thought exercise like that above, in which one thinks about how one's ultimate life goals can be expressed through specific actions, can improve people's life satisfaction. In this experiment, we are testing such a technique. This thought exercise is intended to focus your attention on how you do the things you do. For this thought exercise, please consider the following activity: Preparing for the nickel to be phased out.

Preparing for the nickel to be phased out. How?

****new page on computer screen****

“ _____ ” How?

****new page on computer screen****

“ _____ ” How?

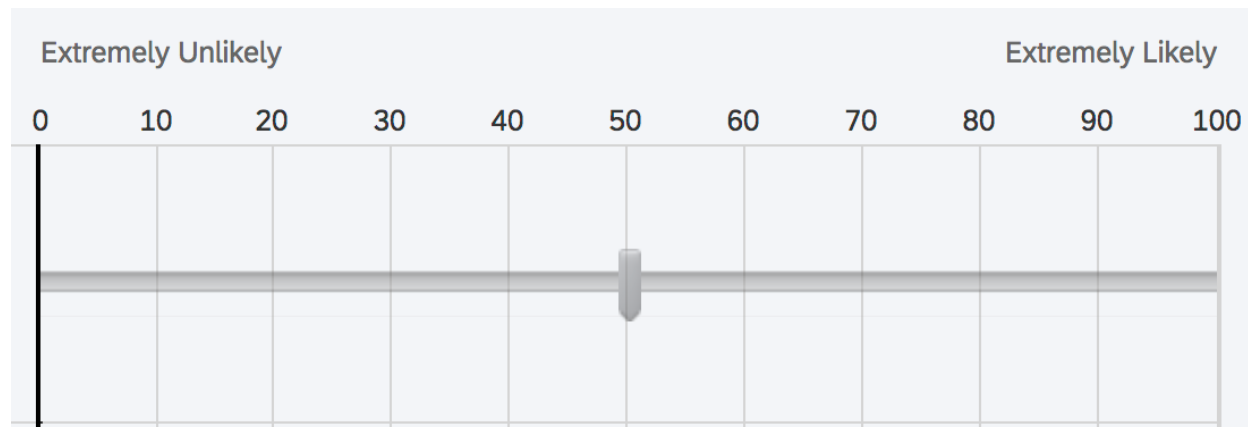
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“ _____ ” How?

6. Psychological Distance Questions (Liberman & Förster, 2009)

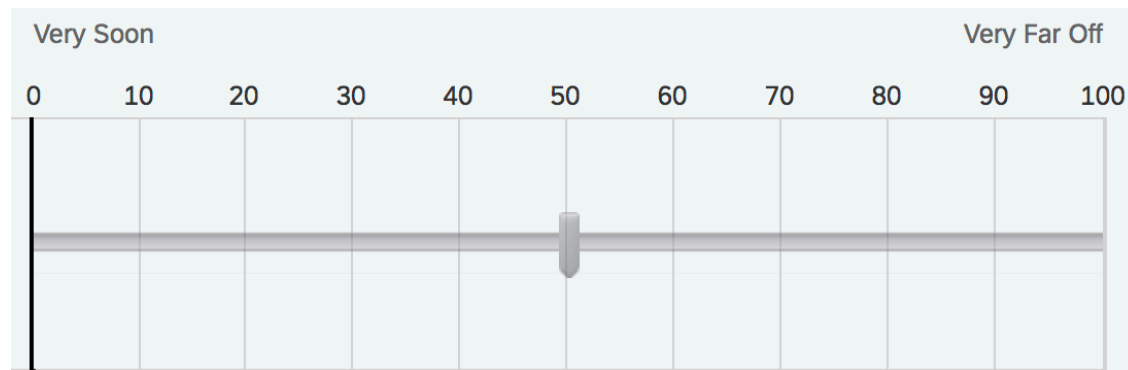
6a. Economic Stress Condition

Instructions: Please move the slider to the position that best reflects the likelihood of each event occurring.



1. There will be no full-time jobs available for recently graduated students.
2. There will be no jobs available in my field.
3. There will be lots of part time jobs available. (reverse scored)
4. There will be many opportunities to enter the job market. (reverse scored)
5. Graduates will have no problem finding jobs. (reverse scored)

Instructions: Please move the slider to the position that best reflects when you believe each event will occur.

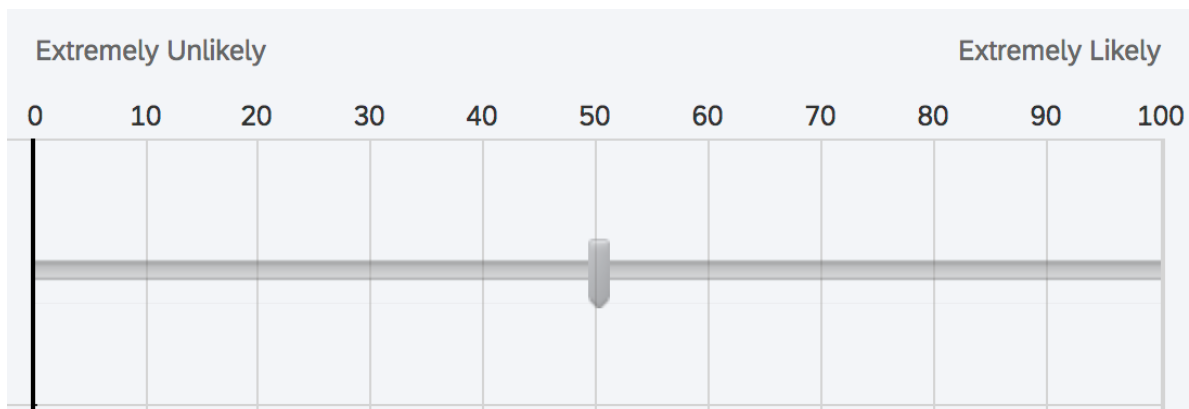


1. There will be no full-time jobs available for recently graduated students.
2. For this question, move the slider to “0”¹
3. There will be no jobs available in my field.
4. There will be lots of part time jobs available. (reverse scored)
5. There will be many opportunities to enter the job market. (reverse scored)
6. Graduates will have no problem finding jobs. (reverse scored)

6b. Control Condition

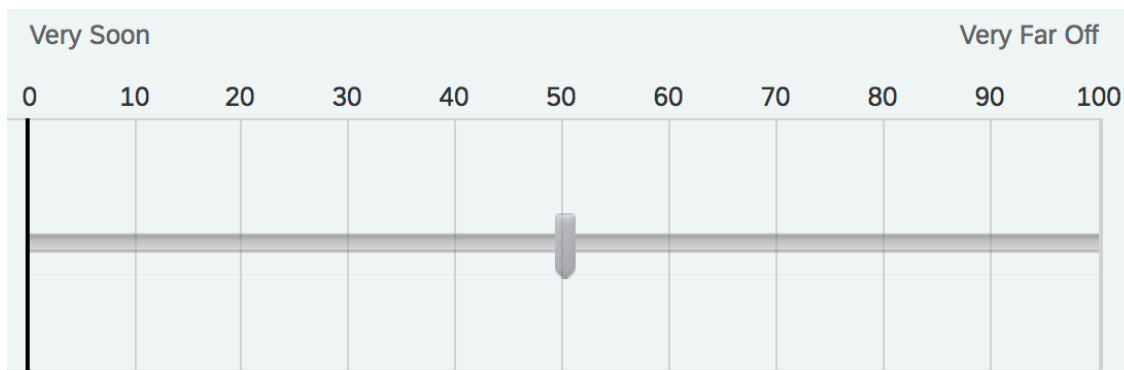
Instructions: Please move the slider to the position that best reflects the likelihood of each event occurring.

¹ CRS 1a (Economic Stress Condition)



1. Stores will stop accepting nickels.
2. I will have nickels I cannot use.
3. The Canadian Mint will stop making nickels.
4. The nickel will be taken out of circulation
5. The 10¢, 25¢, \$1, and \$2 coins will be the only coins left.

Instructions: Please move the slider to the position that best reflects when you believe each event will occur.



1. Stores will stop accepting nickels.
2. For this question, move the slider to “0”²
3. I will have nickels I cannot use.
4. The Canadian Mint will stop making nickels.
5. The nickel will be taken out of circulation
6. The 10¢, 25¢, \$1, and \$2 coins will be the only coins left.

² CRS 1b (Control Condition)

7. Financial Threat Scale (Marjanovic et al., 2013)

Please indicate how you feel about your future financial situation by answering the following questions:

1. How uncertain do you feel? 1 = Not At All to 5 = Extremely Uncertain
2. How much do you feel at risk? 1 = Not At All to 5 = A Great Deal
3. How much do you feel threatened? 1 = Not At All to 5 = Extremely Threatened
4. How much do you worry about it? 1 = Not At All to 5 = A Great Deal
5. How much do you think about it? 1 = Not At All to 5 = A Great Deal
6. For this question, please select “5, A Great Deal”¹⁰

¹⁰ CRS 2

8. Positive and Negative Affect Schedule (PANAS; Watson et al., 1988)

Instructions: Think about the future described in the article you read. Indicate the extent to which you feel each of the following items regarding your own employment prospects in the future:

1	2	3	4	5
Very slightly or not at all	A little	Moderately	Quite a bit	Extremely

1. Interested
2. Distressed
3. Excited
4. Upset
5. Strong
6. Guilty
7. Scared
8. Hostile
9. Enthusiastic
10. Proud
11. Irritable
12. Alert
13. Ashamed
14. Inspired
15. For this question, select option 2, "A little"¹¹
16. Nervous
17. Determined
18. Attentive
19. Jittery
20. Active
21. Afraid

¹¹ CRS 3

9. Informational and Practical Support (Caplan et al., 1980)

Instructions: Think about when you are seeking full-time employment in the future. For each item, please select the option that best describes how those close to you will act in support of your seeking full-time employment.

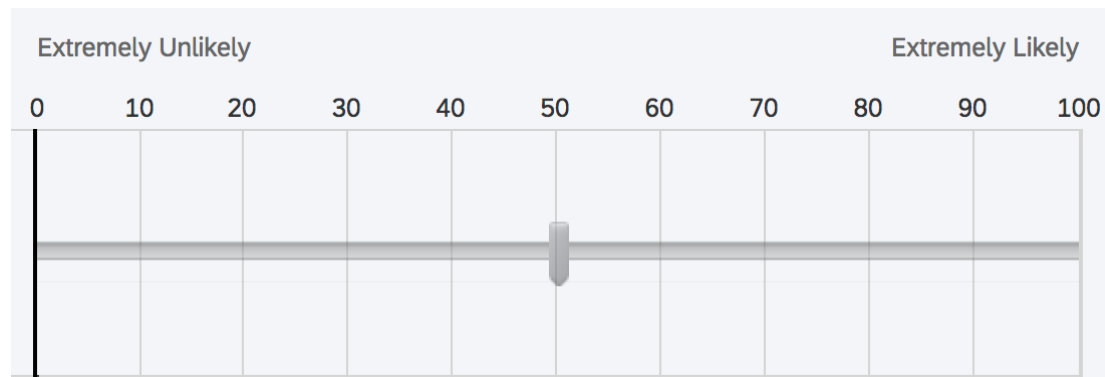
Not at all	A little	Somewhat	Very Much
	1	2	3
			4

1. How much will people go out of their way to make things easier for you?
2. How much advice or guidance will people give you that you will find helpful?
3. For this question, please select "2, A little."¹²
4. How much will people be helpful to you when things get tough?
5. How much useful information will people provide you when you really need it?
6. How much will you be able to rely on people to provide you with assistance when you need it most?
7. How much useful feedback will you get from others?

¹² CRS 4

10. Predicted Amount of Future Financial Resources

Instructions: Think about when you are seeking full-time employment in the future. Move the slider to the position that best describes the likelihood of you possessing the resources to do what is described in each item below.



1. I will be able to secure a full-time job after graduation.
2. I will be able to secure a job in my field after graduation.
3. I will be able to afford to live where I want.
4. I will be able to afford the things I need (e.g., food, internet, phone, etc.)
5. For this question, please move the slider to “20”¹³
6. I will be able to afford the things I want (e.g., vacations, entertainment, etc.).
7. I will be able to pay off any debts I have.

¹³ CRS 5

11. Demographics

1. Which of the following best describes your gender?

- Male
- Female
- Gender diverse (e.g., trans-woman, non-binary)

2. What is your age? _____

3. Were you born in Canada?

- Yes
- No

If you answered no to question 3, go to question 3a. If you answered yes to question 3, go to question 4.

3a. How many years have you been living in Canada? _____

3b. Where were you born?

- United States
- Europe
- Caribbean
- South America
- Africa
- Asia
- Oceania
- Pacific Islands
- Other (Please Specify) _____

4. What is your year of study?

- First year
- Second year
- Third year
- Fourth year or greater

5. Which of the following best describes your current employment status?

- Employed full time

- Employed part-time
- Unemployed
- Other (Please specify) _____

6. Did you receive any COVID-19 emergency support funding from the Canadian government?
Select all that apply:

- Canadian Emergency Response Benefit (CERB)
- Canadian Emergency Student Benefit (CESB)
- Other (Please specify) _____
- None

7. Please respond to the following statements about your household focusing on the time period since the advent of coronavirus.

		Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	I don't know
7a.	My household has lost income due to COVID-19.	1	2	3	4	5	6
7b.	My household has enough money to "get by."	1	2	3	4	5	6

8.. In this question, please describe how you, or others in your household, were affected by COVID-19.

9. How would you describe your household's current financial situation?

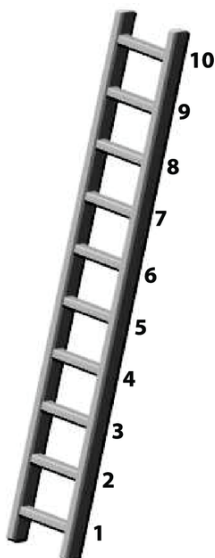
- Well Above Average
- Above Average
- Average
- Below Average
- Well Below Average

10. How would you describe the quality of social support that is currently available to you (i.e., available assistance from others)?

- Very Good
- Good
- Fair
- Poor
- Very Poor

11. Think of this ladder as representing where people stand in your country. At the **top** of the ladder are the people who are the best off – those who have the most money, the most education, and the most respected jobs. At the bottom are the people who are the worst off – those who have the least money, least education, the least respected jobs, or no job. The higher up you are on this ladder, the closer you are to the people at the very top; the lower you are, the closer you are to the people at the very bottom. Therefore 1, represents those who are the worst off, and 10 represents those who are the best off.

Where would you place yourself on this ladder? Select the rung that best represents where you are on this ladder.



1 2 3 4 5 6 7 8 9 10

14. Debriefing Form

Forecasting Your Financial Future: A Construal Level Theory Perspective on Economic Stress

Now that you have completed the study, you might be curious to know more about the purpose of this study and what we hope to find. Past research has demonstrated that the manner in which we mentally represent an event can influence how threatening we find it (Spence et al., 2012). This study used the framework of Construal Level Theory, which postulates that concrete representations will make an event seem closer in time and more likely to happen, and abstract representations will make an event seem farther away in time and less likely to happen (Trope & Liberman, 2010).

The current study sought to examine some of the factors that influence a person's predictions about their financial future while under stress. Some of you read a fake article about a poor employment future for young Canadians due to the lingering effects of COVID-19, which was designed to create an economically challenging and unpleasant situation for the future. Others read a fake article that discussed phasing the nickel out of circulation to offset the costs of COVID-19, which was designed in order to create a comparison group. Additionally, some of you would have been asked to answer "why" questions about your event, and others would have been asked "how" questions. The "why" questions were designed to generate more abstract representations of the event, whereas the "how" questions were designed to generate more concrete representations of events. The main hypothesis was that those who represented their employment future more abstractly (i.e., were asked "why" questions) would view the described potential employment concerns as farther away in time and less likely to happen, and therefore, less threatening. Conversely, those who represented their employment future more concretely (i.e., were asked "how" questions) would view potential employment concerns as closer in time and more likely to happen, and therefore, more threatening. In order to set up the experiment to test our hypothesis, it was necessary to use some deception in the instructions we gave you, so you were unaware of the experimental nature of the articles you read. The articles you read were created for research use. It was also necessary to omit the true purpose of the thought exercise, and its role in influencing your focus to either concrete or abstract representations. The findings of this study will contribute to the theoretical understanding of how people think about negative future events and will have practical implications for understanding psychological distress in relation to economic concerns.

If any of the materials in this study result in persistent negative feelings or remind you of difficult personal issues that you would like to discuss, you may contact Student Counselling & Development (SCD) at York University. SCD provides free, confidential counseling about personal issues on an individual basis. You can contact SCD by telephone at 416-736-5297. More detailed information on SCD is available at <https://counselling.students.yorku.ca>. Alternatively, if you require after hours support, you may contact Good2Talk at 1-866-925-5454 or text GOOD2TALKON to 686868.

If you would like, you still have the option of withdrawing your consent at this point in time by asking us to destroy your data. Rest assured that you will still receive participation credit that you have earned through your participation in the study. On the following screen you will be

asked to affirm your continued consent to participate in this study. As some deception was necessary for this experiment, we request that you refrain from sharing or discussing the content of this study with other potential participants. If you have any further questions concerning the study please feel free to contact Miranda Too, the primary investigator at mtoo@yorku.ca.

References

- Spence, A., Poortinga, W., & Pidgeon, N. (2012). The Psychological Distance of Climate Change. *Risk Analysis*, 32(6), 957–972. <https://doi.org/10.1111/j.1539-6924.2011.01695.x>
- Trope, Y., & Liberman, N. (2010). Construal-Level Theory of Psychological Distance. *Psychological Review*, 117(2), 440–463. <https://doi.org/10.1037/a0018963>

Post-Debriefing Consent Form

Forecasting Your Financial Future: A Construal Level Theory Perspective on Economic Stress

Principal Investigator: Miranda Too

During the debriefing session, I learned that it was necessary for the researchers to disguise the real purpose of this study. I realize that this was necessary since having full information about the actual purpose of the study might have influenced the way in which I responded to the tasks and this would have invalidated the results. Thus, to ensure that this did not happen, some of the details about the purpose of the study initially were not provided (or were provided in a manner that slightly misrepresented the real purpose of the study). However, I have now received a complete written explanation as to the actual purpose of the study.

I have been asked to give permission for the researchers to use my data (or information I provided) in their study and agree to this request. I am aware that I may withdraw this consent by notifying the Principal Investigator.

This study has been reviewed and received ethics clearance through the Human Participants Review Committee (HPRC). If you have questions for the Committee contact the Sr. Policy Advisor, Research Ethics, Office of Research Ethics, at 416-736-5914 or ore@yorku.ca

For all other questions contact Miranda Too at mtoo@yorku.ca

Please select the response option that indicates your response, and select next to confirm your response, and receive credit for your participation. Again, credit will be awarded to you regardless of your response to the following item.

- Yes, I agree to include my information in the study.
- No, I wish to withdraw my consent.

Appendix B: Comparison Between Data Collection Rounds

The first sample was younger ($M_{\text{age}} = 20.52$, $SD = 4.86$) compared to the second sample ($M_{\text{age}} = 21.85$, $SD = 4.77$), $t(199.7) = -2.22$, $p < .001$. However, there was no statistically significant relationship found between age and any of the study variables, so it was not considered as a confound in the analysis. I also found a statistically significant relationship between the data collection round and years of study, $\chi^2(3, N = 288) = 36.32$, $p < .001$. Examination of the contingency table of Data Collection Round * Year of Study showed that the first sample consisted of mostly first and second year students, whereas the second sample was equally distributed among the four years of study. Year of study did not have a statistically significant relationship with any of the study variables and was not considered to be a confound in this analysis. No statistically significant group differences were found on any of the study variables.

Appendix C: Comparison of Deleted and Retained Data

t-tests and chi-squared independence tests Comparing Demographics of Retained and Deleted Participants

	Retained (n = 288)	Deleted (n = 210)	<i>t</i> or χ^2	<i>df</i>	<i>p</i>
Age			.581	139.99	.562
<i>M</i>	20.97	21.31			
<i>SD</i>	4.86	4.49			
Range	18-55	18-46			
Gender, <i>n</i> (%)			.243	2	.886
Male	100 (34.72)	28 (33.33)			
Female	186 (64.58)	55 (65.48)			
Gender Diverse	2 (.69)	1 (1.19)			
Born in Canada, <i>n</i> (%)			.449	1	.503
Yes	183 (63.54)	50 (59.52)			
No	105 (36.46)	34 (40.48)			
Years in Canada			-1.079	48.61	.286
<i>M</i>	8.54	7.10			
<i>SD</i>	6.40	6.19			
Range	0-25	0-19			
Place of Birth, <i>n</i> (%)			6.144	6	.407
United States	4 (1.39)	1 (1.19)			
Europe	7 (2.43)	5 (5.95)			
Caribbean	7 (2.43)	1 (1.19)			
South America	4 (1.39)	0 (0)			
Africa	10 (3.47)	6 (7.14)			
Asia	71 (24.65)	21 (25.00)			
Oceania	2 (.69)	0 (0)			
Pacific Islands	0 (0)	0 (0)			
Year of Study, <i>n</i> (%)			2.579	3	.461
First	141 (48.96)	37 (44.05)			
Second	75 (26.04)	28 (33.33)			
Third	36 (12.50)	11 (13.10)			
Fourth +	36 (12.50)	7 (8.33)			
Employment, <i>n</i> (%)			.246	3	.97
Full-time	18 (6.25)	6 (7.14)			
Part-time	108 (37.50)	32 (38.10)			
Unemployed	143 (49.65)	39 (46.43)			
Other	19 (6.60)	6 (7.14)			
Benefits			8.067	7	.327
CERB	88 (30.56)	31 (36.91)			
CESB	92 (31.94)	20 (23.81)			
EI	6 (2.08)	2 (2.38)			
CERB & CESB	1 (.35)	1 (1.19)			
CERB & EI	1 (.35)	1 (1.19)			
CERB, CESB, & EI	4 (1.39)	0			

None	96 (33.33)	28 (33.33)
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A statistically significant difference in temporal distance was found between the excluded participants ($M = 54.14$, $SD = 23.16$) and included participants ($M = 47.96$, $SD = 21.70$), $t(121) = 2.12$, $p = .04$. There were no group differences found on any other study variables or demographic variables.