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RUNNING HEAD: TEMPORAL FOCUS, IMPLICIT THEORIES AND LIFE
SATISFACTION

When Does Sacrificing the Present for the Future or Sacrificing the Future for the Present
Enhance Satisfaction With Life? Implicit Theories of Change and Stability Moderate the Effects
of Temporal Focus on Life Satisfaction.

by

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Doctor of Philosophy, Psychology

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Abstract

In Western society we encounter contrasting prescriptions for how to live a happy life. Some argue the key to life satisfaction is *living in the moment* (e.g., seize the day), while others herald the importance of *focusing on the future* (e.g., pursuing goals, following one's dreams). We suspect, however, that these prescriptions do not work the same for everyone. The goal of the present research is to examine whether the relation between temporal focus (focusing on a present versus future goal) and life satisfaction (LS) might be moderated by participants' implicit theories of change and stability (Dweck, 1999). Incremental theorists believe that they can change with time and effort, whereas entity theorists believe their core attributes are relatively stable over time. We hypothesized that, because incremental theorists may feel more control over personal change and future outcomes, they may derive more immediate satisfaction from prioritizing future goals over present ones. In contrast, entity theorists may feel less certain about 'what may be' in the future and are likely to feel more satisfied with life when pursuing more assured present rewards instead of striving for the unknown proceeds of the future. In Study 1, we examined these concepts correlationally. We measured willingness to sacrifice the present for the future, implicit theories and life satisfaction. We found that, as predicted, incremental theorists felt more LS when they endorsed a willingness to sacrifice the present for the future, whereas entity theorists felt more LS when they were less willing to sacrifice present goals for future ones. In Studies 2 and 3 we experimentally manipulated the tension between present and future focus. We asked participants to describe a recent decision where they either chose to pursue a future goal (over a present one) or they chose a present goal (over a future one) and then they indicated their overall satisfaction with life (e.g., Diener et al., 1984). Study 3 used a more controlled set of goals (spending and saving goals) and demonstrates that incremental theorists

were more satisfied when they chose to pursue the future goal over the present one whereas entity theorists showed the reverse pattern; but this effect only occurred among those with lower initial life satisfaction. In Study 4, we directly examined the relationship between implicit theories and feelings of personal control over future goals, a likely process variable. We found a significant relation between implicit theories and feelings of certainty of future goal attainment: incremental theorists were more certain about future goal attainment. Moreover, certainty about future goal attainment mediated the relationship between implicit theories and life satisfaction. In Study 5 we sought to manipulate this process variable (goal certainty) as part of establishing a causal link between feelings of future goal controllability and life satisfaction. We elicited feelings of perceived control (or lack of control) of a future goal outcome and found that participants were generally more satisfied when the future was made to feel controllable than when it was made to feel uncontrollable. Additional exploration of the data suggested that low-LS entity theorists might still have difficulty deriving satisfaction even from controllable future goals. Overall, the findings suggest that implicit theories of change and stability importantly moderate the satisfaction in life that people may feel when deciding whether to live for today or sacrifice immediate gains to pursue their future.

Keywords: implicit theories, life satisfaction, well-being, happiness, time perspective, self-concordance, locus of control

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Overview

In Aesop's tale of moral virtue, *The Ant and the Grasshopper*, the ant worked all day socking away food for the winter whereas the grasshopper sang and danced all day long. When winter came, the ant had food and the grasshopper did not. The moral of the story is that *success* is achieved by planning for the future and should not be spent squandering time in frivolous pursuits, like singing and dancing and having a good time. Although humans are interested in achieving success, they also want to be satisfied with their life. The fable of *The Ant and the Grasshopper* suggests that success is achieved by focusing on the future, however, it does not tell us anything directly about ways to be satisfied with life. Although the story suggests that the grasshopper enjoyed his present-oriented hedonic activities, one cannot overlook the possibility that the ant was just as satisfied by working toward the future. Indeed, two people may differ dramatically in the types of activities that provide the basis for their evaluations of life satisfaction (Schimmack, Diener, & Oishi, 2002). This thesis examines how people's implicit theories about personal change and stability may inform different routes to life satisfaction.

What is Life Satisfaction?

We begin with a definition of life satisfaction (LS) as this construct is referred to in the literature. Diener and colleagues have found that life satisfaction is generally based on a person's global assessment of their own life 'as a whole' where people choose their own criteria of what is important (Diener, Emmons, Larsen & Griffin, 1985). Subjective well-being is a conceptually different construct in that it includes people's overall life satisfaction evaluations plus an affective component (positive emotions, such as joy and happiness, minus negative emotions, such as fear and sadness); (Diener, 1984). Without the affective component, life

satisfaction evaluations are thus referred to as cognitive, judgmental processes (Diener, Oishi, & Lucas, 2003).

Researchers have found that present mood can sometimes affect people's reports of life satisfaction, however these effects are generally small and inconsistent (Eid & Diener, 2004). Overall, reports of life satisfaction can be relatively stable over time because if people rely on important life domains (which are often stable and chronic) when assessing their life satisfaction (Schimmack, Diener, & Oishi, 2002). However, people can also use temporarily accessible information such as a situation that is made salient when people are making their assessment (e.g., when the tragic fate of others is present). Typically, temporarily accessible information is only used when it is relevant to the person. For example, when the benefits of marriage are highlighted, this information may be pertinent to a married person when assessing their life satisfaction, but not to someone who is single (Schimmack et al., 2002).

In the literature on life satisfaction and well-being, there can be a great deal of overlap in the definitions of constructs such as happiness, well-being, and life satisfaction (Myers & Diener, 1995). Additionally, there is cultural and historical variation on how these constructs have been and are thought about by lay people (Oishi, Graham, Kesebir, & Galinha, 2013). In the present research, we are primarily interested in capturing people's global assessment of their life satisfaction, rather than changes in positive or negative affect. Thus, in the present thesis, we focus only on people's evaluations of their overall satisfaction with life.

Temporal Focus – Living in the Moment vs. Planning for the Future

Advice about whether to live one's life with a present or future focus did not end with the story of *The Ant and the Grasshopper*. There are a number of popular, but contrasting adages in modern culture about the best way to achieve life satisfaction. For example, some might say that

the best way to achieve a satisfied life is to live in the moment and seize every day. For example, Bill Watterson, the witty cartoonist of the Calvin and Hobbes series, stated “We’re so busy watching out for what’s just ahead of us that we don’t take time to enjoy where we are.” Albert Einstein’s quote “Past is dead; Future is uncertain; Present is all you have, so eat, drink and live merry,” is highly circulated on the internet as is a quote by the great American poet Walt Whitman, who said “Happiness is, not in another place but this place...not for another hour, but this hour.”

On the other hand, there is camp suggesting the complete opposite: that the best way to achieve a satisfied life is to work for a better future and to never stop believing in your dreams. For example, Stephen Covey, acclaimed author and leadership trainer stated in his book, *The 7 Habits of Highly Effective People*, “Happiness (is) - in part at least - the fruit of the desire and ability to sacrifice what we want now for what we want eventually.” Ezra Taft Benson, religious leader and political figure during the 20th century has popularized the quote “Years of happiness can be lost in the foolish gratification of a momentary desire for pleasure.” And popular sportscaster, Erin Andrews, is known for her inspirational quotes including “Success doesn’t happen overnight. Keep your eye on the prize and don’t look back.”

Because it is often hard to satisfy both present and future goals at the same time, there can be a struggle in determining which prescription to follow. Two people can differ in the types of activities that provide the basis for their evaluations of life satisfaction (Schimmack et al., 2002). First, we examine each of these prescriptions individually, and then consider the kind of person who might thrive in each context.

Live in the moment. One person may value and find pleasure in everyday activities such as savoring good meals, spending time with loved ones, or working on a creative endeavor (e.g.,

painting and sculpture). These examples suggest a type of “living in the moment.” Research has found that living in the moment is an orientation toward present pleasure (Sobol-Kwapinska, 2013) which is sometimes referred to as hedonism (Zimbardo & Boyd, 1999). Although some cultural representations of hedonism depict people engaging in activities such as sex, drugs and rock-and-roll, present-oriented activities need not be so lavish - or risky. Indeed, general present-oriented activities, such as stopping to smell the roses, often result in positive emotions (Brown & Ryan, 2003; Sobol-Kwapinska, 2013) which can often lead to feelings of higher life satisfaction in general (Lyubomirsky & Layous, 2013). Additionally, research has found that people enjoy themselves more when they are absorbed in mindful challenge (e.g., immersed in a project), or engaged in meaningful work (Csikszentmihalyi, 1990). Thus it seems as if a present-focus can be very fulfilling and that some people might feel great life satisfaction with this temporal focus. The downside to present orientation is that with less regard for the future, people may have less defined future goals and may not plan appropriately for important future situations such as academic testing and career goals (Zimbardo & Boyd, 1999). Overall though, present orientation can have many positive benefits (Brown & Ryan, 2003; Sobol-Kwapinska, 2013). Zimbardo & Boyd (1999) found that present-oriented participants were highly energetic and savored personal relationships.

Plan for the future. Another person may find little satisfaction in moment to moment situations, but rather instead, find pleasure and deep satisfaction in working toward some future goal; like planning a vacation or working toward a job promotion. These examples suggest a type of “future orientation.” Thinking about ‘what may be’ in the future can be very fulfilling because people tend to focus on only the positive aspects of the future and overlook any potential negative aspects (Gilbert & Wilson, 2007; Newby-Clark & Ross, 2003). This type of positivity

bias towards the future has been shown to increase people's perceptions of their overall life satisfaction, particularly when they are engaged in striving toward a future goal (Diener, 1984; Schmuck & Sheldon, 2001). The downside to future-orientation is that working toward future goals often means forgoing pleasure in the moment. For example, future-oriented students indicated that having high ambitions for their careers meant that they had no time to "waste" hanging out with friends; they were quite happily willing to sacrifice present enjoyment to achieve their career objectives (Zimbardo & Boyd, 1999). Overall, though, future orientation has been found to be related to many positive consequences for individuals in Western society such as higher socioeconomic status and superior academic achievement (Teahan, 1958; Zimbardo & Boyd, 1999). Thus it seems as if a future orientation can also be very fulfilling and that some people might feel great life satisfaction with this temporal focus.

You can't have your cake and eat it too – the tension between present and future goals. It can be very difficult to satisfy both a future goal and a present goal at the same time. Thus, there is often a natural tension between the two choices where one type of goal may need to be sacrificed over the other (Emmons, 1986). As noted above, students with high career ambitions may end up sacrificing social friendships in the present in order to devote the time it takes to achieve the successful outcomes they desire in the future. In contrast, people who prefer to relish the time they spend with friends may end up sacrificing work projects and other career-focused goals.

Where a balanced time perspective is most likely the best strategy for psychological well-being (Zimbardo & Boyd, 1999), chronic time perspectives don't preclude the fact that everyone encounters situations where they are faced with making a choice between a present desire and a future desire (Emmons, 1986). Although virtually everyone pursues both goal types at one time

or another (Harber, Zimbardo, & Boyd, 2003), we thought that some people might derive more pleasure from one type of goal pursuit over the other.

Temporal Focus and Life Satisfaction: Implicit theories of Change and Stability may Moderate the Relationship.

People generally have both present goals and future goals (Harber et al., 2003). However, this does not mean that everyone derives similar satisfaction from pursuing these goals. Let us imagine, for example, a person working toward an ultimate future goal of owning a successful business. In the service of this future goal, she must sacrifice many current pleasures. One might wonder if such a state of affairs is satisfying or joyless to the pursuer. It may have to do with her belief in her ability to achieve the future goal. If this business-owner is confident that the business will succeed, then it may be possible that sacrificing present rewards may not seem very challenging given the future success that she anticipates. However, if the future success of her businesses does not seem likely or guaranteed, then every present reward that she sacrifices might feel like a possible wasted pleasure in the service of something that might not even come to pass.

So, who might derive pleasure from sacrificing the present for the future? We suspect that incremental theorists, who tend to feel more control over future outcomes (Dweck, Chiu, & Hong, 1995a), may feel more satisfied with life when they put their eggs into their future basket, particularly if they feel like success is likely. A future focus is culturally valued (Spears, Lin, & Mowen, 2001), and, when a person feels optimistic that such a future may actually come to pass, they may feel greater life satisfaction in the present in anticipation of these future rewards (Carver, Lawrence, & Scheier, 1996). In contrast, we suspect that entity theorists, who may feel less control over future outcomes (Dweck et al., 1995a) may prefer to concentrate on present

(more certain) outcomes rather than future outcomes that may never come to fruition. We elaborate on this further below.

Implicit Theories of Personal Malleability

Implicit theories constitute influential top-down belief systems that are often found to be stable individual differences among people and strong predictors of behavior (Dweck et al., 1995a). Individual differences in perspective play a pivotal role in how people approach and interpret the world (Hong, Chiu, Dweck, Lin, & Wan, 1999; Plaks, Levy, & Dweck, 2009), and accordingly, may have major implications for life satisfaction.

Research on implicit theories of stability and change suggests that people differ in their assumptions about the nature and malleability of human qualities and that these theories function like knowledge structures (Chiu, Hong, & Dweck, 1997; Dweck, Chiu, & Hong, 1995b; Plaks et al., 2009) such that people regularly lean toward using one theory over the other as a lens through which they interpret themselves and the world around them. Entity theorists believe that personality characteristics are fixed and stable (e.g., a leopard never changes its spots), whereas incremental theorists believe that personality characteristics are malleable and can be developed with time and effort (e.g., turn over a new leaf). Implicit theories have been extensively studied as a cognitive construct for their effects on motivation (Dweck, 1999), learning (Dweck & Leggett, 1988), and person perception (Plaks et al., 2009), but relatively little is known about their contribution to well-being and life satisfaction.

Intelligence Domain. The first work in implicit theories research began in the intelligence domain with a substantial focus on school aged children. Dweck and colleagues found consistent evidence that when children believed their traits were fixed and stable they responded with helpless reactions to achievement setbacks, blaming internal stable dispositions

for failure. In contrast, children who believed their traits were malleable responded to difficulties and setbacks with learning goals and mastery oriented behavior citing reasons for failure as a lack of effort (Dweck, 1999). Thus, implicit theories are argued to be a basis for the attributions people make (Dweck et al., 1995a, Hong, Chiu, Dweck, Lin, & Wan, 1999).

Considerable evidence has been found that incremental theorists pursue learning goals (Burnette, O'Boyle, VanEpps, Pollack & Finkel, 2013; Dweck & Leggett, 1988); they feel intelligent when they can master difficult problems, and believe that most of what contributes to intelligence is effort (rather than sheer ability). In earlier work, Dweck et al, (1995a) found a modest, but significant association between internal locus of control (Levenson, 1974) and implicit theories of intelligence ($\beta = .15$) suggesting that incremental theorists feel more confident than entity theorists in making their plans work and actively determining what will happen in their life. After failure, incremental theorists tend to focus on increased effort and remedial strategies to increase their chances of success (Dweck, 1999). Corroborating these earlier findings, recent work in the self-regulation literature has found that in the domain of dieting and weight management, incremental theorists felt less doubt and more confidence about attaining their dieting goals which then led them to exert more effortful regulation in pursuit of the goal (Burnette, 2010). Furthermore, a meta-analysis covering an age range from age 5 – 42, primarily focused on the learning, performance and achievement domains, found that incremental theorists have higher expectations of goal success than entity theorists and tend to develop more self-control because they engage in learning opportunities (even though these opportunities require extra effort) which in turn strengthens self-regulation abilities (Burnette et al., 2013). Although less is known about these relationships outside of the academic, learning

and achievement domains, it is possible that incremental theorists may feel a stronger sense of personal control over future outcomes more generally – more so than entity theorists.

Because entity theorists tend to think in terms of dispositional traits and ‘how much’ of a trait they or someone might possess (Chiu, Hong, & Dweck, 1997) they tend to seek out performance goals – situations where they can show off their traits and validate themselves (Dweck, 1999; Dweck & Leggett, 1988). Entity theorists feel intelligent when the work seems easy, and believe that most of what contributes to intelligence is an innate ability that one is born with (Dweck, 1999). In the intelligence domain, entity theorists tend to believe that if they have to work hard at something it is evidence that they don’t have a high ability (Dweck & Leggett, 1988). Additionally, when faced with failures, entity theorists have been shown to give up and not seek remedial action – a helpless response (Burnette et al., 2013; Hong et al., 1999). Furthermore, because an ability such as intelligence is a vague construct it is hard to know for certain if one ever has enough of it; entity theorists tend to constantly seek reflections of their abilities in their performance (to reassure themselves they have a sufficient amount). In general, entity theorists tend to experience more negative emotions (than incremental theorists) during goal pursuit and have less optimistic expectations about their ability to achieve their goals. Results from a meta-analysis conducted by Burnette et al. (2013) found significant correlations between implicit theories and negative emotions ($r = -.32$) and implicit theories and optimistic expectations of success ($r = .41$) during goal monitoring.

Because entity theorists tend to feel less internal control over future outcomes (Dweck, 1995a), experience negative emotions during goal pursuit and are less optimistic about goal outcomes, the entity theory system tends to breed uncertainty (Dweck et al., 1995b) and leads to fewer and less successful self-regulation strategies (Burnette et al., 2013).

General Person Domain. Additional research has shown that implicit theories affect people's social information processing; entity theorists tend to make dispositional attributions about others' behavior whereas incremental theorists tend to consider more dynamic elements of the person within situation (Dweck et al., 1995a; McConnell, 2001; Molden, Plaks, & Dweck, 2006). Furthermore, implicit theories have also been found to have powerful effects on motivation and self-regulation strategies (Ommundsen, 2003; Dweck, 1999; Burnette et al., 2013), relationship communication strategies (Kammrath & Dweck, 2006), and other outcomes such as stereotype formation (Levy, Stroessner, & Dweck, 1998) and punitive judgments of criminal offenders (Tam, Shu, Ng, & Tong, 2013).

Who is more satisfied with their life?

Despite the large literature on the effects of implicit theories of change and stability on social cognition, surprisingly little research has been done in the domain of implicit theories and the "self-concept" beyond the domain of intelligence. For instance, not much is known about the relationship between implicit theories and life satisfaction. For example, are there any differences in life satisfaction between incremental and entity theorists? Is one group happier than the other?

A substantial amount of research has consistently found a strong link between self-esteem and life satisfaction (Myers & Diener, 1995). As Myers and Diener (1995) say, "Happy people like themselves." Research to date, however, has not found a relationship between implicit theories and self-esteem (Dweck et al., 1995a; Hong et al., 1999), or perhaps a weak relationship with incremental theory (Diseth, Meland, & Breidablik, 2014). In their seminal paper, Dweck and Leggett (1988) suggested that entity and incremental theorists differ in the processes by which they maintain self-esteem, where entity theorists feed off of performance outcomes and

incremental theorists relish learning and mastery – both of which can lead to high self-esteem. Thus, based on the literature to date, there is no clear reason to believe that entity theorists would differ from incremental theorists, on average, on their life satisfaction.

Although we do not have any theoretical reasons to believe that incremental theorists are more satisfied with their lives than entity theorists or vice versa, people with these theories approach the world differently and possibly use differing strategies to achieve similar ends (e.g., self-esteem, positive self-regard). For example, differences can be seen in the self-enhancement strategies that are used. Whereas incremental theorists tend to downplay past selves as a means for seeing improvement in the present (e.g., “that was the old me, whereas the new me has improved”), entity theorists tend to enhance past selves for the same purpose (i.e., as a means for creating positive regard in the present) (Ward & Wilson, 2015). Thus, we speculate that because of these differences in perspective, incremental and entity theorists might derive life satisfaction from different contexts. For the purposes of the present research, we were interested in how entity and incremental theorists might respond to alternative goal pursuit strategies: specifically, focusing on the future (while sacrificing the present) versus focusing on the present (while sacrificing the future).

Overview of the Present Studies

The goal of the present research is to examine whether the relation between temporal focus (focusing on a present versus future goal) and life satisfaction (LS) might be moderated by participants’ implicit theories of change and stability (Dweck, 1999). Incremental theorists believe that they can change with time and effort, whereas entity theorists believe their core attributes are relatively stable over time. We hypothesize that, because incremental theorists may feel more control over personal change and future outcomes, they may derive more immediate

satisfaction from prioritizing future goals over present ones. In contrast, entity theorists may feel less certain about ‘what may be’ in the future and are likely to feel more satisfied with life when pursuing more assured present rewards instead of striving for the proceeds of an unknown future. In Study 1, we examine these concepts correlationally. In Studies 2 and 3 we experimentally manipulate the tension between present and future focus. We ask participants to describe a recent decision where they either chose to pursue a future goal (over a present one) or they chose a present goal (over a future one) and then indicate their overall satisfaction with life (e.g., Diener, 1984). We hypothesize that incremental theorists will be more satisfied when they choose to pursue a future goal over a present one whereas entity theorists are likely to be more satisfied when they pursue a present goal over a future one. In Study 4, we examine a likely process variable: feelings of personal control over the future. We test the hypothesis that incremental theorists might feel more control/certainty over their future outcomes than entity theorists. Finally, in Study 5, we explicitly manipulate felt controllability with respect to future goals as part of establishing a link between implicit theories, feelings of future goal certainty and life satisfaction as suggested by Spencer, Zanna, and Fong (2005). We hypothesize that when controllability of future outcomes is emphasized, participants will indicate higher satisfaction with life than when uncontrollability of future outcomes is emphasized.

Study 1

The goal of Study 1 was to examine if the relationship between one’s willingness to sacrifice the present for the future and life satisfaction might be moderated by participants’ implicit theories of personality.

Evidence suggests that incremental theorists are optimistic about changing in desired ways (Dweck & Leggett, 1988) and feel a locus of control over personal outcomes (Dweck et al.,

1995a). Thus, we expected that incremental theorists might be most satisfied with life when focused on, or generally oriented toward, future-planning. In contrast, entity theorists tend to endorse a stable conception of ability and are not particularly optimistic about improving their ability and skill level even if they try harder (Dweck & Leggett, 1988). Thus, it was expected that entity theorists might be most satisfied with life when they place importance on (more certain) present enjoyment over future goals that they may be less confident they can attain.

The first study explores these questions correlationally. We hypothesized that incremental theorists would not differ substantially from entity theorists on overall life satisfaction. However, we suspected that incremental theorists would report the greatest amount of life satisfaction when they endorsed a future-focus (i.e., sacrificing present rewards for future goals) and that entity theorists would report the greatest amount of life satisfaction when they endorsed a present-focus (i.e., focused on enjoying life in the present rather than planning for the future). Finally, we measured additional variables for analysis to ensure that the effects we find are not explained by other plausible constructs (e.g., regulatory focus, Higgins, 1997; time perspective, Zimbardo & Boyd, 1999).

Method

Participants

Two hundred and twelve participants were recruited through Amazon's Mechanical Turk. Nine participants failed one or both attention checks and were eliminated from all analyses leaving 203 participants ($M_{\text{age}} = 35.74$, $SD = 12.68$; 111 female, 89 male, 3 undisclosed). Because no gender effects were found in any study, gender is not included in the analyses reported.

Measures

Life Satisfaction. Participants rated their overall satisfaction with life using a standardized one-item measure commonly used in national polls throughout OECD nations (i.e., member nations of the Organization for Economic Co-operation and Development) (Helliwell, Layard, & Sachs, 2012). On a scale ranging from 0(*extremely dissatisfied*) to 10(*extremely satisfied*) participants rated their level of agreement with the following statement: “All things considered, how satisfied are you with your life as a whole nowadays?” Higher numbers indicate more favourable evaluations. The means and standard deviations of all measures are reported in Table 1.

Implicit theories. Implicit theories are described as the naive personal beliefs people hold about the nature and malleability of human attributes (Dweck & Leggett, 1988; Dweck et al., 1995a). Researchers typically use the terms *incremental theorists* and *entity theorists* to refer to groups of people with different dominant lay theories. Incremental theorists endorse beliefs about personal change (i.e., believe people can change their basic attributes and personalities), whereas entity theorists typically endorse personal stability (i.e., believe that people’s attributes and personalities are fixed and stable). We adapted the general measure of implicit theories Dweck (1999) to measure participants’ implicit theory of personality (see Appendix A). On a Likert scale with end-points anchored at 1(*strongly disagree*) and 7(*strongly agree*), participants indicated their agreement with two statements: “People can’t change the kind of person they are; no matter what they do, their fundamental attributes stay the same,” and “A person’s basic characteristics and traits can’t be changed very much, no matter how hard they try.” Higher numbers indicate a general endorsement of the entity theory of personality (i.e., the belief that characteristics and personality traits are fixed and not likely to change). Both items are then

reverse scored which provides an overall score where high numbers indicate the incremental theory perspective and low numbers indicate the entity theory perspective. A composite score was then calculated for participants' implicit theory of personality (Cronbach's $\alpha = .83$). It is worth mentioning that although the items did not offer participants the opportunity to endorse the incremental theory directly Dweck and colleagues have substantial evidence indicating that those who disagree with the entity theory also directly endorse the incremental theory (Dweck et al., 1995a; Dweck, et al., 1995b).

Willingness to sacrifice the present for the future. We used a 4-item measure developed by Hayes, Ward, and McGregor (2015) designed to capture the degree to which participants are willing to sacrifice pleasure in the present in order to reap future rewards ($\alpha = .79$). On a Likert scale ranging from 1(*strongly disagree*) to 7(*strongly agree*), participants rated the extent to which they agreed with four statements: “It is more important for me to enjoy life now than plan for the future;” [reverse scored], “I am willing to sacrifice pleasure in the present because I know that it will bring me more rewards in the future,” “I am afraid that if I sacrifice pleasure now, I will never experience many of the great things that life has to offer;” [R], and “I want to have a good time now, even if my future might suffer as a result;” [R]. Higher composite scores on this scale indicate a greater importance placed on reaping future goals over attaining present rewards. Lower composite scores represent the reverse: A greater importance placed on attaining present rewards over reaping future benefits.

Regulatory focus. Regulatory focus theory (Higgins, 1997) describes two distinct types of achievement motivation toward a desired outcome. Promotion focus describes a motivational style focused on hopes and accomplishments resulting in *eager* approach motivation. In contrast, prevention focus describes a motivational style focused on safety and responsibilities resulting in

vigilant approach motivation. Regulatory focus is not part of our a priori hypothesis however, it seemed prudent to examine it in relation to the variables of interest for the following reasons. First, promotion orientation is often found to be positively correlated with subjective well-being, particularly in Western nations (Fulmer et al., 2010). Additionally, regulatory focus (promotion orientation) is linked to a general openness to change as part of an advancement and growth process (Liberman, Idson, Camacho, & Higgins, 1999). Finally, the concept of promotion focus - orienting toward future goals - may also be deemed as conceptually similar to sacrificing present rewards for the future. Thus, we measured regulatory focus to allow us to examine whether prevention and promotion orientations were alternate explanations for the effects of our hypothesized variables. Regulatory focus was measured using the 11-item regulatory focus questionnaire (RFQ; Higgins et al., 2001). On a Likert scale ranging from 1(*never or seldom*) to 5(*very often*), the questions ask how frequently certain events have occurred in a person's life. Six items capture promotion focus (e.g., Do you often do well at different things that you try? Cronbach's $\alpha = .64$), and five items capture prevention focus (e.g., How often did you obey rules and regulations that were established by your parents? Cronbach's $\alpha = .87$).

Time Perspective. The Zimbardo time perspective inventory (ZTPI; Zimbardo & Boyd, 1999) was used to assess individual differences in temporal orientation. This orientation (or bias) is also described as a learned and habitual pattern of using temporal categories or time frames to process personal and social experiences. While some people might have a balanced or flexible time orientation with the ability to switch temporal frames among the past, present, and future, Zimbardo and Boyd (1999) suggest that time perspectives are typically stable individual differences: Some people are chronically more future-oriented, others more present or past oriented, etc. Because one's willingness to sacrifice the present for the future naturally involves

the tension between two temporal perspectives (present and future), Zimbardo and Boyd's time perspective scale was used in the present study to help us to further assess and explain the predicted effects related to willingness to sacrifice. The 56 item ZTPI comprise five subscales¹ (as ranged from .77 to .87). Items (e.g., "I've made mistakes in the past that I wish I could undo;" [past negative], "I get nostalgic about my childhood;" [past positive], "I complete projects on time by making steady progress;" [future], "Since whatever will be will be, it doesn't really matter what I do;" [present-fatalistic], and, "I take risks to put excitement in my life;" [present hedonistic], were rated on a Likert scale from 1(*very uncharacteristic of me*) to 5(*very characteristic of me*). Of primary interest are future orientation and present hedonistic orientation, as these orientations each represent one component of willingness to sacrifice (a future orientation, *at the expense of* present hedonism and vice versa). In addition, a present fatalistic orientation might zero in on some of the hypothesized differences in how entity and incremental theorists think about their ability to control and influence the future.

Procedure

Participants completed the questionnaire package online in one 30 minute session. After the demographics section, participants were first asked to indicate their level of life satisfaction. Then participants completed the adapted measure of personality implicit theories (Dweck, 1999). Next, participants completed a number of tasks unrelated to the present study: the degree to which participants' needs are met (e.g., Maslow's hierarchy of needs, 1943) and the degree to which participants obtain information about happiness from a variety of sources (e.g., friends, social media, television, and the internet). Finally, participants completed the dependent

¹ A principal components varimax rotation factor analysis was conducted on the ZTIP. The fixed five-factor solution that was extracted replicated Zimbardo and Boyd's (1999) findings.

measures. Means and standard deviations of all of the variables in the study are presented in Table 1; Intercorrelations are presented in Table 2.

Results and Discussion

According to our hypothesis, the question of interest was whether the relationship between one's willingness to sacrifice the present for the future and life satisfaction might be moderated by participants' implicit theories of personality.

Central Analyses

Do Implicit Theories Moderate the Relationship between Willingness to Sacrifice the Present for the Future and Life Satisfaction?

Because our research design included two continuous variables (implicit theories and willingness to sacrifice), we conducted multiple regression analyses allowing us to assess the implicit theory x willingness to sacrifice interaction term as a predictor of life satisfaction. We entered life satisfaction as the criterion variable. Then, we centered both continuous independent variables (IVs), whereby the mean is subtracted from each score to yield a mean score of zero, as recommended by Aiken and West (1991); and entered both IVs in Step 2. In Step 3, we entered the interaction term: Implicit theory x willingness to sacrifice.

As predicted, we found a significant interaction (see Figure 1); $b = .211$, $\beta = .201$, $p = .004$, 95% CI = [.07, .36] that suggests that implicit theories of personality moderates the relationship between willingness to sacrifice the present for the future and life satisfaction (see Table 3 for β and t values for all predictor variables). No main effects for either willingness to sacrifice ($\beta = -.01$, $p = .87$) or implicit theories ($\beta = -.02$, $p = .74$) emerged.

Next, we examined the interaction pattern in regression analysis by examining the simple slopes at one standard deviation (SD) above and below the mean for the implicit theories

variable. We expected that incremental theorists might report higher life satisfaction when they also prioritize future over present goals (i.e., as reflected in a high willingness to sacrifice present rewards in pursuit of future goals), whereas entity theorists might report higher life satisfaction when they are less willing to sacrifice present rewards (i.e., focused on enjoying life in the present rather than sacrificing now for the future). As expected, incremental theorists, defined at 1 SD above the mean, were marginally more satisfied with life when they were more willing (vs. less willing) to sacrifice the present for the future; $b = .28$, $\beta = .16$, $p = .088$, 95% CI = [-0.04, .61]. In contrast, entity theorists, defined at one SD below the mean, were significantly more satisfied with life when they were less willing (vs. more willing) to sacrifice the present for the future; $b = -.37$, $\beta = -.20$, $p = .04$, 95% CI = [-0.72, -.02]. Additionally, examination of the simple slopes at one standard deviation (SD) above and below the mean for the willingness to sacrifice variable revealed that incremental theorists are marginally more satisfied with their life than entity theorists when high on willingness to sacrifice for the future; $b = .25$, $\beta = .17$, $p = .09$, 95% CI = [-0.04, .54], whereas entity theorists are significantly more satisfied with their life than their incremental counterparts when they are low on willingness to sacrifice for the future; $b = -.29$, $\beta = -.19$, $p = .036$, 95% CI = [-0.55, -.02].

Supplemental Analyses

Is Regulatory Focus an Alternative Explanation for the Effects on Life Satisfaction?

To rule out the possibility that regulatory focus may be the true construct of interest in these interactions, two analysis strategies were employed. Using the same regression analysis approach as above, we first examined regulatory focus as a potential proxy for implicit theories (that is, we replaced implicit theories with promotion focus in the model), and then we examined regulatory focus as a potential proxy for willingness to sacrifice the present for the future.

Promotion focus, an eager approach style, and prevention focus, a vigilant approach style, were both tested. For the first two steps we ran four regressions allowing us to test the interaction terms as predictors of subjective life satisfaction: promotion x willingness to sacrifice, prevention x willingness to sacrifice, promotion x implicit theories, and, prevention x implicit theories.

Regulatory focus as a potential proxy for implicit theories. When the two sub-scales of regulatory focus were substituted for implicit theories of personality in the main regression analysis, neither the interaction of willingness to sacrifice with promotion nor the interaction of willingness to sacrifice with prevention emerged significant (t 's < 1.16, p 's > .25). β and t values for all predictor variables across each of the four analyses can be found in Tables 4 through 7. Consistent with past research, promotion orientation was significantly correlated with life satisfaction; $r(203) = .54, p < .001$, and thus emerged as a significant main effect throughout the regression analyses in Study 1. Prevention orientation was not correlated with life satisfaction; $r(203) = .07, p = .32$.

Regulatory focus as a potential proxy for willingness to sacrifice the present for the future. When the two sub-scales of regulatory focus were substituted for the willingness to sacrifice variable in the main regression analysis, the interaction with prevention orientation was non-significant; $b = .074, \beta = .05, p = .45, 95\% \text{ CI} = [-.12, .27]$. Upon examination of the implicit theories x promotion orientation analysis, both a main effect of promotion and a main effect of implicit theories were significant. However, these main effects were qualified by a marginal interaction; $b = .22, \beta = .11, p = .067, 95\% \text{ CI} = [-.02, .46]$ (see Figure 2). In line with our exploratory approach to conceptually related constructs, we took a closer look at this interaction pattern and examined simple effects at -1SD and +1SD for both of these continuous variables. Both incremental and entity theorists were more satisfied with life when high (versus

low) in promotion orientation; β 's $> .47$, p 's $< .001$. Of particular note, entity theorists were just as satisfied with life as incremental theorists when high in promotion orientation (1 SD above the mean); $p = .61$, whereas, low promotion orientation (1 SD below the mean) seemed to be linked to lower satisfaction for incremental theorists. Incremental theorists were significantly less satisfied with life than entity theorists when low in promotion orientation; $b = -.35$, $\beta = -.24$, $p = .004$, 95% CI = $[-.59, -.11]$. Overall, it appears as if entity theorists are just as satisfied with life as incremental theorists when they are high in eager approach motivation (i.e., promotion). In contrast, low promotion orientation (i.e., low in eager approach motivation) was generally associated with lower life satisfaction, but in particular, incremental theorists were significantly less satisfied in this state.

Lastly, in order to rule out regulatory focus accounting for our predicted interaction between implicit theories and willingness to sacrifice the present for the future, we re-ran our initial regression analysis with implicit theories and willingness to sacrifice the present for the future as well as prevention, promotion and all higher order interaction terms. As expected, the predicted interaction between implicit theories and willingness to sacrifice remained significant; $b = .25$, $\beta = .24$, $p < .001$, 95% CI = $[.13, .37]$; (see Table 8 for β and t values for all predictor variables).

Do Implicit Theories Moderate the Relationship between Time Perspective and Life Satisfaction?

Zimbardo and Boyd's (1999) time perspective scale was used in the present study to provide additional explanatory power for disentangling the dual temporal nature of sacrificing the present for the future for entity and incremental theorists. For example, we found that incremental theorists are most satisfied with life when they sacrifice the present for potential

future rewards and that entity theorists are most satisfied with life when they do not. So, does this mean that incremental theorists do not enjoy the present, or that entity theorists take no pleasure in planning for the future? We speculate that it is the tension between having to prioritize a future goal by sacrificing present enjoyment that truly captures the psychological struggle experienced by incremental and entity theorists. However, by examining the present hedonic and future time perspective subscales we are able to tease apart the built-in tension between present and future in the willingness to sacrifice variable and answer some of these important questions.

Because the willingness to sacrifice has both a present and future component, we looked at these two components separately by examining the two most closely corresponding temporal orientations – present hedonism and future orientation. We suspect that the effect of willingness to sacrifice has to do with the tension between a present and future goal – but it *could* be that all of the action really centers around people's responses to a present focus, or to a future focus. Perhaps incremental theorists are unhappy about present hedonism, for instance, or perhaps entity theorists dislike a future focus state. Examining these separate scales allows us to disentangle these two possibilities and compare findings to those for willingness to sacrifice, which (unlike either time orientation) directly pits present goals against future goals.

In addition, present fatalism could be of some relevance to examine because it is tied to our theorized explanation. Specifically, we expect that entity theorists might feel less control over future outcomes, hence having a higher fatalistic perspective (what will be, will be). However we also thought it plausible that entity theorists would not find present fatalism to be unpleasant, whereas incremental theorists might find it more dissatisfying to have that viewpoint.

Present hedonic time perspective. Present hedonism is moderately correlated with life satisfaction; $r(203) = .21, p = .002$. It is possible that implicit theories might moderate this relationship. To test this, we conducted multiple regression analyses allowing us to assess the implicit theory x present hedonic interaction term as a predictor of life satisfaction. Again, we entered life satisfaction as the criterion variable and entered both centered IVs in Step 2. In Step 3, we entered the interaction term: Implicit theory x present hedonism. In Step 1, we controlled for the other four time perspectives: past positive, past negative, present fatalistic, and present hedonic as all five time perspectives are intercorrelated (see Table 2).

We found a significant interaction (see Figure 3); $b = -.24, \beta = -.12, p = .028, 95\% \text{ CI} = [-.46, -.03]$ that suggests that implicit theories moderates the relationship between present hedonism and life satisfaction (see Table 9 for β and t values for all predictor variables). Next, we examined the interaction pattern in regression analysis by examining the simple effects at -1SD and +1SD for both the implicit theories variable and the present hedonism variable. Life Satisfaction did not differ between incremental and entity when low in present hedonism; $p = .92$. Although incremental theorists were less satisfied with life than entity theorists when highly hedonistic; $b = -.36, \beta = -.24, p = .002, 95\% \text{ CI} = [-.28, -.13]$, both entity theorists ($b = 1.39, \beta = .43, p < .001, 95\% \text{ CI} = [.88, 1.91]$) and incremental theorists ($b = .65, \beta = .20, p = .016, 95\% \text{ CI} = [.12, 1.17]$) were significantly more satisfied when high in present hedonism than when low in present hedonism. Thus, it seems as if both entity theorists and incremental theorists may benefit from a present hedonic temporal perspective; and entity theorists to a somewhat greater degree.

Future time perspective. Future orientation is moderately correlated with life satisfaction; $r(203) = .22, p = .001$. It is possible that implicit theories might moderate this relationship. To test this, we conducted the same multiple regression analyses as above,

controlling for the other four time perspectives, to investigate implicit theories x future orientation. The interaction did not emerge as significant; $b = .12$, $\beta = .05$, $p = .36$ (see Figure 4 and Table 10 for β and t values for all predictor variables). However, given that we are interested in exploring future orientation as a variable that may provide explanatory information for entity and incremental theorists, we went ahead and broke down the interaction by examining the simple effects at one standard deviation (SD) above and below the mean for both the implicit theories variable and future orientation variable. As anticipated, both entity ($b = .63$, $\beta = .17$, $p = .05$, 95% CI = [.00, 1.26]) and incremental theorists ($b = .99$, $\beta = .27$, $p = .001$, 95% CI = [.41, 1.58]) were more satisfied with life when they were higher (versus lower) in future orientation. It is possible that incremental theorists may be more satisfied (than entity theorists) when high in future orientation, however, results find that, in fact, both theory groups were equally as satisfied with life when they had a high future focus; $b = -.12$, $\beta = -.08$, $p = .31$, 95% CI = [-.35, .11].

Present fatalistic time perspective. Present fatalism, a tendency to believe the future is pre-destined, was negatively correlated with both life satisfaction; $r(203) = -.19$, $p = .008$, and, as we anticipated, with implicit theories; $r(203) = -.32$, $p < .001$; indicating that entity theorists are more present fatalistic. In other words, it seems as if entity theorists are more likely to believe that there is not much that can be done about the future – e.g., “que sera sera.” We examined present fatalism as an exploratory variable with no specific hypotheses a priori.

We conducted the same multiple regression analyses as above, controlling for the other four time perspectives, to investigate implicit theories x present fatalism on life satisfaction as the dependent variable. We found a significant interaction (see Figure 5); $b = -.36$, $\beta = -.18$, $p = .002$, 95% CI = [-.59, -.14] suggesting that implicit theories moderates the relationship between present fatalism and life satisfaction (see Table 11 for β and t values for all predictor variables).

Next, we examined the interaction pattern in regression analysis by examining the simple effects at one standard deviation (SD) above and below the mean for both the implicit theories variable and present fatalism. While life satisfaction was similarly high for both entity and incremental theorists when present fatalism was low; $b = .07$, $\beta = .05$, $p = .54$, 95% CI = [-.16, .31], incremental theorists were significantly less satisfied than entity theorists when high in present fatalism; $b = -.43$, $\beta = -.29$, $p < .001$, 95% CI = [-1.51, -.36]. Entity theorists did not seem to be bothered by high fatalism and did not differ in life satisfaction between high and low present fatalism; $b = .18$, $\beta = .05$, $p = .53$, 95% CI = [-.38, .73]. In contrast, incremental theorists were significantly less satisfied with life when they were high (versus low) in present fatalism; $b = -.94$, $\beta = -.28$, $p = .002$, 95% CI = [-1.51, -.36].

Discussion

As expected, we found that incremental theorists are most satisfied with life when they sacrifice present benefits in order to work toward future goals whereas entity theorists are most satisfied when they are not willing to sacrifice present rewards in order to achieve future goals. The willingness to sacrifice measure captures a particular tension between temporal goals – the psychological state in which one temporal goal is achieved at the cost of the other. We speculate that it is this tension that causes incremental and entity theorists to react differently. However, because the willingness to sacrifice has both a present and future component, it could be that most of the “action” is driven by one temporal component or the other. We looked at these two components separately by examining the two most closely corresponding temporal orientations – present hedonism and future orientation. It was possible that entity theorists find no satisfaction when striving toward future goals and that incremental theorists find no satisfaction with present-oriented pursuits. However, analyses indicate that this was not the case. The evidence from

Study 1 finds that both entity and incremental theorists report higher life satisfaction with a high (vs. low) future oriented perspective and high (vs. low) promotion orientation. Additionally, both types of theorists report higher life satisfaction when they are high in present hedonism as opposed to low in present hedonism (though entity theorists are more satisfied than incremental theorists in this state). Thus, the story seems to best captured when the present is pitted against the future; when natural tensions from choosing one over the other surface.

We hypothesized at the onset of the present study that incremental theorists might be more satisfied with life when they are future focused whereas entity theorists might be more satisfied with life when they focus on present enjoyment over future goals. Results of the present study support this view, but in particular when temporal goals are at odds with one another. Because everybody has both present goals and future goals and sometimes must choose one goal over another, it emerged that this element of “sacrificing” present goals for future goals (and vice versa) appeared to show the predicted effect more clearly than either temporal focus alone. We found that incremental theorists are most satisfied with life when they sacrifice present benefits in order to work toward future goals whereas entity theorists are more satisfied when they are not willing to sacrifice present rewards in order to achieve future goals.

Study 2

As Study 1 was correlational where causation cannot be inferred, the goal of Study 2 was to examine the causal role of temporal focus (i.e., sacrificing one temporal goal for another) on life satisfaction and the moderating role of implicit theories. Thus, in Study 2 we hoped to conceptually replicate the findings of Study 1 using an experimental design whereby we manipulated the tension between present and future focus highlighting one temporal priority in contrast to the other. Similar to Study 1, we predicted that entity theorists would report the

highest life satisfaction when the tension between present and future favoured the present. In contrast, we expected that incremental theorists would report the highest life satisfaction when present vs. future tension favoured the future.

In Study 2, we used Diener's five-item measure of life satisfaction (Diener, Emmons, Larsen & Griffin, 1985) as the main dependent variable (as opposed to the 1-item OECD measure of LS) and pre-measured mood as a potential control variable in addition to initial life satisfaction as captured by the 1-item OECD measure of LS.

Transparency Report: Failure of Random Assignment

Before explaining the method and results of Study 2, it is important to note that a failure of random assignment was discovered very late in the writing of this dissertation. Specifically, although initial levels of life satisfaction did not differ by condition (which had been checked in preliminary analyses) it was later discovered that there was a condition x implicit theories interaction on initial life satisfaction which makes it impossible to draw clear conclusions from the pattern of results in this study. The results (and implications) will be explained in greater detail below. The present narrative is included to clarify the timing of discovering this problem (after subsequent studies had been conducted and the draft dissertation was written) and the subsequent decision making process. One option would be to drop Study 2 from the package because its results are so inconclusive. However, following discussion with the members of the dissertation committee, we decided it would be appropriate to introduce the methodology and briefly report the results of Study 2. Although this study leaves us with no conclusions regarding our main hypotheses, the methodology became the jumping-off point for Studies 3 through 5. Methodological decisions made later in the research process are better understood when Study 2's method is first described. Also keep in mind that the problems of interpretation for this study

do not pertain to a problem of methodology, only a problem of (fluke) failure of random assignment.

In Study 2 we initially set out to manipulate present vs. future focus and also to test some possible third variables/alternative explanations. Unfortunately, the results of two additional potential third variables that were explored in Study 2 are also impossible to interpret due to the failure of random assignment. These were: consideration of future consequences (Strathman, Gleicher, Boninger, & Edwards, 1994) and approach/avoidance (Elliot & Thrash, 2010). Coverage of these items has been removed from the method and results section, however, the full set of measures is still available for review in Appendix B.

Method

Participants

Two hundred and eight participants were recruited through Amazon's Mechanical Turk. Eight participants failed one or both attention checks, five participants did not complete the dependent measures and nine participants spent either less than 30 seconds or more than 1000 seconds generating their present versus future focused event.² In total, twenty-two participants were eliminated from all analyses leaving 186 participants ($M_{\text{age}} = 36.58$, $SD = 11.66$; 111 female, 75 male).

² Inattentive and careless responses can affect data quality leading to lower reliability (Mead & Bartholomew, 2012). Careless responding in internet survey research is a growing concern. Mead and Bartholomew (2012) identified approximately 10-12% of their student respondents as careless responders and suggested that an important index for identifying careless responses is by examining response time. Thus, it was determined a priori that a minimum of thirty seconds would be required to thoughtfully generate a present versus future focused event. Eliminating participants who spent less than 30 seconds generating an event served as an additional attention check. Additionally, we eliminated three participants who spent more than 1000 seconds generating their event as this these participants may have been distracted during the process resulting in reduced attention toward the subtle psychological manipulation.

Measures

Life satisfaction pre-measure. As in Study 1, all participants rated their overall life satisfaction using the OECD 1-item measure of life satisfaction (Helliwell et al., 2012): “All things considered, how satisfied are you with your life as a whole nowadays?”

Mood. A one-item measure was used to capture present mood. On a Likert scale anchored at endpoints 1(*strongly disagree*) to 7(*strongly agree*) participants rated their level of agreement to the statement, “Right now, I don't feel very happy.”

Implicit theories. Similar to Study 1, implicit theories were measured using the Dweck (1999) implicit theory of personality measure (see Appendix B). Whereas Study 1 used a two-item abridged measure, the present study employed the full 10-items as recommended by Dweck (Dweck, 1999). Five of the items were reverse scored which provides an overall score where higher numbers indicate the incremental theory perspective and lower numbers indicate the entity theory perspective. A composite score where higher numbers indicate a stronger incremental theory was then calculated for participants' implicit theory of personality (Cronbach's $\alpha = .95$).

Manipulation: The tension between present desires and future rewards. Participants were randomly assigned to one of two tension conditions: Sacrificing a present benefit in order to prioritize a future benefit (*future induction*) or sacrificing a future benefit in order to prioritize a present benefit (*present induction*). Across both conditions, participants were first provided with a preamble describing the tension between [future/present]. It was stated:

“Sometimes in life, there is a tension between our happiness now (in the present) and what we hope to achieve in the future. Sometimes we might feel that it is important to sacrifice

or set aside [an immediate (or present) goal/a future goal] or desire in order to [work toward a long-term goal/satisfy an immediate (or present) goal or desire].”

Specific examples were then provided in each condition. In the present induction condition it was stated that “people sometimes choose to enjoy a night out with friends now even though it may hinder work on a project that might benefit a future career. Or, perhaps the benefits of an enjoyable vacation now may be prioritized over a desire to save money for the future.”

In the future induction condition the example given was that “people may choose to sacrifice enjoying a night out with friends now in order to work on a project that might benefit a future career. Or, perhaps a desire to save money for the future may be prioritized over the benefits of an enjoyable vacation now.” See Appendix B for the entire script.

Goal elicitation. In both the present and future conditions, participants were then asked to think of a decision that they are working on these days - or worked on recently - where they are sacrificing some [present/future] benefit in order to prioritize a [future/present] benefit. Participants were then asked to briefly describe what that decision was. The open-ended goals (both present and future) were examined and coded for the general domain of the goals. For example, 47% referred to financial goals (e.g., “I am sticking with my crappy old car so that I can save up for a new house.”); 18% referred to family or relationship goals (e.g., “I decided I would rather save up a little money first in order to get an apartment so that my daughter could be with me.”); 15% referred to career goals (e.g., “I spend the greatest majority of my free time working on building my businesses.”); 18% referred to leisure goals, 12 % referred to education goals, and 8% referred to health goals. A number of present vs. future goals crossed two domains

(e.g., “I decided to spend more time raising my kids and less time on my hobbies,” and, “The decision to sacrifice free time with family to work overtime for financial goals.”)

Goal importance. Following the dependent variable measure of life satisfaction participants were asked to rate the importance of both the present goal and the future goal (i.e., the present vs. future goal pitted against each other during the tension manipulation) generated during goal elicitation. On a 7-point Likert scale anchored at endpoints 1(*not at all important*) to 7(*extremely important*), participants were asked, “How important was the future goal at the time?” and “How important was the present goal at the time?”

Mood DV – Happiness right now. Because present mood can occasionally affect people’s reports of life satisfaction (Eid & Diener, 2004) we were interested in capturing participants’ mood prior to assessing life satisfaction in order to examine if mood moved around by manipulated condition and implicit theories. We had no specific hypotheses for mood as Eid and Diener (2004) report that mood effects are generally small and inconsistent. If we find only effects of our manipulation and implicit theories on the life satisfaction DV and not on the mood DV, we can proceed with more confidence that life satisfaction, as measured below, reflects participants’ cognitive, judgmental evaluations of their life – a more accurate definition of life satisfaction – as described by Diener et al. (2003).

Mood was captured with a 4-item measure. On a Likert scale anchored at endpoints 1(*strongly disagree*) to 7(*strongly agree*), participants rated their disagreement/agreement with four statements such as “Right now, I don’t feel very happy” [R] and “I feel very happy.” A composite score where higher numbers indicate a more positive mood was calculated (Cronbach’s $\alpha = .91$).

Life satisfaction DV. Life satisfaction (LS) was captured by Diener's measure of global life satisfaction (Diener et al., 1985). This measure captures a global evaluation of life as a whole. The five-item scale has been used in a great deal of research and has shown consistent internal reliability and strong predictive power (Pavot & Diener, 1993). On a Likert scale anchored at endpoints 1(*strongly disagree*) to 7(*strongly agree*), participants rated their disagreement/agreement with five statements such as "I am satisfied with my life," and "If I could live my life over, I would change almost nothing." A composite score where higher numbers indicate higher overall life satisfaction was calculated (Cronbach's $\alpha = .94$).

Willingness to sacrifice the present for the future. Willingness to sacrifice the present for the future was the same measure used in Study 1 and in the present study was used to assess the effectiveness of our present versus future tension manipulation; $\alpha = .77$.

Procedure

Participants completed the questionnaire package online in one 20 minute session. After the demographics section, participants answered the 1-item life satisfaction question and the 1-item mood question. Then participants completed the implicit theories of personality measure (Dweck, 1999). Next, participants were randomly assigned to one of two tension manipulation conditions: Sacrificing a present benefit in order to prioritize a future benefit (*future induction*) or sacrificing a future benefit in order to prioritize a present benefit (*present induction*). Participants were asked to think of a goal they are working on, or recently worked on, congruent with the assigned condition and briefly describe the decision. Following the manipulation, all participants completed the life satisfaction (LS) dependent measure. Finally, they completed the willingness to sacrifice the present for the future scale (Hayes et al., 2015) which served as a

check of our manipulation. Intercorrelations between all of the variables in the study are presented in Table 12.

Results and Discussion

Central Analyses

According to our hypothesis, the question of interest was determining how entity versus incremental theorists differed in their life satisfaction after bringing to mind a present-oriented goal versus a future-oriented goal.

Preliminary Analyses

As a test of random assignment, we first wanted to make sure that implicit theories of personality, present mood and initial life satisfaction did not differ by tension condition (i.e., present focus vs. future focus). Therefore, we conducted one-way ANOVAs and found that lay theories of personality did not differ by tension condition; $F(1,184) = .12, p = .73$; Neither did participants' mood at the onset of the study; $F(1,184) = .28, p = .60$, or initial life satisfaction; $F(1,184) = .73, p = .40$. The means and standard deviations of all measures across the two conditions (present focus vs. future focus) are reported in Table 13.

Manipulation Checks

Willingness to sacrifice present for future. In order to determine if the present focus versus future focus tension manipulation had its desired effect we examined participants' willingness to sacrifice the present for the future by condition (present focus vs. future focus). Results from the one-way ANOVA indicate that the manipulation seemed to have its desired effect. In the future focus condition, participants were more willing to sacrifice the present for the future ($M = 5.00, SD = 1.14$) than in the present focus condition ($M = 4.52, SD = 1.08$); $F(1, 184) = 8.09, p = .005, \eta^2 = .04$. Our manipulation check was also tested in regression analyses.

Condition (present vs. future focus, with present condition coded -1 reflecting the reference group), as recommended by Aiken and West (1991), and implicit theories, along with the interaction term were regressed on willingness to sacrifice the present for the future as the dependent measure. Similar to the results of the ANOVA, a main effect of condition emerged as significant; $b = .24$, $\beta = .21$, $p = .004$, 95% CI = [.08, .40]. A main effect of implicit theories emerged as marginal; $b = .13$, $\beta = .13$, $p = .07$, 95% CI = [-.01, .27], indicating that incremental theorists, overall, were slightly more willing to sacrifice the present for the future; however the interaction was not significant: $b = .05$, $\beta = .05$, $p = .49$, 95% CI = [-.09, .19].³

Goal importance. Additionally, we compared the goal importance ratings for present goals and future goals by manipulated focus condition in a repeated measures multivariate analysis. Recall that within each focus condition, participants were asked to recall a time when a present goal was contrasted to a future goal. In other words, both a present goal and a future goal were elicited however it was the tension between the two goals that was manipulated. As anticipated, we found that in the present focus condition, present goals were rated more important ($M = 5.94$, $SD = 1.01$) than future goals ($M = 5.57$, $SD = 1.38$); Pillai's $F(1, 183) = 4.56$, $p = .03$, $\eta^2 = .02$; and in the future focus condition, future goals ($M = 6.14$, $SD = .73$) were rated more important than present goals ($M = 5.05$, $SD = 1.60$); Pillai's $F(1, 183) = 36.96$, $p < .001$, $\eta^2 = .17$.⁴

We also examined importance ratings separately with implicit theories as a possible moderator. Looking only at importance ratings of present goals, we regressed both implicit theories and condition (present focus vs. future focus; effect coded, where -1 reflects the present

³ Results remained the same controlling for initial life satisfaction in the regression analysis. Furthermore there was no main effect of initial life satisfaction on willingness to sacrifice the present for the future; $\beta = .02$, $p = .83$.

⁴ Results remained the same controlling for initial life satisfaction in the repeated measures multivariate analysis.

condition) onto present importance as the criterion variable. As anticipated, a main effect of condition emerged as significant; $b = -.44$, $\beta = -.31$, $p < .001$, 95% CI = $[-.61, -.24]$ indicating that present goals were rated more important in the present focus condition. Neither the main effect of implicit theories ($b = .08$, $\beta = .07$, $p = .33$) nor the interaction ($b = .01$, $\beta = .01$, $p = .95$) was significant.⁵

Looking at importance ratings of future goals, we performed the same regression analysis as above with future importance as the criterion variable. As anticipated, a main effect of condition emerged significant; $b = .30$, $\beta = .25$, $p < .001$, 95% CI = $[.14, .46]$ indicating that future goals were rated more important in the future focus condition. A main effect of implicit theories emerged as marginally significant ($b = .12$, $\beta = .12$, $p = .10$, 95% CI = $[-.02, .26]$) indicating that, overall, incremental theorists rated future goals as more important than entity theorists. Additionally, an interaction between condition and implicit theories emerged as significant; $b = -.15$, $\beta = -.15$, $p = .034$, 95% CI = $[-.29, -.01]$.⁶ We examined the interaction pattern in regression analysis by examining the simple effects at one standard deviation (SD) above and below the mean for the implicit theories variable. Entity theorists, defined at 1 SD below the mean, rated future goals as less important in the present focus condition than when in the future focus condition; $b = .94$, $\beta = .41$, $p < .001$, 95% CI = $[.49, 1.40]$, whereas there was no difference in future goal importance ratings between conditions for incremental theorists (defined at one SD above the mean); $b = .24$, $\beta = .10$, $p = .31$. In the present focus condition, incremental theorists rated future goals as more important than entity theorists did; $b = .27$, $\beta =$

⁵ Results remained the same controlling for initial life satisfaction in the regression analysis. Furthermore there was no main effect of initial life satisfaction on present goal importance ratings; $\beta = .01$, $p = .99$.

⁶ Results remained the same controlling for initial life satisfaction in the regression analysis. Furthermore there was no main effect of initial life satisfaction on future goal importance ratings; $\beta = .01$, $p = .94$.

.27, $p = .005$, 95% CI = [.08, .45], whereas there was no difference between implicit theories in the future focus condition; $b = -.03$, $\beta = -.03$, $p = .75$.

Do Implicit Theories Moderate the Relationship Between Temporal Focus and Life Satisfaction?

In the present study, we had one continuous variable and one categorical variable. As in Study 1, we conducted multiple regression analyses allowing us to assess the implicit theory x temporal focus condition (present focus vs. future focus) interaction term as a predictor of life satisfaction. We entered life satisfaction as the criterion variable. As in Study 1, we centred our implicit theories IV. In addition, we adjusted our categorical condition variable to reflect effect coding (with present condition coded -1 reflecting the reference group), as recommended by Aiken and West (1991). Both IVs were entered in Step 1, and, in Step 2 we entered the interaction term: Implicit theory x condition (present focus vs. future focus).

As expected, an implicit theories x temporal focus condition interaction emerged, although marginally significant: (see Figure 6); $b = .20$, $\beta = .14$, $p = .057$, 95% CI = [-.01, .40]. When present mood (measured at the beginning of the study) was entered as a control variable in the first step of the regression, the interaction reached traditional levels of significance; $b = .16$, $\beta = .12$, $p = .048$, 95% CI = [.01, .32].⁷ The interaction suggests that implicit theories moderates the relationship between temporal focus and life satisfaction (see Table 14 for β and t values for all predictor variables). No main effects for either condition ($b = -.21$, $\beta = -.15$, $p = .13$) or implicit theories emerged ($b = -.19$, $\beta = -.06$, $p = .44$).

⁷ When mood (measured just prior to Diener's life satisfaction) was tested as the DV, there was no interaction between manipulated condition and implicit theories ($\beta = .14$, $p = .17$) nor were there any main effects of condition or implicit theories (p 's > .72).

Subsequent Analyses: Discovery of Failed Random Assignment

As noted in the introduction to Study 2, condition differences were not found on initial life satisfaction, therefore covariates were not included when initially testing our main hypothesis. On the advice of a committee member, and late in the process, we conducted analyses with the covariate of initial life satisfaction and found, quite unexpectedly, that this wiped out the effects. For this analysis, the 1-item OECD measure of life satisfaction was standardized and entered in Step 1 of the regression. Both IVs were entered in Step 2, and the interaction term was entered in Step 3. With initial LS as a control variable in the analysis, the implicit theories x temporal focus condition interaction was no longer significant; $b = .03$, $\beta = .02$, $p = .58$ (see Table 15 for β and t values for all predictor variables).

Upon further investigation, we determined that the pre-measure of life satisfaction sowed a marginal interaction; $b = .30$, $\beta = .14$, $p = .068$, 95% CI = $[-.02, .61]$; see Table 16 for β and t values for all predictor variables. No main effects for either condition ($b = -.15$, $\beta = -.06$, $p = .43$) or implicit theories emerged ($b = -.06$, $\beta = -.03$, $p = .72$). The interaction pattern on initial LS, measured at the start of the study (shown in Figure 7) is remarkably similar to the pattern found with our main dependent variable assessed at the end of the study (shown in Figure 6). Thus, the overall results on our DV of lay theories and manipulated condition become impossible to interpret and raise the question as to whether or not the effects (without co-varying initial life satisfaction) are real.

Discussion

In Study 2 we used an experimental design whereby we manipulated the tension between present and future. However, a failure of random assignment was discovered very late in the writing of this dissertation.

To be clear, it should be noted that Studies 3 through 5 were conducted and written up prior to discovering the error in Study 2, however the following studies have been edited in terms of any references made to Study 2's results. We proceed now to Study 3 whereby we, once again, manipulate the tension between present focus and future focus. In addition, Study 3 used a more controlled set of goals (spending and saving goals). We go forward recognizing the need for further research and replication prior to drawing clear conclusions about the effect and its boundary conditions.

Study 3

In Study 2, participants were allowed to generate self-relevant idiosyncratic decisions involving tension between present and future goals. We found that almost half of the participants (47%) included decisions involving financial tensions. For example, in Study 2, one participant wrote, "I made the decision to not go on a ski trip in the spring so I could pay my rent."

Thus, Study 3 examined the finance domain more directly: spending now versus saving for the future. Additionally, we elicited both a present goal (spend now) and future goal (save for the future) prior to pitting the two goals against each other (i.e., the tension manipulation) whereby one goal is sacrificed in order to satisfy the other. We anticipated that incremental theorists will indicate higher life satisfaction after they describe saving for the future (rather than spending in the present) whereas entity theorists will indicate higher life satisfaction after they describe spending in the present (versus saving for the future).

Study 3 is different in two other important ways. First, in Study 2, participants were asked to generate a recent decision where the present benefit/goal and future benefit/goal are already paired and producing tension. Where this methodological structure may have captured meaningful tension over which goal was sacrificed (e.g., present over future and vice versa), the

simultaneous recall of both a present and a future goal may also have elicited present/future tension decisions already favoring the condition (present focus or future focus) that the participant was assigned to. Indeed, we found in Study 2 that participants assigned to the present focus condition rated their present goals as more important than future goals, and in the future focus condition, future goals were rated more important than present goals. To address this possibility methodologically, in Study 3 we asked participants to first generate a potential present goal (i.e., spend in the present) and then generate a potential future goal (i.e., save for the future) prior to asking the participants to imagine only carrying through with one of the goals – either spending in the present or saving for the future (the tension manipulation). Second, whereas in Study 2, participants were asked to generate tension decisions that they made recently (or are presently working on), participants in Study 3 were asked to think of a financial decision they could make now or very soon the future. In other words, we focused them on yet-to-be made decisions that is, by its nature, somewhat hypothetical in nature. They imagined how they would feel *if* they pursued one goal at the expense of the other; we of course cannot push them to actually follow through and have no information on which if any goals they actually chose to pursue.

In sum, although we are producing a cleaner methodological structure for the manipulation in Study 3 by eliciting present and future goals separately before introducing the tension, it is possible that this improvement will come at a cost. Assigning people to imagine selecting one of two financial goals could somewhat undermine the natural meaning found in self-relevant decision-making between present rewards and potential future outcomes, because the choice is more hypothetical and the domain is constrained to money.

Finally, in the present study, we sought to directly examine the relationship between implicit theories and feelings of certainty about attaining present (spend) and future (save) goals; a likely process variable between implicit theories and life satisfaction. Previous research has found that incremental theorists tend to feel an internal locus of control over future outcomes (Dweck, 1995a) and have higher expectations of goal success than entity theorists (Burnette et al., 2013), however, these relationships are less well-known outside of academic, learning and achievement contexts.

Method

Participants

Three hundred and fifteen participants were recruited through Amazon's Mechanical Turk and Crowdfunder which are both crowd-sourcing forums. Forty-three participants failed one or both attention checks, one participant did not complete the manipulated IV, twenty-one participants indicated they had completed the study for a second time and eleven participants spent less than 30 seconds generating their present versus future focused event.⁸ In total, seventy-six participants were eliminated from all analyses leaving 239 participants ($M_{age} = 37.15$, $SD = 12.95$; 122 female, 115 male, 2 undisclosed).

Measures

Life Satisfaction and mood pre-measures. Life satisfaction and mood were pre-measured as in Study 2.

Implicit theories. As in Study 2, implicit theories were measured using the Dweck (1999) implicit theory of personality measure ($\alpha = .95$).

⁸ As in Study 2, it was determined a priori that participants who spent less than thirty seconds generating a present versus future focused event would be deemed careless responders. Thus, eliminating participants who spent less than 30 seconds generating an event served as an additional attention check. There were no participants who spent more than 1000 seconds generating their event.

Present and future goal elicitation. Participants were asked to generate two goals independently: a present goal (spend now) and a future goal (save for later). First all participants were asked to think about and describe a decision they could make now to spend money on something that they will enjoy immediately and in the short-term future. Then, all participants were asked to think about and describe a decision they could make now to save money in order to achieve some longer-term goal or make a distant future purchase. See Appendix C for the entire script.

Goal importance and achievement certainty. Following each goal elicitation (and prior to the goal focus manipulation), participants were asked to indicate the degree to which each goal was important: from 1(*not at all important*) to 7(*extremely important*). For the present (spend now) goal, participants were asked, “How personally important is to you to act on the decision to spend now for the short term?” For the future (save now) goal, participants were asked, “How personally important is it to act on the decision to save now for a long-term future goal?”

Additionally, participants were asked about goal achievement certainty for each goal. From 1(*not certain at all*) to 7(*extremely certain*), participants were asked, “How certain are you that if you acted on this short term [long term] goal, you would ultimately achieve the desired outcome?” Participants rated their certainty for both the present-focused (spend) goal and the future-focused (save) goal.

Manipulation: The tension between present desires and future rewards. All participants read an introductory paragraph where it was stated that “tension exists between spending money on things we want to have or do now and on things we hope to have or do in the long-term future.” Participants were randomly assigned to one of two tension conditions: Sacrificing a present benefit in order to prioritize a future benefit (*future focus – save money for*

the future) or sacrificing a future benefit in order to prioritize a present benefit (*present focus – spend now*). In both conditions, participants were then asked to imagine that “only one of the goals can be fulfilled.” In the present focus condition participants were asked to “focus on fulfilling only the current desire (spend now) – at the expense of the longer-term desire.” In the future focus condition, participants were asked to “focus on fulfilling only the future desire (save for the future) – at the expense of the short-term desire.”

Mood DV – happiness right now. Mood was captured with the same four-item measure as in Study 2. A composite score where higher numbers indicate a more positive mood was calculated (Cronbach’s $\alpha = .95$).

Life satisfaction DV. As in Study 2, life satisfaction (LS) was captured by Diener’s measure of global life satisfaction (Diener et al., 1985). A composite score where higher numbers indicate higher overall life satisfaction was calculated (Cronbach’s $\alpha = .92$).

Willingness to sacrifice the present for the future. Willingness to sacrifice the present for the future was the same measure used in Study 1 and in the present study was used to assess the effectiveness of our present versus future tension manipulation; Cronbach’s $\alpha = .77$.

Procedure

Participants completed the questionnaire package online in one 20 minute session in the same order as listed above (see also Appendix C). Intercorrelations between all of the variables in the study are presented in Table 17.

Results and Discussion

Central Analyses

Preliminary Analyses

To check the success of random assignment, we first wanted to make sure that implicit theories of personality, present mood and the LS pre-measure did not differ by tension condition (i.e., present focus vs. future focus). Therefore, we conducted one-way ANOVAs and found that lay theories of personality did not differ by tension condition; $F(1, 237) = .23, p = .63$; neither did participants' mood at the onset of the study; $F(1, 237) = 2.04, p = .16$. However, we did find a marginal difference in participants' pre-measure of life satisfaction by condition; $F(1, 237) = 3.72, p = .055, \eta^2 = .015$ such that participants in the present focus (spend now) condition reported lower life satisfaction at the onset of the study; $M_{\text{pres}} = 7.04, SD = 2.28$, than those in the future focus (save) condition; $M_{\text{fut}} = 7.55, SD = 2.09$.⁹ We investigate the differences between those initially low and high in life satisfaction further on. The means and standard deviations of all measures across the two conditions (present focus vs. future focus) are reported in Table 18.

Manipulation Checks

Willingness to sacrifice the present for the future. In order to determine if the present focus versus future focus tension manipulation had its desired effect we examined participants' willingness to sacrifice the present for the future by condition (present focus vs. future focus). We regressed condition (present vs. future focus using effect codes) and implicit theories, along with the interaction term, onto the willingness to sacrifice composite score as the dependent measure. Although we might have expected a main effect of condition, this did not emerge as

⁹ Similar to Study 2, after writing the dissertation in its entirety, a precautionary check of random assignment was performed on initial life satisfaction and mood by regressing both condition and implicit theories on to these pre-measures. In the present study, an interaction did not emerge for initial life satisfaction ($\beta = .002, p = .97$) nor did an interaction emerge for initial mood ($\beta = -.05, p = .43$).

significant: $\beta = .01$, $p = .83$. The main effect of implicit theories was also not significant; $\beta = .09$, $p = .15$, nor was the interaction; $\beta = .001$, $p = .99$.¹⁰

It is possible that measuring willingness to sacrifice the present for the future was not the most suitable manipulation check in the present study for a couple of reasons. First, this variable was measured at the end of the study, and any potential effects of the manipulation may have dissipated by the time participants got to this questionnaire. A more likely explanation is that the manipulation itself was importantly different than the manipulation of Study 2 where differences were seen in the willingness to sacrifice manipulation check measure. In Study 2 participants were asked to think of a time they decided (or are currently deciding) to sacrifice the present for the future for a personally chosen goal that they actually worked on or were planning to. The manipulation of the present study, on the other hand, asked participants to *imagine* fulfilling only one of their financial goals; a process that is more hypothetical in nature and thus, not as likely to convince participants of their underlying willingness to sacrifice one way or the other.

Goal importance. Similar to Study 2, we compared the goal importance ratings for present goals and future goals by manipulated focus condition in a repeated measures multivariate analysis. In Study 2, participants seemed to choose goals whose relative importance was also congruent with the condition they were assigned to (e.g., present goals were rated more important than future goals in the present focus condition, and vice versa in the future focus condition). In the financial domain of the present study, recall that importance was measured prior to the goal focus manipulation so it should be unaffected by condition. We found that future-oriented (saving goals) were rated more important overall ($M = 5.87$, $SD = 1.32$) than present-oriented (spending goals) ($M = 4.42$, $SD = 1.62$); Pillai's $F(1, 234) = 143.30$, $p < .001$, η^2

¹⁰ Results were the same when we controlled for initial life satisfaction.

= .38; and this was consistent across conditions. There was no within-subject (present/future ratings) interaction with condition; Pillai's $F(1, 234) = .96, p = .33$, or with implicit theories; Pillai's $F(1, 234) = 1.20, p = .27$; nor was there a 3-way interaction; Pillai's $F(1, 234) = .83, p = .37$.¹¹

We also examined importance ratings separately with implicit theories as a possible moderator. Looking first at importance ratings of present (spend) goals, we regressed both implicit theories and condition (present vs. future; effect coded) onto present importance as the criterion variable. Neither the main effect of condition ($\beta = -.01, p = .86$), nor the interaction ($\beta = -.04, p = .64$) emerged as significant. A main effect of implicit theories emerged as marginal; $b = .15, \beta = .11, p = .09, 95\% \text{ CI} = [-.03, .32]$, suggesting that incremental theorists rated the present (spend) goal as somewhat more important than entity theorists overall.¹²

Looking at importance ratings of future (save) goals, we performed the same regression analysis as above with future importance as the criterion variable. Neither the main effect of condition ($\beta = .08, p = .25$) or the main effect of implicit theories ($\beta = -.06, p = .37$) emerged as significant. An interaction, however, emerged as marginal; $b = -.12, \beta = -.11, p = .08, 95\% \text{ CI} = [-.27, .02]$.¹³ A review of simple effects found that entity theorists rated future (save) goals as marginally more important than incremental theorists in the future-focus condition; $b = -.19, \beta = -.17, p = .06, 95\% \text{ CI} = [-.38, .01]$, whereas they did not differ in the present-focus condition; $\beta = .06, p = .56$. Entity theorists also rated future (save) goals as more important in the future-focus condition than they did in the present-focus condition; $b = .48, \beta = .18, p = .05, 95\% \text{ CI} = [.00, .95]$, whereas incremental theorists did not differ between conditions; $\beta = -.03, p = .72$. The

¹¹ Results were the same when we controlled for initial life satisfaction.

¹² Results were the same when we controlled for initial life satisfaction, however, the initial marginal effect of implicit theories became less significant ($\beta = .10, p = .11$).

¹³ The same results were obtained when we controlled for initial life satisfaction.

interaction for future goal importance should be interpreted with caution as these ratings were captured before participants were randomly assignment to condition. We will control for this variable when testing our main hypothesis.

Goal achievement certainty. As with goal importance ratings, goal achievement certainty was measured immediately after each goal elicitation and prior to random assignment of condition, thus, goal achievement certainty should not differ by condition. One-way ANOVAs were conducted and, indeed, we found that participants felt just as certain about achieving the present (spend) goal in the present-focused condition ($M = 5.73$, $SD = 1.30$) as they did in the future-focused condition ($M = 5.84$, $SD = 1.34$); $F(1, 237) = .54$, $p = .54$. Participants also felt just as certain about achieving the future (save) goal in the present-focused condition ($M = 5.29$, $SD = 1.50$) as they did in the future-focused condition ($M = 5.43$, $SD = 1.48$); $F(1, 237) = .46$, $p = .46$. Notably, participants felt more certain overall of achieving the present outcome ($M = 5.78$, $SD = 1.32$) than the future outcome ($M = 5.36$, $SD = 1.49$); $F(1, 237) = 16.98$, $p < .001$, $\eta^2 = .07$.

We also examined certainty ratings separately with implicit theories included as a predictor. Looking first at certainty ratings of present (spend) goals, we regressed both implicit theories and condition (present vs. future; effect coded) onto present goal certainty as the criterion variable. Previous research has found that incremental theorists tend to feel more internal control over one's outcomes (vs. entity theorists; Dweck et al., 1995a) and tend to report higher expectations of goal success (Burnette et al., 2013). However, it was possible that both entity and incremental theorists might feel certain about achieving imminent (i.e., present) goals. Despite this possibility, a main effect of implicit theories emerged as significant; $b = .17$, $\beta = .15$, $p = .02$, 95% CI = [.03, .31], suggesting that incremental theorists did, indeed, feel more certain about achieving present (spend) goals overall. As expected, there was no effect of condition; $\beta =$

.03, $p = .67$, however, an unexpected interaction emerged as significant; $b = .14$, $\beta = .13$, $p = .05$, 95% CI = [.00, .28].¹⁴ A review of simple effects found that entity and incremental theorists did not differ on certainty about achieving present (spend) goals in the present-focused condition; $\beta = .03$, $p = .75$, whereas, in the future-focused condition, incremental theorists were more certain about achieving the spending goals than entity theorists; $b = .31$, $\beta = .28$, $p = .002$, 95% CI = [.12, .50]. Also, entity theorists did not differ in certainty about spending in the present between the present-focused and future-focused conditions; $\beta = -.09$, $p = .32$, whereas incremental theorists felt marginally more certain about achieving present (spend) goals in the future-focused condition than they did in the present-focused condition; $b = .38$, $\beta = .15$, $p = .09$, 95% CI = [-.06, .82]. As with the future goal importance ratings above, the interaction for present goal achievement certainty should be interpreted with caution as these ratings were garnered prior to random assignment to the two conditions. We will control for this variable in tests of our main hypothesis.

Looking at certainty ratings of future (save) goals, we ran the same regression for future-goal certainty as the criterion variable. Based on Burnette et al.'s findings (2013) noted above (i.e., incremental theorists hold higher expectations of goal success), we anticipated that incremental theorists might feel more certain about achieving more distant/future goals. As expected, a main effect of implicit theories emerged as significant; $b = .18$, $\beta = .15$, $p = .02$, 95% CI = [.03, .34], suggesting that, similar to present (spend) goal certainty, incremental theorists felt more certain about achieving future (save) goals as well. There was no effect of condition; $\beta = .03$, $p = .67$ nor an interaction between condition and implicit theories; $\beta = -.07$, $p = .27$.¹⁵

¹⁴ Results were the same when we controlled for initial life satisfaction.

¹⁵ The same results were obtained when we controlled for initial life satisfaction.

Do Implicit Theories Moderate the Relationship Between Temporal Perspective and Life Satisfaction?

As in Study 2, we conducted multiple regression analyses allowing us to assess the implicit theory x temporal focus condition (present focus vs. future focus) interaction term as a predictor of life satisfaction. We entered the centred implicit theories IV and our effect coded condition variable in Step 1. In Step 2 we entered the interaction term: Implicit theory x condition (present focus vs. future focus, effect coded). Inconsistent with predictions, the predicted two-way interaction did not emerge as significant: $\beta = .04, p = .52$.^{16,17} Neither the main effect of condition ($\beta = .08, p = .20$) nor implicit theories was significant ($\beta = .05, p = .45$).

Does income play a moderating role? We wondered if it was possible that income (as measured during the demographic intake at the beginning of the study) might play a moderating role. Considering that the domain of focus for the present study was the financial domain, it is entirely possible that people with more money/higher incomes might not experience the same tension between spending now and saving for later. For example, buying concert tickets now might not really interfere with saving for a house. For someone with higher income, this type of decision-making might not create tension between present goals and future goals.

Thus, we ran the same regression analysis as above with income as an additional moderator. However, before proceeding with this analysis, we confirmed that income did not vary between the manipulated conditions; $F(1, 223) = .17, p = .70$. Results of the 3-way regression analysis on life satisfaction found that the three-way interaction between condition,

¹⁶ The same results were obtained when we controlled for initial life satisfaction as well as when controlling for future goal importance and present goal achievement certainty.

¹⁷ When mood was tested as the DV, there was no interaction between manipulated condition and implicit theories ($\beta = -.02, p = .74$). Only an effect of implicit theories emerged for mood; $b = .32, \beta = .23, p < .001, 95\% \text{ CI} = [.15, .50]$, suggesting that incremental theorists had a more positive mood than entity theorists. This finding is consistent with the initial mood measure at the start of the study. There was no main effect of condition ($b = .09, p = .18$).

implicit theories and income did not emerge as significant: $b = -.02$, $\beta = -.04$, $p = .60$, 95% CI = $[-.07, .40]$.¹⁸

In the present study, income and initial life satisfaction are correlated; $r(225) = .18$, $p = .009$. To illustrate this, when we examined income differences between those low and high (via median split) in initial life satisfaction using a one-way ANOVA we found that participants initially high in life satisfaction earned significantly more money ($M_{\text{HighSat}} = \$58,996$, $SD = \$33,375$) than those initially low in life satisfaction ($M_{\text{LowSat}} = \$48,532$, $SD = \$33,132$); $F(1, 223) = 5.36$, $p = .022$, $\eta^2 = .02$. However, we surmised, that although income can often be a rough indicator of life satisfaction (Meyers & Diener, 1995), it is not always a perfect indicator of life satisfaction as some people might find great life satisfaction even when they are living on very little (Meyers & Diener, 1995).

To this point, we found that physical resources (i.e., income) did not play a moderating role with implicit theories and temporal focus (present vs. future), however, there may be something about psychological resources that may play an important role. Myers and Diener (1995) found that *satisfaction* with income can be a better predictor of life satisfaction than actual income. Based on this reasoning, we decided to examine initial life satisfaction (measured at the beginning of the study) as an additional independent variable/moderator in the original regression.

Does Initial life satisfaction play a moderating role? We conducted a multiple regression analysis allowing us to assess the initial life satisfaction x implicit theory x temporal focus condition (present focus vs. future focus) interaction term as a predictor of life satisfaction. As anticipated, a significant main effect of initial life satisfaction revealed that initial LS

¹⁸ The same results were obtained when we controlled for initial life satisfaction as well as when controlling for future goal importance and present goal achievement certainty.

predicted later LS; $b = .54$, $\beta = .82$, $p < .001$, 95% CI = [.49, .59]. More importantly, a three-way interaction between implicit theory, condition, and initial life satisfaction also emerged significant; $b = -.09$, $\beta = -.11$, $p = .03$, 95% CI = [-.16, -.01]. None of the other main effects or two-way interactions were significant (p 's $> .12$). See Table 19 for β and t values for all predictor variables.^{19, 20}

Next, we broke down the three-way interaction by examining the initial low and high satisfaction groups separately. An implicit theories x temporal focus condition interaction did not emerge for those initially high in life satisfaction (see Figure 8); $b = -.02$, $\beta = -.03$, $p = .76$, whereas, as anticipated, the interaction did emerge as significant for those initially low in life satisfaction (see Figure 9); $b = .24$, $\beta = .22$, $p = .031$, 95% CI = [.02, .45].^{21, 22} No main effect for either condition ($b = -.02$, $\beta = -.02$, $p = .87$) or implicit theory ($b = .14$, $\beta = .13$, $p = .21$) emerged among those low in initial life satisfaction; see Table 20 for β and t values.

Next, we examined the interaction pattern for those low in initial life satisfaction in regression analysis by examining the simple effects at one standard deviation (SD) above and below the mean for the implicit theories variable. Similar to the pattern we saw in Study 2, entity theorists (defined at 1 SD below the mean) were somewhat but not significantly more satisfied with life than incremental theorists (defined at 1 SD above the mean) when temporal tension

¹⁹ The same results were obtained when controlling for future goal importance and present goal achievement certainty.

²⁰ When mood was tested as the DV, there was no 3-way interaction between initial life satisfaction, manipulated condition and implicit theories ($\beta = -.06$, $p = .28$). Furthermore, when mood (DV) was entered as a control variable in the initial regression, the 3-way interaction on Diener LS remained close to significant; $b = -.04$, $\beta = -.07$, $p = .058$, 95% CI = [-.07, .00].

²¹ When mood was tested as the DV, there was no interaction between manipulated condition and implicit theories ($\beta = .00$, $p = .99$) for those initially low in life satisfaction – nor was there an interaction for those initially high in life satisfaction ($\beta = -.02$, $p = .83$). Furthermore, when mood (DV) was entered as a control variable in the initial regression for those initially low in life satisfaction, the interaction on Diener LS strengthened; $b = .24$, $\beta = .22$, $p = .008$, 95% CI = [.07, .41].

²² The same results were obtained when controlling for future goal importance and present goal achievement certainty.

favoured a present focus; $b = -.57$, $\beta = -.23$, $p = .11$, 95% CI = [-1.28, .13]. Incremental theorists were much more satisfied than entity theorists in the future focus condition; $b = .38$, $\beta = .34$, $p = .024$, 95% CI = [.05, .70], but not significantly more than in the present focus condition; $b = .49$, $\beta = .20$, $p = .15$, 95% CI = [-.18, 1.17]. Entity and incremental theorists did not differ in LS in the present focus condition; $b = -.10$, $\beta = -.09$, $p = .48$, 95% CI = [-.39, .18].²³

Discussion

In Study 3 we targeted participants' attention to decisions that they make in the financial domain (e.g., present – spend now vs. future – save for later). We anticipated that, overall, incremental theorists would be more satisfied with life (than entity theorists) when they sacrificed spending in the present to focus on saving for the future and entity theorists would be more satisfied (than incremental theorists) when they sacrificed saving for the future and focused on present (saving) goals.

We found that when we examined the group initially high in life satisfaction, there were no differences after the sacrifice (present/spend vs. future/save) manipulation on Diener's life satisfaction between entity and incremental theorists. Entity theorists reported the same satisfaction as incremental theorists when sacrificing the present (i.e., saving) and incremental theorists reported the same satisfaction as entity theorists when sacrificing the future (i.e., saving). However, our hypotheses were confirmed when we examined the group that was initially low in initial life satisfaction. Entity theorists were more satisfied when they focused on spending in the present (over saving for the future) and incremental theorists were more satisfied than entity theorists when they contemplated saving for the future.

²³ Simple effects tests were conducted without any covariates, however, when mood (DV) was controlled for, simple effects remained the same (and in some cases strengthened).

Although we attempted to produce a cleaner methodological structure for the manipulation in Study 3 by eliciting present and future goals separately before introducing the tension, it is possible that we lost some natural meaning found in self-relevant decision-making tensions that come with deciding between present rewards and potential future outcomes by constraining the focus to the financial domain.

An additional finding in the present study was that incremental theorists felt more certain than entity theorists in attaining both present (spend) and future (save) goals. This finding corroborates earlier evidence from a meta-analysis conducted by Burnette et al. (2013) who found that incremental theorists generally have higher expectations of goal success. The goal certainty ratings were elicited prior to the condition manipulation, however, so it is unknown if people may shift certainty once they think of actually pursuing the goal at the expense of another. Additionally, it is unknown if certainty ratings might vary if experimentally induced to feel low or high control over goal outcomes.

Study 4

Thus far, we have suspected that incremental theorists might feel greater life satisfaction than entity theorists when sacrificing present goals for future goals, due, in part to the felt certainty that future outcomes will come to fruition. On the other hand, if an entity theorist feels less certain about future outcomes, they might feel less satisfied when they are future-focused because they may believe that the present sacrifices they must endure will not guarantee the future rewards that they are hoping for. Thus, in Study 4 we sought to explicitly manipulate felt certainty/controllability with respect to future goals as part of establishing a link between implicit theories, feelings of future goal certainty (one anticipated mechanism) and life satisfaction as suggested by Spencer et al. (2005). Whereas in Study 3 we found a relationship

between implicit theories and felt certainty of future goal achievement, in Study 4 we pilot test a manipulation of future controllability/certainty with the goal of examining these effects on life satisfaction for entity and incremental theorists.

Similar to Study 2, we asked all participants to generate a decision that they are working on these days where they are sacrificing some present goal/benefit in order to achieve some future goal/benefit. This instruction again captures the tension involved in prioritizing one goal at the expense of another. Notably we only include the future goal condition in this study (sacrificing the present for the future) and not the converse condition (sacrificing the future for the present). We reasoned that, despite the finding that incremental theorists in Study 3 felt more certain than entity theorists even for present-oriented goals, all participants in Study 3 felt significantly less certain about future goals than present goal. Thus, immediate decisions may show less variability on certainty, whereas uncertainty is a hallmark of delayed outcomes (Green & Myerson, 2004). Therefore, certainty/controllability is likely to be an important mechanism for explaining people's varying reactions to future goals to a greater extent than for present goals.

All participants were asked to think of a goal that they are still working on and have decided to pursue despite the sacrifices they must make in the present. Then one third of the participants were asked to describe a goal that feels within their personal control and which they are certain it will work out. Another third of the participants were asked to describe a goal that feels outside of their personal control and which they feel uncertain if it will work out. The final third were not provided with any further instructions about controllability/uncontrollability but to simply describe the goal (the baseline condition).

Because our primary interest centers on the variable that we hypothesize may underlie the differences we see between entity theorists (less willingness to sacrifice for the future) and incremental theorists (more willingness to sacrifice for the future) and the effects this has on overall life satisfaction, our main prediction for this study will focus on the main effects of our controllability manipulation on overall life satisfaction.

If we find that our experimental manipulation of controllability/certainty versus lack of control/uncertainty of future outcomes affects life satisfaction then this would provide some evidence for why incremental theorists might favor sacrificing present rewards for what they believe to be more certain outcomes and entity theorists might be less willing to do so. Thus, for Study 4, we hypothesize that when controllability of future outcomes is emphasized (the controllable condition), participants will indicate higher satisfaction with life than when uncontrollability of future outcomes is emphasized (the lack of control condition). In Study 4, we do not compare a present and future condition, but examine only a future goal. Thus, we have no specific hypotheses for the effect of the baseline condition on participants' overall life satisfaction.

Having explained the rationale for the present study, it is important to note that this study was designed as an initial pilot study attempting to manipulate future controllability. The manipulation, however, did not successfully affect participants' certainty perceptions; as a result, we altered several elements to test the same hypothesis in Study 5. This pilot study, though, also measured beliefs about certainty and controllability over achieving future goals (measured in this case – unlike Study 3 - *after* participants spent time thinking about pursuing a future goal at the expense of a present one) and willingness to sacrifice the present for the future. Because these dependent variables did not differ by condition, we were able to assess some

correlational/descriptive questions in Study 4 and examine meditational models that test whether felt certainty/controllability of future goals accounts for the link between implicit theories and life satisfaction and willingness to sacrifice the present for the future.

Method

Participants

Two hundred and eighty-seven participants were recruited through Crowdfunder. Thirty-three participants failed one, both, or all three attention checks and thirteen participants spent less than 30 seconds generating an event in which they expect to sacrifice some present goal/benefit for some future goal/benefit.²⁴ In total, forty-six participants were eliminated from all analyses leaving 241 participants ($M_{\text{age}} = 37.93$, $SD = 12.42$; 145 female, 96 male).

Procedure

Participants completed the questionnaire package online in one 20 minute session in the same order as listed above (see also Appendix D).

Measures

Note. The full set of measures in the original study are presented in Appendix D. Only the measures highlighted in our analyses are described below. The means and standard deviations of all measures by original condition (future controllability, future – lack of control, and future baseline) are reported in Table 21 and the zero-order correlations among all measures are reported in Table 22.

Implicit theories. As in Studies 2 and 3, implicit theories were measured using the Dweck (1999) implicit theory of personality measure. A composite score where higher numbers

²⁴ To remain consistent with Studies 2 and 3, thirty seconds was deemed the cut-off for generating a future focused event. There were no participants who spent more than 1000 seconds generating their event.

indicate a stronger incremental theory was then calculated for participants' implicit theory of personality (Cronbach's $\alpha = .96$).

Goal elicitation. Participants were randomly assigned to one of three goal elicitation conditions: control, no control and a baseline condition. All participants were asked to think of a decision they are working on these days where they are sacrificing some present benefit/goal in order to prioritize a future benefit/goal. Within the same instructions, participants were also asked to choose a goal they are still working on and have decided to pursue despite the sacrifices that they must make in the present. In the controllable condition participants were asked to generate a goal that feels within their control and that they are certain will work out. In the lack of control condition, participants were asked to generate a goal that feels outside of their personal control and they are uncertain if it will work out. In the baseline condition, these last instructions were omitted. See Appendix D for the full script.

Mood DV – happiness right now. Mood was captured with the same four-item measure as in Study 2. A composite score where higher numbers indicate a more positive mood was calculated (Cronbach's $\alpha = .90$).

Life satisfaction. As in Studies 2 and 3, life satisfaction (LS) was captured by Diener's measure of global life satisfaction (Diener et al., 1985). A composite score where higher numbers indicate higher overall life satisfaction was calculated (Cronbach's $\alpha = .91$).

Specific certainty/controllability of future goal. On a Likert scale from 1(*very uncertain that I will attain future goal/benefit*) to 7(*very certain that I will attain future goal/benefit*) participants were asked "From 'very uncertain' to 'very certain' – How 'certain' are you that you will be able to attain this future benefit/goal?" Additionally, from 1(*not at all within my control*) to 7(*very much within my control*) participants were asked "To what degree

does achieving the future benefit/goal feel ‘within your control’?” The correlation between these two items was high; $r(238) = .67$, $p < .001$,²⁵ thus, the two items were combined into a composite measure where higher numbers indicate greater feelings of certainty/controllability over the specific future goal; Cronbach’s $\alpha = .80$.

Generalized beliefs about future goal attainability. On a Likert scale anchored at endpoints 1(*strongly disagree*) to 7(*strongly agree*), participants were asked to rate their level of disagreement or agreement on three statements that were designed to capture beliefs about generalized future goal attainability. These three statements were: “Attaining future goals are almost always certain to work out,” “Since whatever will be will be, I am uncertain about future goals working out,” [R] and, “Future goals are certainly attainable - as long as enough sacrifices are made.” A composite score was created by combining the three items above such that higher numbers represent generalized beliefs about future goal attainability; Cronbach’s $\alpha = .65$.

Willingness to sacrifice the present for the future. Willingness to sacrifice the present for the future was the same measure used in Studies 1 through 3; Cronbach’s $\alpha = .80$.

Results and Discussion

Central Analyses

Manipulation Failure

The present study was originally designed to pilot an attempt at manipulating future controllability. The manipulation, however, was not successful. First, an examination of specific goal certainty/controllability (the manipulation check) showed no differences in felt control/certainty between the manipulated conditions. Furthermore, when we tested our initial hypothesis (that manipulated controllability should increase life satisfaction compared to a lack

²⁵ The correlation remained much the same when controlling for condition; $r(238) = .66$, $p < .001$.

of control), we found no main effects of condition when we compared all three conditions ($\beta = .07, p = .27$), nor when we compared just the two conditions where we expected the greatest difference in outcomes: the controllability and lack of control conditions ($\beta = .02, p = .90$). These results remained the same when we also controlled for initial life satisfaction. Finally, we examined the mood DV as the criterion variable and, similar to life satisfaction, no condition effects were found (β 's $< .27, p$'s $> .17$). To be completely thorough, we examined those initially low and those initially high in life satisfaction separately, and, once again, found no condition effects on Diener's life satisfaction (DV); β 's $< .38, p$'s $> .17$.²⁶

Upon reviewing the manipulations used to elicit feelings of future controllability vs. lack of control, it is possible that we burdened the participants with too many criteria with which to follow in a single step (i.e., describe a decision to sacrifice the present for a controllable future goal vs. describe a decision to sacrifice the present for an uncontrollable future goal) which may have failed to clearly distinguish the controllability aspects of the future from the sacrifice decision, thereby reducing the strength of the manipulated aspect (controllability) in the instructions. Thus, we simplified and altered several elements of the manipulation in Study 5 to test the original hypothesis.

Fortunately, and as described below in greater detail, none of the dependent measures in the present study differed by condition. As such we are able to proceed with correlational analyses and present meditational models that capture implicit theories and felt certainty/controllability of future goals as well as life satisfaction and willingness to sacrifice the present for the future.

²⁶ Note: Among the regression analyses that we ran to examine the potential main effects of condition, none of the regressions produced interactions with implicit theories.

Preliminary Analyses

To check the success of random assignment, we first wanted to make sure that implicit theories of personality and the LS pre-measure did not differ by manipulated condition. Therefore, we conducted one-way ANOVAs and found that lay theories of personality did not differ by condition; omnibus $F(2, 230) = .14, p = .87$. LSD tests were used to compare the means between all conditions. No significant differences arose (p 's $> .60$). Additionally, we determined that the pre-measure of life satisfaction also did not differ across conditions; omnibus $F(2, 235) = .88, p = .42$, and LSD tests found no differences between conditions; p 's $> .22$. Refer to Table 21 for all comparisons.

Did any of the dependent variables differ by condition? One-way ANOVAs were conducted to test if any of the dependent measures in the present study differed by condition. For the remainder of the analyses, we are concerned mainly with participants' ratings of specific goal certainty/controllability and general certainty/controllability of future goals as well as Diener's LS measure and willingness to sacrifice the present for the future. No differences arose across conditions on Diener's life satisfaction measure; omnibus $F(2, 230) = .80, p = .45$, and, LSD tests indicated no differences between any of the conditions (p 's $> .21$). Additionally, no differences arose across conditions on specific goal certainty/controllability; omnibus $F(2, 236) = 1.14, p = .32$, or between conditions using LSD tests (p 's $> .16$). Finally, LSD tests for general future certainty between conditions showed only a marginal difference between the baseline condition ($M = 4.80, SD = 1.06$) and the controllable condition ($M = 4.52, SD = .86$); $p = .08$; omnibus $F(2, 233) = 1.72, p = .18$. Finally, we found no differences across conditions on willingness to sacrifice the present for the future; omnibus $F(2, 232) = .60, p = .55$, and, LSD

tests indicated no differences between any of the conditions (p 's > .33); Refer to Table 21 for all comparisons.

How do Entity and Incremental Theorists Differ in their Beliefs about Attainment and Controllability of Future Goals?

Once we determined that our manipulation was not successful and that neither life satisfaction nor our measures of goal certainty/controllability differed by condition, we sought to examine the degree to which implicit theories are associated with future goal certainty/controllability as doing so helps to further characterize the nature of entity and incremental theorists and can provide additional understanding for why we are seeing that incremental theorists are more satisfied with life when they sacrifice the present for the future and entity theorists are more satisfied when they do not sacrifice the present for the future.

To determine the relationship between implicit theories and future certainty/controllability we ran partial correlations controlling for initially assigned condition. Overall, implicit theories (where higher numbers indicate the incremental perspective) were found to be marginally correlated with specific certainty/controllability of future goal attainment; $r(233) = .12, p = .07$, and significantly correlated with general certainty of future goals; $r(233) = .27, p < .001$. Implicit theories were also found to be related to life satisfaction (DV); $r(231) = .15, p = .02$. Refer to Table 23 for all partial correlations. Furthermore, it is important to note that Diener's measure of life satisfaction (measured as a dependent variable) was also significantly related to specific goal certainty/controllability; $r(233) = .34, p < .001$, and general certainty of future goals; $r(233) = .43, p < .001$. In other words, people who felt that future outcomes are relatively certain/controllable also felt higher in overall life satisfaction.

Supplemental Analyses

Is the Relationship between Implicit Theories and Life Satisfaction Mediated by Felt Certainty/Controllability of Future Goals?

In the present study, participants were asked to describe a goal in which they were sacrificing the present for the future and then later rate the degree to which they feel certain about achieving the specific goal as well as their generalized beliefs about certainty over future goals. As noted above, we found a correlation between implicit theories and goal certainty (both specific and generalized). Additionally, there was a correlation between goal certainty (both specific and generalized) and Diener's life satisfaction. Thus, we tested these relationships in a mediational model. We used Preacher and Hayes' (2008) bootstrapping procedure to test mediation between implicit theories, goal certainty/controllability and life satisfaction (DV). Implicit theories was entered as the independent variable and Diener's life satisfaction was entered as the dependent variable. Two mediators were tested: specific goal certainty/controllability and generalized certainty of future goals. Initially assigned condition was controlled for in both path analyses.

First, we examined specific goal certainty/controllability. Bootstrapping (1000 samples, 95% confidence intervals) revealed a significant indirect effect; 95% CI [.01, .13], $p < .05$, suggesting that participants' feelings of specific goal certainty/controllability partially mediates the relationship between implicit theories and life satisfaction.²⁷ See Figure 10.

Next, we examined generalized certainty of future goals. The same bootstrapping procedure was used and, once again, revealed a significant indirect effect; 95% CI [.05, .22], $p < .05$.

²⁷ We also tested the original mediation for those initially low and high in life satisfaction separately (via median split). Mediation by specific goal certainty emerged as non-significant for both groups

.05, suggesting that generalized certainty of future goals also mediates the relationship between implicit theories and life satisfaction.²⁸ See Figure 11.

Is the Relationship between Implicit Theories and Willingness to Sacrifice the Present for the Future Mediated by Felt Certainty/Controllability of Future Goals?

In addition to the relationship between implicit theories and felt certainty/controllability, there was a correlation between implicit theories and willingness to sacrifice the present for the future; $r(232) = .25, p < .001$. If felt controllability of future goals is related to higher life satisfaction, then felt controllability may also explain why incremental theorists are more willing to sacrifice the present for the future. Thus, we tested these relationships in a mediational model. Implicit theories was entered as the independent variable and willingness to sacrifice the present for the future was entered as the dependent variable. As we did with life satisfaction above, two mediators were tested and condition was controlled for in both path analyses.

First, we examined specific goal certainty/controllability. The same bootstrapping procedure as above was used and revealed a significant indirect effect; 95% CI [.01, .10], $p < .05$, suggesting that specific goal certainty/controllability partially mediates the relationship between implicit theories and willingness to sacrifice the present for the future. See Figure 12.

The bootstrapping procedure also revealed a significant indirect effect of generalized certainty of future goal; 95% CI [.05, .19], $p < .05$, suggesting that generalized certainty of future goals also partially mediates the relationship between implicit theories and willingness to sacrifice the present for the future. See Figure 13.

²⁸ We also tested the original mediation for those initially low and high in life satisfaction separately (via median split). Mediation by general certainty of future goals remained significant for both the low and high LS groups.

Discussion

As we have surmised, incremental theorists (vs. entity theorists) feel more certain of and more control over attaining specific goals and feel more certain about future goals in general. This may be one reason why incremental theorists feel more satisfaction with life when working toward future goals despite the present sacrifices they must make along the way. In contrast, because entity theorists feel less control over attaining future goals, this may be one reason why they feel little satisfaction sacrificing present rewards while working toward future goals if they feel less certain that future goals will work out. Indeed, we found some evidence for this reasoning. Not only did we find that the relationship between implicit theories and life satisfaction was mediated by future goal certainty, but this same process variable mediated the path between implicit theories and willingness to sacrifice the present for the future; thus suggesting both affective consequences of long term goal pursuit (i.e., life satisfaction) for incremental theorists, and possibly the self-regulatory cognitions needed to actually pursue more long term goals (i.e., willingness to sacrifice)

Study 5

The results of Study 4 suggest that incremental theorists feel more certainty and control over future outcomes than entity theorists do and that felt certainty/controllability is one likely explanation for why incremental theorists are more willing to sacrifice the present for the future and feel higher life satisfaction when doing so. Thus, in Study 5, we sought to, once again, explicitly manipulate felt controllability with respect to future goals as part of establishing a causal link between feelings of future goal certainty and life satisfaction as suggested by Spencer et al. (2005). Additionally, we will test if felt controllability causes more willingness to sacrifice the present for the future.

For Study 5, we returned to the goal elicitation methodology used in Study 2 and asked all participants to generate a decision that they are working on these days where they are sacrificing some present goal/benefit in order to achieve some future goal/benefit. This instruction captures the tension involved in prioritizing one goal at the expense of another. As in Study 4, we once again only include the future goal condition in the present study (sacrificing the present for the future) and not the converse condition (sacrificing the future for the present).

After participants described the tension situation (sacrificing the present for the future), participants were directed to a new page where they were then randomly assigned to one of three manipulated conditions. One third of the participants were asked to think about and write down the ways that they foresee having control over how the future goal will work out (the controllable condition). Another third thought about and wrote down the ways they foresee not having control over how the future goal might work out (the lack of control condition). Finally, another third of participants (those in the baseline condition) did not elaborate on goal controllability or uncontrollability. We expect that separating the goal elicitation from the controllability manipulation will allow the controllability manipulation to become more salient, and thus, a more powerful manipulation.

As in Study 4, we again focus on the main effects of our controllability manipulation and hypothesize that when controllability of future outcomes is emphasized (the controllable condition), participants will indicate higher satisfaction with life and a greater willingness to sacrifice the present for the future than when uncontrollability of future outcomes is emphasized (the lack of control condition). Once again, we have no specific hypotheses for the effect of the baseline condition on participants' overall life satisfaction.

In addition, we measured two dependent variables previously shown to be related to life satisfaction and to beliefs about the future: optimism (Busseri, Choma, & Sadava, 2009) and pessimism (Chang, Maydeu-Oivares, & D’Zurilla, 1997). Similar to our expected outcomes of un/controllability on life satisfaction, we expect that participants will indicate higher optimism and lower pessimism when future goal controllability is emphasized than when future goal uncontrollability is emphasized.

Method

Participants

Four hundred and eighteen participants were recruited through Mturk. Thirty-nine participants failed one, both, or all three attention checks and twenty-eight participants spent less than 30 seconds generating an event in which they expect to sacrifice some present goal/benefit for some future goal/benefit.²⁹ In total, sixty-seven participants were eliminated from all analyses leaving 351 participants ($M_{\text{age}} = 38.71$, $SD = 13.62$; 199 female, 151 male, and 1 undisclosed).

Procedure

Participants completed the questionnaire package online in one 20 minute session in the same order as listed below (see also Appendix E).

Measures

Life Satisfaction and mood pre-measures. Life satisfaction and mood were pre-measured the same as Studies 2 through 4.

Implicit theories. As in Studies 2 through 4, implicit theories were measured using the Dweck (1999) implicit theory of personality measure. A composite score where higher numbers

²⁹ To remain consistent with Studies 2, 3 and 4, thirty seconds was deemed the cut-off for generating a future focused event. There were no participants who spent more than 1000 seconds generating their event.

indicate a stronger incremental theory was then calculated for participants' implicit theory of personality (Cronbach's $\alpha = .96$).

Goal elicitation. Similar to Study 2, participants were asked to think of a decision that they are working on these days where they are sacrificing some present benefit/goal in order to prioritize a future benefit/goal and briefly describe the decision. Recall that in Study 2, we asked participants to “think of a decision that they are working on these days – *or worked on recently* . . .” whereas in the present study, we eliminated the words “or worked on recently” as we wanted participants to stay focused on a future mindset wherein they would likely still be on the path to fulfilling some future goal/desire.

Controllability Manipulation. Participants were randomly assigned to think about and write down the ways they foresee having control over how the future goal will work out (controllable condition) or the ways they foresee not having control over how the future goal might work out (lack of control condition). Participants read a preamble designed to encourage them to think of the future as either *certain/controllable* or *uncertain/uncontrollable*. It was noted: “as you work toward this goal, recall that the future is actually [more controllable/less controllable] than we sometimes realize, so, we can [often be pretty certain/never be certain] that the goals we are aiming for will work out, [given/despite] the sacrifices we make in the present.” Then, participants were asked to “think about how the future benefit/goal is [relatively certain/uncertain] to work out and write down the ways that you [foresee having control/don't have control] over how it will work out.”

Life satisfaction. As in Studies 2 through 4, life satisfaction (LS) was captured by Diener's measure of global life satisfaction (Diener et al., 1985). A composite score where higher numbers indicate higher overall life satisfaction was calculated (Cronbach's $\alpha = .93$).

Goal importance. Following the dependent variable measure of life satisfaction participants were asked to rate the importance of both the present goal and the future goal (i.e., the present vs. future goal pitted against each other during the tension manipulation) generated during goal elicitation. On a 7-point Likert scale anchored at endpoints 1(*not at all important*) to 7(*extremely important*), participants were asked, “Please indicate how important the present benefit/goal is to you in general.” and “Please indicate how important the future benefit/goal is to you in general.”

Goal Progress. Participants were asked to indicate how far along they are in attaining the future goal they wrote about in the goal elicitation procedure. On an 8-point Likert scale from 0(*have not started yet*), to 1(*just beginning*) to 7(*almost completed*), participants were asked to indicate their response to the following question: “From 'just beginning' to 'almost completed' - Approximately how far along are you in trying to attain this future benefit/goal? If you have not started pursuing this goal yet, indicate ‘have not started yet.’”

Specific certainty/controllability of future goal. Specific goal certainty and goal controllability were measured the same as in Study 4. These items were highly correlated; $r(342) = .64, p < .001$, and were thus combined to create a composite measure; Cronbach’s $\alpha = .78$.

Generalized beliefs about future goal attainability. Generalized beliefs about future goal attainability were measured using the same 3 items as in Study 4; Cronbach’s $\alpha = .62$.

Optimism and Pessimism. We were interested in further characterizing the degree to which feelings of future goal controllability versus uncontrollability influence feelings of pessimism and optimism. As one might expect, pessimism is typically found to be strongly and negatively related to life satisfaction (Chang, et al., 1997) and optimism is found to be strongly associated with life satisfaction (Busseri, et al., 2009). To measure optimism (a generally

positive outlook on the future), we used a shortened version of Scheier and Carver's (1985) Life Orientation Scale. From 1(*strongly disagree*) to 7(*strongly agree*), participants completed a 3-item measure that included statements such as "In uncertain times, I usually expect the best," and "If something can go wrong for me, it will," [R]; $\alpha = .82$. To capture pessimism (a generally negative outlook on the future), we used a shortened version of Hayes et al.'s (2015) measure of pessimism. From 1(*strongly disagree*) to 7(*strongly agree*), participants completed a 4-item measure that included statements such as: "There is no guarantee that working hard will get you the future rewards that you hope for," "I feel like society doesn't have very much to offer me," and "I know that if I work hard now I will benefit from it in the future," [R]; Cronbach's $\alpha = .74$.

Willingness to sacrifice the present for the future. Willingness to sacrifice the present for the future was the same measure used in Studies 1 through 4; Cronbach's $\alpha = .80$.

Sacrifice the Present – One vs. many instances? Finally, we were curious about how participants characterize present sacrifices while working toward future goals/rewards. Whereas the goal-regulation literature (e.g., Baumeister & Vohs, 2007) often examines the "snapshot" moment of how people self-regulate in the face of one temptation (e.g., pass up a tempting doughnut) in pursuit of a long term goal (e.g., a diet/health goal), we were curious if when people think about the sacrifice involved in pursuit of a future goal/reward, they may bring to mind multiple sacrifices that must be made over a span of time (e.g., pass up all future tempting doughnuts). We were interested in characterizing the ways people thought about the present sacrifice (as one or many) relative to the future goal. . Participants first read a preamble that stated, "For today's exercise . . . when you thought about giving up a present goal/benefit - would you say this is a 'one time' sacrifice? OR, is it about giving up 'several' immediate rewards? -- i.e., making many immediate sacrifices over time on the way to the future goal/benefit." Then on

a Likert scale from 1(*one time sacrifice*) to 5(*many sacrifices over time*) participants answered the question “On the scale below, to what degree did “sacrificing” the present represent a ‘one time’ sacrifice versus ‘many sacrifices’ over time?” We have no specific hypotheses about this item. The answers to this question will be examined for descriptive exploration only.

Results and Discussion

Recall that for Study 5, we hypothesized that when controllability of future outcomes is emphasized (the controllable condition), participants will indicate higher satisfaction with life and greater willingness to sacrifice the present for the future than when uncontrollability of future outcomes is emphasized (the lack of control condition). We had no specific predictions for the baseline condition.

Central Analyses

Preliminary Analyses

As a test of random assignment, we first wanted to make sure that implicit theories of personality, initial mood and initial life satisfaction did not differ by condition. We ran one-way ANOVAs with condition (lack of control, baseline and controllable; effect coded -1, 0, 1) as the fixed factor and treated initial life satisfaction, initial mood and implicit theories as dependent variables. No differences across conditions arose for either of the variables; omnibus F ’s < 1.18 , p ’s $> .31$. LSD tests were used to compare the means between all conditions on each of the variables. No significant differences arose between conditions for any of the variables (p ’s $> .15$).³⁰ The means and standard deviations of all measures across the three conditions are reported in Table 24.

³⁰ We also regressed condition and implicit theories onto initial life satisfaction and also onto initial mood and found no interactions; β ’s $< .02$, p ’s $> .72$.

Goal Importance. First, we compared the goal importance ratings for present and future goals (a within-subjects comparison) by manipulated condition in a repeated measures multivariate analysis. Recall that participants were asked to describe a decision where they are sacrificing a present goal in pursuit of a future goal. Not surprisingly, we found that overall, future goals ($M = 6.33$, $SD = .91$) were rated as more important than present goals ($M = 5.22$, $SD = 1.49$); $F(1, 340) = 186.49$, $p < .001$, $\eta^2 = .35$. Additionally, a condition \times present/future comparison interaction emerged significant; omnibus $F(1, 340) = 3.77$, $p = .024$, $\eta^2 = .02$. In order to test potential differences between conditions, we first created difference scores whereby we subtracted present importance ratings from future importance ratings and entered this variable as the dependent variable in a one-way ANOVA. First, descriptive statistics showed that future goals were rated more important than present goals across all conditions. LSD tests revealed that there was a significant difference between the baseline condition ($M = .873$, $SD = 1.43$) and the controllable condition ($M = 1.41$, $SD = 1.51$); $p = .007$, suggesting that participants in the controllable condition rated their future goals as significantly more important than present goals compared to participants in the baseline condition. There was a marginal difference between the lack of control condition ($M = 1.04$, $SD = 1.49$) and controllable condition; $p = .07$, also suggesting that in the controllable condition participants rated future goals as more important than present goals compared to participants in the lack of control condition. There was no difference between the lack of control condition and the baseline condition; $p = .40$. Additionally, we regressed both implicit theories and all condition comparisons (using two dummy variables reflecting a comparison of the controllable condition and the lack of control condition to the baseline condition, and, a comparison of the baseline and the controllable conditions to the lack of control condition) onto the ‘difference in importance’ variable as the criterion. Results for

condition mirrored those found in the ANOVA analysis. Furthermore, there was no interaction with implicit theories (p 's > .23). Overall, participants rated future goals as more important than present ones when future goal controllability was emphasized (vs. lack of control and baseline) and these differences did not differ for entity or incremental theorists.

We also examined importance ratings separately with implicit theories as a possible moderator. Looking only at importance ratings of present goals, we first examined present importance ratings by condition. An omnibus ANOVA revealed no effect of condition on present importance ratings, $F(2, 340) = 1.40, p = .27$. Furthermore, LSD tests revealed no differences between any of the conditions, p 's > .15. Additionally, we regressed both implicit theories and all condition comparisons (using the dummy variables) onto present importance as the criterion variable. Results for condition mirrored those found in the ANOVA analysis. Furthermore, there was no interaction with implicit theories (p 's > .16).

We also examined future importance ratings by condition. An omnibus ANOVA revealed an overall marginal effect of condition; $F(2, 341) = 2.86, p = .06, \eta^2 = .02$. LSD tests revealed that participants ranked their future goal as more important in the controllable condition ($M = 6.45, SD = .70$) than in the baseline condition ($M = 6.17, SD = 1.09$); $p = .02$ but not more important than the lack of control condition ($M = 6.37, SD = .85$); $p = .52$. The baseline and lack of control conditions were marginally different; $p = .10$. We then regressed both implicit theories and condition (using the dummy variables) onto future importance as the criterion variable. Results for condition mirrored those found in the ANOVA analysis and there was no interaction with implicit theories (p 's > .29).

Finally, we examined participants' goal progress by condition. An omnibus ANOVA revealed an overall effect of condition; $F(2, 341) = 5.11, p = .006, \eta^2 = .03$. LSD³¹ tests revealed that in the controllable condition; i.e., when they wrote about the ways in which they have *control* over how the goal might work out, participants reported being further along in their goals ($M = 4.87, SD = 2.03$) than in the baseline condition ($M = 4.28, SD = 2.13$); $p = .02$. Similarly, when participants wrote about the many ways in which they have *no control* over how the goal might work out (i.e., the lack of control condition) they also reported higher goal progress ($M = 5.08, SD = 2.28$) than in the baseline condition. Because both the controllable and lack of control conditions were rated as higher in goal progress than baseline, it is possible that simply by asking participants to elaborate on the steps they could take in pursuing the long term goal this activated a sense that the goal was also further along regardless of goal controllability. Importantly, goal progress did not differ between our main conditions of interest in the present study: the controllable condition and the lack of control condition; $p = .55$. It is worth keeping in mind that when people do not elaborate on how they might achieve the goal (as was the case in the baseline condition) they may be qualitatively different from the two experimental conditions that shared a more common method.

Manipulation Checks

Specific certainty/controllability of future goal. To determine if the manipulation had its desired effect, we examined participants' ratings for specific goal attainability and goal-specific feelings of control over the goal. An omnibus ANOVA revealed a significant effect of

³¹ Regression analyses revealed the same results for condition. For each regression, implicit theories and the dummy variables were entered in Step 1 and the interaction term for implicit theories and each dummy was entered in Step 2. Regression analyses confirmed the between condition comparisons as found in the univariate tests noted above when goal progress was the criterion. Furthermore, there were no interactions between implicit theories and any of the condition comparisons; p 's > .79.

condition on specific goal attainability, $F(2, 341) = 8.77, p < .001, \eta^2 = .05$. LSD³² tests revealed that as expected, participants felt that their specific goal was more certain/controllable in the controllable condition ($M = 5.87, SD = 1.09$) than in the baseline condition ($M = 5.51, SD = 1.37$); $p = .03$, and the lack of control condition ($M = 5.16, SD = 1.27$); $p < .001$. Furthermore, participants felt more certain/control of their specific goal in the baseline condition than in the lack of control condition; $p = .04$. In sum, our controllability manipulation seems to have had its desired effects.

Generalized beliefs about future goal attainability. Similar to specific goal attainability, we were curious if the controllability manipulation affected participants' generalized certainty of future goals. An omnibus ANOVA revealed a significant effect of condition on generalized certainty of future goals, $F(2, 330) = 7.11, p = .001, \eta^2 = .04$. LSD³³ tests revealed that participants felt more certain about attaining goals in general in the controllable condition ($M = 4.99, SD = 1.02$) than in the baseline condition ($M = 4.62, SD = 1.12$); $p = .012$, and the lack of control condition ($M = 4.45, SD = 1.03$); $p < .001$. There were no differences between the baseline and the lack of control conditions; $p = .22$.

Do Feelings of Control over Future Goals vs. Lack of Control affect Life Satisfaction and Willingness to Sacrifice the Present for the Future?

Life Satisfaction. For the present study, we sought to explicitly manipulate felt controllability with respect to future goals as part of establishing a link between feelings of future goal controllability and life satisfaction. Recall that in Studies 3 and 4 we found a relationship between implicit theories and felt certainty/controllability of future goals, therefore,

³² Regression analyses revealed the same results for condition. Furthermore, implicit theories did not interact with any of the condition comparisons; p 's $> .15$.

³³ Similar to the other manipulation checks, regression analyses revealed the same results for condition. Implicit theories did not interact with any of the condition comparisons; p 's $> .65$.

in Study 5 we manipulated feelings of future controllability as one means of providing evidence of a causal link between felt controllability of future outcomes and overall life satisfaction (e.g., Spencer et al., 2005). We hypothesized that when controllability of future outcomes is emphasized (the controllable condition), participants will indicate higher satisfaction with life than when uncontrollability of future outcomes is emphasized (the lack of control condition). We had no specific hypotheses for the baseline condition.

First, we ran a one-way ANOVA to examine life satisfaction ratings (our dependent measure) by condition (lack of control, baseline, and controllable; effect coded -1, 0 1) to determine if there were any differences in life satisfaction ratings by condition. An omnibus ANOVA did not reveal a significant effect of condition on life satisfaction, $F(2, 348) = 1.66, p = .19, \eta^2 = .01$. However, LSD³⁴ tests revealed a marginal difference in life satisfaction between the lack of control and controllable conditions; the conditions that we hypothesized would show the greatest contrast. Participants expressed higher satisfaction with life when future goal controllability was made salient ($M = 4.55, SD = 1.56$) than when lack of control was made salient ($M = 4.15, SD = 1.58$); $p = .09$. Life satisfaction ratings did not differ between the controllable and the baseline condition ($M = 4.25, SD = 1.55$); $p = .15$, nor did the baseline condition differ from the lack of control condition; $p = .76$.³⁵ Although marginal, the difference between the controllable and lack of control condition (the two conditions where we expected to see most of the action) suggests that our manipulation of control over future goals had somewhat of an effect on participants' overall life satisfaction ratings. These findings provide some

³⁴ An omnibus ANOVA with LSD tests (where the difference between present goal importance versus future goal importance was entered as a control variable) produced the same results.

³⁵ When the mood DV (measured just prior to Diener's LS) was tested as the dependent variable a significant effect of condition emerged; omnibus ANOVA $F(2, 341) = 3.42, p = .034$. LSD tests revealed that participants were happier in the controllable condition ($M = 5.00, SD = 1.57$) than in the lack of control condition ($M = 4.47, SD = 1.61$); $p = .02$, and the baseline condition ($M = 4.55, SD = 1.65$); $p = .04$. There were no differences between the baseline and lack of control conditions; $p = .71$.

preliminary (although weak) evidence in establishing a causal link between feelings of future control and life satisfaction.

Willingness to sacrifice the present for the future. Similar to the above analyses, we were interested in determining if the control manipulation had the anticipated effect on participants' willingness to sacrifice the present for the future. An omnibus ANOVA revealed no overall effect of condition, $F(2, 329) = 1.99, p = .14, \eta^2 = .01$. LSD³⁶ tests however, revealed that participants were marginally more willing to sacrifice the present for the future in the controllable condition ($M = 5.00, SD = 1.13$) than in the lack of control condition ($M = 4.72, SD = 1.07$); $p = .07$, and also in the baseline condition ($M = 4.75, SD = 1.27$); $p = .10$. There were no differences between the lack of control and baseline conditions; $p = .80$. Similar to the findings above with life satisfaction, these findings provide preliminary (although weak) evidence in establishing a causal link between feelings of future control and willingness to sacrifice the present for the future.

Do Feelings of Control over Future Goals vs. Lack of Control affect Optimism or Pessimism?

Optimism and pessimism are usually found to be strongly correlated with life satisfaction (Busseri et al., 2009; Chang et al., 1997). The findings of the present study confirm this: optimism and life satisfaction (LS) are strongly positively correlated; $r(334) = .63, p < .001$, and pessimism is strongly negatively correlated with LS; $r(334) = -.50, p < .001$. We speculated that the controllability manipulation would affect optimism and pessimism, both because the manipulation altered anticipated future outcomes, and because these variables are so connected

³⁶ Regression analyses revealed the same results for condition. Moreover, implicit theories did not interact with condition; p 's $> .11$.

to life satisfaction. Thus, and similar to the main analyses above, we examined optimism and pessimism as additional dependent variables.

Starting with optimism, an omnibus ANOVA revealed a significant effect of condition (coded -1, 0, 1) on optimism, $F(2, 332) = 2.98, p = .05, \eta^2 = .01$. LSD³⁷ tests revealed that participants were significantly more optimistic in the controllable condition ($M = 4.70, SD = 1.33$) than in the lack of control condition ($M = 4.27, SD = 1.41$); $p = .016$, however there was no difference between the controllable condition and the baseline condition ($M = 4.44, SD = 1.41$); $p = .12$. Furthermore, there was no difference between the baseline and lack of control condition; $p = .37$.

Next we examined pessimism. Similar to optimism, an omnibus ANOVA revealed a significant effect of condition (coded -1, 0, 1) on pessimism, $F(2, 332) = 4.02, p = .02, \eta^2 = .02$. Also similar to optimism, LSD³⁸ tests revealed that participants were significantly more pessimistic in the lack of control condition ($M = 3.80, SD = 1.20$) than in the controllable condition ($M = 3.36, SD = 1.21$); $p = .007$, but not more than in the baseline condition ($M = 3.70, SD = 1.19$); $p = .46$. Additionally, participants were less pessimistic in the baseline condition than in the controllable condition; $p = .04$.

Overall, the results for optimism and pessimism informatively complement the outcomes of our controllability manipulation on life satisfaction and willingness to sacrifice the present for the future.

³⁷ Regression analyses revealed the same results for condition. Additionally, implicit theories did not interact with any of the condition comparisons; p 's > .20.

³⁸ Regression analyses revealed the same results for condition. Additionally, implicit theories did not interact with any of the condition comparisons; p 's > .39.

Supplemental Analyses

Did Implicit Theories Play a Role in Response to the Control vs. No Control Manipulation?

We sought to alter the psychological experience of future certainty/controllability (which we found to vary by implicit theories in Studies 3 & 4), thus we may not see an effect of implicit theories. However, it is still possible that the role of implicit theories would continue to be visible. If differences are found between how entity and incremental theorists reacted to the controllability vs. lack of control manipulation, it may help to elucidate why the direct relationship between manipulated control and life satisfaction was only marginal.

To examine this more directly, we used regression analyses. We entered condition (lack of control, baseline, controllable; effect coded -1, 0, 1) and implicit theories (mean centered) in Step 1, and the interaction term in Step 2 predicting Diener's life satisfaction as the criterion variable. The main effect of condition emerged as nearing marginal; $b = .17$, $\beta = .08$, $p = .11$, 95% CI = [-0.04, .38], however this is an omnibus effect of condition, rather than a comparison between conditions.³⁹ Additionally, there was a main effect of implicit theories; $b = .17$, $\beta = .12$, $p = .02$, 95% CI = [.03, .31], suggesting that incremental theorists were more satisfied with life overall than entity theorists (at least in the context of thinking about future goals, which was the case for all conditions in Study 5). However, there was no interaction between condition and implicit theories; $p = .29$. See Table 26 for β and t values for all predictor variables.

We wondered, if, similar to Study 3, the effects of the manipulation might interact with implicit theories on life satisfaction differentially for those who are initially low versus high in life satisfaction. As such, we entered initial life satisfaction as an additional moderator in the

³⁹ When condition was broken down into two sets of dummy variables and examined in regressions with implicit theories, only the comparison between the no control and control condition emerged as nearing marginal, $b = .33$, $\beta = .10$, $p = .12$. Implicit theories did not interact with any of the condition comparisons, p 's > .31.

regression analysis. The omnibus regression did not produce a significant 3-way interaction between condition, implicit theories and initial life satisfaction; $b = -.03$, $\beta = -.04$, $p = .18$, 95% CI = $[-.06, .01]$. See Table 27 for β and t values for all predictor variables.⁴⁰

For the sake of due diligence, and to replicate our analysis strategy of Study 3, we opted to examine separately those initially low and initially high on life satisfaction to see if implicit theories might have interacted with the effects of our manipulation. Thus, we re-ran the regression analyses examining condition (lack of control, baseline, controllable; coded -1, 0, 1) x implicit theories on life satisfaction DV for those low and high in initial life satisfaction. Not surprisingly, and similar to Study 3, all of the action was found to be within the participants who were initially low in life satisfaction. Results showed a main effect of condition; $b = .28$, $\beta = .17$, $p = .02$, 95% CI = $[.04, .51]$ suggesting that there is a significant difference on life satisfaction between at least two of the conditions. Additionally, there was a main effect of implicit theories; $b = .24$, $\beta = .21$, $p = .005$, 95% CI = $[.07, .41]$, suggesting that, for those initially low in life satisfaction, incremental theorists reported feeling more satisfied with life than entity theorists. However, the main effects were qualified by a significant interaction; $b = .25$, $\beta = .17$, $p = .025$, 95% CI = $[.03, .48]$.⁴¹ See Figure 14.

For those initially high in life satisfaction, results of the regression analysis show neither an effect of condition; $p = .33$, nor an interaction; $p = .37$,⁴² however, similar to those initially low in life satisfaction a main effect of implicit theories emerged as significant; $b = .13$, $\beta = .17$,

⁴⁰ When condition was broken down into two sets of dummy variables and examined in regressions with implicit theories and initial life satisfaction one of the condition contrasts produced a marginal interaction with implicit theories and initial life satisfaction – the contrast between baseline and the control condition; $b = -.06$, $\beta = -.07$, $p = .09$. None of the other 3-way interactions were significant; p 's $> .22$.

⁴¹ The interaction between condition and implicit theories remained significant for those initially low in life satisfaction when controlling for Mood (DV); $b = .19$, $\beta = .12$, $p = .047$, 95% CI = $[.00, .37]$.

⁴² Results for the initially high satisfaction group remained non-significant when controlling for Mood (DV) in the regression.

$p = .023$, 95% CI = [.02, .24], once again suggesting that for those initially high in life satisfaction, incremental theorists reported feeling more satisfied than entity theorists overall. See figure 11.

To better examine the effects of our three conditions, we created two sets of dummy variables that allowed us to determine which of the condition contrasts interacted with implicit theories predicting life satisfaction. In order to test all of the condition contrasts, two regressions were run for each group initially low and high in life satisfaction separately. In Step 1 of regression 1, we entered one pair of condition dummy variables and implicit theories (mean centered). In Step 2, we entered the interactions of each dummy variable and implicit theories. For regression 2, we used the second pair of condition dummy variables in the same manner.

The low life satisfaction group. For those initially low in life satisfaction, we found a significant condition effect between the lack of control and controllable conditions; $b = .54$, $\beta = .20$, $p = .026$, 95% CI = [.07, 1.02]. Additionally, there was an interaction between the lack of control and controllable contrast and implicit theories; $b = .50$, $\beta = .24$, $p = .03$, 95% CI = [.05, .94]. There was also an interaction between the baseline and controllable contrast and implicit theories; $b = .40$, $\beta = .20$, $p = .05$, 95% CI = [.01, .80]. There were no other condition effects or interactions; p 's $> .17$. See Table 28 for β and t values for all predictor variables for both regressions.

Next, for those initially low in life satisfaction, we examined the interaction pattern in regression analysis by examining the simple slopes of each condition contrast and the simple effects of implicit theories at one standard deviation (SD) above and below the mean for the implicit theories variable. As noted earlier, we anticipated overall, that the controllable manipulation encouraging participants to write about a number ways in which their future goal

was under their control (i.e., the controllable condition), that entity theorists would not differ in ratings of life satisfaction ratings from that of incremental theorists. For those initially low in life satisfaction, however, this was not the case. In the controllable condition, incremental theorists reported significantly greater life satisfaction than entity theorists; $b = .55$, $\beta = .47$, $p < .001$, 95% CI = [.26, .85], but did not differ from entity theorists in the baseline condition; $p = .28$, or the lack of control condition; $p = .71$. Indeed, entity theorists did not differ in their life satisfaction ratings across any of the conditions; p 's $> .68$. Incremental theorists, on the other hand, did have higher life satisfaction between the controllable and lack of control condition; $b = 1.12$, $\beta = .44$, $p = .002$, 95% CI = [.44, 1.80], and between the control and baseline condition; $b = .79$, $\beta = .29$, $p = .02$, 95% CI = [.12, 1.45]. Similarly, there was no difference between the baseline and lack of control condition; $p = .32$.

The high life satisfaction group. Similar to those initially low in life satisfaction, we first tested contrasts between all conditions, implicit theories and their interactions in regression analyses for the group initially high in life satisfaction. No condition effects or interactions emerged as significant; p 's $> .25$. See Table 29 for β and t values for all predictor variables for both regressions.

Simple effects tests revealed that incremental theorists were marginally more satisfied with life in the baseline condition; $b = .18$, $\beta = .23$, $p = .09$, 95% CI = [-.03, .38], which mirrors the effects found in Study 3 (also a focus on the future). Similarly, incremental theorists were also marginally more satisfied with life than entity theorists in the lack of control condition; $b = .17$, $\beta = .23$, $p = .09$, 95% CI = [-.03, .37]. Similar to those low in life satisfaction, there were no differences between the baseline and lack of control condition for entity or incremental theorists; p 's $> .86$.

In line with our initial predictions about how feelings of future control should increase life satisfaction for both theory holders, entity and incremental theorists did not differ in life satisfaction in the controllable condition; $b = .05$, $\beta = .06$, $p = .62$, 95% CI = $[-.14, .23]$. Thus, when encouraged to contemplate a number of ways that future goals are controllable, entity theorists seemingly were just as satisfied with life as incremental theorists whereas, in Studies 1 and 3 (when feelings of control were not made salient), entity theorists were much less satisfied when sacrificing the present for the future. Finally for those initially high on LS, entity theorists did not differ in life satisfaction between the controllable and lack of control contrast; $p = .17$, or the controllable and baseline condition; $p = .15$.

Sacrifice the present – One vs. many instances? Finally, we were curious about how participants characterized present sacrifices while working toward future goals/rewards. We wondered if, when people think about sacrificing a present goal/reward in pursuit of a future goal/reward they may contemplate several sacrifices that must be made. We examine the answers to this one-item measure with the understanding that the study was in no way structured around answering this particular question. Indeed, the interest in this item is driven by curiosity, and by examining it with an eye for descriptive information. Results will, at the very least answer the basic question: When people in the present study thought about sacrificing the present for the future, were they imagining just one moment of sacrifice in the present or were they imagining many moments of having to sacrifice the present?

To examine this question, we first looked at basic descriptive information. Recall that we asked participants to indicate their response on a scale from 1(*one time sacrifice*) to 5(*many sacrifices over time*). The mean on this item was 3.80 with a SD of 1.34 indicating that when participants spoke of a future goal that they were sacrificing present rewards for, there was a

propensity toward believing that many present sacrifices would be had over time in pursuit of their future goal. Indeed, the mean on this item differed significantly from 1 (one time sacrifice); $t(326) = 37.78, p < .001$; See Figure 16 for answer frequency histogram.

Then we examined correlations with the ‘one vs. many instances’ item and found that there was no relationship with implicit theories $r(327) = .03$, however there was a small negative relationship with life satisfaction (DV); $r(327) = -.16$, and the pre-measure of life satisfaction; $r(327) = -.17$, such that more sacrifices was related to lower life satisfaction (See Table 25 for intercorrelations among all of the variables). Next, we examined this item to see if it differed between conditions. An omnibus ANOVA revealed no differences among the lack of control, baseline and controllable conditions, $F(2, 324) = .62, p = .54$. LSD⁴³ tests revealed that participants felt they were sacrificing about the same number of present moments in the controllable condition ($M = 3.91, SD = 1.26$) as they did in the baseline condition ($M = 3.71, SD = 1.44$); $p = .27$, and the lack of control condition ($M = 3.80, SD = 1.31$); $p = .56$. There were also no differences between baseline and lack of control; $p = .60$.

Discussion

The present study manipulated felt controllability of future goals as part of establishing a link between feelings of future goal controllability and life satisfaction as well as willingness to sacrifice the present for the future as suggested by Spencer et al. (2005). We hypothesized that when controllability of future outcomes was emphasized, participants would indicate higher life satisfaction and a greater willingness to sacrifice the present for the future than when uncontrollability was emphasized.

⁴³ Regression analyses confirmed the between condition comparisons as found in the univariate test noted above. Furthermore, implicit theories did not interact with any of the condition comparisons; p 's $> .14$.

Although condition differences for both life satisfaction and willingness to sacrifice the present for the future were marginal, the findings provide some preliminary evidence of our causal hypothesis, suggesting that feelings of future controllability may affect both an affective component (i.e., feeling satisfied with one's life) and the self-regulatory cognitions needed to engage in long-term goal pursuits.

Additionally, we found corroborating evidence with our findings for optimism and pessimism between the *controllable* and *lack of control* conditions; variables that are highly related to life satisfaction. Optimism increased with the controllability manipulation and pessimism decreased. Thus, we feel confident in suggesting that some of the differences found in life satisfaction and a willingness to sacrifice the present for the future between entity and incremental theorists is due, in part, to feelings of control (for incremental theorists) or the lack thereof (for entity theorists). Initial mood, future goal importance (and present goal importance), as well as goal progress did not differ between the lack of control and controllable conditions, therefore, did not have a direct impact on the results, further supporting our contention that the results were, in fact, due to the controllability manipulation.

It is worthwhile to note that, for those initially low in life satisfaction, entity theorists were significantly less satisfied with life (the DV) in the controllable condition than incremental theorists. In fact, entity theorists did not differ on the dependent measure of LS between any of the conditions. We wondered if perhaps entity theorists in this group were not convinced by the controllable manipulation (i.e., that future goals can be controlled). Looking back to our earlier examination of the manipulation checks, however, where we asked about the degree to which participants felt that achieving the future goal felt within their control, we found only the

expected main effects of condition and no interactions with implicit theories.⁴⁴ It would appear, then, that entity theorists felt as much control over their future goal (in the controllable condition) as incremental theorists did. It is possible then, that even though entity theorists felt control over their future goal, this did not necessarily make them feel satisfied about it. In contrast, the entity theorists who were initially high in life satisfaction were just as satisfied as incremental theorists, which is what we predicted our controllable manipulation would do in our initial hypotheses. We elaborate on these findings more in the general discussion below.

Finally, we also learned in the present study that when participants were asked to describe future goals/rewards they hope to achieve that required sacrificing in the present that the present sacrifices were reported to be, on average, more than just a single sacrifice. In other words, most participants indicated that it was not just one sacrifice or temptation that they must give up in the present in service of future goals, but several present goals/rewards that they must sacrifice in this pursuit. This is meaningful because when people find themselves in real world self-regulatory conflicts they may consider complex tensions between immediate and future benefits that may involve not only a single instance of sacrifice, but repeated and sustained effort in pursuit of a future goal that may vary on certainty.

General Discussion

Overview of Findings

We have proposed that incremental theorists, who believe that attributes are malleable and can change and develop over time, should feel more satisfied with life when prioritizing

⁴⁴ To be completely thorough, we went back to the regression analysis for the manipulation checks to see if there were any interactions between any of the condition contrasts and implicit theories for those low in initial life satisfaction and those high in initial life satisfaction on goal controllability. No interactions emerged as significant; the lowest of which was the interaction between implicit theories and the baseline/no control comparison; $p = .12$. The rest of the interactions had p 's $> .28$.

future goals over present ones and entity theorists, who believe that attributes are relatively stable over time, should feel more satisfied prioritizing immediate goals over future ones. We demonstrated this pattern correlationally (Study 1) and experimentally (Study 3), noting that the effects may be especially likely to emerge among those who are lower in initial life satisfaction (Study 3).

We propose that this pattern may occur, at least in part, because incremental theorists are more certain they can control, and, thus achieve their future goals – making it more palatable to sacrifice current pleasure in pursuit of these rather certain future benefits. In Study 4 we showed that incremental theorists do feel more certain they can achieve future goals relative to entity theorists. Moreover, future goal certainty (both specific goal certainty and generalized feelings of future certainty) mediated the relationship between implicit theories and life satisfaction, as well as the relation between implicit theories and the willingness to sacrifice the present for the future. Finally, in Study 5 we manipulated this proposed mediator by attempting to make people feel more (or less) control over future outcomes. We expected that, paralleling incremental and entity theorists' natural tendencies, leading people to feel control over future goal outcomes should cause them to be more satisfied with life - and more willing to sacrifice the present for the future - relative to those who feel uncertain about future goals. Overall, future goal certainty did have a small effect: those led to think of how a goal outcome was controllable and more certain reported (marginally) more satisfaction with life and (marginally) more willingness to sacrifice for the future than those who thought of the ways the goal outcome was uncontrollable and uncertain. However, further exploration revealed that the effect was most pronounced for incremental theorists with lower initial life satisfaction, whereas entity theorists with low life satisfaction showed no evidence of increased satisfaction when goals were framed as controllable. This may

mean that entity theorists (especially those lower in current life satisfaction) are less likely to base life satisfaction on future goals, whether they viewed them as controllable or not. Indeed, it is possible that our proposed mediator of “controllability” (tested in Studies 4 & 5) may be more applicable to future (rather than present) goals. Taking this one step further, it is possible that there is something about the psychology of immediate goals that more strongly influences entity theorists. If this is the case, there may be an additional unmeasured mediator accounting for reactions to immediate goals.

Overall, the findings suggest that implicit theories of change and stability importantly moderate the satisfaction in life that people may feel when deciding whether to live for today or sacrifice immediate gains to pursue their future and that this relationship is, in part, mediated by feelings of certainty about and control over future outcomes - but that there may be additional mechanisms other than perceived control accounting for variations in participants’ responses, especially in the present goal condition. .

Additionally, we discovered a potential boundary condition for these effects (as was seen in Studies 3 & 5); namely, that the effects were stronger (or only in evidence) for those initially low in life satisfaction. It is possible that we encountered ceiling effects for those already high in life satisfaction at the onset. In other words, people already very satisfied with life might not shift their life satisfaction easily: They are less likely to increase in LS from an already high starting point; similarly, they may also be more impervious to temporary declines. It is plausible that single goal elicitation or temporary controllability manipulations are not enough to perturb an already highly satisfied state.

Based on our reasoning that people should be less satisfied if they feel less control over future outcomes, we would anticipate, then, that most of the action (i.e., the least satisfaction)

would occur in the situation where people feel most *uncertain* about the outcomes – which is what we found for entity theorists when we examined the simple effects in studies 1 and 3. Indeed, we found that entity theorists were less satisfied when sacrificing the present for the future (than the reverse), and, when in the future focused condition (sacrificing the present), entity theorists were less satisfied than incremental theorists.

The evidence is less consistent for incremental theorists. In Study 3 incremental theorists did not feel more life satisfaction in the future focus condition than in the present focus condition; suggesting that incremental theorists might be o.k. with either temporal focus. Additionally, incremental theorists did not show evidence of feeling less LS than entity theorists in the present focused condition in Study 3. Study 3 found some preliminary evidence that incremental theorists might feel more control (than entity theorists) over *both* present goals and future goals, however this measure was assessed prior to goal elicitation (i.e., prior to goal deliberation). Overall, we are not inclined to see the results for incremental theorists as problematic for our overall theorizing as we saw the same pattern of results across the first three studies.

Going back to Study 1, we did find that incremental theorists reported lower life satisfaction when they reported *not* sacrificing the present for the future (vs. sacrificing). It is possible that we did not see strong differences in the life satisfaction outcome measure between the future focus condition and present focus condition for incremental theorists in Study 3 because we asked them to describe only one instance of sacrificing the future for the present. For example, in Study 2, one incremental theorist in the present-focus condition wrote that they recently decided to hang out with a friend for the weekend (present goal) which they knew would conflict with their work schedule (future sacrifice). Although we cannot say for certain, we can

speculate that, in general, one instance of sacrificing the future for the present might not affect an incremental theorist's overall life satisfaction if there are a number of other instances in their life where they *are* sacrificing the present for the future. Future manipulations that encourage participants to describe several decisions of the same ilk (and more likely to have a permanent impact on future goals) might elicit stronger differences in life satisfaction for incremental theorists. It is not possible to determine with the present data whether or not incremental theorists are naturally drawn to pursuing longer-term, future-oriented goals in reality. This will be important to discern in future research. However, should this be the general case, it is possible that incremental theorists might not see that a temporary focus on present goals is much of an obstacle to future goals. We suspect that incremental theorists who *regularly* sacrifice the future for present/immediate outcomes are likely to be less satisfied overall than those who regularly sacrifice the present for the future. Corroborating evidence can be found in Study 1 whereby incremental theorists are significantly less satisfied when they have a low (vs. high) future focus time perspective and low (vs. high) promotion orientation, suggesting that incremental theorists likely do find great satisfaction in striving for the future.

In Study 5, entity theorists showed no evidence of increased satisfaction when goals were framed as controllable (for those initially low in LS). However, the entity theorists in this group reported having the same amount of control as incremental theorists did over the specific future goal (i.e., the manipulation check). It is possible then, that for entity theorists in the low LS group, feeling control over their future goal did not necessarily make them feel satisfied about it. It is entirely possible (although speculation at this point) that the initially low LS entity theorists were disappointed at the thought of sacrificing a present (more certain) reward even when future goals were made to feel controllable. Perhaps present benefits (and the sacrifice of them) may

mean more (or have different meaning) to entity (vs. incremental) theorists, which may, in turn, deflate life satisfaction outcomes irrespective of how certain the future goal seems.

Some corroborating evidence can be seen for this speculation in Study 1. For example, in Study 1, we found that entity theorists were significantly more satisfied than incremental theorists when they held a strong present hedonic time perspective (e.g., Zimbardo & Boyd, 1999), however, this did not preclude them from enjoying future goals; entity theorists were just as satisfied with life as incremental theorists when they also had a strong future time perspective and also when they were high in promotion focus (e.g., Higgins, 1997). Thus, it is possible that entity theorists can feel satisfied when working toward future goals. However, when present goals and future goals are pitted against each other, sacrificing a present goal might take all the pleasure out of the prospect of future goal fulfillment for entity theorists. For example, a graduate student may sacrifice their relationship with their young child in the short term while completing a thesis of great importance. Even though the student might see the thesis completion as completely within their control and important for their future, the sacrifice endured along the way might make the journey substantially less enjoyable than a journey that did not entail such present sacrifices. Thus, even a confident belief in the certainty of a future goal might not eliminate the possible perceived (and real) loss involved in sacrificing too much in the present.

Popular wisdom often highlights the importance of not losing sight of the joys of today by focusing solely on the journey on tomorrow, (e.g., “I’ll be happy when . . .”). However, as we speculate above, it is possible that sacrificing present benefits (for future goals) may have different meaning for entity (vs. incremental) theorists. Future research could examine this question. It is possible that, for entity theorists, the loss of a short-term benefit cannot be outweighed by the benefits of long term goals.

Theoretical and Practical Contributions

Previous research on implicit theories has found that individual differences in beliefs about change versus stability play an important role in how people approach and interpret the world (Hong et al., 1999; Plaks et al., 2009). Although implicit theories have been studied extensively as a cognitive construct for their effects on motivation (Dweck, 1999), learning (Dweck & Leggett, 1988), and person perception (Plaks et al., 2009), relatively little is known in the “self” domain and about the connection between implicit theories and life satisfaction. The present set of studies sheds some light as to one possible means by which these different theory holders might achieve life satisfaction.

Previous research on implicit theories has also found that incremental theorists feel more internal control (Dweck, 1995a) whereas entity theorists feel less internal control and are less optimistic about goal outcomes (Burnette et al, 2013). Our findings suggest that this might be one reason why entity theorists are less likely to feel satisfied by pursuing future goals over more certain present goals (and vice versa for incremental theorists). Looking specifically at future goals, we were able to determine that, indeed, incremental theorists felt more certainty and control over future outcomes, and finally, that feelings of future control also led to higher life satisfaction and also a greater willingness to sacrifice the present for the future.

Previous researchers have suggested that the entity system tends to breed uncertainty (Dweck et al., 1995b) leading to fewer and less successful self-regulation strategies (Burnette et al., 2013). Our research supports these past findings – it is possible that entity theorists gravitate toward short term goals because they provide more satisfaction. One outcome might be that entity theorists then develop fewer long term self-regulation strategies.

Self-regulation is often defined as a future-oriented endeavor (Baumeister & Vohs, 2007); whereby people delay immediate rewards in preference for larger future rewards. Thus, one's willingness to sacrifice the present for the future can be construed as a self-regulation strategy. The present research suggests that incremental theorists are not only more willing to sacrifice the present for the future (i.e., self-regulate), but that they also feel greater satisfaction with life when doing so. Some research has found that people can feel quite fulfilled when contemplating 'anticipated joys' of the future. People often pre-experience the expected hedonic outcomes of future events and can underestimate potential future misfortune (or pain) in the process (Gilbert & Wilson, 2007). Although speculative, it is possible that incremental theorists do not construe present-sacrifices as terribly painful or negative. Indeed, it seems entirely possible that incremental theorists relish their self-regulatory prowess and feel a degree of pride in working toward hard earned outcomes. To our knowledge, though, how entity and incremental theorists mentally represent present sacrifices (e.g., the degree of positive or negative valence) and or construe the process toward future goal fulfillment is not as yet known. These questions are ripe for investigation in future research.

As we hypothesized at the onset of this program of research, entity theorists are likely to be more satisfied when pursuing present (over future) goals and incremental theorists are likely to be more satisfied when pursuing future (over present) goals. This, of course, does not imply that people *only* pursue the goals that provide them with the highest positive evaluations of life all the time. Everyone pursues both present and future goals (Harber et al., 2003) and when these goals conflict, they may need to sacrifice one over the other for any number of reasons (Emmons, 1986). An important question that is not addressed in the present research is whether or not entity theorists *tend* to pursue present (over future) goals – in day to day living - and

whether or not incremental theorists *tend* to pursue future (over present) goals. It is possible that entity and incremental theorists (who differ on their achievement goals; e.g., performance vs. mastery) have different life experiences for which types of goals they are used to seeing work out in their lives when tension exists between present and future desires. For example, if an entity theorists has successfully achieved performance goals in the past (which may be more present-oriented than future-oriented), then they might see present-oriented goals as more meaningful in their lives, place greater values on such goals and possibly pursue these types of goals more naturally. In contrast, if incremental theorists have successfully achieved mastery-oriented goals in the past (e.g., if you don't succeed, try try again) these may be more future-oriented than present-oriented in nature. As a result they might see future-oriented goals as more meaningful in their lives, place greater value on such goals and pursue these types of goals more naturally. As noted previously, entity and incremental theorists might find different meaning in present vs. future goals which might ultimately affect the criterion for which these theory holders use to determine what “a good life” is – and what makes life satisfying.

Some of this theorizing parallels work by Sheldon and Elliot (1999) who find that when people select goals that match their underlying values and interests (i.e., self-concordant goals) they are more likely to feel more satisfied with their life. Sheldon and Elliott found that self-concordant goals tend to feel more authentic and meaningful and are more likely to be achieved thus furthering the well-being effect. In the case of implicit theories, there is a great deal of evidence showing that incremental theorists typically pursue learning and mastery-oriented goals (even though these goals require extra effort) which enables them to develop self-efficacy and strengthens their self-regulation abilities (Burnette et al., 2013). Thus, it is reasonable to assume that pursuing future goals at the expense of present ones might be a good “fit” for an incremental

theorist and deeply satisfying. In contrast, evidence shows that entity theorists tend to pursue performance goals that show off their enduring qualities and allow them to validate themselves (Dweck, 1999) however, to maintain this stature, entity theorists need to repeatedly seek reflections of their abilities in their performance. Thus, it is reasonable to surmise that pursuing immediate goals at the expense of future goals might be a good “fit” for an entity theorist. Although researchers have begun to examine the role of individual differences and personal goals and their effect on happiness and life satisfaction for individuals (see Myers & Diener, 1995 for a review), relatively little emphasis has been placed on considering how people with different underlying beliefs might fare better in different contexts.

So, what is the best way to achieve life satisfaction? Is it better to live for today or focus on the future? The findings of the present research might suggest that there may be two routes to life satisfaction depending on whether or not one holds entity or incremental beliefs. However, it is important to note that there are pitfalls with both types of goal pursuits (present and future). As noted earlier in this thesis, focusing on future goals is not only culturally valued (Spears et al., 2001) but has many concrete positive consequences for individuals in Western society such as higher socioeconomic status and superior academic achievement (Teahan, 1958; Zimbardo & Boyd, 1999); both of which are related to higher life satisfaction. Furthermore, people can enjoy engaging in the process of striving toward a future goal (Diener, 1984; Schmuck & Sheldon, 2001). However, if someone is always focused on the future, they may sacrifice really beneficial goals along the way, such as building relationships with family and friends.

Focusing on the present has many positive consequences as well. People who engage in hedonic activities often experience positive emotions (Brown & Ryan, 2003; Sobol-Kwapinska, 2013) which can often lead to feelings of higher life satisfaction in general (Lyubomirsky &

Layous, 2013). Furthermore, people with a present focus tend to nurture and enjoy their personal relationships (Zimbardo & Boyd, 1999). However, with a focus on the present, people may end up sacrificing important long-term objectives such as their career and may engage in risky behaviours that lead to negative outcomes (Zimbardo & Boyd, 1999).

Perhaps there is a middle ground – a way to strive toward future goals while not sacrificing the present – where future goals are always on the radar and in sight, but present goals are also valued. Some might say this type of balanced goal pursuit is a way of “enjoying the journey.” A quote that sums up this thought nicely is one found in a recent blog-post. The author states, “you need to have fun if you hope to reach the top of the mountain,” (Linge, 2011).

This concept is somewhat related to what Csikszentmihalyi (1990) might call “flow;” being immensely engaged in a present-moment activity, where this activity might also benefit some longer-term future goal. For example, a painter who is deeply engaged in perfecting the smallest details of a painting knowing that the entire collection of works are to be shown at some point in the future. It is possible that optimal experience – or optimal life satisfaction is possible when present and future goals are not considered an ‘either/or’, but rather parts of each other along the journey.

Limitations and Future Directions

There are a few limitations within present studies that should be pointed out. First, we discovered late in the process that Study 2 had a failure of random assignment. Without the corroborating evidence of Study 2, it is important to qualify the strength of the conclusions considerably until further research is conducted. Although correlational in nature, Study 1 does show that these relationships exist naturally. Broadly speaking though, replication research will be an important next step in the research process.

In some of the studies our sample sizes were somewhat low. For example, in Study 3, we did not initially plan for a 3-way interaction to examine those low and high in initial life satisfaction. With two hundred and thirty-nine participants in the study, the final analysis had approximately 30 participants in each of the eight cells. Similar to what is noted above, future studies that replicate the results with higher power is an important goal for future studies.

It is also important to note that in the present set of studies we did not test the causal role of implicit theories. It is possible that temporary shifts in implicit theories (i.e., via manipulation) might affect one's feelings of control over the future, one's willingness to sacrifice the present for the future or possibly even one's evaluation of life satisfaction. Furthermore, it is hard to rule out potential third variables or individual differences that may vary naturally with implicit theories when implicit theories are simply measured. Thus, we expect to manipulate implicit theories in future research studies in order to determine the causal role of these belief systems.

Finally, we do not address what goals entity and incremental theorists *tend* to pursue. It is quite plausible that the affective reactions (i.e., the life satisfaction evaluations) we document would be linked to a tendency to pursue goals that produce greater satisfaction (e.g., entity/present and increment/future). However, it is also possible that people may sometimes pursue goals that leave them feeling dissatisfied, at least in the moment. Future research can extend the focus on life satisfaction responses to a focus on goal decisions and typical patterns of goal pursuit among entity and incremental theorists, as well as the degree to which these evaluative responses might contribute to ultimate goal success.

Conclusions

We found that incremental theorists, who believe that attributes are malleable and can change and develop over time, feel more satisfied with life when prioritizing future goals over

present ones and entity theorists, who believe that attributes are relatively stable over time, feel more satisfied prioritizing immediate goals over future ones. The present set of studies suggests that implicit theories of change and stability importantly moderate the effects of temporal focus on life satisfaction.

Appendices

Appendix A: Study 1 Questionnaire

Appendix B: Study 2 Questionnaire

Appendix C: Study 3 Questionnaire

Appendix D: Study 4 Questionnaire

Appendix E: Study 5 Questionnaire

Implicit Theories:

Please indicate the extent to which you agree or disagree with the statements below.

People can't change the kind of person they are; No matter what they do, their fundamental attributes stay the same. (R)

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

A person's basic characteristics and traits can't be changed very much, no matter how hard they try. (R)

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

Willingness to Sacrifice Present for the Future

Indicate your level of agreement or disagreement.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

1. It is more important for me to enjoy life now than plan for the future. (R)
2. I am willing to sacrifice pleasure in the present because I know that it will bring me more rewards in the future.
3. I am afraid that if I sacrifice pleasure now, I will never experience many of the great things that life has to offer. (R)
4. I want to have a good time now, even if my future might suffer as a result. (R)

Regulatory Focus

This set of questions asks you HOW FREQUENTLY specific events actually occur or have occurred in your life.

1	2	3	4	5
Never or seldom				Very often

1. Compared to most people, are you typically unable to get what you want out of life? (R)
2. Growing up, would you ever “cross the line”? (R)
3. How often have you accomplished things that got you psyched to work even harder?
4. Did you get on your parents’ nerves often when you were growing up? (R)
5. How often did you obey rules and regulations that were established by your parents?
6. Growing up, did you ever act in ways that your parents thought were objectionable? (R)
7. Do you often do well at different things that you try?
8. Not being careful enough has gotten me into trouble at times. (R)
9. When it comes to achieving things that are important to me, I find that I don’t perform as well as I ideally would like to do. (R)
10. I feel like I have made progress toward being successful in my life.
11. I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them. (R)

Promotion Orientation, Items: 1, 3, 7, 9, 10, 11

Prevention Orientation, Items: 2, 4, 5, 6, 8

Time Perspective

Below are a number of statements. Read each one and rate: “HOW characteristic the statement is of you”

1	2	3	4	5
Very uncharacteristic of me				Very characteristic of me

1. I believe that getting together with one's friends to party is one of life's important pleasures.
2. Familiar childhood sights, sounds, smells often bring back a flood of wonderful memories.
3. Fate determines much in my life.
4. I often think of what I should have done differently in my life.
5. My decisions are mostly influenced by people and things around me.
6. I believe that a person's day should be planned ahead each morning.

7. It gives me pleasure to think about my past.
8. I do things impulsively.
9. If things don't get done on time, I don't worry about it. (R)
10. When I want to achieve something, I set goals and consider specific means for reaching those goals.
11. On balance, there is much more good to recall than bad in my past.
12. When listening to my favorite music, I often lose all track of time.
13. Meeting tomorrow's deadlines and doing other necessary work comes before tonight's play.
14. Since whatever will be will be, it doesn't really matter what I do.
15. I enjoy stories about how things used to be in the "good old times."
16. Painful past experiences keep being replayed in my mind.
17. I try to live my life as fully as possible, one day at a time.
18. It upsets me to be late for appointments.
19. Ideally, I would live each day as if it were my last.
20. Happy memories of good times spring readily to mind.
21. I meet my obligations to friends and authorities on time.
22. I've taken my share of abuse and rejection in the past.
23. I make decisions on the spur of the moment.
24. I take each day as it is rather than try to plan it out. (R)
25. The past has too many unpleasant memories that I prefer not to think about. (R)
26. It is important to put excitement in my life.
27. I've made mistakes in the past that I wish I could undo.
28. I feel that it's more important to enjoy what you're doing than to get work done on time.
29. I get nostalgic about my childhood.
30. Before making a decision, I weigh the costs against the benefits.
31. Taking risks keeps my life from becoming boring.
32. It is more important for me to enjoy life's journey than to focus only on the destination.
33. Things rarely work out as I expected.
34. It's hard for me to forget unpleasant images of my youth.
35. It takes joy out of the process and flow of my activities, if I have to think about goals, outcomes, and products.
36. Even when I am enjoying the present, I am drawn back to comparisons with similar past experiences.
37. You can't really plan for the future because things change so much.
38. My life path is controlled by forces I cannot influence.
39. It doesn't make sense to worry about the future, since there is nothing that I can do about it anyway.
40. I complete projects on time by making steady progress.
41. I find myself tuning out when family members talk about the way things used to be. (R)
42. I take risks to put excitement in my life.
43. I make lists of things to do.
44. I often follow my heart more than my head.
45. I am able to resist temptations when I know that there is work to be done.
46. I find myself getting swept up in the excitement of the moment.
47. Life today is too complicated; I would prefer the simpler life of the past.
48. I prefer friends who are spontaneous rather than predictable.

- 49. I like family rituals and traditions that are regularly repeated.
- 50. I think about the bad things that have happened to me in the past.
- 51. I keep working at difficult, uninteresting tasks if they will help me get ahead.
- 52. Spending what I earn on pleasures today is better than saving for tomorrow's security.
- 53. Often luck pays off better than hard work.
- 54. I think about the good things that I have missed out on in my life.
- 55. I like my close relationships to be passionate.
- 56. There will always be time to catch up on my work. (R)

Past Negative: 4, 5, 16, 22, 27, 33, 34, 36, 50, 54

Present Hedonistic: 1, 8, 12, 17, 19, 23, 26, 28, 31, 32, 42, 44, 46, 48, 55

Future: 6, 9R, 10, 13, 18, 21, 24R, 30, 40, 43, 45, 51, 56R

Past Positive: 2, 7, 11, 15, 20, 25R, 29, 41R, 49

Present Fatalistic: 3, 14, 35, 37, 38, 39, 47, 52, 53

Appendix B: Study 2 Questionnaire

Demographics

Age _____

Gender

- ☐ Female
- ☐ Male
- ☐ Other
- ☐ Do not wish to answer

Income

Average 'annual' household Income

- ☐ Less than 20,000
- ☐ 20,000 - 30,000
- ☐ 30,000 - 40,000
- ☐ 40,000 – 50,000
- ☐ 50,000 - 60,000
- ☐ 60,000 - 70,000
- ☐ 70,000 - 80,000
- ☐ 80,000 - 100,000
- ☐ 100,000 – 120,000
- ☐ 120,000 – 140,000
- ☐ More than 140,000

Organization for Economic Co-operation and Development (OECD) 1-item pre-measure of Life Satisfaction

All things considered, how satisfied are you with your life as a whole nowadays?

0	1	2	3	4	5	6	7	8	9	10
Extremely dissatisfied										Extremely satisfied

Mood: pre-measure

Right now, I don't feel very happy. (R)

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

Implicit Theories

Please indicate the extent to which you agree or disagree with the statements below, as they apply to yourself.

1	2	3	4	5	6
Strongly disagree					Strongly agree

1. My personality is a part of who I am and I can't change it very much. (R)
2. I can always change my personality.
3. The kind of person I am is something very basic about me and it can't be changed very much. (R)
4. I can do things differently, but the important parts of who I am can't really be changed. (R)
5. I can significantly change my basic characteristics, no matter who I am.
6. As much as I hate to admit it, you can't teach an old dog new tricks. I can't really change my deepest attributes. (R)
7. I can always substantially change the kind of person I am.
8. I am a certain kind of person, and there is not much that can be done to really change that. (R)
9. No matter what kind of person I am, I can always change very much.
10. I can change even my most basic qualities.

Approach/Avoidance

Please indicate how much you disagree or agree with each of the following statements.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree

1. By nature, I am a very nervous person.
2. Thinking about the things I want really energizes me.
3. It doesn't take much to make me worry.
4. When I see an opportunity for something I like, I immediately get excited.
5. It doesn't take a lot to get me excited and motivated.
6. I feel anxiety and fear very deeply.
7. I react very strongly to bad experiences.
8. I'm always on the lookout for positive opportunities and experiences.
9. When it looks like something bad could happen, I have a strong urge to escape.
10. When good things happen to me, it affects me very strongly.
11. When I want something, I feel a strong desire to go after it.
12. It is easy for me to imagine bad things that might happen to me.

Approach – items: 2, 4, 5, 8, 10, 11

Avoidance – items: 1, 3, 6, 7, 9, 12

Manipulation and Goal Elicitation (Present versus Future focus)

(participants were randomly assigned to one of the following conditions)

Present Focus (i.e., sacrifice future for present)

Read the following carefully.

Sometimes in life, there is a tension between our happiness now (in the present) and what we hope to achieve in the future. Sometimes we might feel that it is important to **sacrifice or set aside a future goal in order to satisfy an immediate (or present) goal or desire** - for example, we may choose to enjoy a night out with friends now even though it may hinder our work on a project that might benefit our future career. Or, perhaps the benefits of an enjoyable vacation now may be prioritized over our desire to save money for the future.

Think of a decision that you are working on these days - or worked on recently - where you are **sacrificing some future benefit in order to prioritize a present benefit**. Briefly describe WHAT that decision was. (We will ask more about this decision later - for now, please just describe WHAT that decision was).

--

Future Focus (i.e., sacrifice present for future)

Read the following carefully.

Sometimes in life, there is a tension between our happiness now (in the present) and what we hope to achieve in the future. Sometimes we might feel that it is important to **sacrifice or set aside an immediate (or present) goal or desire in order to work toward a long-term goal** - for example, we may choose to sacrifice enjoying a night out with friends now in order to work on a project that might benefit our future career. Or, perhaps our desire to save money for the future may be prioritized over the benefits of an enjoyable vacation now.

Think of a decision that you are working on these days - or worked on recently - where you are **sacrificing some present benefit in order to prioritize a future benefit**. Briefly describe WHAT that decision was. (We will ask more about this decision later - for now, please just describe WHAT that decision was).

--

DV: Mood – Happiness Right Now

Please answer the following questions based on how you feel right now. Note the scale before providing your answers.

Right now, I don't feel very happy. (R)

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree			Strongly agree

I am not a very happy person. (R)

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree			Strongly agree

All things considered, I am quite happy.

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree			Strongly agree

I feel very happy.

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree			Strongly agree

DV: Life Satisfaction

Please answer the questions below based on how you feel right now.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree

1. In most ways my life is close to my ideal.
2. The conditions of my life are excellent.
3. I am satisfied with my life
4. So far I have gotten the important things I want in life.
5. If I could live my life over, I would change almost nothing.

Goal Importance

Earlier in the survey you wrote about a recent decision you have been making (or made) to prioritize a (present/future) benefit over a (future/present) benefit.

Present focus condition

How unimportant or important was the present goal at the time?

1	2	3	4	5	6	7
Not at all important	Very unimportant	Somewhat unimportant	Neither important nor unimportant	Somewhat important	Very important	Extremely important

How unimportant or important was the future goal at the time?

1	2	3	4	5	6	7
Not at all important	Very unimportant	Somewhat unimportant	Neither important nor unimportant	Somewhat important	Very important	Extremely important

Future focus condition

How unimportant or important was the future goal at the time?

1	2	3	4	5	6	7
Not at all important	Very unimportant	Somewhat unimportant	Neither important nor unimportant	Somewhat important	Very important	Extremely important

How unimportant or important was the present goal at the time?

1	2	3	4	5	6	7
Not at all important	Very unimportant	Somewhat unimportant	Neither important nor unimportant	Somewhat important	Very important	Extremely important

Consideration of Future Consequences

For each statement below, indicate whether the statement is like you or not like you.

1	2	3	4	5	6	7
Not at all like me	Not like me	Not much like me	Neutral	Somewhat like me	Like me	Just like me

1. I consider how things might be in the future, and try to influence those things with my day to day behavior.
2. Often I engage in a particular behavior in order to achieve outcomes that may not result for many years.
3. I only act to satisfy immediate concerns, figuring the future will take care of itself.
4. My behavior is only influenced by the immediate (i.e., a matter of days or weeks) outcomes of my actions.
5. My convenience is a big factor in the decisions I make or the actions I take.
6. I am willing to sacrifice my immediate happiness or well-being in order to achieve future outcomes.
7. I think it is important to take warnings about negative outcomes seriously even if the negative outcome will not occur for many years.
8. I think it is more important to perform a behavior with important distant consequences than a behavior with less-important immediate consequences.
9. I generally ignore warnings about possible future problems because I think the problems will be resolved before they reach crisis level.
10. I think that sacrificing now is usually unnecessary since future outcomes can be dealt with at a later time.

11. I only act to satisfy immediate concerns, figuring that I will take care of future problems that may occur at a later date.
12. Since my day to day work has specific outcomes, it is more important to me than behavior that has distant outcomes.

Willingness to Sacrifice Present for the Future

Indicate your level of agreement or disagreement.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

1. It is more important for me to enjoy life now than plan for the future. (R)
2. I am willing to sacrifice pleasure in the present because I know that it will bring me more rewards in the future.
3. I am afraid that if I sacrifice pleasure now, I will never experience many of the great things that life has to offer. (R)
4. I want to have a good time now, even if my future might suffer as a result. (R)

Appendix C: Study 3 Questionnaire

Demographics

Age _____

Gender

- ☐ Female
- ☐ Male
- ☐ Other
- ☐ Do not wish to answer

Income

Average 'annual' household Income

- ☐ Less than 20,000
- ☐ 20,000 - 30,000
- ☐ 30,000 - 40,000
- ☐ 40,000 – 50,000
- ☐ 50,000 - 60,000
- ☐ 60,000 - 70,000
- ☐ 70,000 - 80,000
- ☐ 80,000 - 100,000
- ☐ 100,000 – 120,000
- ☐ 120,000 – 140,000
- ☐ More than 140,000

Organization for Economic Co-operation and Development (OECD) 1-item pre-measure of Life Satisfaction

All things considered, how satisfied are you with your life as a whole nowadays?

0	1	2	3	4	5	6	7	8	9	10
Extremely dissatisfied										Extremely satisfied

Mood: pre-measure

Right now, I don't feel very happy. (R)

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

Implicit Theories

Please indicate the extent to which you agree or disagree with the statements below, as they apply to yourself.

1	2	3	4	5	6
Strongly disagree					Strongly agree

1. My personality is a part of who I am and I can't change it very much. (R)
2. I can always change my personality.
3. The kind of person I am is something very basic about me and it can't be changed very much. (R)
4. I can do things differently, but the important parts of who I am can't really be changed. (R)
5. I can significantly change my basic characteristics, no matter who I am.
6. As much as I hate to admit it, you can't teach an old dog new tricks. I can't really change my deepest attributes. (R)
7. I can always substantially change the kind of person I am.
8. I am a certain kind of person, and there is not much that can be done to really change that. (R)
9. No matter what kind of person I am, I can always change very much.
10. I can change even my most basic qualities.

Goal Elicitation

Preamble

For the next sections we will ask you to generate two distinct kinds of financial goals that matter to you these days. One goal should be a present goal - a goal to spend money now for an immediate outcome. Another goal should be a future goal - a goal to save money in favor of a longer-term future outcome (i.e., save now to spend later).

Goal Elicitation

Present Goal - spend money now for an immediate outcome

We all make many financial decisions in life about how and when to spend or save our money. **Sometimes we choose to spend money on things that will bring us enjoyment now and in the short-term future.** Think about a decision you could make now, or very soon in the future to spend money on something that you will enjoy immediately (without regard to any longer-term future desires). Briefly describe **this short-term spending decision** you could make. (Note: do not describe it in detail - just indicate what the specific short-term spending decision would be).

Present goal importance

Regarding the spending decision you just listed:

How personally important is it to you to act on the decision to spend now for the short-term?

1	2	3	4	5	6	7
Not at all important						Extremely important

Present goal achievement certainty

How **certain** are you that if you acted on this short-term goal, you would ultimately achieve the desired outcome?

1	2	3	4	5	6	7
Not certain at all						Extremely certain

Future goal - save money in favor of a longer-term future outcome

We all make many financial decisions in life about how and when to spend or save our money. **Sometimes we choose to save money now in order to achieve some longer-term goal or make a more distant future purchase.** Think about a decision you could make now, or very soon in the future to save money now in order to work toward a future purchase or other goal you will enjoy at a future time (without regard to any present or short-term desires). Briefly describe **this long-term future saving decision** you could make. (Note: do not describe it in detail - just indicate what the specific long-term saving decision would be).

Future goal importance

Regarding the saving decision you just listed:

How personally important is it to you to act on the decision to save now for a long-term future goal?

1	2	3	4	5	6	7
Not at all important						Extremely important

Present goal achievement certainty

How **certain** are you that if you acted on this long-term future goal, you would ultimately achieve the desired outcome?

1	2	3	4	5	6	7
Not certain at all						Extremely certain

Manipulation – (Present versus Future focus)
(participants were randomly assigned to one condition)

Present focus

There is often a direct tension between our desires now (in the present) and what we hope to achieve in the future. Sometimes we might feel that it is important to **sacrifice, or set aside, a future goal in order to satisfy an immediate (or present) goal or desire**. Think about your financial goals in this context, and the tension that exists between spending money on things we want to have or do now and on things we hope to have or do in the long-term future.

On the previous pages, you listed a current desire (spend now) and a future desire (save for the future). Imagine that only one of these goals can be fulfilled - in this case, **focus on fulfilling only the current desire (spend now)** - at the expense of the longer-term desire.

Explain what will happen when you sacrifice the long-term future desire (save for later) and act on the current desire (spend now). Please imagine carrying out this decision and describe your thoughts and reactions in detail.

--

Future focus

There is often a direct tension between our desires now (in the present) and what we hope to achieve in the future. Sometimes we might feel that it is important to **sacrifice, or set aside, an immediate (or present) goal in order to work toward a long-term goal or desire**. Think about your financial goals in this context, and the tension that exists between spending money on things we want to have or do now and on things we hope to have or do in the long-term future.

On the previous pages, you listed a current desire (spend now) and a future desire (save for the future). Imagine that only one of these goals can be fulfilled - **in this case, focus on fulfilling only the future desire (save for the future)** - at the expense of the short-term desire. Explain what will happen when you sacrifice the short-term desire (spend now) and act on the long-term future desire (save for later). Please imagine carrying out this decision and describe your thoughts and reactions in detail.

--

DV: Mood – Happiness Right Now

Please answer the following questions based on how you feel right now. Note the scale before providing your answers.

Right now, I don't feel very happy. (R)

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree			Strongly agree

I am not a very happy person. (R)

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree			Strongly agree

All things considered, I am quite happy.

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree			Strongly agree

I feel very happy.

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree			Strongly agree

DV: Life Satisfaction

Please answer the questions below based on how you feel right now.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree

1. In most ways my life is close to my ideal.
2. The conditions of my life are excellent.
3. I am satisfied with my life
4. So far I have gotten the important things I want in life.
5. If I could live my life over, I would change almost nothing.

Willingness to Sacrifice Present for the Future

Indicate your level of agreement or disagreement.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

1. It is more important for me to enjoy life now than plan for the future. (R)
2. I am willing to sacrifice pleasure in the present because I know that it will bring me more rewards in the future.
3. I am afraid that if I sacrifice pleasure now, I will never experience many of the great things that life has to offer. (R)
4. I want to have a good time now, even if my future might suffer as a result. (R)

Appendix D: Study 4 Questionnaire

Demographics

Age _____

Gender

- ☐ Female
- ☐ Male
- ☐ Other
- ☐ Do not wish to answer

Income

Average 'annual' household Income

- ☐ Less than 20,000
- ☐ 20,000 - 30,000
- ☐ 30,000 - 40,000
- ☐ 40,000 – 50,000
- ☐ 50,000 - 60,000
- ☐ 60,000 - 70,000
- ☐ 70,000 - 80,000
- ☐ 80,000 - 100,000
- ☐ 100,000 – 120,000
- ☐ 120,000 – 140,000
- ☐ More than 140,000

Organization for Economic Co-operation and Development (OECD) 1-item pre-measure of Life Satisfaction

All things considered, how satisfied are you with your life as a whole nowadays?

0	1	2	3	4	5	6	7	8	9	10
Extremely dissatisfied										Extremely satisfied

Mood: pre-measure

Right now, I don't feel very happy. (R)

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

Implicit Theories

Please indicate the extent to which you agree or disagree with the statements below, as they apply to yourself.

1	2	3	4	5	6
Strongly disagree					Strongly agree

1. My personality is a part of who I am and I can't change it very much. (R)
2. I can always change my personality.
3. The kind of person I am is something very basic about me and it can't be changed very much. (R)
4. I can do things differently, but the important parts of who I am can't really be changed. (R)
5. I can significantly change my basic characteristics, no matter who I am.
6. As much as I hate to admit it, you can't teach an old dog new tricks. I can't really change my deepest attributes. (R)
7. I can always substantially change the kind of person I am.
8. I am a certain kind of person, and there is not much that can be done to really change that. (R)
9. No matter what kind of person I am, I can always change very much.
10. I can change even my most basic qualities.

Manipulation Preamble – All participants

Sometimes in life there is a direct tension between our happiness now (in the present) and what we hope to achieve in the future.

Sometimes we might feel that it is important to sacrifice, or set aside, an immediate (or present) goal or desire in order to work toward a long-term goal - for example, we may choose to sacrifice enjoying a night out with friends now in order to work on a project that might benefit our future career. Or, perhaps our desire to save money for the future may be prioritized over the benefits of an enjoyable vacation now.

Manipulation (Goal Elicitation) – 3 Conditions, randomly assigned: Control over the Future, No Control over the Future, Baseline**Control over the Future**

Think of a decision that you are working on these days - where you are sacrificing some present benefit/goal in order to prioritize a future benefit/goal.

This future goal should be one that you are (1) still working on, (2) have decided to pursue despite the sacrifices that you must make in the present, and (3) achieving the future goal feels within your "control" and you are "certain" it will work out.

Briefly describe WHAT this decision is. (We will ask you more about this decision later - for now, please just describe WHAT this decision is).

No Control over the Future

Think of a decision that you are working on these days - where you are sacrificing some present benefit/goal in order to prioritize a future benefit/goal.

This future goal should be one that you are (1) still working on, (2) have decided to pursue despite the sacrifices that you must make in the present, and (3) achieving the future goal feels outside of your "personal control" and you are "uncertain" if it will work out.

Briefly describe WHAT this decision is. (We will ask you more about this decision later - for now, please just describe WHAT this decision is).

Baseline

Think of a decision that you are working on these days - where you are sacrificing some present benefit/goal in order to prioritize a future benefit/goal.

This future goal should be one that you are (1) still working on, and (2) have decided to pursue despite the sacrifices that you must make in the present.

Briefly describe WHAT this decision is. (We will ask you more about this decision later - for now, please just describe WHAT this decision is).

DV: Mood – Happiness Right Now

Please answer the following questions based on how you feel right now. Note the scale before providing your answers.

Right now, I don't feel very happy. (R)

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree			Strongly agree

I am not a very happy person. (R)

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree			Strongly agree

All things considered, I am quite happy.

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree			Strongly agree

I feel very happy.

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree			Strongly agree

DV: Life Satisfaction

Please answer the questions below based on how you feel right now.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree

1. In most ways my life is close to my ideal.
2. The conditions of my life are excellent.
3. I am satisfied with my life
4. So far I have gotten the important things I want in life.
5. If I could live my life over, I would change almost nothing.

Goal Importance

On a previous page, you indicated a decision where you are sacrificing some present benefit/goal in order to achieve some future benefit/goal.

Please indicate how important the present benefit/goal is to you in general.

1	2	3	4	5	6	7
Not at all important						Extremely important

Please indicate how important the future benefit/goal is to you in general.

1	2	3	4	5	6	7
Not at all important						Extremely important

Specific goal certainty/controllability

From "very uncertain" to "very certain" - How "certain" are you that you will be able to attain this future benefit/goal?

1	2	3	4	5	6	7
Very uncertain that I will attain future goal/benefit						Very certain that I will attain future goal/benefit

To what degree does achieving the future benefit/goal feel "within your control"?

1	2	3	4	5	6	7
Not at all within my control						Very much within my control

General goal certainty/attainability

Please rate your level of disagreement or agreement with the following statements.

Attaining future goals are almost always certain to work out.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree

Since whatever will be will be, I am uncertain about future goals working out.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree

Future goals are certainly attainable - as long as enough sacrifices are made.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree

Willingness to Sacrifice Present for the Future

Indicate your level of agreement or disagreement.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

1. It is more important for me to enjoy life now than plan for the future. (R)
2. I am willing to sacrifice pleasure in the present because I know that it will bring me more rewards in the future.
3. I am afraid that if I sacrifice pleasure now, I will never experience many of the great things that life has to offer. (R)
4. I want to have a good time now, even if my future might suffer as a result. (R)

Appendix E: Study 5 Questionnaire

Demographics

Age _____

Gender

- ☐ Female
- ☐ Male
- ☐ Other
- ☐ Do not wish to answer

Income

Average 'annual' household Income

- ☐ Less than 20,000
- ☐ 20,000 - 30,000
- ☐ 30,000 - 40,000
- ☐ 40,000 – 50,000
- ☐ 50,000 - 60,000
- ☐ 60,000 - 70,000
- ☐ 70,000 - 80,000
- ☐ 80,000 - 100,000
- ☐ 100,000 – 120,000
- ☐ 120,000 – 140,000
- ☐ More than 140,000

Organization for Economic Co-operation and Development (OECD) 1-item pre-measure of Life Satisfaction

All things considered, how satisfied are you with your life as a whole nowadays?

0	1	2	3	4	5	6	7	8	9	10
Extremely dissatisfied										Extremely satisfied

Mood: pre-measure

Right now, I don't feel very happy. (R)

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

Implicit Theories

Please indicate the extent to which you agree or disagree with the statements below, as they apply to yourself.

1	2	3	4	5	6
Strongly disagree					Strongly agree

1. My personality is a part of who I am and I can't change it very much. (R)
2. I can always change my personality.
3. The kind of person I am is something very basic about me and it can't be changed very much. (R)
4. I can do things differently, but the important parts of who I am can't really be changed. (R)
5. I can significantly change my basic characteristics, no matter who I am.
6. As much as I hate to admit it, you can't teach an old dog new tricks. I can't really change my deepest attributes. (R)
7. I can always substantially change the kind of person I am.
8. I am a certain kind of person, and there is not much that can be done to really change that. (R)
9. No matter what kind of person I am, I can always change very much.
10. I can change even my most basic qualities.

Goal Elicitation – All Participants

Sometimes in life there is a tension between our happiness now (in the present) and what we hope to achieve in the future.

Sometimes we might feel that it is important to sacrifice, or set aside, an immediate (or present) goal or desire in order to work toward a long-term goal - for example, we may choose to sacrifice enjoying a night out with friends now in order to work on a project that might benefit our future career. Or, perhaps our desire to save money for the future may be prioritized over the benefits of an enjoyable vacation now.

Think of a decision that you are working on these days - **where you are sacrificing some present benefit/goal in order to prioritize a future benefit/goal.**

Briefly describe WHAT this decision is. (We will ask you more about this decision later - for now, please just describe WHAT this decision is).

Manipulation – Non-Controllable, Controllable, and Baseline

Non-Controllable Future Condition

Think of the future benefit/goal that you just identified. You may work toward this goal, BUT, the future is less controllable than we sometimes realize, so, we can never be certain that the goals we are aiming for will work out, despite the sacrifices we make in the present.

Think about how the future benefit/goal you identified is uncertain to work out and write down the ways that you don't have control over how it might work out.

Controllable Future Condition

Think of the future benefit/goal that you just identified. As you work toward this goal, recall that the future is actually more controllable than we sometimes realize, so, we can often be pretty certain that the goals we are aiming for will work out, given the sacrifices we make in the present.

Think about how the future benefit/goal you identified is relatively certain to work out and write down the ways that you foresee having control over how it will work out.

Baseline Condition

No task is asked of participants.

DV: Mood – Happiness Right Now

Please answer the following questions based on how you feel right now. Note the scale before providing your answers.

Right now, I don't feel very happy. (R)

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree			Strongly agree

I am not a very happy person. (R)

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree			Strongly agree

All things considered, I am quite happy.

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree			Strongly agree

I feel very happy.

1	2	3	4	5	6	7
Strongly disagree			Neither agree nor disagree			Strongly agree

DV: Life Satisfaction

Please answer the questions below based on how you feel right now.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree

1. In most ways my life is close to my ideal.
2. The conditions of my life are excellent.
3. I am satisfied with my life
4. So far I have gotten the important things I want in life.
5. If I could live my life over, I would change almost nothing.

Goal Importance

On a previous page, you indicated a decision where you are sacrificing some present benefit/goal in order to achieve some future benefit/goal.

Please indicate how important the present benefit/goal is to you in general.

1	2	3	4	5	6	7
Not at all important						Extremely important

Please indicate how important the future benefit/goal is to you in general.

1	2	3	4	5	6	7
Not at all important						Extremely important

Goal Progress

From 'just beginning' to 'almost completed' - Approximately how far along are you in trying to attain this future benefit/goal? If you have not started pursuing this goal yet, indicate "have not started yet."

0	1	2	3	4	5	6	7
Have not started yet	Just beginning						Almost completed

Specific goal certainty/controllability

From "very uncertain" to "very certain" - How "certain" are you that you will be able to attain this future benefit/goal?

1	2	3	4	5	6	7
Very uncertain that I will attain future goal/benefit						Very certain that I will attain future goal/benefit

To what degree does achieving the future benefit/goal feel "within your control"?

1	2	3	4	5	6	7
Not at all within my control						Very much within my control

General goal certainty/attainability

Please rate your level of disagreement or agreement with the following statements.

Attaining future goals are almost always certain to work out.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree

Since whatever will be will be, I am uncertain about future goals working out.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree

Future goals are certainly attainable - as long as enough sacrifices are made.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree

Pessimism

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree

1. There is no guarantee that working hard will get you the future rewards you hope for.
2. I feel like society doesn't have very much to offer me.
3. I don't think I'm ever going to make a lot of money.
4. I know that if I work hard now I will benefit from it in the future. (R)

Optimism

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree

1. In uncertain times, I usually expect the best.
2. If something can go wrong for me, it will. (R)
3. I'm always optimistic about my future.

Willingness to Sacrifice Present for the Future

Indicate your level of agreement or disagreement.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree

1. It is more important for me to enjoy life now than plan for the future. (R)
2. I am willing to sacrifice pleasure in the present because I know that it will bring me more rewards in the future.
3. I am afraid that if I sacrifice pleasure now, I will never experience many of the great things that life has to offer. (R)
4. I want to have a good time now, even if my future might suffer as a result. (R)

Sacrifice the Present: One vs. Many Instances

For today's exercise . . . when you thought about giving up a present goal/benefit - would you say this is a "one time" sacrifice? OR, is it about giving up "several" immediate rewards? -- i.e., making many immediate sacrifices over time on the way to the future goal/benefit.

On the scale below . . To what degree did "sacrificing" the present represent a 'one time' sacrifice versus 'many sacrifices' over time?

1	2	3	4	5	6	7
One time sacrifice						Many sacrifices over time

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Tables and Figures

Table 1

Study 1: Means and Standard Deviations of Measures

	Means (SD)
Life Satisfaction	7.12 (2.31)
Implicit Theories of Personality ⁱ	4.59 (1.54)
Willingness to Sacrifice Present for Future	4.61 (1.27)
Promotion Orientation	3.57 (0.66)
Prevention Orientation	3.36 (1.06)
Time Perspective	
Past Negative	3.01 (0.75)
Past Positive	3.39 (0.82)
Future	3.59 (0.63)
Present Hedonic	3.04 (0.71)
Present Fatalistic	2.45 (0.68)

Note. ⁱ Higher scores indicate a greater endorsement of incremental theory.

Table 2

Study 1: Intercorrelations among all Independent and Dependent variables (overall)

	1	2	3	4	5	6	7	8	9	10
1. Life Satisfaction	-									
2. Implicit Theories ⁱ	-.03	-								
3. Willingness to Sacrifice	-.01	.22**	-							
4. Promotion Orientation	.54**	.18**	.10	-						
5. Prevention Orientation	.07	-.16*	.12 [†]	.05	-					
6. Past Negative	-.49**	-.09	-.12 [†]	-.50**	-.22**	-				
7. Past Positive	.39**	-.01	.03	.28**	.16*	-.28**	-			
8. Future	.22**	.11	.44**	.30**	.30**	-.12 [†]	.16*	-		
9. Present Hedonic	.21*	.01	-.36**	.18**	-.45**	.07	.21**	-.35**	-	
10. Present Fatalistic	-.19*	-.32**	-.45**	-.31**	-.08	.33**	.04	-.39**	.30**	-

Note. ** $p < .01$, * $p < .05$, [†] $p = .07$.

ⁱHigher scores indicate a greater endorsement of incremental theory.

Table 3

Study 1: Regressing Life Satisfaction onto Implicit Theory of Personality and Willingness to Sacrifice the Present for the Future

Predictor	β	t
Step 1		
Implicit Theory of Personality ⁱ	-.029	-.406
Willingness to Sacrifice Present for Future	-.007	-0.10
Step 2		
Implicit Theory of Personality ⁱ	-.012	-.164
Willingness to Sacrifice Present for Future	-.024	-.332
Implicit Theory X Willingness to Sacrifice	.201	2.876*

Note. Standardized coefficients.

ⁱ Higher scores indicate a greater endorsement of incremental theory.

* $p = .004$

Table 4

Study 1: Regressing Life Satisfaction onto Promotion Orientation and Willingness to Sacrifice the Present for the Future

Predictor	β	t
Step 1		
Promotion Orientation	.548	9.186**
Willingness to Sacrifice Present for Future	-.069	-1.161
Step 2		
Promotion Orientation	.548	9.107**
Willingness to Sacrifice Present for Future	-.069	-1.156
Promotion Orientation X Willingness to Sacrifice	.007	.112

Note. Standardized coefficients.

* $p < .001$

Table 5

Study 1: Regressing Life Satisfaction onto Prevention Orientation and Willingness to Sacrifice the Present for the Future

Predictor	β	t
Step 1		
Prevention Orientation	.074	1.036
Willingness to Sacrifice Present for Future	-.023	-.318
Step 2		
Prevention Orientation	.075	1.052
Willingness to Sacrifice Present for Future	-.009	-.124
Prevention Orientation X Willingness to Sacrifice	.083	1.157

Note. Standardized coefficients.

Table 6

Study 1: Regressing Life Satisfaction onto Implicit Theory of Personality and Promotion Orientation

Predictor	β	t
Step 1		
Implicit Theory of Personality ⁱ	-.134	-2.245*
Promotion Orientation	.565	9.454**
Step 2		
Implicit Theory of Personality ⁱ	-.138	-2.316*
Promotion Orientation	.570	9.590**
Implicit Theory X Promotion Orientation	.108	1.843 [†]

Note. Standardized coefficients.ⁱ Higher scores indicate a greater endorsement of incremental theory.** $p < .001$, * $p < .05$, [†] $p = .067$

Table 7

Study 1: Regressing Life Satisfaction onto Implicit Theory of Personality and Prevention Orientation

Predictor	β	t
Step 1		
Implicit Theory of Personality ⁱ	-.020	-.286
Prevention Orientation	.068	.948
Step 2		
Implicit Theory of Personality ⁱ	-.016	-.222
Prevention Orientation	.064	.890
Implicit Theory X Prevention Orientation	.054	.760

Note. Standardized coefficients.

ⁱ Higher scores indicate a greater endorsement of incremental theory.

* $p = .004$

Table 8

Study 1: Regressing Life Satisfaction onto Implicit Theory of Personality and Promotion Orientation

Predictor	β	t
Step 1		
Implicit Theory of Personality ⁱ	-.12	-1.91 [†]
Willingness to Sacrifice Present for Future	-.05	-.81
Promotion Orientation	.57	9.40**
Prevention Orientation	.03	.51
Step 2		
Implicit Theory of Personality ⁱ	-.11	-1.81 [†]
Willingness to Sacrifice Present for Future	-.06	-1.07
Promotion Orientation	.57	9.84**
Prevention Orientation	.04	.59
Implicit Theory X Willingness to Sacrifice	.24	4.00**
Promotion X Willingness to Sacrifice	-.10	-1.50
Implicit Theory X Promotion	.10	1.52
Step 3		
Implicit Theory of Personality ⁱ	-.10	-1.68 [†]
Willingness to Sacrifice Present for Future	-.06	-.95
Promotion Orientation	.59	9.50**
Prevention Orientation	.04	.63
Implicit Theory X Willingness to Sacrifice	.24	4.03**
Promotion X Willingness to Sacrifice	-.11	-1.67 [†]
Implicit Theory X Promotion	.08	1.26
ImpTheory X WilltoSac X Promotion	-.06	-.82

Note. Standardized coefficients.

ⁱ Higher scores indicate a greater endorsement of incremental theory.

** $p < .01$, * $p < .05$, [†] $p < .10$

Table 9

Study 1: Regressing Life Satisfaction onto Implicit Theory of Personality and Present Hedonic Time Perspective

Predictor	β	t
Step 1		
Future	.12	1.95*
Present Fatalistic	-.02	-.24
Past Negative	-.39	-6.00**
Past Positive	.26	4.12**
Step 2		
Future	.23	3.52**
Present Fatalistic	-.10	-1.52
Past Negative	-.41	-6.63**
Past Positive	.17	2.83**
Implicit Theory of Personality ⁱ	-.13	-2.18*
Present Hedonic	.32	5.02**
Step 3		
Future	.22	3.42**
Present Fatalistic	-.12	-1.73 [†]
Past Negative	-.39	-6.34**
Past Positive	.17	2.85**
Implicit Theory of Personality ⁱ	-.12	-2.12*
Present Hedonic	.31	5.03**
Implicit Theory X Present Hedonic	-.12	-2.21*

Note. Standardized coefficients.

ⁱ Higher scores indicate a greater endorsement of incremental theory.

** $p < .01$, * $p < .05$, [†] $p < .10$

Table 10

Study 1: Regressing Life Satisfaction onto Implicit Theory of Personality and Future Time Perspective

Predictor	β	t
Step 1		
Present Hedonic	.23	3.76**
Present Fatalistic	-.14	-2.14*
Past Negative	-.39	-6.13**
Past Positive	.24	3.85**
Step 2		
Present Hedonic	.32	5.02**
Present Fatalistic	-.10	-1.52
Past Negative	-.41	-6.63**
Past Positive	.17	2.83**
Implicit Theory of Personality ⁱ	-.13	-2.18*
Future	.23	3.52**
Step 3		
Present Hedonic	.32	5.02**
Present Fatalistic	-.10	-1.46
Past Negative	-.41	-6.62**
Past Positive	.17	2.68**
Implicit Theory of Personality ⁱ	-.13	-2.21*
Future	.22	3.43**
Implicit Theory X Future	.05	0.92 ^{ns}

Note. Standardized coefficients.

ⁱ Higher scores indicate a greater endorsement of incremental theory.

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

Table 11

Study 1: Regressing Life Satisfaction onto Implicit Theory of Personality and Present Fatalistic Time Perspective

Predictor	β	t
Step 1		
Present Hedonic	.29	4.67**
Future	.24	3.99**
Past Negative	-.43	-7.35**
Past Positive	.17	2.75**
Step 2		
Present Hedonic	.32	5.02**
Future	.23	3.52**
Past Negative	-.41	-6.63**
Past Positive	.17	2.83**
Implicit Theory of Personality ⁱ	-.13	-2.18*
Present Fatalistic	-.10	-1.52**
Step 3		
Present Hedonic	.29	4.76**
Future	.20	3.11**
Past Negative	-.38	-6.18**
Past Positive	.18	2.95**
Implicit Theory of Personality ⁱ	-.12	-2.09*
Present Fatalistic	-.11	-1.69 [†]
Implicit Theory X Present Fatalistic	-.18	3.17**

Note. Standardized coefficients.

ⁱ Higher scores indicate a greater endorsement of incremental theory.

** $p < .01$, * $p < .05$, [†] $p < .10$

Table 12

Study 2: Intercorrelations among all Independent and Dependent variables (overall)

	1	2	3	4	5	6	7	8	9	10
1. Life Satisfaction - DV	-									
2. Mood (positive) - DV	.80**	-								
3. Life Satisfaction pre-measure	.87**	.78**	-							
4. Mood pre-measure (i.e., not happy right now)	-.63**	-.66**	-.61**	-						
5. Implicit Theories ⁱ	-.02	.09	-.04	-.02	-					
6. Approach Orientation	.27**	.37**	.25**	-.17*	.15*	-				
7. Avoidance Orientation	-.46**	-.52**	-.43**	.40**	.01	.02	-			
8. Consid of Future Consequ.	.19*	.22**	.17*	-.16*	.13 [†]	.14*	-.28**	-		
9. Willingness to Sacrifice	.00	.04	.00	-.07	.12 [†]	-.06	-.10	.64**	-	
10. Importance of Present Goal	.01	-.07	.02	.06	.08	.05	.05	.03	-.11	-
11. Importance of Future Goal	-.03	.03	-.04	-.02	.13 [†]	.21**	.05	.10	.18*	-.01

Note. ** $p < .01$, * $p < .05$, [†] $p \leq .10$.

ⁱ Higher scores indicate a greater endorsement of incremental theory.

Table 13

Study 2: Means and Standard Deviations of Measures by Condition

Measures	Present Focus Condition	Future Focus Condition
	Means (SD)	Means (SD)
Life Satisfaction (DV)	4.51 _a (1.65)	4.33 _a (1.63)
Mood (positive) - DV	5.07 _a (1.64)	4.97 _a (1.56)
Life Satisfaction pre-measure	7.71 _a (2.55)	7.40 _a (2.57)
Mood pre-measure (i.e., Not happy right now)	3.04 _a (1.99)	3.17 _a (1.82)
Implicit Theories of Personality ⁱ	3.25 _a (1.20)	3.18 _a (1.14)
Approach Orientation	5.33 _a (.91)	5.29 _a (.83)
Avoidance Orientation	3.93 _a (1.61)	3.97 _a (1.48)
Consideration of Future Consequences	4.89 _a (.96)	4.85 _a (.99)
Willingness to Sacrifice Present for Future	4.52 _a (1.08)	5.00 _b (1.14)
Importance of Present Goal	5.94 _a (1.01)	5.05 _b (1.60)
Importance of Future Goal	5.57 _a (1.38)	6.14 _b (.73)

Note. Different subscripts within a row indicate a significant difference ($p \leq .01$).

ⁱ Higher scores indicate a greater endorsement of incremental theory.

Table 14

Study 2: Regressing Life Satisfaction (DV) onto Condition (present focus vs. future focus) and Implicit Theory of Personality

Predictor	β	t
Step 1		
Condition (present vs. future)	-.06	-.80
Implicit Theory of Personality ⁱ	-.02	-0.33
Step 2		
Condition (present vs. future)	-.06	-.78
Implicit Theory of Personality ⁱ	-.01	-.13
Condition X Implicit Theory	.14	1.91 [†]

Note. Standardized coefficients.

Effect coding for condition: Present = -1

ⁱ Higher scores indicate a greater endorsement of incremental theory.

[†] $p = .057$

Table 15

Study 2: Regressing Life Satisfaction (DV) onto Condition (present focus vs. future focus), Implicit Theory of Personality while controlling for initial life satisfaction.

Predictor	β	t
Step 1		
Life Satisfaction pre-measure	1.42	75.56**
Step 2		
Life Satisfaction pre-measure	1.42	23.87**
Condition (present vs. future)	-.03	-.41
Implicit Theory of Personality ⁱ	.02	.41
Step 3		
Life Satisfaction pre-measure	1.42	23.53**
Condition (present vs. future)	-.02	-.41
Implicit Theory of Personality ⁱ	.02	.46
Condition X Implicit Theory	.03	.55

Note. Standardized coefficients.

Effect coding for condition: Present = -1

ⁱ Higher scores indicate a greater endorsement of incremental theory.

** $p < .01$

Table 16

Study 2: Regressing Initial Life Satisfaction (i.e., LS pre-measure) onto Condition (present focus vs. future focus) and Implicit Theory of Personality.

Predictor	β	t
Step 1		
Condition (present vs. future)	-.15	-.82
Implicit Theory of Personality ⁱ	-.09	-0.54
Step 2		
Condition (present vs. future)	-.15	-.79
Implicit Theory of Personality ⁱ	-.06	-.36
Condition X Implicit Theory	.30	1.83 [†]

Note. Standardized coefficients.

Effect coding for condition: Present = -1

ⁱ Higher scores indicate a greater endorsement of incremental theory.

[†] $p = .068$

Table 17

Study 3: Intercorrelations among all Independent and Dependent variables (overall)

	1	2	3	4	5	6	7	8	9	10
1. Life Satisfaction - DV	-									
2. Mood (positive) - DV	.68**	-								
3. Life Satisfaction pre-measure	.81**	.63**	-							
4. Mood pre-measure (i.e., not happy right now)	-.68**	-.77**	-.73**	-						
5. Income	.17*	.01	.17*	-.04	-					
6. Implicit Theories ⁱ	.05	.23**	.08	-.19**	-.09	-				
7. Willingness to Sacrifice	-.04	-.01	.01	-.02	-.03	.10	-			
8. Importance of Present Goal	.09	.11 [†]	.07	-.14*	-.10	.11	-.20**	-		
9. Achieve Present Goal Certainty	.13*	.14*	.10	-.15*	-.06	.16*	.07	.33**	-	
10. Importance of Future Goal	.05	.11 [†]	.06	-.05	-.11 [†]	-.06	.19**	.21**	.27**	-
11. Achieve Future Goal Certainty	.29**	.34**	.27**	-.23**	-.05	.15*	.16*	.11 [†]	.37**	.33**

Note. ** $p < .01$, * $p < .05$, [†] $p \leq .10$.

ⁱ Higher scores indicate a greater endorsement of incremental theory.

Table 18

Study 3: Means and Standard Deviations of Measures by Condition

Measures	Present Focus Condition	Future Focus Condition
	Means (SD)	Means (SD)
Life Satisfaction (DV)	4.11 _a (1.50)	4.35 _a (1.42)
Mood (positive) - DV	4.48 _a (1.68)	4.78 _a (1.63)
Life Satisfaction pre-measure	7.04 _a (2.27)	7.55 _b (2.07)
Mood pre-measure (i.e., Not happy right now)	3.23 _a (1.87)	2.90 _a (1.76)
Income	\$55.63K _a (\$35K)	\$53.78K _a (\$32K)
Implicit Theories of Personality ⁱ	3.59 _a (1.19)	3.67 _a (1.22)
Willingness to Sacrifice Present for Future	4.32 _a (1.19)	4.36 _a (1.24)
Importance of Present Goal	4.45 _a (1.62)	4.41 _a (1.65)
Achieve Present Goal Certainty	5.73 _a (1.30)	5.84 _a (1.34)
Importance of Future Goal	5.79 _a (1.34)	5.95 _a (1.32)
Achieve Future Goal Certainty	5.29 _a (1.50)	5.43 _a (1.48)

Note. Different subscripts within a row indicate a marginal difference ($p = .055$).

ⁱ Higher scores indicate a greater endorsement of incremental theory.

Table 19

Study 3: Regressing Life Satisfaction onto Condition (present focus vs. future focus), Implicit Theory of Personality and OECD Life Satisfaction pre-measure.

Predictor	β	t
Step 1		
Condition (present vs. future)	-.01	-.37
Implicit Theory of Personality ⁱ	-.01	.79
OECD Life Satisfaction (LS) pre-measure	.82	21.37**
Step 2		
Condition (present vs. future)	-.02	-.45
Implicit Theory of Personality ⁱ	-.01	-.25
OECD Life Satisfaction pre-measure	.82	21.32**
Condition X Implicit Theory	.05	1.24
Implicit Theory X OECD LS	-.05	-1.28
Condition X OECD LS	.00	.09
Step 3		
Condition (present vs. future)	-.01	-.32
Implicit Theory of Personality ⁱ	.01	.12
OECD Life Satisfaction pre-measure	.82	21.54**
Condition X Implicit Theory	.05	1.41
Implicit Theory X OECD LS	-.06	-1.57
Condition X OECD LS	.01	.31
Implicit Theory X Condition X OECD LS	-.08	-2.18*

Note. Standardized coefficients.

Effect coding for condition: Present = -1

ⁱHigher scores indicate a greater endorsement of incremental theory.

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

Table 20

Study 3: Regressing Life Satisfaction onto Condition (present focus vs. future focus) and Implicit Theory of Personality for the group initially low in Life Satisfaction

Predictor	β	t
Step 1		
Condition (present vs. future)	-.01	-.06
Implicit Theory of Personality ⁱ	.10	.96
Step 2		
Condition (present vs. future)	-.02	-.17
Implicit Theory of Personality ⁱ	.13	1.26
Condition X Implicit Theory	.22	2.18*

Note. Low in initial life satisfaction.

Standardized coefficients.

Effect coding for condition: Present = -1

ⁱHigher scores indicate a greater endorsement of incremental theory.

* $p = .03$

Table 21

Study 4: Means and Standard Deviations of Measures by Original Condition

Measures	Future Lack of Control Condition	Future Baseline Condition	Future Controllable Condition
	Means (SD)	Means (SD)	Means (SD)
Life Satisfaction (DV)	3.94 _a (1.43)	4.04 _a (1.40)	4.23 _a (1.29)
Mood (positive) – DV	4.23 _a (1.52)	4.86 _b (1.36)	4.57 _{ab} (1.45)
Life Satisfaction pre-measure	7.00 _a (2.34)	7.35 _a (2.08)	7.42 _a (1.95)
Mood pre-measure (i.e., Not happy right now)	3.36 _a (1.69)	2.95 _a (1.63)	3.23 _a (1.69)
Implicit Theories of Personality ⁱ	3.50 _a (1.20)	3.54 _a (1.07)	3.59 _a (1.08)
Willingness to Sacrifice Present for Future	4.62 _a (1.09)	4.79 _a (1.08)	4.63 _a (1.12)
Importance of Present Goal	5.47 _a (1.49)	5.26 _{ab} (1.48)	5.03 _b (1.47)
Importance of Future Goal	6.00 _a (1.21)	6.11 _a (1.11)	5.94 _a (1.11)
Specific goal certainty/controllability	5.20 _a (1.39)	5.18 _a (1.58)	5.43 _a (1.03)
General future goal certainty composite	4.58 _{ab} (1.13)	4.80 _a (1.06)	4.52 _{b†} (.86)

Note. Different subscripts within a row indicate a significant difference ($p < .05$). Subscripts with a † notation indicate a marginal difference ($p \leq .10$).

ⁱHigher scores indicate a greater endorsement of incremental theory.

Table 22

Study 4: Intercorrelations among all Independent and Dependent Variables (overall)

	1	2	3	4	5	6	7	8	9
1. Life Satisfaction - DV	-								
2. Mood (positive) - DV	.68**	-							
3. Life Satisfaction pre-measure	.77**	.68**	-						
4. Mood pre-measure (i.e., not happy right now)	-.62**	-.80**	-.64**	-					
5. Implicit Theories ⁱ	.15*	.14*	.13*	-.09	-				
6. Willingness to Sacrifice	.20**	.23**	.20**	-.23**	.25**	-			
7. Importance of Present Goal	.08	.09	.03	-.02	.18**	.14*	-		
8. Importance of Future Goal	.05	.12 [†]	.08	-.10	.15*	.42**	.36**	-	
9. Specific goal certainty/controllability	.34**	.36**	.37**	-.30**	.13*	.33**	.17**	.30**	-
10. General future goal certainty composite	.43**	.37**	.39**	-.29**	.24*	.37**	.17**	.24**	.49**

Note. ** $p < .01$, * $p < .05$, [†] $p = .07$.

ⁱHigher scores indicate a greater endorsement of incremental theory.

Table 23

Study 4: Intercorrelations among Highlighted Variables (controlling for initial condition)

	1	2	3	4	5
1. Life Satisfaction - DV	-				
2. Mood (positive) - DV	.69**				
3. Implicit Theories ⁱ	.15*	.13*	-		
4. Willingness to Sacrifice	.20**	.23**	.25**	-	
5. Specific goal certainty/controllability	.34**	.35**	.12 [†]	.33**	-
6. General future goal certainty composite	.43**	.37**	.27**	.42**	.54**

Note. ** $p < .01$, * $p < .05$, [†] $p = .06$

ⁱHigher scores indicate a greater endorsement of incremental theory.

Table 24

Study 5: Means and Standard Deviations of Measures by Condition

Measures	Future Lack of Control Condition	Future Baseline Condition	Future Controllable Condition
	Means (SD)	Means (SD)	Means (SD)
Life Satisfaction (DV)	4.15 _a (1.58)	4.25 _{ab} (1.55)	4.55 _b [†] (1.56)
Mood (positive) - DV	4.47 _a (1.61)	4.55 _{ab} (1.65)	5.00 _c (1.57)
Life Satisfaction pre-measure	7.11 _a (2.52)	7.14 _a (2.44)	7.42 _a (2.43)
Mood pre-measure (i.e., Not happy right now)	3.05 _a (1.90)	3.08 _a (1.74)	2.73 _a (1.57)
Implicit Theories of Personality ⁱ	3.47 _a (1.09)	3.56 _a (1.13)	3.58 _a (1.21)
Importance of Present Goal	5.36 _a (1.46)	5.35 _a (1.41)	5.03 _a (1.51)
Importance of Future Goal	6.37 _{ab} (.85)	6.25 _a (.97)	6.44 _b [†] (.71)
Goal Progress	5.08 _a (2.28)	4.28 _b (2.13)	4.87 _{ac} (2.03)
Specific goal certainty/controllability	5.16 _a (1.27)	5.51 _b (1.37)	5.87 _c (1.09)
General future goal certainty composite	4.45 _{ac} (1.03)	4.62 _a (1.12)	4.99 _b (1.02)
Pessimism	3.80 _{ac} (1.20)	3.70 _a (1.19)	3.36 _b (1.21)
Optimism	4.27 _a (1.41)	4.44 _{ab} (1.41)	4.70 _b (1.33)
Willingness to Sacrifice Present for Future	4.72 _a (1.07)	4.75 _a (1.27)	5.00 _b [†] (1.13)
One vs. many sacrifices ^k	3.81 _a (1.31)	3.71 _a (1.44)	3.91 _a (1.26)

Note. Different subscripts within a row indicate a significant difference ($p < .05$). Subscripts with a [†] notation indicate a marginal difference ($p \leq .10$).

ⁱ Higher scores indicate a greater endorsement of incremental theory.

^k Higher scores indicate many sacrifices.

Table 25

Study 5: Intercorrelations among all Independent and Dependent Variables (overall)

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Life Satisfaction - DV	-												
2. Mood (positive) - DV	.73**	-											
3. Life Satisfaction pre-measure	.83**	.74**	-										
4. Mood pre-measure (i.e., not happy right now)	-.73**	-.83**	-.80**	-									
5. Implicit Theories ⁱ	.13*	.13*	.09 [†]	-.10 [†]	-								
6. Importance of Present Goal	.10	.07	.07	-.11*	-.02	-							
7. Importance of Future Goal	.03	.05	.03	-.10 [†]	-.07	.29**	-						
8. Goal progress	.01	-.04	-.03	.07	-.07	-.05	.07	-					
9. Specific goal certainty/ controllability	.37**	.38**	.36**	-.35**	.04	.04	.22**	.11*	-				
10. General future goal certainty composite	.40**	.43**	.37**	-.42**	.14**	.04	.16*	-.03	.53**	-			
11. Pessimism	-.50**	-.53**	-.51**	.53**	-.18**	-.12*	-.18**	.07	-.48**	-.64**	-		
12. Optimism	.63**	.63**	.61**	-.61**	.23**	.11*	.10 [†]	.02	.47**	.57**	-.70**	-	
13. Willingness to Sacrifice	.06	.11*	.07**	-.11*	.08	.05	.23**	-.06	.22**	.31**	-.35**	.15**	-
14. One vs. Many Sacrifices	-.16**	-.06	-.17**	.11*	.03	-.07	.15**	-.07	-.12*	-.11*	.14*	-.14*	.07

Note. ** $p < .01$, * $p < .05$, [†] $p \leq .10$ ⁱ Higher scores indicate a greater endorsement of incremental theory.^k Higher scores indicate many sacrifices.

Table 26

Study 5: Regressing Life Satisfaction onto Condition (no control, baseline, control) and Implicit Theory of Personality.

Predictor	β	t
Step 1		
Condition (lack of control, baseline, controllable)	.08	1.57
Implicit Theory of Personality ⁱ	.13	2.39*
Step 2		
Condition (lack of control, baseline, controllable)	.08	1.58
Implicit Theory of Personality ⁱ	.12	2.32*
Condition X Implicit Theories	.06	1.06

Note. Standardized coefficients.

Effect coding for condition: Lack of control = -1, baseline = 0

ⁱHigher scores indicate a greater endorsement of incremental theory.

* $p = .02$

Table 27

Study 5: Regressing Life Satisfaction onto Condition (lack of control, baseline, controllable), Implicit Theory of Personality and OECD Life-Satisfaction pre-measure.

Predictor	β	t
Step 1		
Condition (lack of control, baseline, controllable)	.05	1.51
Implicit Theory of Personality ⁱ	.06	1.87
OECD Life Satisfaction (LS) pre-measure	.83	27.73**
Step 2		
Condition (lack of control, baseline, controllable)	.05	1.53
Implicit Theory of Personality ⁱ	.05	1.80
OECD Life Satisfaction pre-measure	.83	27.65**
Condition X Implicit Theory	.05	1.56
Implicit Theory X OECD LS	.02	.51
Condition X OECD LS	-.03	-1.12
Step 3		
Condition (lack of control, baseline, controllable)	.05	1.66 [†]
Implicit Theory of Personality ⁱ	.06	1.83 [†]
OECD Life Satisfaction pre-measure	.82	27.56**
Condition X Implicit Theory	.05	1.61
Implicit Theory X OECD LS	.02	.71
Condition X OECD LS	-.04	-1.31
Implicit Theory X Condition X OECD LS	-.04	-1.36

Note. Standardized coefficients.

Effect coding for condition: Lack of control = -1, baseline = 0

ⁱHigher scores indicate a greater endorsement of incremental theory.

** $p < .01$, * $p < .05$, [†] $p < .10$

Table 28

Study 5: Regressing Life Satisfaction onto Condition (dummy coded) and Implicit Theory of Personality for the group initially low in Life Satisfaction

Predictor	β	t
Regression 1		
Step 1		
Dummy1.Base.Controllable	.12	1.47
Dummy2.Base.LackControl	-.08	-.91
Implicit Theory of Personality ⁱ	.22	2.94**
Step 2		
Dummy1.Base.Controllable	.12	1.39
Dummy2.Base.LackControl	-.08	-.97
Implicit Theory of Personality ⁱ	.13	1.14
Implicit Theory X Dummy1.B.C	.20	2.00*
Implicit Theory X Dummy2.Base.LC	-.04	-.43
Regression 2		
Step 1		
Dummy3.LackControl.Controllable	.20	2.25*
Dummy4.LackControl.Base	.08	.91
Implicit Theory of Personality ⁱ	.221	2.94**
Step 2		
Dummy3.LackControl.Controllable	.20	2.25*
Dummy4.LackControl.Base	.09	.97
Implicit Theory of Personality ⁱ	.05	.36
Implicit Theory X Dummy3.LC.C	.24	2.20*
Implicit Theory X Dummy4.LC.B	.05	.43

Note. Low in initial life satisfaction

Standardized coefficients.

ⁱHigher scores indicate a greater endorsement of incremental theory.

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

Table 29

Study 5: Regressing Life Satisfaction onto Condition (dummy coded) and Implicit Theory of Personality for the group initially high in Life Satisfaction

Predictor	β	t
Regression 1		
Step 1		
Dummy1.Base.Controllable	.10	1.17
Dummy2.Base.LackControl	.01	.14
Implicit Theory of Personality ⁱ	.17	2.25*
Step 2		
Dummy1.Base.Controllable	.10	1.23
Dummy2.Base.LackControl	.02	.19
Implicit Theory of Personality ⁱ	.23	1.78 [†]
Implicit Theory X Dummy1.B.C	-.11	-.97
Implicit Theory X Dummy2.Base.LC	-.01	-.05
Regression 2		
Step 1		
Dummy3.LackControl.Control	.09	1.00
Dummy4.LackControl.Base	-.01	-.14
Implicit Theory of Personality ⁱ	.17	2.48*
Step 2		
Dummy3.LackControl.Control	.09	1.01
Dummy4.LackControl.Base	-.02	-.19
Implicit Theory of Personality ⁱ	.22	1.69 [†]
Implicit Theory X Dummy3.LC.C	-.10	-.91
Implicit Theory X Dummy4.LC.B	.01	.05

Note. High in initial life satisfaction
Standardized coefficients.

ⁱHigher scores indicate a greater endorsement of incremental theory.

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

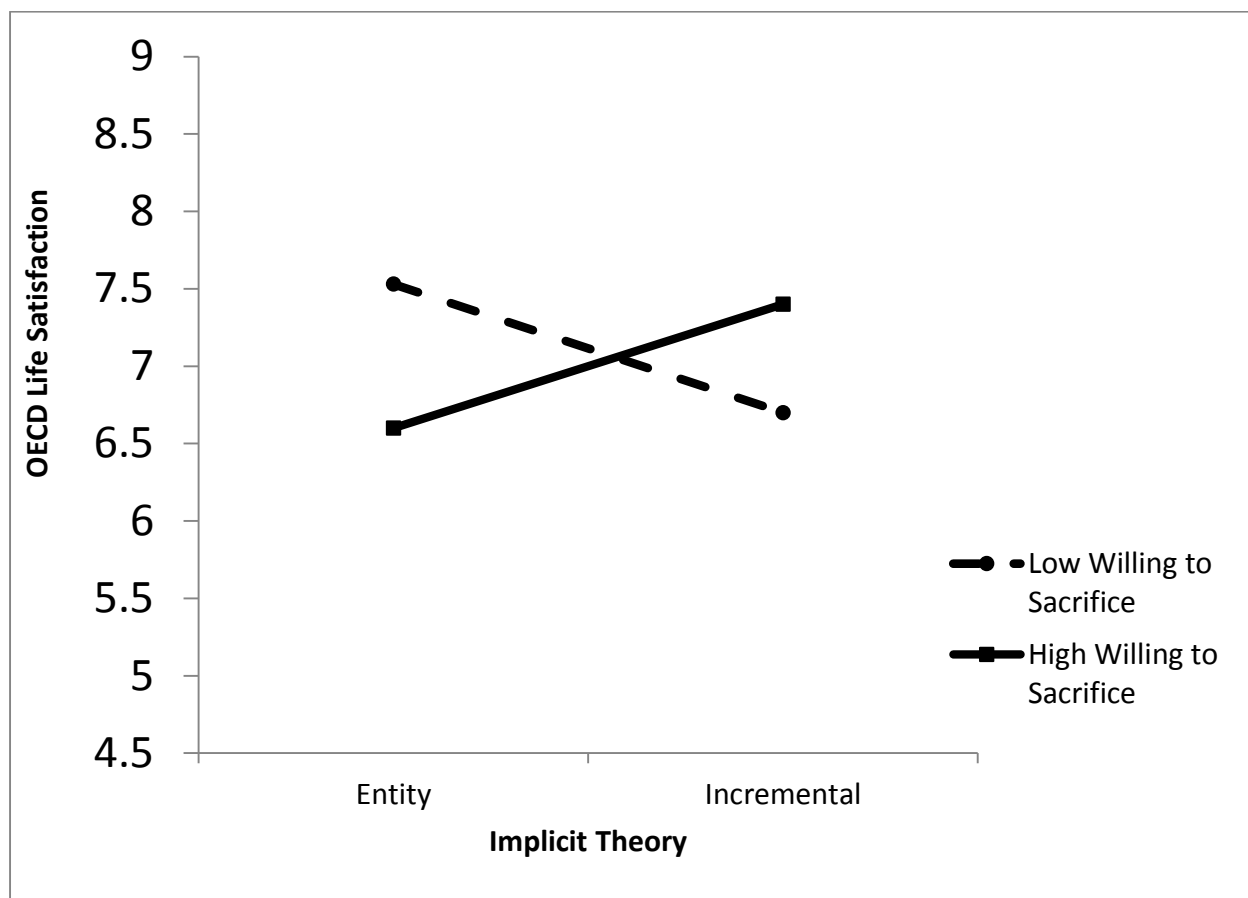


Figure 1. Study 1: Life Satisfaction Ratings as a function of Implicit Theories and Willingness to Sacrifice Present for the future

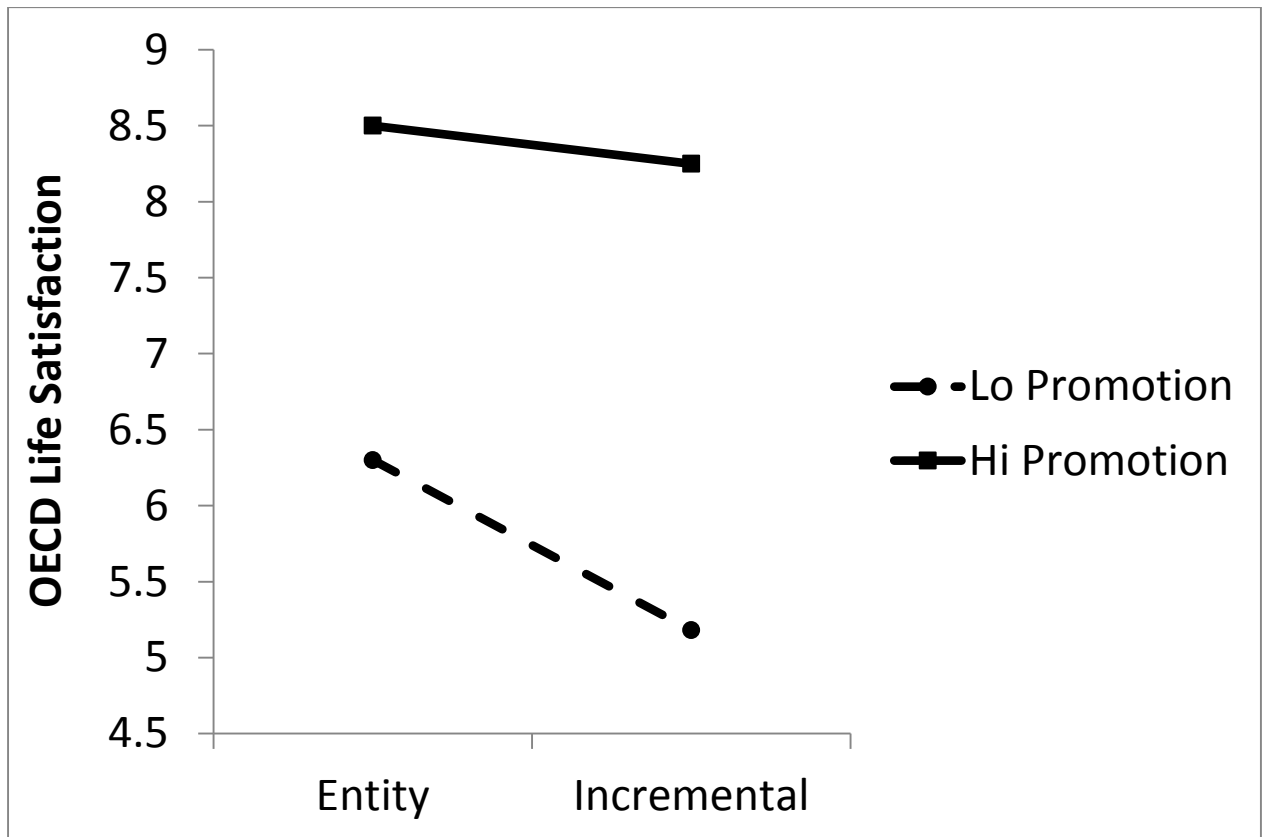


Figure 2. Study 1: Life Satisfaction Ratings as a function of Implicit Theories and Regulatory Focus.

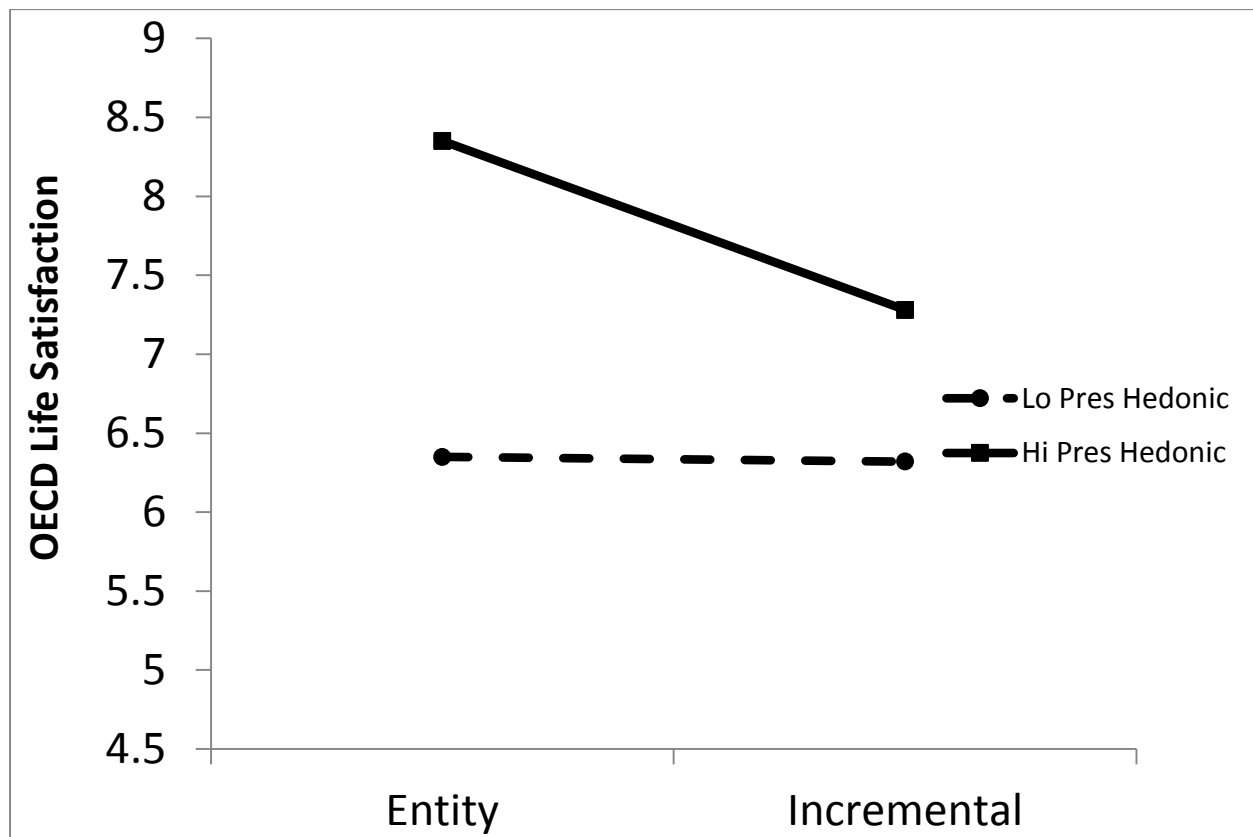


Figure 3. Study 1: Life Satisfaction Ratings as a function of Implicit Theories and Present Hedonic Time Perspective.

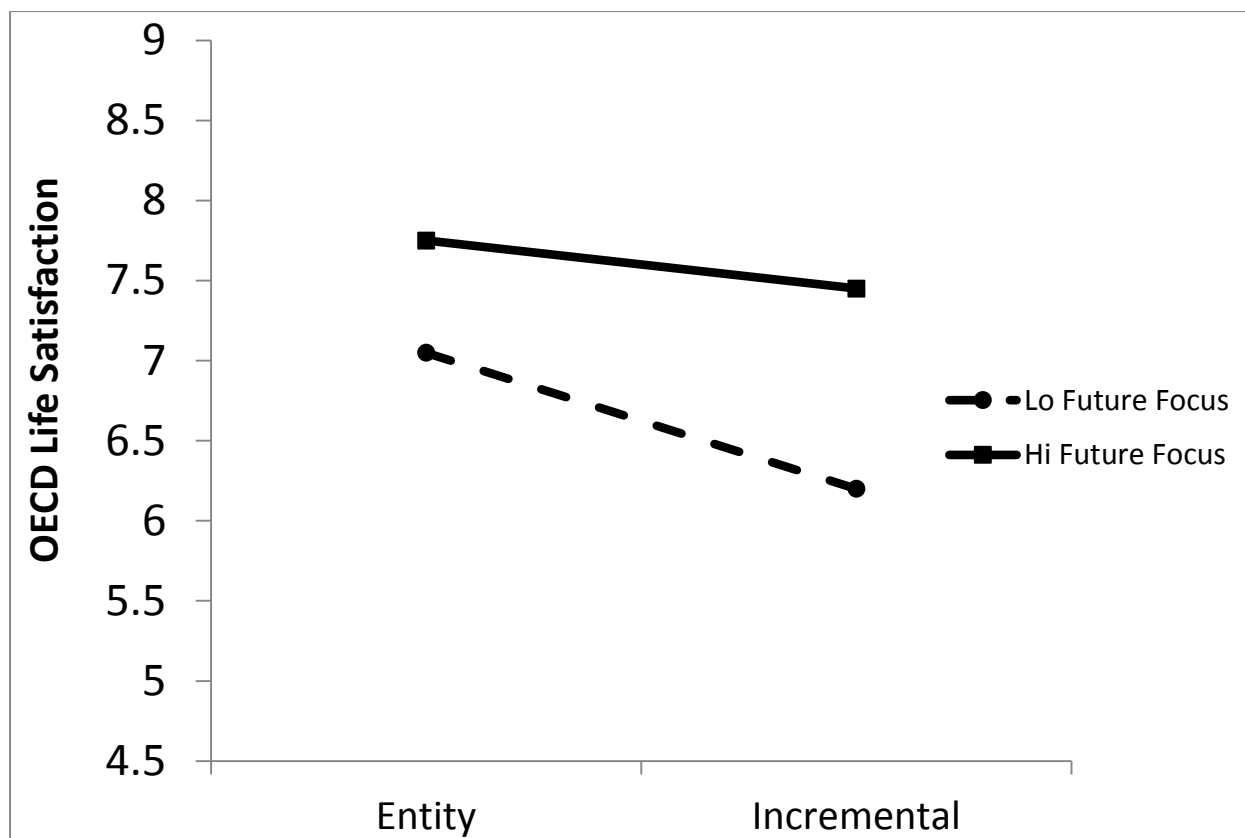


Figure 4. Study 1: Life Satisfaction Ratings as a function of Implicit Theories and Future Focus Time Perspective.

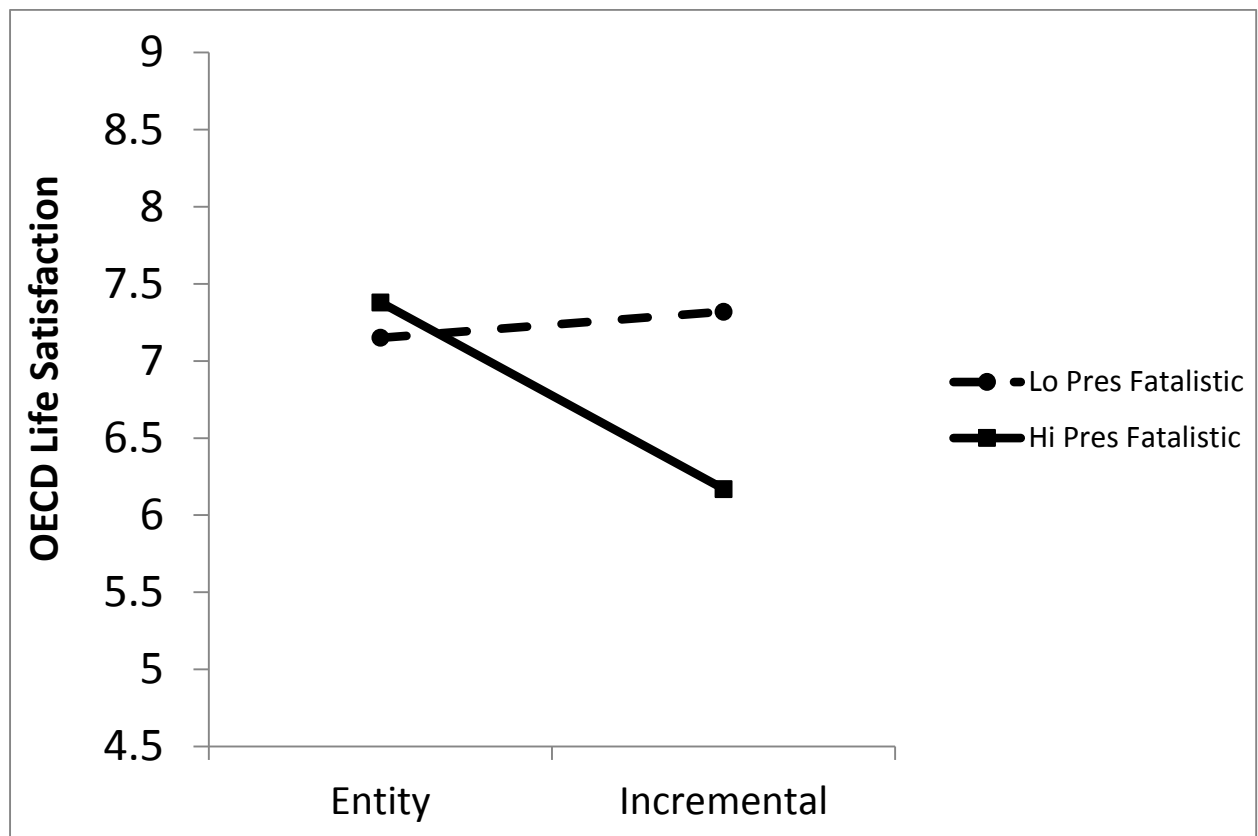


Figure 5. Study 1: Life Satisfaction Ratings as a function of Implicit Theories and Present Fatalistic Time Perspective.

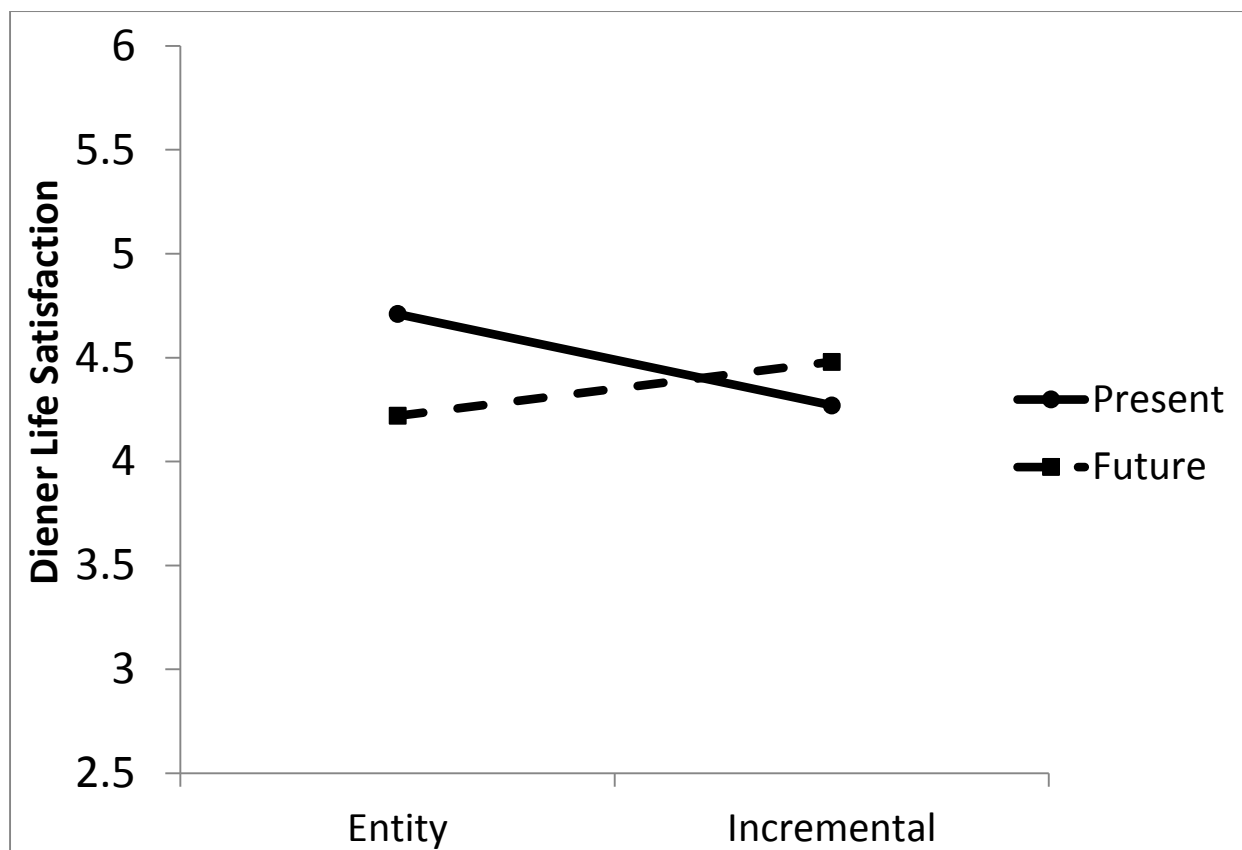


Figure 6. Study 2: Life Satisfaction Ratings (DV) as a function of Implicit Theories and Present versus Future Focus Manipulated Condition.

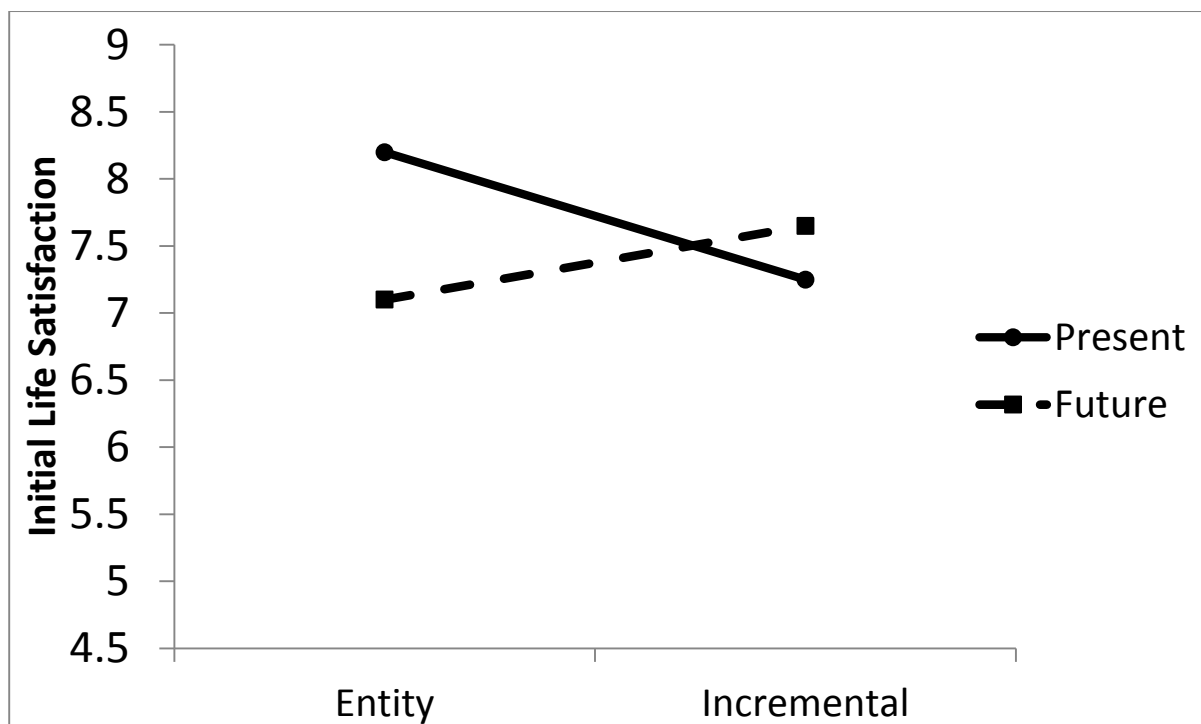


Figure 7. Study 2: Initial Life Satisfaction Ratings as a function of Implicit Theories and Present versus Future Focus Manipulated Condition.

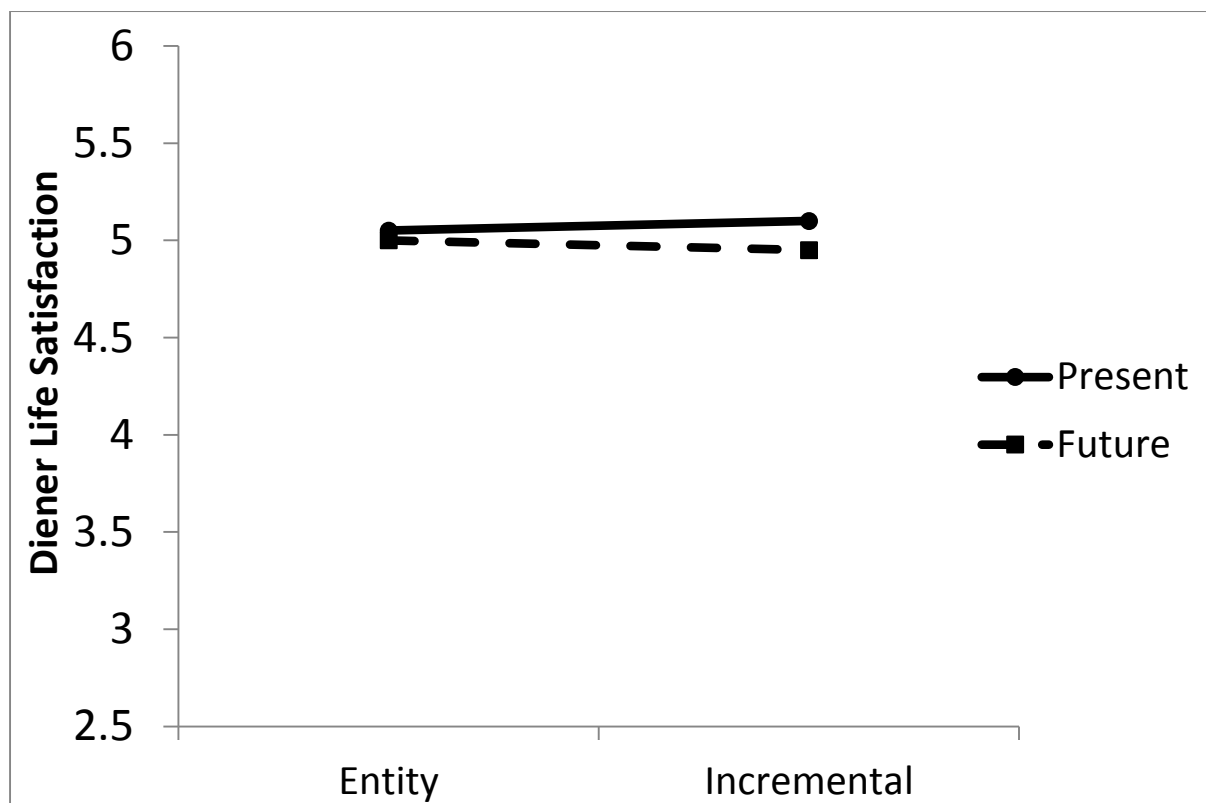


Figure 8. Study 3: For those initially high in Life Satisfaction – Life Satisfaction Ratings (DV) as a function of Implicit Theories and Present versus Future Focus Manipulated Condition.

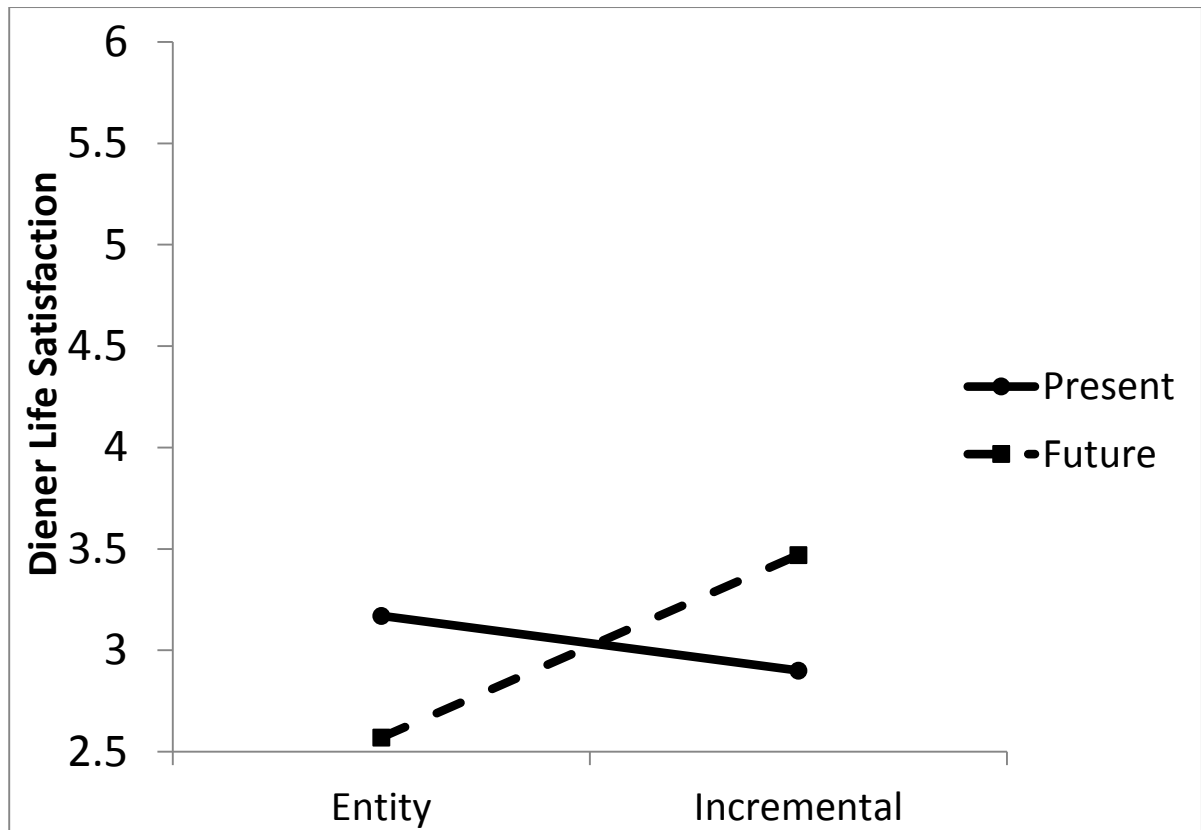


Figure 9. Study 3: For those initially low in Life Satisfaction - Life Satisfaction Ratings (DV) as a function of Implicit Theories and Present versus Future Focus Manipulated Condition.

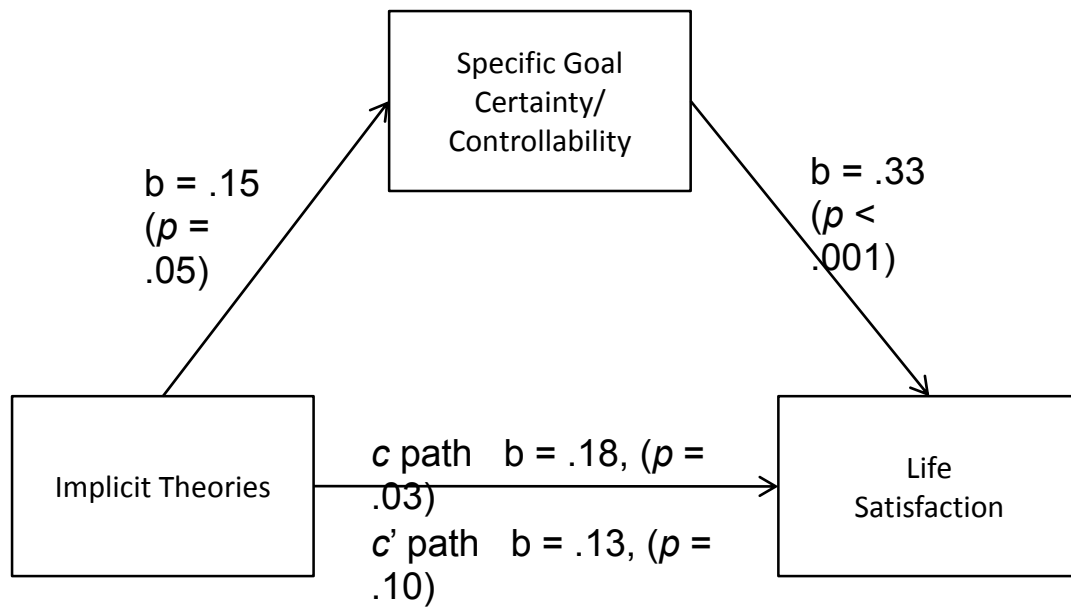


Figure 10. Study 4. Path analysis demonstrating that specific goal certainty/controllability mediates the relationship between implicit theories and life satisfaction (DV); 95% CI [.01, .13], $p < .05$.

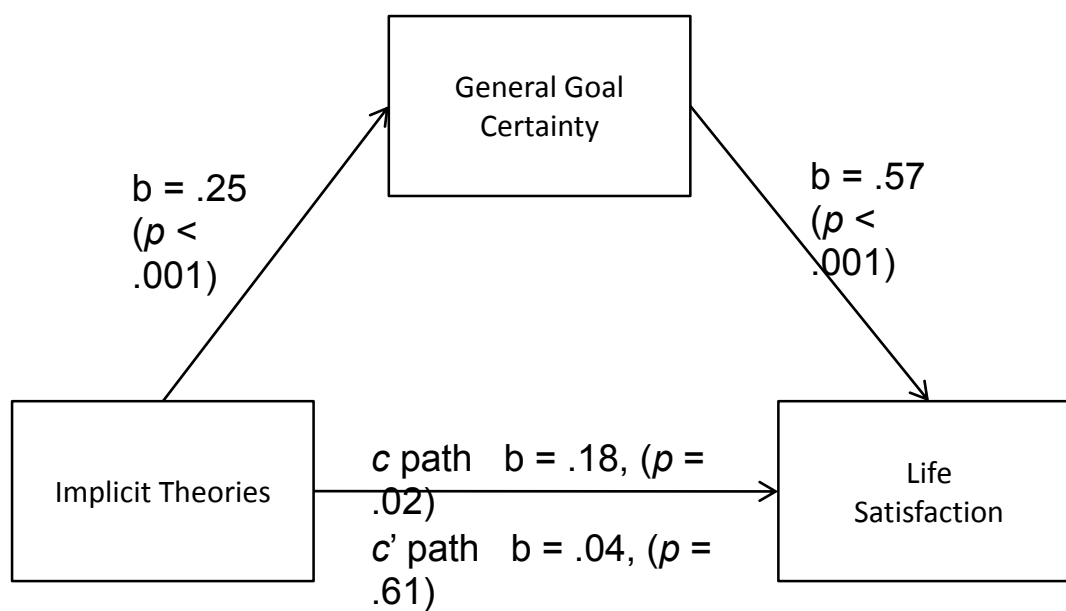


Figure 11. Study 4. Path analysis demonstrating that general goal certainty mediates the relationship between implicit theories and life satisfaction (DV); 95% CI [.05, .22], $p < .05$.

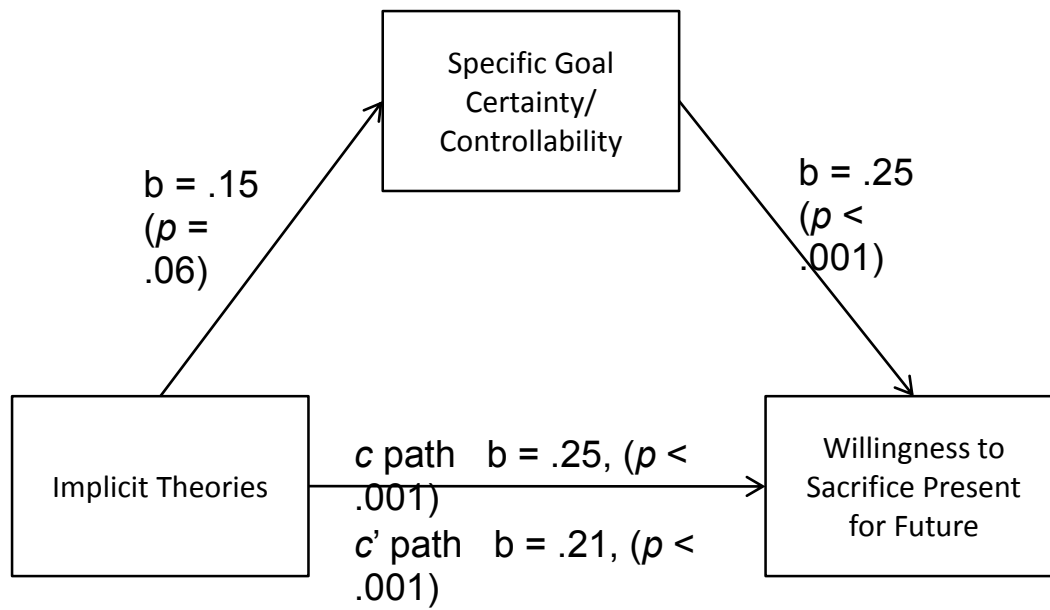


Figure 12. Study 4. Path analysis demonstrating that specific goal certainty/controllability mediates the relationship between implicit theories and willingness to sacrifice the present for the future; 95% CI [.01, .10], $p < .05$.

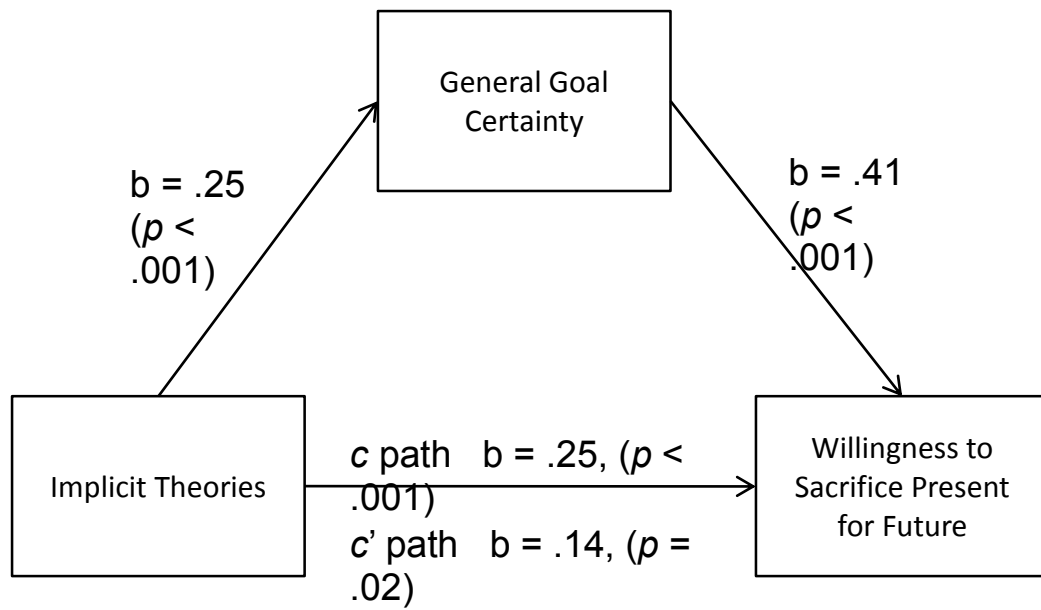


Figure 13. Study 4. Path analysis demonstrating that general goal certainty mediates the relationship between implicit theories and willingness to sacrifice the present for the future; 95% CI [.05, .19], $p < .05$.

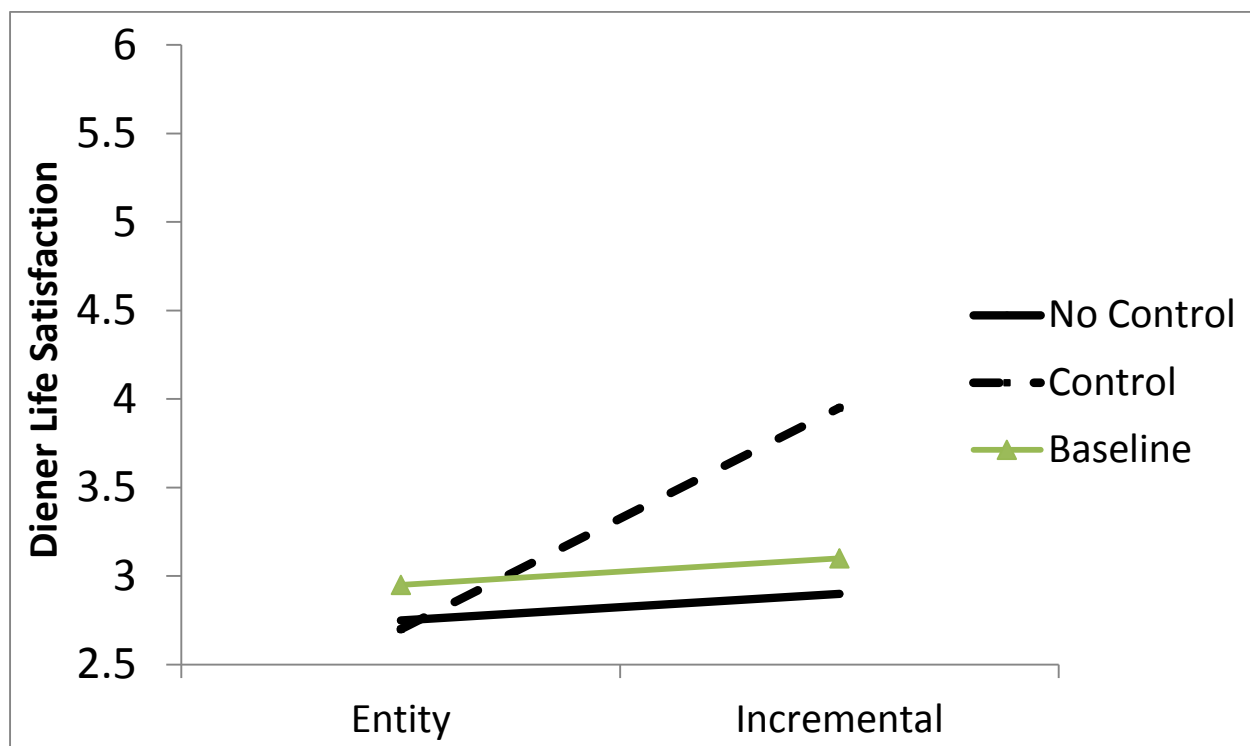


Figure 14. Study 5: For those initially low in Life Satisfaction - Life Satisfaction Ratings (DV) as a function of Implicit Theories and Manipulated Condition.

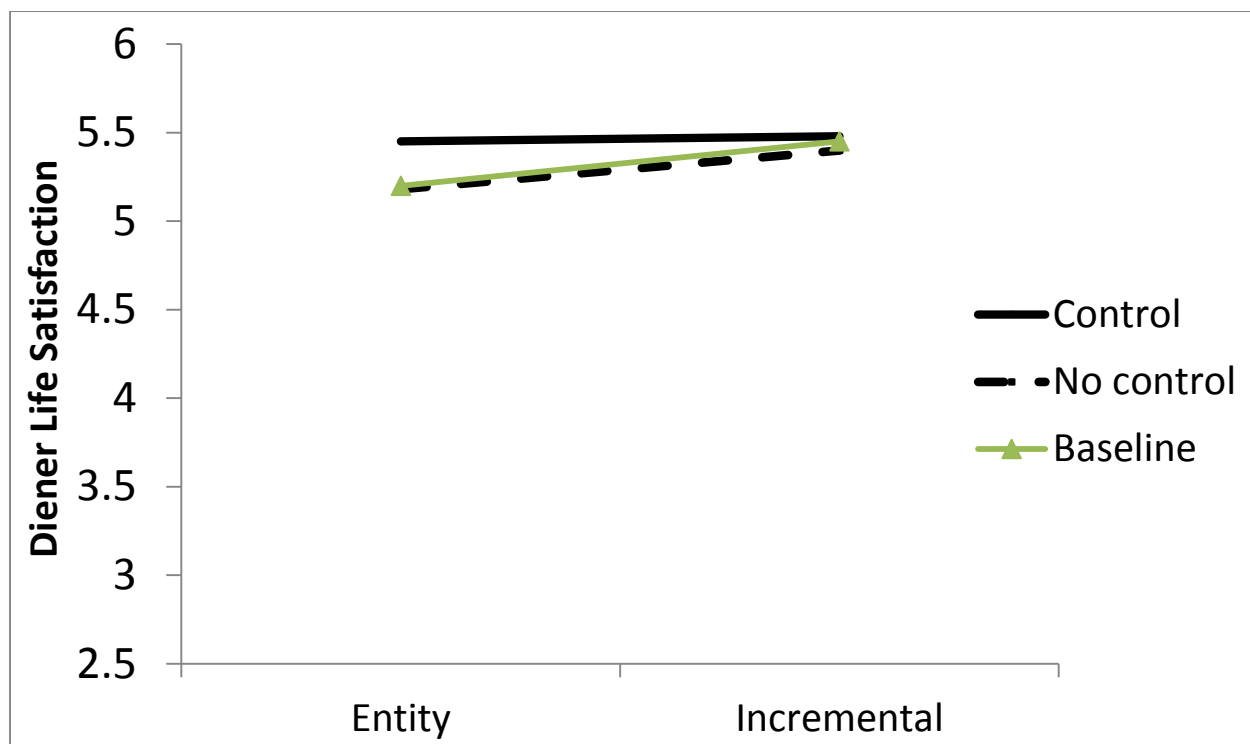


Figure 15. Study 5: For those initially high in Life Satisfaction - Life Satisfaction Ratings (DV) as a function of Implicit Theories and Manipulated Condition.

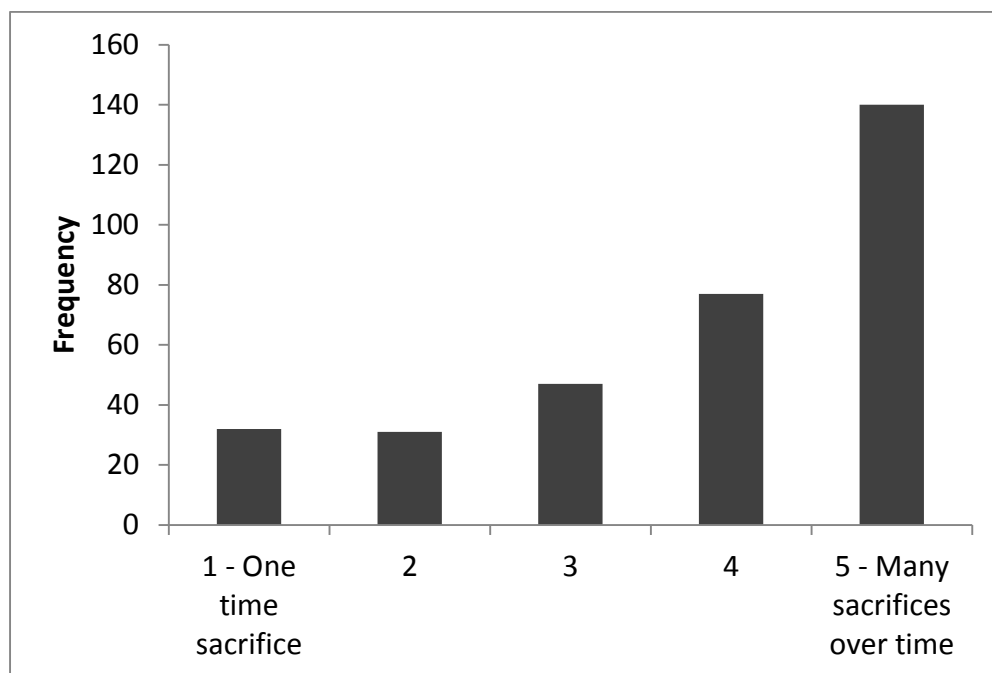


Figure 16. Study 5: Histogram – the degree to which "sacrificing" the present represented a 'one time' sacrifice versus 'many sacrifices' over time.