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Started from the future now we're here: The effect of planning direction on motivation

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Started from the future now we're here: The effect of planning direction on motivation

by

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Honours Bachelor of Arts in Psychology, Wilfrid Laurier University, 2017

Master's Thesis

Submitted to the Department of Psychology

in partial fulfillment of the requirements for

Master of Arts in Social Psychology

Wilfrid Laurier University

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Abstract

Planning for a future goal in reverse chronological order (i.e., backward planning) can result in increased task motivation for relatively specific, short-term goals, such as academic assignments (Park et al., 2017). Although sometimes backward planning is advocated for shorter-term, concrete event planning (e.g., planning a project timeline), it is also promoted for longer-term, identity-based, "visioning" exercises in which people imagine a desired future-self more generally, then backward plan the path to attaining it. The purpose of the present research was to empirically test this type of applied goal-setting program that promotes the use of backward planning when thinking about one's future vision (i.e., one's ideal future self). As such, the present research examined the effect of different types of planning on people's motivation to achieve their future vision and the subjective temporal distance of this future vision. Undergraduate students first described a short-term or long-term future vision for themselves, and then generated a plan for their future vision in a forward or backward direction. They were then asked to rate their overall motivation (Study 1) and motivation throughout the planning exercise (Studies 2 and 3). In all studies, participants rated the subjective closeness of their future vision. Across three studies, there is some evidence that backward planning influenced overall motivation for short-term, but not for long-term future visions. Backward planning did not influence the subjective closeness of these future visions. Additional measures suggested that effects of backward planning on motivation were mediated by the sequential contingency of people's plans, in the short-term (Study 3), such that motivation was heightened to the extent that participants developed contingent plans. Overall, the findings were relatively inconsistent, suggesting that although backward planning can sometimes enhance motivation, companies and practitioners should be cautious about touting such visioning exercises.

Keywords: temporal direction, backward planning, motivation

Acknowledgments

I would first like to thank my thesis advisor, Dr. Roger Buehler, for his continued guidance. His expertise made it possible to conduct work on a topic that was of great interest to me. I am so grateful for all the support and encouragement he has given me throughout my journey at Wilfrid Laurier University and beyond. I would also like to thank my committee members, Dr. Anne Wilson and Dr. Christian Jordan, for their helpful comments and suggestions, as well as Dr. Hae Joo Kim for agreeing to serve as an external reader.

Additionally, I would like to thank my friends and colleagues for their constant support throughout this process. Without them, my graduate experience would have been challenging.

Finally, I would like to thank my family for the endless amount of love and emotional support they have given me over the years. It goes beyond words how much their support has guided me in my journey.

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Started from the future now we're here: The effect of planning direction on motivation

People often try to envision themselves in the future, and spend considerable time thinking about the life goals they hope to achieve. Yet, for a variety of reasons, people often fail to achieve many of their life goals. One of the possible reasons people might not achieve their goals is because of a lack of determination or motivational drive, and thus researchers are interested in identifying factors that can boost goal pursuit motivation. Previous research has looked at the impact of planning on goal pursuit and found that planning can enhance goal-congruent behaviors (e.g., Oettingen, 2000). The present research explores a certain planning strategy – known as *backward planning* – that has potential to influence people's motivation to achieve short-term and long-term life goals. Backward planning involves planning in reverse-chronological order, beginning with a target point in the future and working back in time toward the present. This strategy is often advocated in applied settings and has recently been shown to increase motivation for relatively short-term goals (Park, Lu, & Hedgcock, 2017). Recently, backward planning has been implemented in a goal-setting program and advocated by a large corporation, Lululemon. Rather than focusing on short-term goals, however, this goal-setting or "visioning" program invites people to think about their ideal future-self in 10 years (i.e., their future vision), and then to plan for that future vision using backward planning. This type of backward planning exercise has not, to my knowledge, been empirically tested. The main objective of the present research is to empirically test several features of this type of goal-setting program and in doing so to extend the work by Park et al. (2017) by examining different types of goals. Specifically, I examine whether, and how, backward planning could improve goal pursuit and subsequent motivation for more broad, multidimensional goals, including long-term visions of oneself in the future.

In the remainder of the introduction, I will review several factors that have been shown in previous research to impact motivation and goal pursuit, with a focus on factors relevant to understanding the effects of backward planning. I will first provide a brief review of literature examining characteristics of the goal itself, such as the extent to which the goal is: promotion focused (Higgins, 1997), clear and specific (Locke & Latham, 1990), difficult (Gollwitzer & Brandstätter, 1997; Locke & Latham, 1990), and close in time (Bandura & Schunk, 1981; Peetz, Wilson, & Strahan, 2009). Then, I will review literature on the strategies that people adopt in pursuit of their goals (e.g., forming implementation intentions (Gollwitzer, 1999), engaging in mental contrasting (Oettingen, 2000), and performing mental simulations of the pathways towards goal completion (Pham & Taylor, 1999)). In addition, because I focus on backward planning for long-term (vs. short-term) goals, I will next review literature on the implications of temporal distance for predictions of future selves (Heller, Stephan, Kifer, & Sedikides, 2011; Wilson, Buehler, Lawford, Schmidt, & Yong, 2012), as well as literature on the temporal perspectives that people can take when considering the future (Ebert, Gilbert, & Wilson, 2009; Rollier & Turner, 1994). Lastly, I will review literature on temporal direction, including the few studies demonstrating benefits of backward planning.

Goal Specificity and Motivation

Research examining the specificity of goals and the implications for motivation has yielded mixed findings (Fujita & Roberts, 2010; Locke & Latham, 1990; see Höchli, Brügger, & Messner, 2018 for a review). Some research has shown that goals are more motivating to the extent they are specific and concrete (e.g., Locke & Latham, 2002), whereas other research has provided evidence that abstract goals can improve self-control and related goal pursuit (e.g., Fujita, & Roberts, 2010). Goal-setting theory (Locke & Latham, 1990; 2002) states that

challenging, specific, and concrete goals (i.e., subordinate goals) are powerful motivators

compared to vague or abstract goals (i.e., superordinate goals). Although concrete goals might be

more motivating, in real-life, people often set long-term, abstract goals for themselves, such as

career or health goals. Such superordinate goals are far removed in time which may hinder goal

pursuit. A solution to this problem is that goal-setters can divide abstract, long-term goals into

specific, concrete short-term goals to enhance motivation and performance (Sun & Frese, 2013).

Because subordinate goals require less time, goal progress and achievement are easier, and

individuals experience more immediate incentives for current performance. These qualities

facilitate self-efficacy beliefs, which contributes to performance and boosts motivation.

Alternatively, some research has suggested that goal-setters should focus on their

superordinate goals from an extended temporal perspective (Fujita & MacGregor, 2012). One

way that an extended temporal perspective can foster long-term goal pursuit is through reduced

temporal discounting. Temporal discounting refers to the tendency to forfeit larger future

rewards in favor of smaller immediate rewards (for a review see Zauberman & Urminsky, 2016).

A preference for the immediate outcome can undermine goal pursuit. Focusing on superordinate

goals can reduce temporal discounting by construing the goal in an abstract instead of a concrete

manner. When construing a goal abstractly, people base their decisions on desirability concerns

(e.g., the superordinate ends that a behaviour achieves) rather than on feasibility concerns (e.g.,

the subordinate means by which a goal is achieved). An emphasis on the desirability of a future

goal can attenuate the tendency to forfeit larger future rewards in favor of smaller immediate

rewards. For example, Fujita and Roberts (2010) found that when people construe events more

abstractly, they are more likely to engage in prospective self-control. In other words, higher-level

construal enhances people's effort to protect their goals from anticipated temptations.

Goal motivation is also impacted by how distant the target goal is in calendar time (objective time; Förster, Higgins, & Idson, 1998) as well as how close one feels to the target goal (subjective time; Peetz et al., 2009). Research on the goal gradient highlights that as people approach their goal and become closer to the end-point, they become more motivated (Förster et al., 1998; Kivetz, Urminsky, & Zheng, 2006). Furthermore, people who feel close to a goal experience greater motivation than those who feel distant from a goal (Peetz et al., 2009). Some research suggests that the impact of subjective closeness on motivation is moderated by the probability of future goal success (Oettingen, Pak, & Schnetter, 2001; Oettingen & Mayer, 2002). When individuals expect that they will be able to attain their future goal, perceived closeness reduces engagement in goal-relevant behavior because people are inclined to bask in the enjoyment associated with their fantasies; however, when success is uncertain, perceived closeness may lead to enhanced motivation. In sum, temporal distance is a goal characteristic that can impact motivation, and thus is a potential mechanism to consider when studying effects of backward planning.

Planning and Motivation

As detailed above, there is a wealth of research suggesting that characteristics of the goals themselves can impact motivation. Goals are generally defined as a cognitive representation of a desired future end-state that a person seeks to achieve through goal-relevant action (Touré-Tillery & Fishbach, 2011). People can initiate goal-relevant action through planning for the future. When people plan, they connect their desired future end-state to a series of specific goal-relevant actions (Austin & Vancouver, 1996). People may experience markedly different levels of motivation depending on how they develop a plan of action. Overall, planning

has been shown to lead to greater self-control (Patterson & Mischel, 1976) and better performance (Gollwitzer & Brandstätter, 1997).

Planning vs. not planning. Research has examined the effect of simply imagining a future endpoint (e.g., goal attainment) as well as the effect of developing a plan for a future endpoint. Simply imagining future goal attainment can enhance motivation (Taylor, Pham, Rivkin, & Armor, 1998). However, this can also lead to less effort and lower success (Oettingen & Mayer, 2002). Individuals who indulge in positive fantasies may experience enjoyment in the present, which can impede the necessity to act. These fantasies can also hinder one's ability to identify potential obstacles and engage in planning for goal-relevant scenarios (e.g., mental contrasting; Oettingen, 2000). When engaging in mental contrasting, the negative reality is perceived as an obstacle of the desired future, which creates a necessity to act in terms of changing the present reality to achieve the desired future (Oettingen et al., 2001).

Moreover, research on outcome versus process simulations (Pham & Taylor, 1999; Taylor et al., 1998) has found superior effort and performance after process simulations (rehearsing the steps needed to reach a set goal) than after outcome simulations (rehearsing the moment of achieving a set goal) because it prompts concrete plans and problem-solving activities. For example, Pham and Taylor (1999) found that students exerted more effort and had a better performance on a midterm exam when they mentally simulated the steps they would need to take compared to when they only fantasized about the outcome (receiving their grade). Process simulations achieve beneficial effects via the planning they evoke (Taylor & Pham, 1999). Therefore, there is considerable evidence that people tend to be more motivated to pursue a goal when they develop a plan than when they do not.

Although planning has been shown to heighten motivation, the difficulty of developing such plans is an important consideration for the perceived likelihood of goal success, and subsequent motivation. Concerning the ease of generation (Schwarz et al., 1991), people use the ease or difficulty with which they can bring material to mind, through recall or generation, as a source of information (Haddock, Rothman, & Schwarz, 1996). Trying to imagine difficult-to-construct or cognitively inaccessible events reduces likelihood estimates (Sherman, Cialdini, Schwartzman, & Reynolds, 1985). Therefore, if planning for the future is experienced as particularly easy, it may be that any goal-setting strategy will be motivating; however, when planning for the future is experienced as challenging, only certain planning strategies may be beneficial. Based on previous theory and research, I suggest that one such strategy is backward planning. Indeed, for complex problems and tasks, backward planning has been argued to be particularly helpful (Holmberg & Robert, 2000; Park et al., 2017). For example, Holmberg and Robert (2000) suggest a framework wherein considering future events in a reverse-chronological order (i.e., *backcasting*) is particularly useful when applied to sustainability goals. In their framework, Holmberg and Robert (2000) suggest to first identify a desired future state and then consider which of several strategies in the present is most likely to bring that state about. In sustainability studies, the concept of backcasting refers to the idea of imagining a sustainable future, and then devising the strategies, pathways and trajectories that would take our society to that point. Similar to backward planning, backcasting involves working backwards from a particular future end-point to the present to determine what steps would be required to reach that future (Robinson, 1988). Holmberg and Robert (2000) argue that this method of backcasting is particularly helpful for strategic planning in sustainability, because it can increase the likelihood of handling ecologically complex problems in a systematic way.

Fantasy realization theory. Positive fantasies (outcome and process) have been shown to be a motivational hindrance, especially when desired future outcomes are hard to come by (i.e., cannot be solved immediately and effortlessly). When desired outcomes are hard to come by, such as in the case of attaining a job or academic success, positive fantasies (as opposed to positive expectations) lead people to mentally enjoy the desired future in the here and now, and curb investment in future success (Oettingen & Mayer, 2002). Although positive fantasies have some benefit, such as allowing people to consider their possible selves (leading to positive emotions; Fredrickson, 2001), this type of thinking does not lead to effortful action or future success.

According to fantasy realization theory, mentally contrasting a desired future with the present reality helps people differentiate reachable and unreachable goals, leading to selective goal commitment and effective management of resources (Oettingen, 2000). However, mental contrasting is only a benefit when people elaborate first on a desired future and then on the present reality (i.e., when people think in a reverse-chronological order). Thinking in chronological order makes people less likely to perceive the reality as an impediment and experience the desired future as a relief to reality, thus failing to consider the necessity of acting (Kappes, Singmann, & Oettingen, 2012). This clearly suggests that the direction in which people consider their future self and present reality when planning, is an important predictor of goal commitment and goal attainment. Backward planning can be seen as an extension of this idea, as it prompts people to contemplate the path to goal attainment in a reverse-chronological temporal direction.

Multiple goal pursuit and planning. Since people's ideal future self, especially in the long-term, may consist of multiple goals which can involve different dynamics than planning for

a single goal, I will review literature on multiple goal pursuit. Whenever people are considering

their future self across multiple domains (e.g., health, career, etc.), their plans consist of multiple

sub-goals. Research on multiple goal pursuit has identified the boundary conditions that

determine when multiple goals (vs. a single goal) will lead to an increase or decrease in

motivation (Louro, Pieters, & Zeelenberg, 2007; Toure-Tillery & Fishbach, 2011). Some

research suggests that having a single goal is more beneficial than multiple goals because of the

implemental mindset spontaneously induced for single goals (Soman & Zhao, 2011). In contrast,

people are naturally in a deliberative mindset when considering multiple goals, leading them to

perceive competition between their multiple goals, hindering goal pursuit. However, Soman and

Zhao (2011) found that when people are placed in an implemental mindset, they are able to

perceive their multiple goals as one single goal, which enhances goal pursuit. Therefore,

inducing an implemental mindset has been shown to increase motivation for multiple goals, and I

suggest that one way to induce an implemental mindset is through backward planning.

I theorize that backward planning can put people in an implemental mindset more than

forward planning as a result of mental contrasting processes. That is, backward planning should

prompt individuals to mentally contrast the desired future to current reality, and this mental

contrasting should induce a necessity to act. Since mindsets can change from deliberative to

implemental as people finalize what goals they need to pursue (Gollwitzer 1999), this necessity

to act should induce an implemental mindset and enhance goal pursuit.

Temporal Distance

People are able to engage in "mental time travel" by imagining themselves in the future,

and, generally speaking, future selves are typically viewed favorably and optimistically (Alicke

& Sedikides, 2009). However, recent research has found that the valence of one's future self

depends on the objective (Heller et al., 2011) and subjective distance (Wilson et al., 2012)

between the present and future. Some work suggests that people are motivated to evaluate future

selves more positively when they feel closer in time because subjectively close future selves

have more direct implications for current identity (Wilson et al., 2012). In contrast, Heller et al.

(2011) found predictions of oneself in the distant future (three years) were more positive than

predictions of oneself in the close future (one month). Distant predictions tend to reflect "gist"

self-attributes, and based on the self-enhancement literature, positive (versus negative) attributes

are typically perceived as the "gist". As such, distant predictions are more positive (Stephan,

Sedikides, Heller, & Shidlovski, 2015).

Taken together, this literature suggests that under different circumstances, temporal

distance can exert opposing effects on self-appraisal. Increases in calendar time distance are

likely to exhibit an incline in self-appraisal (Heller et al., 2011); however, increases in felt

distance, at the same point in calendar time, are likely to exhibit a decline in self-appraisal

(Wilson et al., 2012). Therefore, in the context of the current research, it is important to consider

both objective and subjective distance without assuming they will exert the same effects on

motivation.

Temporal Perspective

There is another way in which temporal processes can alter how one thinks about a future

event. When thinking about a future event, people can adopt one of two temporal perspectives

(Rollier & Turner, 1994). They can adopt either a prospective perspective (considering an event

that has not yet occurred and predicting the possibilities related to it) or a retrospective

perspective (considering the event as if it has already occurred and explaining the steps required

to make it happen). A retrospective perspective facilitates the visualization of a future event and

makes it easier to analyze the event and comprehend necessary steps. For example, Rollier and Turner (1994) found that during a planning exercise, individuals generated more statements when they adopted a retrospective perspective compared to a prospective perspective. In one study, Rollier and Turner (1994) asked participants to imagine they were a leader at a company and then to generate planning statements for that company (e.g., add skilled sales force to sell to large customers). In the retrospective condition, participants were asked to imagine six years had passed and they were looking backward in time to the year in which various scenarios took place. Thus, participants had to reconstruct the strategies that took place that led to the scenarios described (written in past tense). In contrast, participants in the prospective conditions were asked to consider a scenario in the upcoming years and generate appropriate strategies to be taken. More statements were generated when the scenarios were presented retrospectively (as if they had already happened) than when they were presented prospectively.

In a similar manner, Ebert, Gilbert, and Wilson (2009) found that temporal perspectives can affect predictions about the long term emotional impact of a future event. According to these researchers, people may predict their future feelings either by forecasting (imagining their feelings when the impacting event occurs, then considering how those feelings might change over time) or by backcasting (imagining their feelings in a future period, then considering how those feelings might be different were the impacting event to happen). Backcasters expect events will have a greater hedonic impact than do forecasters, because they consider impacting event information more than forecasters do (Ebert et al., 2009). In conclusion, shifts in temporal perspectives on future time points and the direction that people consider these time points influence people's cognition about events and in particular their thoughts about how events will unfold.

Temporal Direction: Backward Planning vs. Forward Planning

Although much research has demonstrated that goal characteristics and planning strategies influence goal-related motivation, there has been very little research examining the temporal direction by which people construct plans. This is surprising because backward planning has long been discussed in the applied organizational literature and advocated as an effective planning tool that has advantages over forward planning (for reviews in the organizational literature see Lewis, 2002; Verzuh, 2005). That is, there are two possible approaches to planning that differ in terms of temporal direction. One approach to planning is forward planning, which involves planning the steps in chronological order. For example, planners begin by thinking about the present reality and then move forward in time to consider the future. Forward planning is the most widely used approach (Gollwitzer, 1999). An alternative approach is *backward planning* or *backward goal setting*, which involves planning steps in reverse chronological order (Lewis, 2002; Verzuh, 2005; Wiese et al., 2016). For example, planners can consider the last action to perform and move backward in time to the very first action.

Backward planning has long been advocated for real-world contexts, such as in sustainable development (Holmberg & Robert, 2000), and resource policy modeling and forecasting (Robinson, 1982; 1988). Indeed, the first mention of backward planning was for large-scale energy concerns (Lovins, 1976). Lovins (1976) proposed that future energy demand will reflect current policy choices, and thus it would be useful to first illustrate a desirable future and then plan out how that end state could be realized through current policy changes (as opposed to making predictions based on past and present trends projected into the future). Therefore, setting policy goals and then determining how these goals could be met (i.e., energy

backcasting) helps shift people from trends to consider alternative futures (Robinson, 1988). According to Holmberg and Robert (2000), it would be risky to base one's plans solely on past and dominant trends, and backcasting (or backward planning) is an effective strategy to mitigate this risk.

Backward planning is also encouraged in more specific contexts, such as business, project management and educational settings (Lewis, 2002; Verzuh, 2005; Wiggins & McTighe, 1998). In an educational setting, teachers use a backward design to plan the sequence of the curriculum. The backward design process starts with identifying desired results, determining acceptable evidence of understanding (e.g., results on tests and assignments) and then planning learning experiences and instruction (Wiggins & McTighe, 1998). Furthermore, in a business context, individuals can use a backward pass approach to determining critical start and finish dates for projects. The backward pass approach is used to determine the latest time an activity may start and be completed without impacting project duration, thus resulting in more accurate predictions of task duration.

More recently, backward planning has been promoted in more personal contexts, such as in the pursuit of health and well-being. For example, Lululemon advocates a goal-setting program for their employees that is based on a 10-year plan that is broken down into three areas of life: health, personal and career. After visualizing what their life will look like in 10 years, goal-setters work backwards, breaking down the larger plan into five- and one-year goals in order to foster immediate goal striving. The purpose of the current research is to empirically assess several features of this goal-setting program.

Despite its widespread usage in real-world contexts, the empirical research on the benefits of backward planning is limited. To my knowledge only three programs of research

have systematically examined the effects of backward planning (Park et al., 2017; Wiese, 2009; Wiese et al., 2016). The recent research by Park and colleagues (2017) highlighted the benefits of backward planning, in comparison to forward planning, for task motivation. In particular, they found that backward planning resulted in heightened task motivation for relatively short-term goals, such as academic assignments, exams, and job interviews. They also found that backward planning was particularly helpful for more complex tasks, compared to less complex tasks, because for the complex tasks backward planners perceived greater clarity (i.e., the extent to which the steps they need to complete are clear to them) than forward planners.

Specifically, in one study, Park and colleagues (2017) asked undergraduate students to construct a plan for an upcoming noncomprehensive exam (less complex), or a comprehensive exam (more complex) by specifying what to do, step by step in a forward or backward order. Students were then asked to report on the perceived clarity of the plan they had developed, as well as their motivation and goal expectancy (i.e., optimism towards and probability of achieving their desired grade). The students experienced heightened motivation and goal expectancy for the comprehensive final exam after engaging in backward planning compared to forward planning; however, motivation did not differ across conditions for the noncomprehensive exam. Interestingly, this research also demonstrated that perceived clarity mediated the effect of backward planning on motivation. Backward planners reported greater perceived clarity than forward planners, and this perceived clarity was related to increased motivation. Therefore, backward planning appears to have benefits for short-term tasks because of an increase in perceived clarity, particularly when goal pursuit involves a complex sequencing of steps.

The research by Wiese (2009) tested the effects of backward planning on motivation for relatively short-term projects and tasks. The studies revealed very limited evidence of the

benefits of backward planning, in comparison to forward planning. Moreover, the effect of backward planning on motivation depended on how it was implemented (structured vs. unstructured) and the temporal scope of the project (close vs. distant). For close projects, backward planning was more motivating than forward planning when the exercise was unstructured; in contrast, for distant projects, backward planning was more motivating than forward planning when the planning exercise was structured. Furthermore, the effect of backward planning on motivation was mediated by feelings of closeness and perceptions of novel planning insights. Due to the similarities with this line of research, in the current work I examined similar processes.

However, in contrast to the current work, Wiese (2009) focused on relatively short-term goals, despite drawing a distinction between close and distant projects. Indeed, a limitation of the previous work was that there was some inconsistency in the temporal scope of the projects across studies, and in how they were classified as close or distant. For example, projects occurring in a few weeks were classified as distant in one study (relative to projects in the coming week) and as close in another (relative to projects in a few years). In the present research, I sought to examine goals of a different nature than those examined in the previous research. That is, I chose to explore more extended goal pursuit and abstract goals, such as one's future vision in the short-term (six months) or long-term (six or ten years). This choice of goals reflects my interest in testing the effectiveness of the type of planning strategy advocated by Lululemon, which targets broad, multifaceted visions of one's future self. Therefore, the current work differs from the work by Wiese (2009) based on the conceptually different future goals examined: the focus of the current research is to examine how backward planning affects motivation for abstract future goals (future vision) rather than for concrete tasks or projects.

In addition to the work on backward planning and motivation, a series of studies has examined the effects of backward planning on people's predictions of task completion times and their actual completion times (Wiese et al., 2016). In one study, participants were asked to nominate a major project they would be completing in the next two weeks, and then were asked to plan for this project in either a forward, backward or unspecified direction. Participants were asked to predict start and completion times for the project. The researchers then followed up with the participants to gather actual completion times to assess the degree of accuracy or bias in predictions. In addition, to examine potential process measures, participants were asked to rate several aspects of the planning process including the extent to which it led to novel planning insights (e.g., increased the clarity of their plans and led them to consider steps they would have otherwise omitted) and the extent to which they contemplated obstacles. Backward planners predicted later completion times compared to those using other planning strategies; however, planning direction did not influence actual task completion times, and as such, backward planning counteracted the optimistic bias only by influencing thoughts at the point of prediction. Finally, backward planners reported more novel planning insights (e.g., breaking plans into important steps, thinking of new steps), and more anticipated obstacles or problems than other planning strategies. In the current work, I propose that more insights and anticipated obstacles will lead to a perceived necessity to act, and heightened motivation for extended goal pursuit.

Based on the mixed evidence that backward planning heightens motivation for short-term tasks or projects compared to forward planning, and also on my theorizing, I hypothesized that this effect may also generalize to the kinds of long-term and abstract goals targeted in the present research. I also propose a process that may be influenced by temporal direction: subjective temporal distance. There are a number of reasons why subjective closeness might be influenced

by temporal direction (Boltz & Yum, 2010; Lam & Buehler, 2009), and thus will lead to

heightened motivation (Peetz et al., 2009). Previous research on representations of time

(Boroditsky, 2000) have found that people can think of themselves as moving forward through

time (ego motion perspective) or think of time as coming towards them (time motion

perspective). Some research suggests that adopting a time motion perspective leads future

deadlines to feel closer (Boltz & Yum, 2010), and backward planning has been shown to lead to

a time motion perspective (Wiese et al., 2016). Additional research on recall direction has found

that events recalled in a backward direction tend to feel closer than events recalled in a forward

direction (Lam & Buehler, 2009).

Past events tend to be recalled in a sequence and the direction in which such events are

recalled can vary. While events are typically recalled in a forward chronological order, people

might sometimes first recall more recent events and travel backward in time. Recalling a

sequence of events in a backward direction has been shown to lead to less perceived change and

greater subjective closeness (Lam & Buehler, 2009). Lam and Buehler (2009) suggest that

backward recall involves a sequential undoing of events in order to reinstate the appropriate

context of each event, and that this mental undoing of past events can lead to the impression that

very little happened. It is possible that this mental undoing process for recall can be extended to

the future and induced through backward planning. In the case of backward planning, people

must mentally undo the outcome of each goal in order to determine the preceding goal they need

to achieve. For future timepoints, the outcome of this mental undoing process should be that

when people arrive at the present, they feel that the future end goal is closer to the present.

Although a potential concern is that thinking in a backward direction (either about the past or

future) might be less coherent as a result of mental undoing, Lam and Buehler (2009) found that

this was not the case for backward recall. Therefore, if this process extends to the future, there is little reason to suspect backward planning will be less coherent. In fact, I theorize that, for the future, this mental undoing process may actually lead to clearer plans as planners recognize the necessary goals they need to achieve. In the current research, I test whether this process of mental undoing will be found for a sequence of future events or time points.

The Current Work

Prior work on planning direction has found that backward planning leads to greater motivation in the context of relatively specific goals, such as academic performance in the current semester (Park et al., 2017). The current work extends existing research on backward planning by examining a very different type of target goal, which I refer to as one's "future vision". I conceptualize people's future vision as their view of their ideal self at some future time point. People's future visions are often multidimensional, consisting of a broad range of goals from many domains, including health, career and family life. Examining the effect of backward planning on this type of broad, multidimensional goal is novel and is distinctive from the work of Park and colleagues (2017), who focused on more specific goals, such as academic projects and exams. The main purpose of the research is to test whether, and why, people may experience greater motivation to work toward their future vision when they engage in backward planning than when they engage in forward planning.

Across three studies, I tested my main hypotheses that (1) backward planning will result in greater motivation than forward planning, (2) backward planning will lead to greater subjective closeness to one's future vision than forward planning, and (3) the effect of backward planning on motivation will be mediated by an increase in subjective closeness. I also tested whether the effect of backward planning on perceived clarity found in previous work (Park et al.,

2017; Wiese et al., 2016) would generalize to abstract goals and extended goal pursuit in the current work. In each of the three studies, I asked participants first to identify and describe their future vision of themselves. Next, I asked participants to plan for this vision by identifying sub goals they would need to accomplish in either a chronological order (forward planning) or reverse chronological order (backward planning) and then to rate their motivation. This was done for a long-term future vision (Study 1) and a short-term future vision (Study 2). To directly compare the effect of planning direction on motivation between short-term and long-term future visions, in a final study, participants planned for either a 6-month future vision or a 6-year future vision (Study 3).

Study 1

In the initial study, I examined whether planning direction (forward vs. backward) would influence people's motivation to achieve their long-term future vision. I asked participants to describe their future vision of themselves in 10 years and to plan for this future vision in a backward or forward direction in an unstructured manner. Although previous work by Wiese (2009) found that backward planning led to greater motivation for distant projects when planning in a structured manner, the focus of the current study was to empirically test several features of the goal-setting program from Lululemon, which advised people to plan for their ideal future self in 10 years in an unstructured manner. Furthermore, after participants planned for their future vision, I assessed their motivation to attain their vision and subjective temporal closeness to it. I hypothesized that participants who engaged in backward planning would experience greater motivation and greater subjective temporal closeness than those who engaged in forward planning. I also expected that the effect of backward planning on motivation would be mediated by an increase in subjective temporal closeness.

Method

Participants

Two-hundred and sixty-eight participants were recruited from Wilfrid Laurier University's Psychology Research Experience Program (PREP) in exchange for course credit; however, 24 participants were excluded from analyses for failing to complete the planning exercise (i.e., did not write anything) and another 34 were excluded because they failed the two attention checks included in the study (22% of participants were excluded). The final sample consisted of 210 undergraduate students (84% female, 15% male, 1% other) between the ages of 17 and 44 ($M = 19.87$, $SD = 3.80$).

Procedure

Participants were recruited for an online study examining how people plan for their ideal future self. They were asked to complete an online survey (via Qualtrics survey software) that contained the experimental manipulation and measures (see Appendix A). First, participants were asked to describe their ideal future self in 10 years (i.e., future vision), which may include their health, career and personal achievements, social circle, and family life.

Next, participants were randomly assigned to one of two planning direction conditions: (1) forward planning or (2) backward planning. All participants were asked to develop a plan for their future vision in an unstructured manner (i.e., in a single open-end text box). They were asked to describe the goals they would need to accomplish to achieve their future vision and were not restricted in the number of goals they could list. Participants in the forward planning condition were instructed to develop a plan for their future vision in chronological order. They were asked to start by describing the very first goal they need to accomplish and continue planning until the very last goal they need to accomplish to achieve their future vision.

Participants in the backward planning condition were instructed to develop a plan for their 10-year vision in reverse-chronological order. They were asked to start by describing the very last goal they need to accomplish and continue planning until the very first goal they need to accomplish.

I measured subjective distance, clarity, planning insights, construal and task characteristics as potential mechanism variables. I also counterbalanced the order of the mechanism variables and the main dependent variable, motivation. I counterbalanced the variables to be able to examine the causal pathway, with the mechanism variable in the causal order (which might alter the effect of backward planning on motivation), as well as to be able to examine the direct effect of backward planning on motivation (not infuenced by the mediator measure in between). Participants were randomly assigned to one of two order conditions: (1) motivation first, or (2) motivation last. In the motivation first condition, participants responded to the motivation items immediately after the planning exercise (i.e., before any mechanism measures). In the motivation last condition, participants responded to the motivation items at the end of the survey (i.e., after mechanism measures, but before individual difference measures).

Dependent Measures

Motivation. The main dependent variable was the participants' motivation to achieve their future vision. Participants rated their agreement (*1 = strongly disagree, 7 = strongly agree*) with six items, adapted from Wiese (2009), that assessed the extent to which they felt motivated. Example items include, *"I fully intend to achieve my 10-year vision," "I feel very motivated to work hard at pursuing my 10-year vision"* and *"It is important to me to achieve my 10-year vision."* The six items were averaged to form an index of overall motivation ($\alpha = .93$, $M = 6.03$, $SD = .90$).

Subjective temporal distance. Participants were then instructed to report how close or far away their future vision feels to them on a slider scale (*0 = feels very close, 100 = feels very far*). Participants were also asked to rate their level of agreement (*1 = strongly disagree, 7 = strongly agree*) on an additional measure that examined how close the planning exercise made their future vision feel: *"The planning exercise made my 10-year vision feel closer."* This item was taken from previous studies (Wiese, 2009) and was included in all the studies; however, it will not be discussed in further detail as, in hindsight, it does not measure the intended concept of people's current feelings of closeness.[1] Instead, this item assesses people's beliefs about how the planning exercise may have influenced feelings of closeness.

Construal. Participants also indicated whether they were thinking about how they will pursue their future vision (low level construal) or why their future vision is important to them (high level construal). This was a binary item and was coded with a higher value (1) representing high level construal (abstract) and a lower value (0) representing low level construal (concrete).

Task characteristics. I was interested in the perceived difficulty and enjoyableness of the planning exercise. Thus, participants rated how easy it was to create a plan for their future vision (*1 = extremely difficult, 7 = extremely easy*). For ease of interpretation that is consistent with subsequent studies, this item is reverse-coded in all analyses, with higher numbers representing greater perceptions of task difficulty. Participants also rated how enjoyable it was to create a plan for their future vision (*1 = extremely unenjoyable, 7 = extremely enjoyable*).

Clarity. Participants then completed four items that assessed the amount of clarity they had about their future vision in general. The amount of clarity was conceptualized as how clear

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[1] This item is included in further studies. Although this item does not tap into the intended concept of people's current feelings of closeness, this item shows the same pattern of results as the separate subjective temporal distance item and, therefore, is not included in further analyses

participants were about the goals they need to accomplish and the potential obstacles they might

encounter. A scale was developed for the purpose of this research as a modification to the single

item used in Park et al. (2017). Participants rated their agreement (*1 = strongly disagree, 7 =

strongly agree*) with four statements concerning the clarity of their vision: *"I am clear about the

goals I need to achieve to reach my 10-year vision," "I know there are a lot of goals I need to

achieve to reach my 10-year vision," "I have identified the important goals I need to achieve to

reach my 10-year vision,"* and *"The potential problems or obstacles I could encounter are clear

to me."* The four items were averaged to form an index of clarity ($\alpha = .71$, $M = 5.28$, $SD = .98$).

Planning insights. I was also interested in how much participants felt like the planning

exercise itself gave them clarity, in contrast to clarity about their future vision in general (as

described above). To examine perceptions of clarity attributed to the planning exercise,

participants were asked to rate their level of agreement (*1 = strongly disagree, 7 = strongly

agree*) with four statements concerning the amount of insight they had about their future vision

after the planning exercise. These planning insights items were adapted from previous research

examining effects of backward planning (Wiese et al., 2016). These planning insights items

mirror the clarity items that participants were asked to respond to earlier; however, they are

positioned in the context of the planning exercise. These items included, *"The planning exercise

helped me clarify the goals I will need to achieve to reach my 10-year vision," "The planning

exercise made me think of goals I need to achieve that I wouldn't have thought of otherwise,"

"The planning exercise made me break down my 10-year vision into important goals,"* and *"The

planning exercise made me think of potential problems or obstacles I could encounter.* The four

items were averaged to form an index of planning insights ($\alpha = .71$, $M = 4.73$, $SD = 1.01$).

Individual differences. The final section of the questionnaire asked participants to complete measures of two subject variables: dispositional optimism and regulatory focus. These measures were included as potential moderators, but are beyond the scope of this thesis, and are not discussed further.

Attention checks. I also included two attention checks throughout the survey: *"If you are paying attention right now, please select 'Strongly disagree'" (1 = strongly disagree, 7 = strongly agree),* and *"If you are paying attention right now, please select 'Very often'" (1 = not at all, 7 = very often).* The attention checks were placed on the same page as the clarity items and regulatory focus items, respectively.

Results

Study 1 aimed to evaluate whether planning direction affected participants' motivation to achieve their future vision. To test for effects of planning direction, unless otherwise specified, I submitted each measure to a 2 (planning direction: forward vs. backward) x 2 (order: motivation first vs. motivation last) analysis of variance (ANOVA). Estimated means and standard deviations can be found in Table 1. I also assessed the intercorrelations of the measures, which can be found in Table 2.

Because the number of goals might affect subsequent motivation, I compared the number of planned goals between the two planning direction conditions. I found no significant difference in the number of goals included in the plans from the backward planning condition ($M = 5.44$, $SD = 1.82$) and forward planning condition ($M = 5.33$, $SD = 1.94$), $F(1, 205) < 1$.

Motivation

On average, people were highly motivated to achieve their future vision, $M = 6.03$ ($SD = .90$) on a 7-point scale. My primary hypothesis was that backward planning would lead to greater

motivation compared to forward planning; however, the ANOVA did not reveal a main effect of planning direction, $F(1, 206) < 1$. This finding suggests that backward planning ($M = 6.00$, $SD = .86$) did not increase motivation for long-term future goals compared to forward planning ($M = 6.07$, $SD = .94$). A main effect of order, $F(1, 206) = 7.16$, $p = .008$, indicated that participants had greater motivation to achieve their future vision when they rated their motivation right after the planning exercise ($M = 6.20$, $SD = .84$) compared to at the end of the survey ($M = 5.87$, $SD = .94$). This main effect was not qualified by a significant interaction, $F(1, 206) = 1.02$, $p = .315$.

     Difficulty. Previous research has found that task difficulty (conceptualized by Park et al. (2017) as perceived task complexity) moderates the effect of planning direction on motivation (Park et al., 2017), and thus I conducted a multiple linear regression to test the effects of planning direction, order, and task difficulty on motivation (for a summary, see Table 3). As recommended by Aiken and West (1991), the continuous predictor variable, difficulty, was centered. Participants who perceived the planning exercise to be more difficult were expected to report greater motivation after backward planning compared to forward planning. No difference in planning direction was expected for those who perceived the planning exercise to be easy. I did not have specific expectations about order effects.

     The first model revealed that the three predictors (difficulty, order, and planning direction) accounted for a significant amount of variance in motivation, $F(3, 206) = 21.92$, $p <.001$, $R^2 = .24$. There was a significant main effect of difficulty, $\beta = -.46$, $p < .001$, which indicated that perceiving the planning exercise as less difficult predicted greater motivation, controlling for planning direction and order. The main effect of planning direction was not significant, $\beta = .03$, $p = .689$, but there was a marginal main effect of order, $\beta = -.12$, $p = .051$.

Similar to the ANOVA results, this indicates that participants had greater motivation to achieve their future vision when they rated their motivation right after the planning exercise.

I then entered the two-way interactions between planning direction, order and difficulty into a second model. Addition of the two-way interactions did not contribute significantly to the model fit, R^2 change = .01. Lastly, I entered the three-way interaction into the model, which also did not contribute significantly to the model fit, $R^2 < .001$. Contrary to my hypothesis, the best fitting model for predicting motivation did not include an interaction between planning direction and difficulty.

Subjective Temporal Distance

My second main hypothesis was that one's future vision would feel closer after backward planning compared to forward planning. The ANOVA did not reveal the hypothesized main effect of planning direction, $F(1, 201) < 1$. The results suggest that backward planning ($M = 62.10$, $SD = 29.10$) did not increase the subjective temporal closeness of one's future vision compared to forward planning ($M = 60.82$, $SD = 26.21$). There was no main effect of order, $F(1, 201) < 1$.

Although there was no main effect of planning direction, there was a significant interaction between order and planning direction, $F(1, 201) = 5.01$, $p = .026$. A test of simple effects revealed that when participants rated their motivation first, backward planning led the future vision to feel further away than forward planning, albeit marginally significantly ($p = .076$). When participants rated their motivation at the end of the survey, there was no difference between the forward and backward planning conditions ($p = .168$). In contrast to my hypothesis, these findings suggest that backward planning can sometimes push one's future vision further away than forward planning.

Construal

The percentage of participants that selected a high level construal within each condition was calculated (see Table 1 for percentages). To examine the effect of planning direction and order on construal level (0 = low level, 1 = high level), I first entered the main effects into a binary logistic regression (for a summary, see Table 4). This model was not significant, $\chi^2(2) = 1.30$, $p = .523$. I then entered the interaction between planning direction and order into the model, which did not contribute significantly to the model fit, $\chi^2(1) = 1.07$, $p = .301$. These findings indicate that the proportion of participants who focused predominately on why their future vision is important (high level construal) relative to how they will pursue their future vision (low level construal), when planning, did not differ as a function of direction or order.

Task Characteristics

The ANOVA performed on the perceived difficulty of the planning exercise yielded only a marginally significant main effect of order, $F(1, 206) = 3.56$, $p = .061$. Participants felt that the planning exercise was easier when they rated their motivation right after the planning exercise ($M = 3.45$, $SD = 1.60$) compared to at the end of the survey ($M = 3.90$, $SD = 1.51$). No other main effects or interactions were significant, Fs < 1.

The ANOVA performed on enjoyment revealed a significant main effect of order, $F(1, 206) = 5.78$, $p = .017$. Participants felt that the planning exercise was more enjoyable when they rated their motivation first ($M = 5.14$, $SD = 1.42$) compared to at the end of the survey ($M = 4.65$, $SD = 1.47$). Considering the pattern of results for the task characteristic items, it is arguable that reflecting on one's own motivation made the planning exercise seem easier and more enjoyable.

Furthermore, the ANOVA did not reveal a main effect of planning direction on the enjoyableness of the planning exercise, $F(1, 206) < 1$. Although there was no main effect of

planning direction, there was a significant interaction with order, $F(1, 206) = 5.44$, $p = .021$. A test of simple effects showed that when participants rated their motivation first, backward planning was less enjoyable than forward planning ($p = .036$), but when participants rated their motivation at the end of the survey there were no differences between forward and backward planning ($p = .234$).

Clarity

I was also interested in examining whether backward planning would lead to greater clarity than forward planning. The ANOVA did not reveal a significant main effect of planning direction on clarity, $F(1, 206) = 1.55$, $p = .214$. These results are inconsistent with previous research suggesting that backward planning leads to greater clarity than forward planning (Park et al., 2017).

There was a significant main effect of order, $F(1, 206) = 10.96$, $p = .001$. Participants perceived more clarity when they rated their motivation first ($M = 5.52$, $SD = .93$) compared to at the end of the survey ($M = 5.04$, $SD = .98$). This main effect was not qualified by an interaction, $F(1, 206) < 1$.

Planning Insights

The ANOVA performed on planning insights did not reveal a significant main effect of planning direction, $F(1, 206) = 1.28$, $p = .259$. The results suggest that the planning exercise did not lead to greater insights following backward planning compared to forward planning. The ANOVA did not reveal a significant main effect of order, $F(1, 206) = 1.17$, $p = .280$ or interaction, $F(1, 206) < 1$.

Discussion

Overall, inconsistent with my main hypothesis, backward planning did not lead to greater motivation compared to forward planning. Moreover, contrary to the expected pattern, the findings of this initial study also revealed that backward planning led one's 10-year vision to feel further away compared to forward planning, although this was a marginally significant effect. This finding was unexpected, and I continue to believe that backward planning could have effects on one's perceptions of the future self, and its closeness to the present self, in a somewhat different manner. It is possible that backward planning leads people to feel closer to a future self (i.e., to feel a greater continuity between their present and future self), rather than closer to an event in the future. Therefore, rather than simply pulling a future timepoint (i.e., one's future vision) closer in time to the present, I expect that backward planning will lead people to integrate their future self-concept into their current self-concept. To assess this possibility, in subsequent studies I changed the subjective closeness measure to reflect self-continuity (Ersner-Hershfield et al., 2009).

Additionally, participants sometimes perceived backward planning to be less enjoyable than forward planning although, notably, this pattern of results only occurred when people first reflected on their motivation. I had no predetermined expectations about order effects; however, the results from the current study suggest that participants had greater motivation and clarity and perceived the planning exercise to be less difficult and more enjoyable when they rated their motivation first compared to at the end of the survey. When planning for their long-term future visions, as noted earlier, participants were extremely motivated. The order effects may suggest that reflecting on this heightened motivation (i.e., anticipated success and importance) led to more positive affect overall. Thus, this positive affect may have resulted in greater clarity and enjoyment, and less perceived difficulty.

Study 2

Planning for distant goals, such as the 10-year future vision that participants planned for in Study 1, is a very different time frame than that examined in the previous research exploring the effect of backward planning on motivation (Park et al., 2017). It is conceivable that people plan for goals differently depending on how objectively distant they are in time. Temporal distance can systematically change the way people construe future events (Trope & Liberman, 2003), and in turn influence how they plan for the future. According to Construal Level Theory (Trope & Liberman, 2003), when people consider events in the distant future, they do not focus on the concrete steps that are specific to that event. Thus, people might not consider specific details when planning for distant future events (or future selves). If people envision these distant events unfolding in an abstract way – that is, lacking in specifics – then engaging in backward planning might be less effective. The focus of the current research is to examine more abstract life goals than those examined by Park et al. (2017). It might be the case that backward planning is particularly effective because it prompts individuals to focus on concrete aspects of their future self, especially when planning for a close timepoint. Although there were no effects of planning direction on motivation in the initial study, in Study 2 I will explore whether backward planning leads to greater motivation than does forward planning for a much shorter future vision (i.e., six months). I expect that, similar to Park et al. (2017), backward planning will lead to greater motivation for such short-term goals.

Additionally, planning in a constrained and structured manner may allow individuals to consider concrete steps when backward planning. In the presence of concrete information (such as when planning for a shorter time span), planning in a backward direction may lead to greater clarity (Park et al., 2017), novel planning insights (Wiese et al., 2016) and subjective closeness.

Therefore, in Study 2, we asked participants to plan in a structured manner (i.e., with one open-ended textbox for each goal).

Considering that people are planning in markedly different ways when backward or forward planning, I expect that the temporal pattern of experienced motivation will be different across these two planning directions. When backward planning, the last goal in the planning exercise is the goal closest to the present. Thus, there may be a mental contrasting of a desired future to the present reality which may lead to an increase in the felt necessity to act and subsequent goal motivation near the end of the planning exercise (Kappes et al., 2012). Therefore, the pattern of motivation throughout the planning exercise is an important consideration. Hence, in the next study, I changed the methodology in two important ways to address these concerns. First, to explore whether planning in a backward direction is more motivating than planning in a forward direction for the short-term, I asked participants to describe and plan for a relatively short-term goal (i.e., 6 months). Second, I made the planning exercise highly structured and constrained, which allowed me to assess changes in motivation during the planning exercise. Although Wiese (2009) found that participants were more motivated for close projects after backward planning in an unstructured manner, I was interested in participants' motivation throughout the planning exercise which, methodologically, lends itself to a more structured planning exercise.

Furthermore, I expected that backward planning would pull one's future vision closer to the present by leading people to feel a greater connection between their present and future self; therefore, the measure of subjective distance was changed to a measure of self-continuity. I hypothesized that the participants who engaged in backward planning would experience greater motivation and greater self-continuity than those who engaged in forward planning.

In conclusion, the main purpose of the second study was to examine the effect of planning direction on motivation using a modified procedure. Specifically, I introduced a more structured planning exercise (that asked for a specified number of goals at equal time intervals) and also examined the impact of backward planning on motivation for a closer future vision. Participants were asked to describe their ideal future self in 6 months and then to plan for this future self in a backward or forward direction.

Method

Participants

Two-hundred and thirty-three participants were recruited from Wilfrid Laurier University's Psychology Research Experience Program (PREP) in exchange for course credit; however, 47 participants were excluded from analyses for failing to complete the planning exercise (i.e., missing or incomplete plans), and another 33 were excluded because they failed the two attention checks (34% of participants were excluded). The final sample consisted of 153 undergraduate students (84% female, 15% male, 1% other) between the ages of 17 and 30 ($M = 19.92$, $SD = 2.01$).

Procedure

The procedure was similar to Study 1 with a few modifications. In the current study, participants were asked to describe and plan for a short-term future vision (i.e., six months) in a more structured manner than in the previous study. Participants were also asked to rate their motivation for their future vision throughout and at the end of the planning exercise. Furthermore, instead of using the same measure of subjective temporal distance as in Study 1, participants were asked to respond to a measure of temporal self-continuity. The experimental manipulation was similar to Study 1, as described below.

To begin, participants were asked to complete an online survey (via Qualtrics survey software) that contained the experimental manipulation and measures (see Appendix B). First, participants were asked to describe their ideal future self in six months (i.e., future vision), which may include their health, career and personal achievements, social circle, and family life. I chose a duration of six months to examine how students think about and plan for their future self in half a year's time, over two school semesters.

Next, participants were randomly assigned to one of two planning direction conditions: (1) forward planning or (2) backward planning. In contrast to Study 1, in the current study the number of goals in the plan was restricted to six. Participants in the forward planning condition were instructed to develop a plan for their future vision in chronological order. In six text boxes (i.e., one for each month), they were asked to start by describing the very first goal they need to accomplish and continue planning until the very last goal they need to accomplish to achieve their future vision. That is, in a structured manner, participants created a plan for their future vision by describing six goals that they need to achieve at one-month intervals. Participants in the backward planning condition were instructed to develop a plan for their future vision in reverse-chronological order.

Dependent Measures

Motivation. The main dependent variable was the participants' motivation to achieve their future vision. In this study, motivation was measured in two ways: throughout the planning exercise and overall motivation after planning. First, throughout the planning exercise, participants were asked to rate how motivated they were to achieve their future vision after reporting each goal (*1 = not at all, 7 = completely*). This was intended to measure participants' motivation for their future vision throughout the planning exercise. Second, at the end of the

planning exercise, participants completed three items that assessed the extent to which they felt

motivated, optimistic and certain about achieving their future vision (*1 = not at all, 7 = very*). I

changed the items from Study 1 in an attempt to get a comprehensive measure of motivation that

included positive evaluations of goal expectancy (Louro et al., 2007). The three items were,

"Overall, how motivated are you to achieve your future vision?", "How likely is it that you will

achieve your future vision?", and "Are you optimistic about achieving your future vision?"

These items were derived from Park et al. (2017) and included to capture motivation based on a

goal-expectancy framework. These three items were averaged to form an index of overall

motivation ($\alpha = .74$, $M = 5.80$, $SD = .86$).

Time pressure. Participants then responded to one item measuring perceived time

pressure, *"Do you feel that you are short of time in achieving your future vision?"* (*1 = not at*

all, 7 = very).

Task characteristics. All participants were asked to rate their level of agreement (*1 =*

strongly disagree, *7 = strongly agree*) with two statements concerning the perceived difficulty

and enjoyment of planning for the goals in either the reverse-chronological order or

chronological order, depending on condition.

Self-continuity. To examine the degree to which people feel similar (or dissimilar) to

their future selves, participants were asked to choose a set of overlapping circles that ranged

from depicting no overlap to almost complete overlap (Ersner-Hershfield et al., 2009).

Participants picked the set of circles that best represents how similar they feel to their future self

in 6 months, with higher values representing more overlap between the current and future self.

Similar to Study 1, the item that measured how close the planning exercise made their future

vision feel will not be discussed in further detail.

Clarity. Similar to Study 1, participants then completed four items that assessed the amount of clarity they had about their future vision in general (*1 = strongly disagree, 7 = strongly agree*). The four items were averaged to form an index of perceived clarity (α = .59, *M* = 5.51, *SD* = .78).

Planning insights. Participants then rated their level of agreement (*1 = strongly disagree, 7 = strongly agree*) with the same four items from Study 1 that assessed the amount of clarity they had about their future vision after the planning exercise. The four items were averaged to form an index of planning insights attributed to the planning exercise (α = .71, *M* = 5.01, *SD* = 1.03).

Construal. Consistent with the previous study, participants indicated whether they were thinking about how they will pursue their future vision (low level construal) or why their future vision is important to them (high level construal). This was a binary item and was coded with a higher value (1) representing high level construal (abstract) and a lower value (0) representing low level construal (concrete).

Individual differences. The final section of the questionnaire asked participants to complete two measures of subject variables: dispositional optimism and regulatory focus. These measures were included as potential moderators, but are beyond the scope of this thesis, and are not discussed further.

Attention checks. I also included two attention checks throughout the survey: *"If you are paying attention right now, please select 'Strongly disagree'" (1 = strongly disagree, 7 = strongly agree), and "If you are paying attention right now, please select 'Very often'" (1 = not at all, 7 = very often).* The attention checks were placed on the same pages as the planning insights items and regulatory focus items, respectively.

Results

Unless otherwise specified, each measure was submitted to a one-way ANOVA (planning direction: forward vs. backward). Estimated means and standard deviations can be found in Table 5. I also assessed the intercorrelations of the measures, which can be found in Table 6.

Motivation

On average, people were highly motivated to achieve their future vision, $M = 5.80$ ($SD = .86$) on a 7-point scale. My primary hypothesis was that backward planning would lead to greater motivation compared to forward planning. I also predicted that the level of motivation would change throughout the planning exercise depending on whether participants planned in a forward or backward direction. To test whether motivation changed throughout the planning exercise depending on planning direction, I ran a mixed-model ANOVA with a within-subjects factor of goal (first goal in planning exercise to the last goal in the planning exercise) and a between-subject factor of planning direction (forward, backward). It is important to note that the first goal in the planning exercise is the first month for forward planners and the sixth month for backward planners.

Mauchly's test indicated that the assumption of sphericity had been violated ($\chi^2(14) = 54.99$, $p < .001$), therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\varepsilon = .86$). The ANOVA revealed a within-subjects effect of goal, $F(4.32, 635.06) = 3.61$, $p = .005$. There was a significant quadratic trend of goal, $F(1, 147) = 16.50$, $p < .001$, which suggests that participants only experienced an increase in motivation at the end of the planning exercise, between the fifth and final goal ($p = .005$). This within-subject effect was not qualified by a two-way interaction, $F(4.32, 635.06) < 1$. Although this interaction was not significant, post-hoc comparisons using the Least Significant Difference

(LSD) test suggested that the increase in motivation between the fifth and final goal was stronger

when planning in a backward direction ($p = .001$) compared to a forward direction ($p = .092$).

This pattern suggests, tentatively, that planners may have experienced a greater increase in

motivation as they approach their current reality (i.e., when backward planning) compared to as

they approach their desired future (i.e., when forward planning).

Consistent with my primary hypothesis, there was a marginally significant between-

subjects effect of planning direction, $F(1, 147) = 2.91$, $p = .090$, suggesting that backward

planning led to greater motivation ($M = 6.03$, $SE = .10$) than did forward planning ($M = 5.78$, SE

$= .10$). Therefore, the pattern of motivation throughout the planning exercise did not significantly

differ depending on planning direction; however, overall, people were more motivated to achieve

their 6-month vision while backward planning compared to forward planning (see Figure 1).

Next, to explore people's overall motivation at the end of the planning exercise, I

submitted the three-item motivation index to a one-way (planning direction: forward vs.

backward) ANOVA. A marginally significant main effect of planning direction, $F(1, 151) =$

3.49, $p = .064$, again indicated that participants experienced greater motivation to achieve their

future vision when they planned in a backward direction ($M = 5.93$, $SD = .84$) compared to a

forward direction ($M = 5.68$, $SD = .86$).

Difficulty. Despite a marginally significant main effect of planning direction on task

difficulty (analyses to follow), I also conducted a multiple linear regression to investigate

whether planning direction and task difficulty could significantly predict motivation (for a

summary, see Table 7). Once again, as recommended by Aiken and West (1991), perceived

difficulty was centered. Participants who perceived the planning exercise as more difficult were

expected to report greater motivation after backward planning compared to forward planning. No

difference in planning direction was expected for those who perceived the planning exercise as easy.

The first model revealed that the two predictors (difficulty and planning direction) accounted for a significant amount of variance in motivation, $F(2, 150) = 3.10$, $p = .048$, $R^2 = .04$. There was a significant main effect of planning direction, $\beta = .17$, $p = .039$, which indicated that backward planning predicted greater motivation, when controlling for task difficulty. Inconsistent with Study 1, the main effect of difficulty was not significant, $\beta = -.13$, $p = .104$.

The two-way interaction between planning direction and task difficulty was then entered into a second model. Addition of the two-way interaction did not contribute significantly to the model fit, R^2 change $= .007$. Consistent with the findings from the first study, the best fitting model for predicting motivation did not include an interaction between planning direction and perceived difficulty.

Time Pressure

There was no main effect of planning direction on participants' perceived time pressure, $F(1, 151) < 1$.

Task Characteristics

The ANOVA performed on perceived difficulty yielded a marginally significant main effect of planning direction, $F(1, 151) = 2.830$, $p = .095$. In contrast to the findings in Study 1, planning was more difficult when backward planning ($M = 4.46$, $SD = 1.79$) than forward planning ($M = 4.00$, $SD = 1.59$); however, this effect was marginal.

The ANOVA did not reveal a main effect of planning direction on enjoyment, $F(1, 151) < 1$, suggesting that planning for the short-term in a backward direction was not more or less enjoyable than planning in a forward direction.

Self-continuity

My second main hypothesis was that one's future vision would feel closer after backward planning compared to forward planning; however, the ANOVA did not reveal a main effect of planning direction, $F(1, 148) < 1$. Participants did not feel closer to their future vision after backward planning compared to forward planning.

Clarity

There was no main effect of planning direction on perceived clarity, $F(1, 151) < 1$.

Planning Insights

There was no main effect of planning direction on perceived planning insights, $F(1, 151) < 1$.

Construal

The percentage of participants that selected a high level construal was calculated for each condition: 47.3% in backward planning condition and 56.4% in forward planning condition. To test the effect of planning direction on construal level, the main effect was first entered into a binary logistic regression (for a summary, see Table 8). Consistent with the findings from Study 1, this model revealed that planning direction did not account for a significant amount of variance in construal level, $\chi^2(1) = 1.265$, $p = .261$. Therefore, regardless of planning direction, a similar proportion of participants were focused on why their future vision is important relative to how they will achieve it.

Discussion

Overall, consistent with my main hypothesis, backward planning led to greater motivation for short-term goals both throughout and overall at the end of the planning exercise, although this effect was marginally significant. When perceived task difficulty was controlled,

backward planning led to significantly greater motivation than forward planning. This finding is contrary to the results from the first study, which examined long-term goals and revealed that planning direction did not impact motivation. Even though there is a discrepancy between the results on motivation across the first two studies, I expect that the difference in the distance of one's future vision can help explain the discrepancy. So far, the pattern of results across the first two studies suggest that backward planning leads to greater motivation for short-term goals (especially when controlling for perceived task difficulty) but does not affect motivation for long-term goals.

This pattern of results is consistent with my earlier theorizing from Construal Level Theory, which suggests that when people consider events in the distant future, they do not focus on the concrete steps that are specific to that event. According to this account, backward planning is only effective for events in the close future, because planners are better able to construe the concrete goals they need to achieve. In the next study, I attempted to test this account empirically by manipulating the future vision distance (short-term vs. long-term).

Moreover, the results from the current study suggest that participants experienced a spike in motivation at the end of the planning exercise. Although not a significant contrast, the pattern suggests that this increase was stronger for backward planners who were approaching their present as they came to the end of the planning exercise. According to fantasy realization theory (Oettingen et al., 2001), contrasting one's desired future with current reality leads to selective goal commitment by activating the feasibility of goal attainment. The pattern of results is consistent with the idea that backward planning leads to thoughts about successful goal attainment and thus increases subsequent motivation, however this interpretation is tentative in the absence of a significant interaction effect.

I theorized that backward planning may put people in an implemental mindset as a result of mental contrasting processes which brings about a perceived necessity to act. As a result of this implemental mindset inducing people to consider how they will pursue their superordinate goal (i.e., their future vision), I expect that backward planners will develop a plan that consists of goals that fit together (i.e., a contingent plan where each goal builds upon the others) to form a single goal: their future vision. Thus, I expected that participants' plans are more sequentially contingent when individuals engage in backward planning. Planning in reverse-chronological order may help people recognize how their sub-goals build on each other by considering the necessity of each preceding goal. An increase in contingency, as a result of an implemental mindset, should lead to greater motivation and subsequent goal pursuit. To test this reasoning, in the final study, I assessed the contingency of participants' plans.

Study 3

In the third study, I examined whether different types of planning influence people's motivation for their short-term and long-term future visions. Participants were asked to describe their ideal future self in either six months or six years, and then to plan for this future self in a backward or forward direction. Reconciling the results from the previous studies, I hypothesized that backward planning will lead to greater motivation than forward planning only in the short-term condition (i.e., 6-month future vision). Also, given that I did not find an interaction between planning direction and difficulty on motivation in either of the first two studies, it is unclear whether the hypothesized interaction will appear overall or depend on vision distance. Moreover, given that the types of sub-goals included in the plan may affect motivation, the degree of sequential contingency of these sub-goals that participants listed was coded. I expected that the plan would be more contingent (i.e., where each goal fit with and built upon the preceding goals)

after backward planning, and that contingency would mediate effects of planning direction on

motivation. Based on the effect (albeit marginally significant) obtained on motivation in Study 2,

I expect that any effects of backward planning on motivation, including the hypothesized

mediation, will occur only in the short-term condition.

Method

Participants

Two-hundred and sixty-eight participants were recruited from Wilfrid Laurier

University's Psychology Research Experience Program (PREP) in exchange for course credit;

however, 34 participants were excluded from analyses for failing to complete the planning

exercise (i.e., missing or incomplete plans), and another 45 were excluded because they failed

the two attention checks included in the study (34% of participants were excluded). The final

sample consisted of 189 undergraduate students (72% female, 28% male) between the ages of 17

and 34 ($M = 19.40$, $SD = 2.18$).

Procedure

The procedure was the same as Study 2 except that I manipulated the distance of the

future vision (see Appendix C). Participants were randomly assigned to one of two vision

distance conditions: (1) short-term condition, or (2) long-term condition. Participants in the

short-term condition were instructed to describe and develop a plan for their future self in six

months by listing goals at one-month intervals. Participants in the long-term condition were

instructed to describe and develop a plan for their future self in six years by listing goals at one-

year intervals. This manipulation was included to examine differences between forward and

backward planning in the short-term and long-term. We were also interested in the qualitative

characteristics of participants' plans, especially how the goals fit together. Therefore, I analyzed

the sequential contingency of participants' plans by coding the plans for their degree of

contingency.

Results

Unless otherwise specified, each measure was submitted to a 2 (planning direction:

forward vs. backward) x 2 (vision distance: short-term vs. long-term) ANOVA (see Table 9 for

means). I also assessed the intercorrelations of the measures, which can be found in Table 10.

Dependent Measures

Motivation. On average, people were highly motivated to achieve their future vision, M

$= 5.70$ ($SD = 1.05$) on a 7-point scale. I predicted that the level of motivation would change

throughout the planning exercise depending on whether participants planned in a forward or

backward direction. To test whether motivation changed throughout the planning exercise

depending on planning direction, I ran a mixed-model ANOVA with a within-subjects factor of

goal (first goal in planning exercise to the last [sixth] goal in the planning exercise), and planning

direction (forward, backward) and vision distance (short-term, long-term) as the between-subject

variables. It is important to note that the first goal in the planning exercise is the first month

[year] for forward planners and the sixth month [year] for backward planners.

Mauchly's test indicated that the assumption of sphericity had been violated

($\chi^2(14) = 99.29$, $p < .001$), therefore degrees of freedom were corrected using

Greenhouse-Geisser estimates of sphericity ($\varepsilon = .80$). The ANOVA revealed a within-subject

effect of goal, $F(4, 740.26) = 4.91$, $p = .001$. More specifically, there was a significant linear

trend, $F(1, 185) = 9.41$, $p = .002$, suggesting that as participants completed more of the planning

exercise, motivation increased. Post-hoc comparisons using the LSD test yielded a significant

increase in motivation between the fifth and final goal ($p < .001$); no other significant contrasts

between connected goals were found. This suggests that participants became more motivated near the end of the planning exercise (see Figure 2).

This main effect was not qualified by any two-way or three-way interactions, $Fs < 1$. Although the interaction with planning direction was not significant, descriptively the pattern of results is consistent with the previous study: the increase in motivation between the fifth and final goal of the planning exercise was present when planning in a backward direction ($p < .001$) but not when planning in a forward direction ($p = .170$). Again, this pattern suggests that planners experienced a greater increase in motivation as they approached their current reality (i.e., when backward planning) rather than their desired future (i.e., when forward planning).

The ANOVA also revealed a between-subject effect of vision distance, $F(1, 185) = 9.27$, $p = .003$, indicating that participants were more motivated for the long-term vision ($M = 6.05$, $SE = .11$) compared to the short-term vision ($M = 5.59$, $SE = .11$). No other main effects or interactions were found, $Fs < 1$. Thus, my primary hypothesis that backward planning would lead to greater motivation than forward planning, only in the short-term condition, was not supported.

Next, I submitted the overall motivation index ($\alpha = .83$, $M = 5.70$, $SD = 1.05$) completed immediately after the planning exercise to a 2 (planning direction: forward vs. backward) x 2 (vision distance: short-term vs. long-term) ANOVA. The ANOVA did not reveal a main effect of planning direction on motivation, $F(1, 185) < 1$. Backward planning ($M = 5.74$, $SD = .98$) did not lead to greater motivation than forward planning ($M = 5.65$, $SD = 1.12$). There was a marginally significant main effect of vision distance, $F(1, 185) = 3.39$, $p = .067$. Participants were more motivated for the long-term vision ($M = 5.83$, $SD = .92$) compared to the short-term vision ($M = 5.57$, $SD = 1.16$). Contrary to my hypothesis, there was no interaction between planning direction

and vision distance, $F(1, 185) = 1.26$, $p = .264$. Although the interaction was not significant, the pattern of means suggests that in the short-term condition, backward planning ($M = 5.70$, $SD = .93$) was more motivating than forward planning ($M = 5.38$, $SD = 1.42$), although a contrast indicated these means did not differ significantly, $t(185) = 1.43$, $p = .156$.

Difficulty. An important consideration for this analysis is that difficulty was affected by the vision distance and planning direction manipulation, such that backward planning was more difficult than forward planning in the long-term (analyses to follow). Despite this effect, I conducted a multiple linear regression to test the effects of planning direction, vision distance, and task difficulty on motivation (for a summary, see Table 11). The continuous predictor variable, difficulty, was centered. Participants who perceived the planning exercise as more difficult were expected to report greater motivation after backward planning compared to forward planning. No difference in planning direction was expected for those who perceived the planning exercise as easy.

The first model revealed that the three predictors (difficulty, vision distance, and planning direction) accounted for a significant amount of variance in motivation, $F(3, 185) = 4.49$, $p = .005$, $R^2 = .07$. There was a significant main effect of difficulty, $\beta = -.22$, $p = .002$, which indicated that perceiving the planning exercise as less difficult predicted greater motivation, controlling for planning direction and vision distance. The main effect of planning direction was not significant, $\beta = .08$, $p = .266$, nor was the main effect of vision distance, $\beta = .10$, $p = .165$.

The two-way interactions between planning direction, vision distance and difficulty were then entered into the model. Addition of the two-way interactions did not contribute significantly to the model fit, R^2 change $= .004$. Lastly, I entered the three-way interaction into the model, which also did not contribute significantly to the model fit, $R^2 = .008$. Pertinent to my

hypothesis, the best fitting model for predicting motivation did not include an interaction between planning direction and difficulty.

Time pressure. The ANOVA conducted on time pressure did not yield a significant main effect of planning direction, $F(1, 185) < 1$, vision distance, $F(1, 185) = 2.01$, $p = .158$, or an interaction, $F(1, 185) < 1$.

Task characteristics. The ANOVA did not reveal a main effect of planning direction on perceived difficulty, $F(1, 185) < 1$. There was a main effect of vision distance, $F(1, 185) = 4.34$, $p = .039$. Planning for the long-term vision was less difficult ($M = 4.03$, $SD = 1.89$) than planning for the short-term ($M = 4.59$, $SD = 1.50$). Although there was no main effect of planning direction, there was an interaction with vision distance, $F(1, 185) = 4.69$, $p = .032$. A simple main effects analysis showed that when planning for the long-term, backward planning was more difficult than forward planning ($p = .031$), but when planning for the short-term, there were no differences between forward and backward planning ($p = .376$). This is largely inconsistent with the pattern of results from the previous studies where it was found that backward planning was not more difficult than forward planning when planning for a long-term goal (Study 1) but was more difficult when planning for a short-term goal (Study 2).

The ANOVA performed on enjoyment did not reveal a main effect of planning direction, $F(1, 185) = 1.95$, $p = .164$. There was a main effect of vision distance that approached significance, $F(1, 185) = 3.23$, $p = .074$. Planning for the long-term vision was more enjoyable ($M = 4.87$, $SD = 1.57$) compared to planning for the short-term vision ($M = 4.41$, $SD = 1.58$). There was also a marginally significant interaction, $F(1, 185) = 3.30$, $p = .071$. A simple effects analysis showed that when planning for the long-term, forward planning was more enjoyable than backward planning ($p = .024$), but there were no differences between forward and backward

planning when planning for the short-term ($p = .768$). The results from the current study suggest that planning for the long-term was more difficult and less enjoyable for backward planners than forward planners.

Self-continuity. Contrary to my hypothesis, the ANOVA did not reveal a main effect of planning direction on self-continuity, $F(1, 178) < 1$. Backward planning did not lead people to integrate their future self into their current self, compared to planning in a forward direction. There was a significant main effect of vision distance, $F(1, 178) = 4.22, p = .042$. Participants felt that their current self was more similar to their future self in the short-term ($M = 3.72, SD = 1.71$) compared to the long-term ($M = 3.24, SD = 1.47$). There was no interaction between planning direction and vision distance, $F(1, 178) = 2.69, p = .103$.

Clarity. I again combined the four clarity items into an index of general clarity ($\alpha = .73$, $M = 5.57, SD = .92$). The ANOVA did not yield a significant main effect of planning direction, $F(1, 185) < 1$, vision distance, $F(1, 185) = 1.62, p = .205$, or an interaction, $F(1, 185) < 1$.

Planning insights. Similar to the previous studies, the four planning insights items were combined into an index of planning insights ($\alpha = .78, M = 4.94, SD = 1.05$). Again, there were no significant main effects or interaction on the planning insights index, $Fs < 1$.

Construal. The percentage of participants that selected a high level construal was calculated for each condition (see Table 9 for percentages). To examine the effect of planning direction on construal level, the main effects of planning direction and vision distance were first entered into a binary logistic regression (for a summary, see Table 12). The first model revealed that the two predictors (planning direction and vision distance) accounted for a significant amount of variance in construal, $\chi^2(2) = 7.31, p = .026$. A main effect of vision distance, $B = -.82, p = .008$, indicated that participants reported thinking about their long-term future vision

more concretely (i.e., at a lower-level construal) compared to their short-term future vision. That

is, when planning for their 6-year vision, people reported focusing more on how they will pursue

the goal compared to when planning for their 6-month vision. The main effect of planning

direction was not significant, $B = -.18$, $p = .558$. I then entered the interaction between vision

distance and planning direction into the model. The interaction did not contribute significantly to

the model fit, $\chi^2(1) = .907$, $p = .341$.

Contingency

I proposed that backward planning puts people in an implemental mindset because it

leads individuals to mentally contrast the desired future to current reality. An implemental

mindset should help backward planners develop a plan that consists of goals that fit together (i.e.,

to develop a contingent plan) to form their future vision. Thus, it might be expected that plans

are more contingent when individuals engage in backward planning, and this increase in

contingency will lead to an increase in motivation. Therefore, I analyzed the sequential

contingency of participants' plans. Two independent raters, blind to the planning direction

condition, read the six goals that made up each participant's overall plan and coded these plans

for their degree of contingency using a three-point scale (*1 = not at all contingent, 2 =

moderately contingent, 3 = completely contingent*). Higher levels of sequential contingency

represent an overall plan that consists of goals that depend on each other to be completed. An

example of a plan coded as highly contingent was "*Do well on final exams. Build my resume.

Start field placements. Graduate from Laurier. Apply for a master's degree. Finish Master's

degree*". An example of a plan coded as non-contingent was "*Passing physics with 90% or

higher. Getting into a solid, stable relationship. Finding a better job. Fix all relationship issues

(friends, families, etc.). Purchase items I want. Finish reading books on my read list*". To ensure

that coders were blind to the planning direction condition, the plans were always presented to

them in chronological order. The scores from the two raters were averaged to form an index of

contingency (α = .73, M = 2.09, SD = .66; see Table 7 for means).

I submitted the contingency index to a 2 (planning direction: forward vs. backward) x 2

(vision distance: short-term vs. long-term) ANOVA. The ANOVA did not reveal a main effect of

planning direction on contingency, $F(1, 184) < 1$. There was a main effect of vision distance,

$F(1, 184) = 26.21$, $p < .001$, indicating that long-term plans were more contingent (M = 2.32, SD

= .59) than short-term plans (M = 1.86, SD = .65). Although there was no main effect of planning

direction, there was a significant interaction of planning direction and vision distance, $F(1, 184)$

= 14.15, $p < .001$. A simple effects analysis showed that in the long-term condition, participants'

plans were more contingent when planning in a forward compared to a backward direction (p =

.003). In contrast, in the short-term condition, participants' plans were more contingent when

planning in a backward compared to a forward direction (p = .022).

Importantly, motivation was positively correlated with the ratings of contingency, $r(186)$

= .26, $p < .001$. Despite a nonsignificant interaction between planning direction and vision

distance on motivation, I used conditional process modeling to test for moderated mediation

(using the PROCESS Macro for SPSS, Model 8; Hayes, 2018). Specifically, I tested to see

whether vision distance moderated the relationships among planning direction, contingency and

motivation. Using a bootstrap estimation approach with 10,000 samples, I found a significant

index of moderated mediation, corresponding to a significant difference between the two

conditional indirect effects at each level of the moderator (vision distance), B = -.26, SE = .11,

95% CI = -.5077, -.0719 (see Figure 3). Further analyses, breaking down the mediation models

for each vision distance condition (using the PROCESS Macro for SPSS, Model 4; Hayes,

2018), revealed a significant indirect effect for the short-term condition ($B = .11$, $SE = .07$, 95%

CI = .0060, .2641; see Figure 4), and the long-term condition ($B = -.15$, $SE = .07$, 95% CI = -

.3019, .-.0324; see Figure 5). In the short-term condition, backward planning led to an increase in

contingency which, in turn, resulted in more motivation. In the long-term condition, there is a

positive direct effect and a negative indirect effect, suggesting that there might be suppression. A

positive direct effect suggests that backward planning led to greater motivation, after statistically

removing the variance accounted for by contingency. However, a negative indirect effect

suggests that backward planning led to a decrease in contingency which, in turn led to a decrease

in motivation.

Discussion

Study 3 provided further evidence that vision distance is a factor that interacts with

planning direction to influence motivation. The results are partially consistent with, and may

help to reconcile, the pattern of effects obtained in the first two studies. In Study 1, participants

planned for a long-term future vision, and did not report heightened motivation when planning in

a backward direction. This finding was replicated in Study 3 where it was also found that

backward planning did not increase motivation for a long-term future vision. The findings of the

current work suggest that the goal-setting program advocated by Lululemon might not be

efficacious in promoting motivation. It is important to note, however, that the backward planning

exercise I examined was not identical to the program advocated by Lululemon. While I was able

to test the structured nature of Lululemon's goal-setting program and found it was not more

beneficial for motivation to engage in backward planning compared to forward planning, their

program also asks people to backward plan for each life domain separately (e.g., personal,

health, career). Thus, the findings of the current work suggest that planning for a

multidimensional future vision simultaneously does not lead to greater motivation when completed in a backward direction than in a forward direction. Future research should test whether the unidimensional planning used in the Lululemon's goal-setting program is efficacious.

In Study 2, participants planned for a short-term future vision, and reported heightened motivation when planning in a backward direction (although this effect was marginally significant). This finding was not directly replicated in Study 3; however, the pattern of results suggested, descriptively, that backward planning elicited greater motivation than forward planning for participants who planned for a short-term future vision. Moreover, Study 3 replicated the finding of Study 2 that participants became more motivated toward the end of the planning exercise, and that this increase in motivation was descriptively stronger for backward than forward planners. Thus, planners experienced a greater increase in motivation as they got close to their current reality (i.e., when backward planning) compared to their desired future (i.e., when forward planning).

Interestingly, planning for the long-term vision was less difficult than planning for the short-term. This might suggest that participants' long-term future visions and plans were qualitatively different than their short-term future visions. Indeed, the results suggested that when planning for the long-term, participants' plans were more contingent. I theorize that engaging in contingent planning is easier as it lends itself to scenario-based planning (Min & Arkes, 2012). Min and Arkes (2012) argue that it is easier to generate a sequence of events leading to a scenario (i.e., scenario-based planning) as opposed to listing the multiple, independent events leading up to a particular scenario, and thus the planning exercise is perceived as easier. In the current research, unsurprisingly, difficulty was negatively related to

contingency, such that the more contingent one's plan was, the less difficult the planning exercise was perceived to be (see intercorrelations, Table 10). Therefore, I suggest that planning for the long-term was less difficult because the planning exercise was naturally more contingent.

Further analyses revealed evidence for the mediating role of contingency for short-term future visions, but not for long-term future visions. Interestingly, for the short-term vision, backward planning led participants to develop more contingent plans (where each goal fit with and built upon the others) which, in turn, resulted in greater motivation; for the long term vision, in contrast, backward planning led to less contingency than forward planning which, in turn, resulted in less motivation. Furthermore, a positive direct effect indicated that backward planning led to greater overall motivation. This suggests that there may be another path by which backward planning leads to greater motivation in the long-term condition; however, this direct effect was not significant. The pattern of results in the long-term condition was unexpected, and within the scope of this thesis, I am unable to determine what accounts for this suppression effect.

General Discussion

The present research explores a planning strategy – known as backward planning – that has potential to influence people's motivation to achieve short-term and long-term life goals. This planning strategy is often advocated in applied settings (e.g., Lululemon's goal-setting program) and has recently been shown to increase motivation for specific and relatively short-term goals (Park et al., 2017). The current research contributes to a small body of literature examining the effects of backward planning (Park et al., 2017; Wiese et al., 2016), and offers an empirical test of one specific goal-setting program that has been advocated by a large and influential corporation (Lululemon).

This research extends the existing work on backward planning (e.g., Park et al., 2017) by investigating both close and distant goals, but also contrasts from this work by examining a different type of goal – which I have referred to as one's future vision. Across three studies, I investigated the motivational impact of backward planning (compared to forward planning) for a long-term (Studies 1 and 3) and short-term future vision (Studies 2 and 3). The findings of the present work suggest that backward planning can sometimes enhance motivation, but that the motivational impact of backward planning depends on the temporal scope of the future goal. Particularly, for long-term future goals, across two studies (Studies 1 and 3), backward planning did not lead to greater motivation than forward planning. In contrast, for short-term future goals, backward planning heightened motivation directly (Study 2), or indirectly through the sequential contingency of people's plans (Study 3).

Contrary to my hypothesis, it was not the case that backward planning led to greater subjective closeness or self-continuity than did forward planning. The results for subjective closeness are distinct from the findings of Lam and Buehler (2009) who showed that backward recall of a series of events between the present and a past event made that past event feel subjectively closer in time. The present research provides some initial evidence that the effect of temporal direction on subjective closeness for past events (Lam & Buehler, 2009) does not extend to future events. In Study 1, under one circumstance (i.e., after first reflecting on their motivation), backward planning led participants to feel further from their future-self compared to forward planning, although this contrast was marginally significant. Based on mental contrasting research (Oettingen & Mayer, 2002), it might be the case that backward planners were able to reconcile their felt necessity to act (as a result of experiencing their present reality as an obstacle to their future vision) by focusing on their motivational drive rather than pulling their future

vision closer. In contrast, if forward planners were focused on their motivational drive, then they may be more motivated to pull their future vision closer than backward planners. In the following studies, however, there was no effect of temporal direction on subjective closeness. One possibility for why we did not find the anticipated pattern of results in Studies 2 and 3 is that participants were asked to list goals at distinct time intervals. Making these time intervals salient may have not allowed for feelings of subjective closeness.

Although I did not find the anticipated mediation with subjective temporal closeness, I did identify another mechanism. In the final study, the sequential contingency of participants' plans was coded by two independent coders. Sequential contingency refers to the extent to which the goals in participants' plans built upon each other such that each goal depended on the one preceding it chronologically. I found that contingency was a significant mediator of the effect of backward planning on motivation, for short-term goals. That is, when planning for short-term goals, backward planners developed more contingent plans which led to greater motivation.

Implications

My research investigates an important boundary condition to the effects of backward planning on motivation: the temporal scope of one's future goals. That is, backward planning appeared to show more promise as a motivational strategy for short-term goals (e.g., in six months) than for long term goals (e.g., in six or ten years). Also, although it was not empirically tested, my research findings may imply that the dimensionality of one's future goals is an important consideration for research on planning and goal pursuit. That is, a characteristic of the goals examined in the present studies was that they were multidimensional (i.e., future visions that may consist of career, health, and family life goals) whereas goals in previous research were

unidimensional (e.g., career goals, academic goals). It may be that backward planning has more

consistent and robust effects for unidimensional goals (Park et al., 2017).

Building on previous work that found evidence that backward planning is an effective

strategy to increase motivation and enhance performance for short-term tasks, such as preparing

for an academic exam (Park et al., 2017), the current work found some evidence that backward

planning can increase motivation also for broader and multidimensional, short-term goals (i.e.,

future vision). In contrast, the current work did not find evidence that backward planning can

increase motivation for broader and multidimensional, long-term goals. Given that backward

planning is advocated by Lululemon as a useful planning tool for oneself in 10 years, it is

important to consider the finding that unstructured and structured backward planning for a long-

term goal did not enhance motivation. This finding suggests that the goal-setting program that

Lululemon has developed and advocated may not be effective in boosting motivation. As noted

earlier, the current work cannot evaluate the effectiveness of every feature of Lululemon's goal-

setting program given an important distinction in the planning exercises. Lululemon's goal-

setting program involves unidimensional planning, whereas the current studies involved

multidimensional planning. The findings of the current work suggest that planning for a

multidimensional future vision simultaneously does not lead to greater motivation when

completed in a backward direction than in a forward direction.

Additionally, I was interested in examining feelings of motivation and goal expectancy,

whereas Lululemon's focus is to help people identify goals that fit with their future vision (i.e.,

develop more clear plans) and make decisions that lead them closer to their future vision.

Although in the current work I did not find that backward planning led to greater clarity than

forward planning, it is possible that this type of goal-setting program can have behavioral

consequences, such as helping people make better decisions and attain more desirable outcomes. Future research should examine whether backward planning can help people succeed in achieving their future vision.

Furthermore, I found several order effects in the first study as a result of counterbalancing the mechanism measures and the dependent measure. In the first study, people were more motivated when they rated their motivation first compared to at the end of the survey. Given that motivation was hindered when rated at the end of the survey, the order that motivation is measured in future research is an important consideration. Additionally, this has implications for future behaviour if the motivational benefit is short-lived, as evidenced by a significant order effect. The findings of the first study also highlight that when people first focused on their overall motivation to achieve their future vision, they felt that the planning exercise was more enjoyable and easier, and perceived more clarity. I argue that a boost in positive affect (as a result of bolstered motivation) led people to view the planning exercise more favourably, although affect was not assessed directly. Overall, these order effects provide evidence that the timing of motivation measures is an important consideration when evaluating goal-setting programs.

The findings do suggest that backward planning for multifaceted goals in the short-term can have more motivational benefits, compared to forward planning. That is, goal-setting programs for short-term life goals (i.e., future visions) may benefit from backward planning. In the current research, these short-term future visions consisted of, but were not limited to, finishing a school year, working out more and getting a summer job. Practitioners considering the use of backward planning as a motivational tool may be well advised to consider the

boundary conditions, and perhaps limit applications of the backward planning strategy to relatively short-term visions.

Limitations

One limitation of the present research is the inability to directly compare the results to previous work because the methodology changed in more than one way. As I was inspired by the goal-setting program put forth by Lululemon, the planning exercise developed for the first study was long-term, unstructured and focused on multifaceted goals. This differed from previous work which explored unidimensional and specific short-term goals (Wiese et al., 2016; Park et al., 2017), and found benefits of backward planning for distant projects that were structured (Wiese, 2009). Although distinct from, and sometimes inconsistent with the implications of the previous literature, the methodological choices for the current research were made in order to empirically test a specific goal-setting program. I discuss how future research can address this concern in a later section.

Another limitation involves my theorizing about perceived difficulty. I chose to operationalize difficulty as the difficulty that participants experienced in completing the planning exercise itself, rather than the difficulty of their target goal. I made this decision in order to determine whether the effects reported by Park et al. (2017) would be replicated in my studies. In particular, these researchers assessed participants' ratings of how difficult it was to complete the planning exercise; they referred to this construct as "task complexity" and found that it was a key moderator of the effects of backward planning. Thus, I expected that backward planning may be helpful when engaging in planning that is perceived as difficult (as opposed to the target goal being difficult to achieve). My findings did not support this finding, and thus a challenge for

future research will be to understand why this form of difficulty or complexity had such different

effects in the two research programs.

It would also be interesting in future research to examine the role played by the difficulty

or complexity of the target goal. Previous research has suggested that people are sometimes more

motivated by more complex or difficult goals (Locke & Latham, 1990). In addition, the

framework posited by Holmberg and Roberts (2000) suggests that backcasting may be

particularly helpful for complex problems. Conceivably, backward planning might be more

beneficial when the actual goal is perceived as difficult to achieve, as opposed to when the

planning exercise is perceived as difficult.

A final limitation of this study was the demographic profile of the sample. In particular,

across all three studies, participants were undergraduate university students, between the ages of

18-35 and predominately female. Because this was a limitation of the method of sampling and

the platforms used to recruit participants, the findings cannot be assumed to generalize to all

populations. This is an important consideration, especially in the current work, because the types

of life goals people have at certain points in their lifetime will be different. For example, in the

current work, the long-term future visions of undergraduate students typically consisted of:

finishing university, starting a career and finding a relationship partner. Further research needs to

be done to understand the scope of these findings for different populations.

Future Directions

While the current research investigates the motivational impact of backward planning for

multifaceted goals across different temporal horizons, future research can assess the

generalization of backward planning for more distant goals (compared to close goals; Park et al.,

2017). The current work is novel in that it extends the work by Park et al. (2017) to more distant

goals; however, it also contrasts this past work by examining multifaceted goals. Therefore, we changed our methodology in multiple ways, and as described earlier this does not allow us to make direct comparisons with past research. Future research could test empirically whether backward planning is more beneficial for specific, unidimensional goals or for broad, multidimensional goals. Additionally, future research could extend past research by examining whether backward planning is more beneficial for specific, unidimensional goals in the short-term or for specific, unidimensional goals in the long-term.

I also changed the methodology from previous research and within the scope of this thesis by using both structured and unstructured planning exercises in separate studies. Although we did not find evidence for the motivational benefit of backward planning compared to forward planning in the long-term when engaging in an unstructured (Study 1) or structured (Study 3) planning exercise, this allowed us to assess the effectiveness of the structured feature of Lululemon's goal-setting program. Future research could test whether structured or unstructured planning programs are more beneficial, and whether this differs depending on vision distance. The results of the current study suggest that structure is not a boundary condition for the long-term; however, it is possible that the motivational benefit of backward planning in the short-term might be attenuated when the exercise is unstructured.

It would also be interesting to follow up on the finding that backward planning led to more contingent plans than forward planning in the short-term, which in turn led to greater motivation. Future studies could attempt to replicate and explore this pattern of results. In particular, it might be expected that when the contingency of the planning exercise is unspecified (as it was in the current work), then backward planning will lead to greater contingency than forward planning, resulting in greater motivation. In contrast, when the contingency of the

planning exercise is manipulated, then both planning strategies would lead to greater contingency and the motivational impact of backward planning would be attenuated. This pattern of effects would provide additional evidence that plan contingency plays a causal role in effects on motivation.

The motivational benefit of backward planning may also be the result of a greater harmony between the multiple goals, which might be evidenced by the significant mediation with contingency. The methodology of the current work did not allow me to disentangle sequential contingency from a perceived harmony between multiple goals. Future research could address this concern by asking people to plan for their future vision by identifying a single domain (e.g., career). If backward planning for a single domain leads to greater contingency (and subsequent motivation), this would provide evidence that backward planning actually leads to greater sequential contingency as opposed to a greater harmony between multiple goals.

As outlined earlier, there are parallels between the process of backcasting (vs. forecasting) and backward (vs. forward) planning; however, when engaging in forecasting people do not first elaborate on their desired future end state as they did in the forward planning conditions of my studies. That is, in the current work, in both planning directions, participants started by first describing their future vision. Elaborating first on a desired future end state might cause people to generate qualitatively different future visions than planning first and ending at the desired future end state. To draw direct comparisons between these two processes, future research could examine the differences between backward and forward planning by using a forecasting process for forward planning (i.e., not elaborating first on a desired future end-state).

Conclusion

The findings of these three studies provide an initial step toward understanding the potential effects of backward planning on people's motivation to achieve their future visions. Backward planning appeared to result in greater motivation than forward planning, but only for short-term goals. Interestingly, for short term goals, backward planning also led to more contingent plans, which, in turn, led to heightened motivation. These findings suggest that backward planning may be most effective when people are able to consider specific details of a close event (rather than envisioning a distant event unfolding abstractly), because in those cases backward planning helps people to develop more contingent plans. In conclusion, the present research makes a novel contribution to the literature on planning and motivation, while also offering an empirical test of a planning strategy that is often advocated in applied settings.

Table 1

Dependent Measures for Study 1

Dependent Variable	Motivation First		Motivation Last	
	Backward (*N* = 44)	Forward (*N* = 61)	Backward (*N* = 64)	Forward (*N* = 41)
Motivation Index	6.13 (.79)	6.25 (.88)	5.92 (.90)	5.79 (1.00)
Subjective Distance	66.70 (26.14)	56.92 (27.29)	58.84 (30.82)	66.58 (23.71)
Difficulty	3.48 (1.56)	3.43 (1.64)	4.00 (1.44)	3.73 (1.63)
Enjoyment	4.80 (1.29)	5.39 (1.46)	4.78 (1.44)	4.44 (1.52)
Clarity	5.39 (.77)	5.61 (1.03)	5.00 (.96)	5.11 (1.03)
Planning Insights	4.68 (.95)	4.93 (1.10)	4.61 (1.06)	4.68 (.83)
High Level Construal	45.45%	45.90%	55.56%	41.46%

Note. Standard deviations represented in parentheses

Table 2

Correlations between Dependent Measures for Study 1

	Motivation Index	Subjective Distance	Difficulty	Enjoyment	Clarity	Planning Insights	Goal Count
Motivation Index	1	--	--	--	--	--	--
Subjective Distance	-.23***	1	--	--	--	--	--
Difficulty	-.48***	.22**	1	--	--	--	--
Enjoyment	.46***	-.22***	-.50***	1	--	--	--
Clarity	.61***	-.25***	-.52***	.43***	1	--	--
Planning Insights	.21**	0.03	-0.07	.30***	.38***	1	--
Goal Count	.13*	-0.1	0.03	0.06	0.13	0.1	1

Note. † $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 3

Study 1 Effect of Planning Direction, Order and Difficulty on Motivation

		B	$(SE)\ B$	β	t
	Planning Direction	.05	.11	.03	.40
	Order	-.22	.11	-.12	-1.97[†]
	Difficulty	-.27	.04	-.46	-7.52***
Model 1				F 21.92***	$_\Lambda R^2$ .24***
	Planning Direction	-.10	.16	-.06	-.65
	Order	-.38	.16	-.21	-2.39*
	Difficulty	-.24	.06	-.42	-4.29***
	Planning Direction x Order	.31	.23	.16	1.38
	Planning Direction x Difficulty	.04	.07	.05	.53
	Difficulty x Order	-.10	.07	-.11	-1.32
Model 2				F 11.64***	$_\Lambda R^2$ .01
	Planning Direction	-.10	.16	-.05	-.62
	Order	-.38	.16	-.21	-2.37*
	Difficulty	-.25	.06	-.44	-4.01***
	Planning Direction x Order	.31	.23	.16	1.38
	Planning Direction x Difficulty	.06	.10	.08	.64
	Difficulty x Order	-.07	.10	-.08	-.70
	3-way Interaction	-.05	.14	-.05	-.37
Model 3				F 9.95***	$_\Lambda R^2$ <.001

Note. [†]$p<.10$, *$p<.05$, **$p<.01$, ***$p<.001$

Table 4

Study 1 Effect of Planning Direction and Order on Construal Level

		B	*(SE) B*	Wald's X^2	*df*	*p*	EXP(*B*) Ratio
	Planning Direction	.27	.28	.91	1	.340	1.31
	Order	.12	.28	.19	1	.666	1.13
				X^2	*df*	*p*	
Model 1				1.30	2	.523	
	Planning Direction	-.02	.40	.002	1	.964	.98
	Order	-.18	.41	.19	1	.658	.84
	Interaction	.59	.57	1.07	1	.302	1.80
				X^2	*df*	*p*	
Step				1.07	1	.301	
Model 2				2.37	3	.500	

Note. †*p*<.10, *p<.05, **p<.01, ***p<.001

Table 5
Dependent Measures for Study 2

Dependent Variable	Backward (N = 74)	Forward (N = 79)
Motivation Index	5.93 (.84)	5.68 (.86)
Motivation	6.24 (.81)	6.06 (.91)
Likelihood	5.69 (1.05)	5.37 (1.06)
Optimistic	5.86 (1.28)	5.59 (1.15)
Time Pressure	3.80 (1.73)	3.95 (1.75)
Self-continuity	3.81 (1.62)	3.71 (1.54)
Difficulty	4.46 (1.79)	4.00 (1.59)
Enjoyment	4.61 (1.58)	4.84 (1.37)
Clarity	5.53 (.82)	5.50 (.75)
Planning Insights	5.03 (1.09)	5.00 (.98)
High Level Construal	47.30%	56.41%

Note. Standard deviations represented in parentheses

Table 6

Correlations between Dependent Measures for Study 2

	Motivation Index	Time Pressure	Self-continuity	Difficulty	Enjoyment	Clarity	Planning Insights
Motivation Index	1	--	--	--	--	--	--
Time Pressure	$-.15^{\dagger}$	1	--	--	--	--	--
Self-continuity	.20*	0.02	1	--	--	--	--
Difficulty	-0.11	.25**	0.07	1	--	--	--
Enjoyment	.27***	-0.1	-0.09	-.46***	1	--	--
Clarity	.35***	-0.08	-0.03	-0.02	.26***	1	--
Planning Insights	.51***	$-.15^{\dagger}$	0.006	-0.08	.27***	.43***	1

Note. $^{\dagger} p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 7

Study 2 Effect of Planning Direction and Difficulty on Motivation

		B	(SE) B	β	t
	Planning Direction	.29	.14	.17	2.08*
	Difficulty	-.07	.04	-.13	-1.63
Model 1				F 3.10*	$_{\Delta}R^2$ .04*
	Planning Direction	.29	.14	.17	2.09*
	Difficulty	-.20	.13	-.39	-1.47
	Planning Direction x Difficulty	.08	.08	.27	1.02
Model 2				F 2.41†	$_{\Delta}R^2$ .007

Note. †*p*<.10, *p<.05, **p<.01, ***p<.001

Table 8

Study 2 Effect of Planning Direction on Construal Level

	B	$(SE)\,B$	Wald's X^2	df	p	EXP(B) Ratio
Planning Direction	-.366	.326	1.260	1	.262	.693
			X^2	df	p	
Model			1.265	1	.261	

Note. [†]*p*<.10, *p<.05, **p<.01, ***p<.001;

Table 9

Dependent Measures for Study 3

Dependent Variable	Short-term		Long-term	
	Backward (N = 55)	Forward (N = 39)	Backward (N = 40)	Forward (N = 55)
Motivation Index	5.70 (.93)	5.38 (1.42)	5.81 (1.06)	5.84 (.82)
Motivation	5.98 (1.06)	5.74 (1.37)	6.31 (.86)	6.09 (1.11)
Likelihood	5.55 (.96)	5.08 (1.63)	5.44 (1.35)	5.58 (.90)
Optimistic	5.56 (1.23)	5.33 (1.68)	5.70 (1.38)	5.85 (1.04)
Time Pressure	4.20 (1.84)	4.10 (1.85)	3.98 (1.93)	3.56 (1.72)
Self-continuity	3.55 (1.69)	3.97 (1.73)	3.45 (1.59)	3.09 (1.38)
Difficulty	4.45 (1.57)	4.77 (1.39)	4.48 (1.75)	3.71 (1.94)
Enjoyment	4.45 (1.27)	4.36 (1.94)	4.45 (1.81)	5.18 (1.23)
Clarity	5.41 (.87)	5.58 (1.01)	5.69 (.89)	5.64 (.91)
Planning Insights	4.87 (1.08)	4.94 (1.28)	5.00 (1.07)	4.95 (.82)
High Level Construal	53.70%	51.28%	27.50%	38.18%
Contingency	1.98 (.65)	1.69 (.62)	2.10 (.63)	2.48 (.51)

Note. Standard deviations represented in parentheses

Table 10

Correlations between Dependent Measures for Study 3

	Motivation Index	Time Pressure	Self-continuity	Difficulty	Enjoyment	Clarity	Planning Insights	Contingency
Motivation Index	1	--	--	--	--	--	--	--
Time Pressure	<.001	1	--	--	--	--	--	--
Self-continuity	.27***	-.17*	1	--	--	--	--	--
Difficulty	-.23***	.26***	$-.13^{\dagger}$	1	--	--	--	--
Enjoyment	.45***	-0.02	.22**	-.41***	1	--	--	--
Clarity	.50***	-0.04	.26***	-.19**	.40***	1	--	--
Planning Insights	.41***	0.05	$.13^{\dagger}$	-0.04	.43***	.39***	1	--
Contingency	.26***	-.14*	0.002	-.23**	$.14^{\dagger}$	.16*	-0.04	1

Note. † *p < .10, * p < .05, ** p < .01, *** p < .001*

Table 11

Study 3 Effect of Planning Direction, Vision Distance and Difficulty on Motivation

		B	$(SE) B$	β	t
	Planning Direction	.17	.15	.08	1.12
	Vision Distance	.21	.15	.10	1.39
	Difficulty	-.14	.04	-.22	-3.10**
				F	ΔR^2
Model 1				4.49**	.07**
	Planning Direction	.23	.22	.11	1.06
	Vision Distance	.28	.23	.13	1.24
	Difficulty	-.38	.24	-.63	-1.63
	Planning Direction x Vision Distance	-.18	.31	-.07	-.58
	Planning Direction x Difficulty	.07	.09	.17	.71
	Difficulty x Vision Distance	.10	.10	.27	1.01
				F	ΔR^2
Model 2				2.51*	.008
	Planning Direction	.20	.22	.09	.88
	Vision Distance	.26	.23	.13	1.16
	Difficulty	-.83	.54	-1.36	-1.53
	Planning Direction x Vision Distance	-.15	.31	-.05	-.49
	Planning Direction x Difficulty	.35	.32	.87	1.08
	Difficulty x Vision Distance	.36	.31	1.00	1.18
	3-way Interaction	-.17	.19	-.71	-.91
				F	ΔR^2
Model 3				2.27*	.004

Note. [†]$p<.10$, *$p<.05$, **$p<.01$, ***$p<.001$

Table 12

Study 3 Effect of Planning Direction and Vision Distance on Construal Level

		B	(SE) B	Wald's X^2	df	p	EXP(B) Ratio
	Planning Direction	-.18	.31	.342	1	.558	.84
	Vision Distance	-.82	.31	7.12	1	.008**	.44
				X^2	df	p	
Model 1				7.308	2	.026*	
	Planning Direction	.20	.42	.05	1	.807	1.10
	Vision Distance	-.53	.42	1.58	1	.208	.59
	Interaction	-.59	.63	.90	1	.343	.56
				X^2	df	p	
Step				.907	1	.341	
Model 2				8.215	3	.042*	

Note. [†]$p<.10$, *$p<.05$, **$p<.01$, ***$p<.001$;
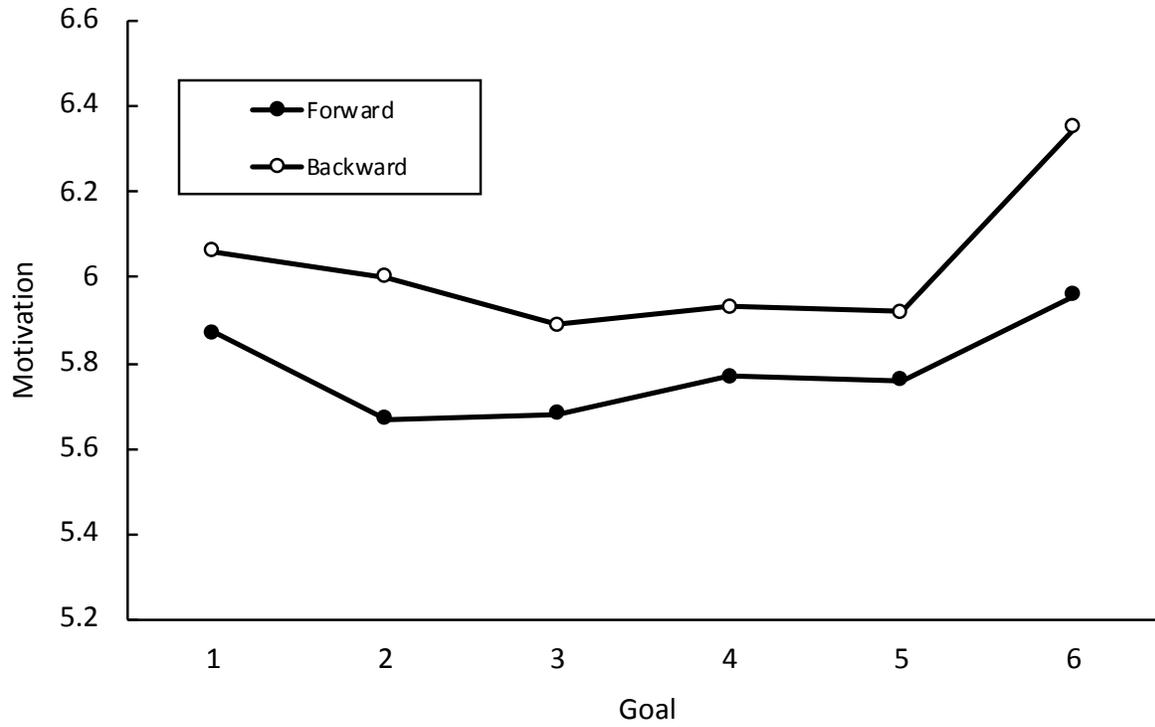
Figure 1. *Motivation at each goal during the planning exercise by planning direction (Study 2)*
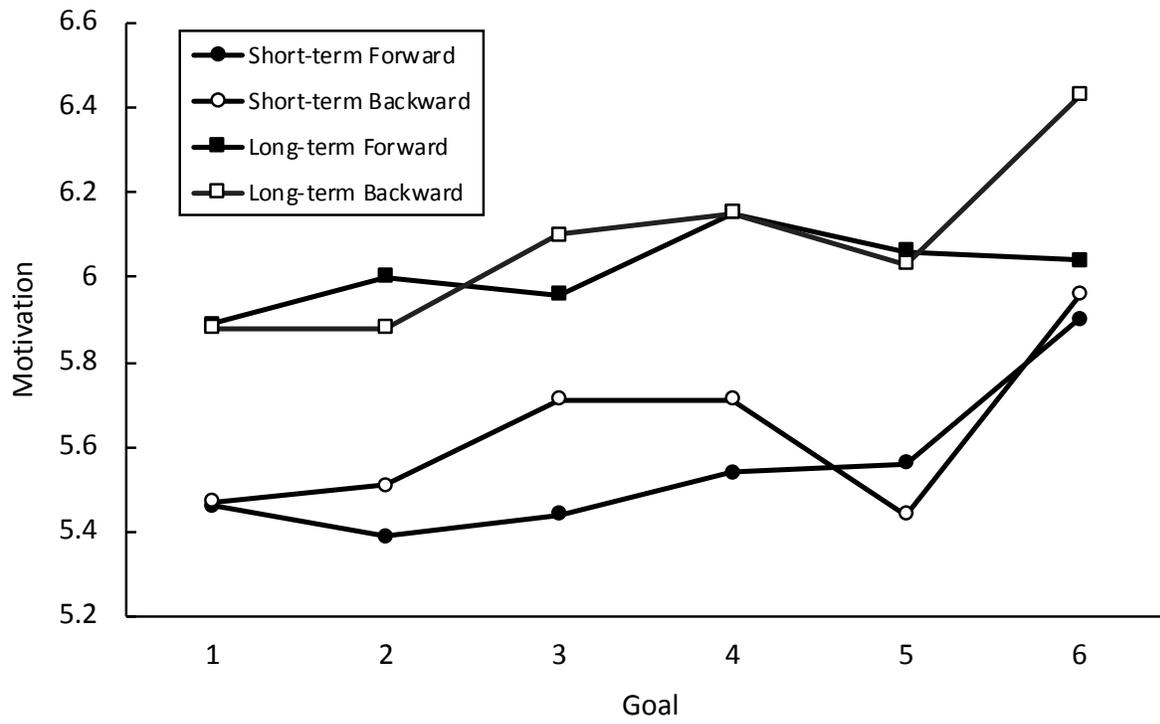
Figure 2. *Motivation at each goal during the planning exercise by planning direction and vision distance (Study 3)*
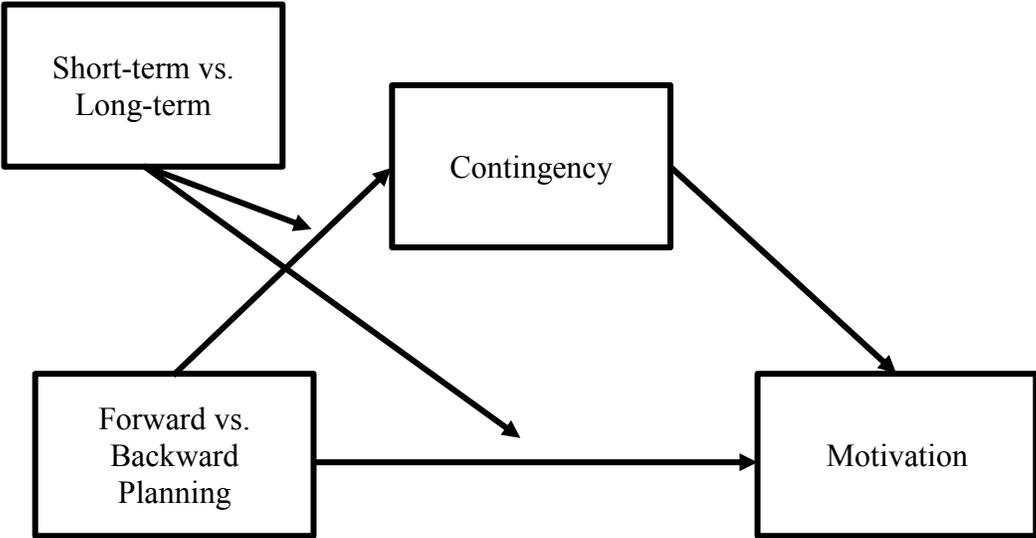
Figure 3
Moderated mediation for the relationship between planning direction, vision distance and motivation as mediated by contingency, N = 188(Study 3)
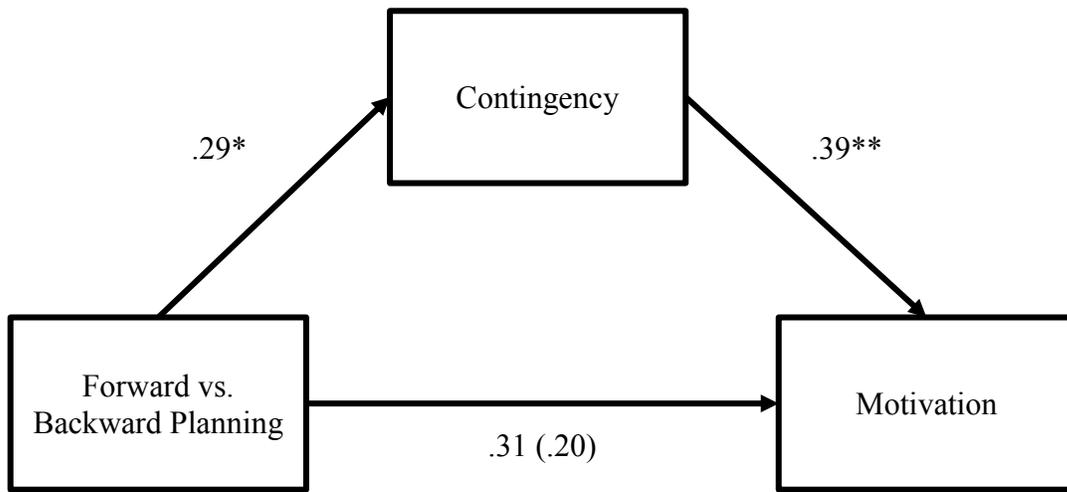
Figure 4
Unstandardized regression coefficients for the relationship between planning direction and motivation as mediated by contingency in the short-term condition. The unstandardized regression coefficient between planning direction and motivation, controlling for contingency, is in parentheses (Study 3).
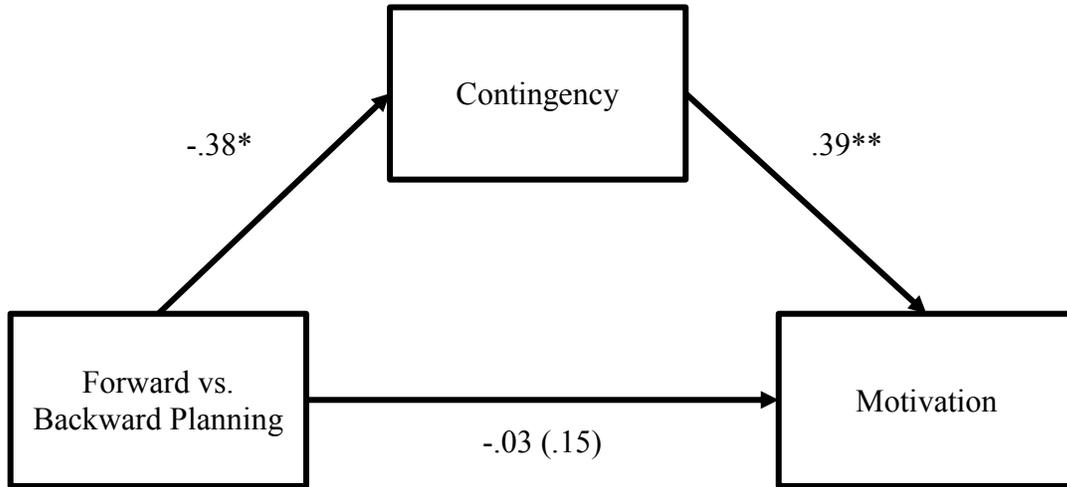
Figure 5
Unstandardized regression coefficients for the relationship between planning direction and motivation as mediated by contingency in the long-term condition. The unstandardized regression coefficient between planning direction and motivation, controlling for contingency, is in parentheses (Study 3).

Appendix A
Study 1 Materials

<u>Vision Description</u>
In this study, you will be asked to think about your ideal future self in 10 years - that is, your 10-year vision. We will also ask you develop a plan to achieve your 10-year vision.

In this section, we would like you to take a minute to think about your 10-year vision. That is, envision your ideal future self in 10 years and think about what you want your ideal life to look like. This may include your health, career, and personal achievements, social circle and family life, etc.

In the space below, please describe your 10-year vision in approximately 4-6 sentences.

<u>Planning Direction Manipulation</u>

<u>Forward Planning Condition</u>
We would like you to spend some time developing a plan for your 10-year vision. Also, we want you to develop your plan in a particular way that would be called "forward planning". Forward planning involves starting with the very first goal that needs to be accomplished and then moving onward from there in a chronological order. Try to picture your 10-year vision - including details such as when, where and what you will achieve in the process - in a forward direction. Have a deadline for each goal - that is, decide by when each goal will be complete.

Begin by thinking of the very first goal you will need to accomplish and how that will be accomplished, and then think of the goal you will need to accomplish after that, and so on until you reach the very last goal that you will achieve to reach your 10-year vision.

Using the space below, please describe your plan step by step using the forward planning approach. List the goals in point form, beginning each separate goal on a new line. Each goal should have a deadline - that is, decide by when your goal will be complete. Remember, these are goals that support your 10-year vision.

Begin by describing the very first goal you will accomplish and when you will accomplish that goal (indicate how many years from now you will accomplish that goal), and then describe the goal you will accomplish after that (and again, indicate how many years from now you will accomplish that goal), and so on until you reach the very last goal you will accomplish to reach your 10-year vision.

<u>Backward Planning Condition</u>
We would like you to spend some time developing a plan for your 10-year vision. Also, we want you to develop your plan in a particular way that would be called "backward planning". Backward planning involves starting with the very last goal that needs to be accomplished and then moving backward from there in a reverse chronological order. Try to picture your 10-year vision - including details such as when, where and what you will achieve in the process - in a

backward direction. Have a deadline for each goal - that is, decide by when each goal will be complete.

Begin by thinking of the very last goal you will need to accomplish and how that will be accomplished, and then think of the goal you will need to accomplish before that, and so on until you reach the very first goal that you will achieve to reach your 10-year vision.

Using the space below, please describe your plan step by step using the backward planning approach. List the goals in point form, beginning each separate goal on a new line. Each goal should have a deadline - that is, decide by when your goal will be complete. Remember, these are goals that support your 10-year vision.

Begin by describing the very last goal you will accomplish and when you will accomplish that goal (indicate how many years from now you will accomplish that goal), and then describe the goal you will accomplish before that (and again, indicate how many years from now you will accomplish that goal), and so on until you reach the very first goal you will accomplish to reach your 10-year vision.

Motivation
Please rate the extent to which you agree or disagree with the following statements.

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

1. I fully intend to achieve my 10-year vision.
2. My intention is to regularly put effort toward achieving my 10-year vision.
3. I feel very motivated to work hard at pursuing my 10-year vision.
4. I intend to do all that I can to achieve my 10-year vision.
5. I feel committed and dedicated to my 10-year vision.
6. It is important to me to achieve my 10-year vision.

Subjective Temporal Distance
The future can sometimes feel close or far away, despite how close it actually is in calendar time.

Thinking about your 10-year vision, place the slider at the point that best indicates how close or far away it feels to you.

Feels very close   Feels very far

Construal

When people think about their goals, they can focus on different aspects of the goal. For example, one person may choose to focus on 'why' he or she is pursuing the goal and think about his or her reasons for finding this particular goal important. Another person may choose to focus on 'how' he or she is pursuing the goal, thinking of concrete strategies and plans to realize the goal.

When thinking about my 10-year vision ...
- ☐ I think about how I will pursue this goal (e.g., concrete plans)
- ☐ I think about why this goal is important to me (e.g., reasons or causes)

Task Characteristics

Thinking about the planning exercise you completed:

How easy was it to create a plan for your 10-year vision?

Extremely difficult 1	2	3	Neither easy nor difficult 4	5	6	Extremely easy 7

How enjoyable was it to create a plan for your 10-year vision?

Extremely unenjoyable 1	2	3	Neither enjoyable nor unenjoyable 4	5	6	Extremely enjoyable 7

Clarity

Please rate the extent to which you agree with the following statements.

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

1. I am clear about the goals I need to achieve to reach my 10-year vision.
2. I know there are a lot of goals I need to achieve to reach my 10-year vision.
3. *If you are paying attention right now, please select "Strongly disagree"*
4. I have identified the important goals I need to achieve to reach my 10-year vision.
5. The potential problems or obstacles I could encounter are clear to me.

Planning Insights

Now, we will ask you several questions about the planning exercise you completed. Please rate the extent to which you agree with the following statements.

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

1. The planning exercise helped me clarify the goals I will need to achieve to reach my 10-year vision.
2. The planning exercise made me think of goals I need to achieve that I wouldn't have thought of otherwise.
3. The planning exercise made me break down my 10-year vision into important goals.
4. The planning exercise made me think of potential problems or obstacles I could encounter.
5. The planning exercise made my 10-year vision feel closer.

Regulatory Focus Questionnaire (Higgins et al., 2001)
This set of questions asks you about specific events in your life. Please select the most appropriate response that reflects you.

Never or seldom 1	2	Sometimes 3	4	Very often 5

1. Compared to most people, are you typically unable to get what you want out of life?
2. Growing up, would you ever "cross the line" by doing things that your parents would not tolerate?
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?
5. *If you are paying attention right now, please select "Very often"*
6. How often did you obey rules and regulations that were established by your parents?
7. Growing up, did you ever act in ways that your parents thought were objectionable?
8. Do you often do well at different things that you try?
9. Not being careful enough has gotten me into trouble at times.
10. 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.
11. I feel like I have made progress toward being successful in my life
12. I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them.

Optimism Scale (Scheier, Carver, & Bridges, 1994)
Please rate the extent to which you agree with the following statements:

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

1. In uncertain times, I usually expect the best.
2. It's easy for me to relax.
3. If something can go wrong for me, it will.
4. I'm always optimistic about my future.
5. I enjoy my friends a lot.
6. It's important for me to keep busy.
7. I hardly ever expect things to go my way.
8. I don't get upset too easily.
9. I rarely count on good things happening to me.
10. Overall, I expect more good things to happen to me than bad.

Demographics

Please indicate your age.

_____

From the following, please select the option that best reflects your gender.

- ☐ Male
- ☐ Female
- ☐ Other (please specify)

From the following, please select the racial group with which you primarily identify.

- ☐ Non-Hispanic White, Euro-Canadian, or Euro-American
- ☐ Black, Afro-Canadian, or African American
- ☐ Latino or Hispanic
- ☐ East Asian, Asian Canadian, or Asian American
- ☐ South Asian, Indian Canadian, or Indian American
- ☐ Middle Eastern or Arab American
- ☐ First Nations Métis, Inuit, Native American, or Alaskan Native
- ☐ Other (please specify)

Appendix B
Study 2 Materials

<u>Vision Description</u>
In this study, you will be asked to think about your ideal future self in 6 months - that is, your **6-month vision**. We will also ask you develop a plan to achieve your 6-month vision.

In this section, we would like you to take a minute to think about your **6-month vision.** That is, envision your ideal future self in 6 months and think about what you want your ideal life to look like. This may include your health, career, and personal achievements, social circle and family life, etc.

In the space below, please describe your 6-month vision in approximately 4-6 sentences.

<u>Planning Direction Manipulation and Planning Exercise</u>

<u>Forward Planning Condition</u>
We would like you to spend some time developing a plan for your 6-month vision. Also, we want you to develop your plan in a particular way that would be called "forward planning". Forward planning involves starting with the very first goal that needs to be accomplished and then moving onward from there in a chronological order. Try to picture your 6-month vision - including details such as when, where and what you will achieve in the process - in a forward direction. Have a deadline for each goal - that is, decide by when each goal will be complete.

Begin by thinking of the very first goal you will need to accomplish and how that will be accomplished, and then think of the goal you will need to accomplish after that, and so on until you reach the very last goal that you will achieve to reach your 6-month vision. Remember, these are goals that support your 6-month vision.

Begin by describing the very first goal you will accomplish by the end of next month.
——————————————————————————————

1. At this point, how motivated are you to achieve your 6-month vision?

Not at all 1	2	3	4	5	6	Completely 7

Now, describe the next goal you will accomplish by the end of two months from now.
——————————————————————————————

2. At this point, how motivated are you to achieve your 6-month vision?

Not at all 1	2	3	4	5	6	Completely 7

Now, describe the next goal you will accomplish by the end of three months from now.
_____

3. At this point, how motivated are you to achieve your 6-month vision?

Not at all 1	2	3	4	5	6	Completely 7

Now, describe the next goal you will accomplish by the end of four months from now.
_____

4. At this point, how motivated are you to achieve your 6-month vision?

Not at all 1	2	3	4	5	6	Completely 7

Now, describe the next goal you will accomplish by the end of five months from now.
_____

5. At this point, how motivated are you to achieve your 6-month vision?

Not at all 1	2	3	4	5	6	Completely 7

Lastly, describe the next goal you will accomplish by the end of six months from now.
_____

6. At this point, how motivated are you to achieve your 6-month vision?

Not at all 1	2	3	4	5	6	Completely 7

Backward Planning Condition
We would like you to spend some time developing a plan for your 6-month vision. Also, we want you to develop your plan in a particular way that would be called "backward planning". Backward planning involves starting with the very last goal that needs to be accomplished and then moving backward from there in a reverse chronological order. Try to picture your 6-month vision - including details such as when, where and what you will achieve in the process - in a backward direction. Have a deadline for each goal - that is, decide by when each goal will be complete.

Begin by thinking of the very last goal you will need to accomplish and how that will be accomplished, and then think of the goal you will need to accomplish before that, and so on until you reach the very first goal that you will achieve to reach your 6-month vision.

Begin by describing the very last goal you will accomplish by the end of six months from now.
_____

1. At this point, how motivated are you to achieve your 6-month vision?

Not at all 1	2	3	4	5	6	Completely 7

Now, describe the next goal you will accomplish by the end of five months from now.
_____

2. At this point, how motivated are you to achieve your 6-month vision?

Not at all 1	2	3	4	5	6	Completely 7

Now, describe the next goal you will accomplish by the end of four months from now.
_____

3. At this point, how motivated are you to achieve your 6-month vision?

Not at all 1	2	3	4	5	6	Completely 7

Now, describe the next goal you will accomplish by the end of three months from now.
_____

4. At this point, how motivated are you to achieve your 6-month vision?

Not at all 1	2	3	4	5	6	Completely 7

Now, describe the next goal you will accomplish by the end of two months from now.
_____

5. At this point, how motivated are you to achieve your 6-month vision?

Not at all 1	2	3	4	5	6	Completely 7

Lastly, describe the next goal you will accomplish by the end of next month.
_____

6. At this point, how motivated are you to achieve your 6-month vision?

Not at all 1	2	3	4	5	6	Completely 7

Motivation
Overall, how motivated are you to achieve your future vision?

Not at all 1	2	3	4	5	6	Completely 7

How likely is it that you will achieve your future vision?

Not at all 1	2	3	4	5	6	Very 7

Are you optimistic about achieving your future vision?

Not at all 1	2	3	4	5	6	Very 7

Time Pressure
Do you feel that you are short of time in achieving your future vision?

Not at all 1	2	3	4	5	6	Very 7

Task Characteristics
Note. Instructions for participants in the backward planning condition are represented in brackets.

Please rate the extent to which you agree with the following statements.

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

1. It was difficult to plan the goals I need to achieve in [reverse chronological] chronological order.
2. It was enjoyable to plan the goals I need to achieve in [reverse chronological] chronological order.

Self-continuity
Think of the circle below as representing your current self. This circle includes everything about your current personality, your attitudes, values, likes and dislikes. Think of this circle as encompassing everything that you personally feel is part of your current self - in other words, everything that you consider important for defining who you are as a person now, at your current age.
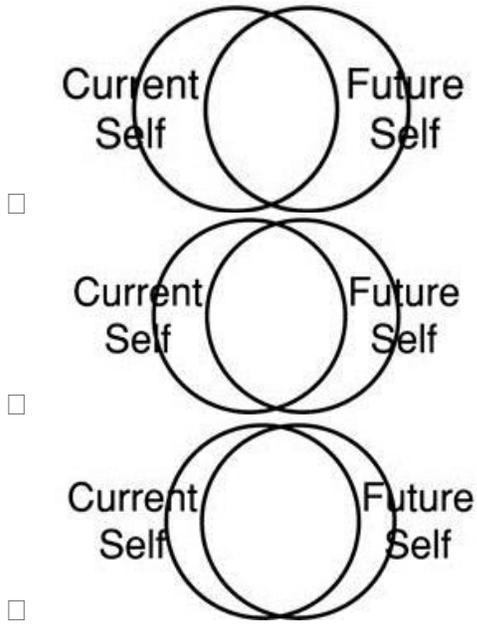
Now, think of the circle below as representing <u>your future self in 6 months</u>. This circle includes everything about your future personality, your attitudes, values, likes and dislikes. Think of this circle as encompassing everything that you personally feel is part of <u>your future self</u> - in other words, everything that you considered important for defining who you will be as a person in the future.

Please select the picture which best describes how close you currently feel to your future self. In other words, how much overlap is there between who you are now and who you will be in in 6 months?

☐

☐

☐

Clarity

Please rate the extent to which you agree with the following statements.

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

1. I am clear about the goals I need to achieve to reach my future vision.
2. I know there are a lot of goals I need to achieve to reach my future vision.
3. I have identified the important goals I need to achieve to reach my future vision.
4. The potential problems or obstacles I could encounter are clear to me.

Planning Insights

Now, we will ask you several questions about the planning exercise you completed. Please rate the extent to which you agree with the following statements.

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

1. The planning exercise helped me clarify the goals I will need to achieve to reach my future vision.
2. The planning exercise made me think of goals I need to achieve that I wouldn't have thought of otherwise.
3. The planning exercise made me break down my future vision into important goals.

4. *If you are paying attention right now, please select "Strongly disagree"*
5. The planning exercise made me think of potential problems or obstacles I could encounter.
6. The planning exercise made my future vision feel closer.

Construal

When people think about their goals, they can focus on different aspects of the goal. For example, one person may choose to focus on 'why' he or she is pursuing the goal and think about his or her reasons for finding this particular goal important. Another person may choose to focus on 'how' he or she is pursuing the goal, thinking of concrete strategies and plans to realize the goal.

When thinking about my future vision ...
- ☐ I think about how I will pursue this goal (e.g., concrete plans)
- ☐ I think about why this goal is important to me (e.g., reasons or causes)

Regulatory Focus Questionnaire (Higgins et al., 2001)

This set of questions asks you about specific events in your life. Please select the most appropriate response that reflects you.

Never or seldom 1	2	Sometimes 3	4	Very often 5

1. Compared to most people, are you typically unable to get what you want out of life?
2. Growing up, would you ever "cross the line" by doing things that your parents would not tolerate?
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?
5. *If you are paying attention right now, please select "Very often"*
6. How often did you obey rules and regulations that were established by your parents?
7. Growing up, did you ever act in ways that your parents thought were objectionable?
8. Do you often do well at different things that you try?
9. Not being careful enough has gotten me into trouble at times.
10. 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.
11. I feel like I have made progress toward being successful in my life
12. I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them.

Optimism Scale (Scheier et al., 1994)

Please rate the extent to which you agree with the following statements:

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

1. In uncertain times, I usually expect the best.
2. It's easy for me to relax.
3. If something can go wrong for me, it will.
4. I'm always optimistic about my future.
5. I enjoy my friends a lot.
6. It's important for me to keep busy.
7. I hardly ever expect things to go my way.
8. I don't get upset too easily.
9. I rarely count on good things happening to me.
10. Overall, I expect more good things to happen to me than bad.

Demographics

Please indicate your age.

_____

From the following, please select the option that best reflects your gender.
- ☐ Male
- ☐ Female
- ☐ Other (please specify)

From the following, please select the racial group with which you primarily identify.
- ☐ Non-Hispanic White, Euro-Canadian, or Euro-American
- ☐ Black, Afro-Canadian, or African American
- ☐ Latino or Hispanic
- ☐ East Asian, Asian Canadian, or Asian American
- ☐ South Asian, Indian Canadian, or Indian American
- ☐ Middle Eastern or Arab American
- ☐ First Nations Métis, Inuit, Native American, or Alaskan Native
- ☐ Other (please specify)

Appendix C
Study 3 Materials
Note. Instructions for participants in the long-term condition are represented in brackets.

<u>**Vision Description**</u>
In this study, you will be asked to think about your ideal future self in 6 months [years] - that is, your **6-month [year] vision**. We will also ask you develop a plan to achieve your 6-month [year] vision.

In this section, we would like you to take a minute to think about your **6-month [year] vision.** That is, envision your ideal future self in 6 months [years] and think about what you want your ideal life to look like. This may include your health, career, and personal achievements, social circle and family life, etc.

In the space below, please describe your 6-month [year] vision in approximately 4-6 sentences.

<u>**Planning Direction Manipulation and Planning Exercise**</u>

<u>Forward Planning Condition</u>
We would like you to spend some time developing a plan for your 6-month [year] vision. Also, we want you to develop your plan in a particular way that would be called "forward planning". Forward planning involves starting with the very first goal that needs to be accomplished and then moving onward from there in a chronological order. Try to picture your 6-month [year] vision - including details such as when, where and what you will achieve in the process - in a forward direction. Have a deadline for each goal - that is, decide by when each goal will be complete.

Begin by thinking of the very first goal you will need to accomplish and how that will be accomplished, and then think of the goal you will need to accomplish after that, and so on until you reach the very last goal that you will achieve to reach your 6-month [year] vision. Remember, these are goals that support your 6-month [year] vision.

Begin by describing the very first goal you will accomplish by the end of next month [year].
_____

1. At this point, how motivated are you to achieve your 6-month [year] vision?

Not at all 1	2	3	4	5	6	Completely 7

Now, describe the next goal you will accomplish by the end of two months [years] from now.
_____

2. At this point, how motivated are you to achieve your 6-month [year] vision?

Not at all 1	2	3	4	5	6	Completely 7

Now, describe the next goal you will accomplish by the end of three months [years] from now.

_____

3. At this point, how motivated are you to achieve your 6-month [year] vision?

Not at all 1	2	3	4	5	6	Completely 7

Now, describe the next goal you will accomplish by the end of four months [years] from now.

_____

4. At this point, how motivated are you to achieve your 6-month [year] vision?

Not at all 1	2	3	4	5	6	Completely 7

Now, describe the next goal you will accomplish by the end of five months [years] from now.

_____

5. At this point, how motivated are you to achieve your 6-month [year] vision?

Not at all 1	2	3	4	5	6	Completely 7

Lastly, describe the next goal you will accomplish by the end of six months [years] from now.

_____

6. At this point, how motivated are you to achieve your 6-month [year] vision?

Not at all 1	2	3	4	5	6	Completely 7

Backward Planning Condition
We would like you to spend some time developing a plan for your 6-month [year] vision. Also, we want you to develop your plan in a particular way that would be called "backward planning". Backward planning involves starting with the very last goal that needs to be accomplished and then moving backward from there in a reverse chronological order. Try to picture your 6-month [year] vision - including details such as when, where and what you will achieve in the process - in a backward direction. Have a deadline for each goal - that is, decide by when each goal will be complete.

Begin by thinking of the very last goal you will need to accomplish and how that will be accomplished, and then think of the goal you will need to accomplish before that, and so on until you reach the very first goal that you will achieve to reach your 6-month [year] vision.

Begin by describing the very last goal you will accomplish by the end of six months [years] from now.

_____

1. At this point, how motivated are you to achieve your 6-month [year] vision?

Not at all 1	2	3	4	5	6	Completely 7

Now, describe the next goal you will accomplish by the end of five months [years] from now.

_____

2. At this point, how motivated are you to achieve your 6-month [year] vision?

Not at all 1	2	3	4	5	6	Completely 7

Now, describe the next goal you will accomplish by the end of four months [years] from now.

_____

3. At this point, how motivated are you to achieve your 6-month [year] vision?

Not at all 1	2	3	4	5	6	Completely 7

Now, describe the next goal you will accomplish by the end of three months [years] from now.

_____

4. At this point, how motivated are you to achieve your 6-month [year] vision?

Not at all 1	2	3	4	5	6	Completely 7

Now, describe the next goal you will accomplish by the end of two months [years] from now.

_____

5. At this point, how motivated are you to achieve your 6-month [year] vision?

Not at all 1	2	3	4	5	6	Completely 7

Lastly, describe the next goal you will accomplish by the end of next month [year].
_____

6. At this point, how motivated are you to achieve your 6-month [year] vision?

Not at all 1	2	3	4	5	6	Completely 7

Motivation
In this section, we would like you to answer some questions about your 6-month [year] vision (i.e., your future vision).

Overall, how motivated are you to achieve your future vision?

Not at all 1	2	3	4	5	6	Completely 7

How likely is it that you will achieve your future vision?

Not at all 1	2	3	4	5	6	Very 7

Are you optimistic about achieving your future vision?

Not at all 1	2	3	4	5	6	Very 7

Time Pressure
Do you feel that you are short of time in achieving your future vision?

Not at all 1	2	3	4	5	6	Very 7

Task Characteristics
Note. Instructions for participants in the backward planning condition are represented in brackets.

Please rate the extent to which you agree with the following statements.

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

1. It was difficult to plan the goals I need to achieve in [reverse chronological] chronological order.
2. It was enjoyable to plan the goals I need to achieve in [reverse chronological] chronological order.

Self-continuity

Think of the circle below as representing your current self. This circle includes everything about your current personality, your attitudes, values, likes and dislikes. Think of this circle as encompassing everything that you personally feel is part of your current self - in other words, everything that you consider important for defining who you are as a person now, at your current age.
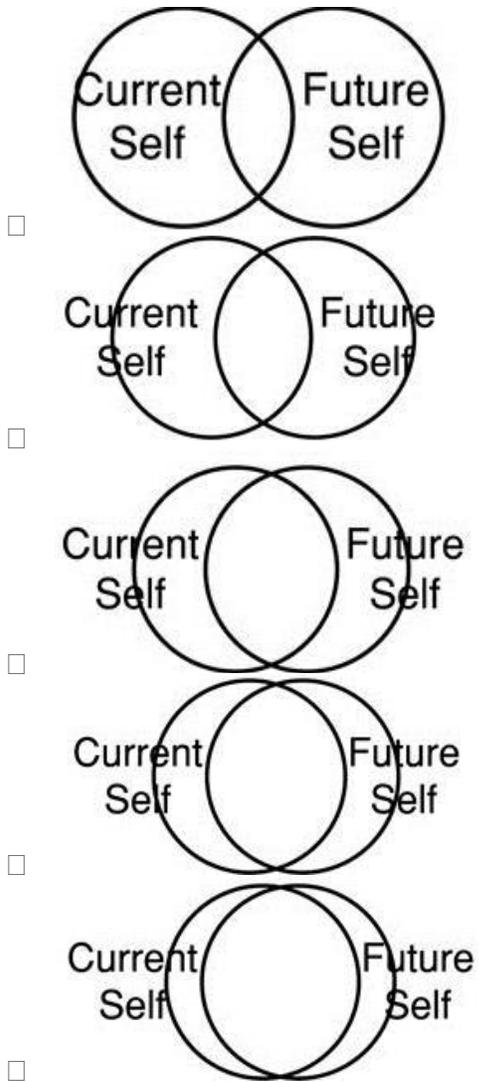
Current
Self

Now, think of the circle below as representing your future self in 6 months [years]. This circle includes everything about your future personality, your attitudes, values, likes and dislikes. Think of this circle as encompassing everything that you personally feel is part of your future self - in other words, everything that you considered important for defining who you will be as a person in the future.

Future
Self

Please select the picture which best describes how close you currently feel to your future self. In other words, how much overlap is there between who you are now and who you will be in in 6 months [years]?

Current   Future
Self   Self

☐

Current   Future
Self   Self

☐

☐ Current Self / Future Self (circles mostly separate, slight overlap)

☐ Current Self / Future Self (circles with small overlap)

☐ Current Self / Future Self (circles with moderate overlap)

☐ Current Self / Future Self (circles with large overlap)

☐ Current Self / Future Self (circles almost completely overlapping)

<u>Clarity</u>

Please rate the extent to which you agree with the following statements.

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

1. I am clear about the goals I need to achieve to reach my future vision.
2. I know there are a lot of goals I need to achieve to reach my future vision.
3. I have identified the important goals I need to achieve to reach my future vision.
4. The potential problems or obstacles I could encounter are clear to me.

Planning Insights
Now, we will ask you several questions about the planning exercise you completed. Please rate the extent to which you agree with the following statements.

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

1. The planning exercise helped me clarify the goals I will need to achieve to reach my future vision.
2. The planning exercise made me think of goals I need to achieve that I wouldn't have thought of otherwise.
3. The planning exercise made me break down my future vision into important goals.
4. *If you are paying attention right now, please select "Strongly disagree"*
5. The planning exercise made me think of potential problems or obstacles I could encounter.
6. The planning exercise made my future vision feel closer.

Construal
When people think about their goals, they can focus on different aspects of the goal. For example, one person may choose to focus on 'why' he or she is pursuing the goal and think about his or her reasons for finding this particular goal important. Another person may choose to focus on 'how' he or she is pursuing the goal, thinking of concrete strategies and plans to realize the goal.

When thinking about my future vision ...
- ☐ I think about how I will pursue this goal (e.g., concrete plans)
- ☐ I think about why this goal is important to me (e.g., reasons or causes)

Regulatory Focus Questionnaire (Higgins et al., 2001)
This set of questions asks you about specific events in your life. Please select the most appropriate response that reflects you.

Never or seldom 1	2	Sometimes 3	4	Very often 5

1. Compared to most people, are you typically unable to get what you want out of life?
2. Growing up, would you ever "cross the line" by doing things that your parents would not tolerate?
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?
5. *If you are paying attention right now, please select "Very often"*
6. How often did you obey rules and regulations that were established by your parents?
7. Growing up, did you ever act in ways that your parents thought were objectionable?

8. Do you often do well at different things that you try?
9. Not being careful enough has gotten me into trouble at times.
10. 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.
11. I feel like I have made progress toward being successful in my life
12. I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them.

Optimism Scale (Scheier et al., 1994)

Please rate the extent to which you agree with the following statements:

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

1. In uncertain times, I usually expect the best.
2. It's easy for me to relax.
3. If something can go wrong for me, it will.
4. I'm always optimistic about my future.
5. I enjoy my friends a lot.
6. It's important for me to keep busy.
7. I hardly ever expect things to go my way.
8. I don't get upset too easily.
9. I rarely count on good things happening to me.
10. Overall, I expect more good things to happen to me than bad.

Demographics

Please indicate your age.

_____

From the following, please select the option that best reflects your gender.
☐ Male
☐ Female
☐ Other (please specify)

From the following, please select the racial group with which you primarily identify.
☐ Non-Hispanic White, Euro-Canadian, or Euro-American
☐ Black, Afro-Canadian, or African American
☐ Latino or Hispanic
☐ East Asian, Asian Canadian, or Asian American
☐ South Asian, Indian Canadian, or Indian American
☐ Middle Eastern or Arab American
☐ First Nations Métis, Inuit, Native American, or Alaskan Native
☐ Other (please specify)

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