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Journal of Consumer Psychology 26, 3 (2016) 395 – 409

JCP JOURNAL OF CONSUMER PSYCHOLOGY

Research Article

Thinking concretely or abstractly: The influence of fit between goal progress and goal construal on subsequent self-regulation

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Accepted by Cornelia Pechmann and Amna Kirmani, Editors; Associate Editor, S. Christian Wheeler

Received 10 May 2013; received in revised form 9 November 2015; accepted 10 December 2015
Available online 18 December 2015

Abstract

This article examines the relationship between goal progress and construal level and its influence on subsequent goal pursuit. Using action identification theory, we hypothesized that greater perceived goal progress leads to higher-level construals and that the fit between goal progress and goal construal is more likely to enhance self-regulation than non-fit. Our findings indicate that, compared with lesser perceived goal progress, greater perceived goal progress induces higher-level construals (studies 1a–2a). Moreover, as people perceive greater goal progress, abstract goal construal (i.e., "why") is more likely to promote goal-consistent behavior than concrete goal construal (i.e., "how"; studies 2a–2b). We also observed that this fit between goal progress and goal construal influences actual self-regulatory behavior (study 3).

Keywords: Goal progress; Construal level; Goal construal; Self-regulation; Motivation

People often fail to achieve their goals, and such failure can have a substantial impact on them as well as on society. For example, a recent analysis by the *Wall Street Journal* found that most people with 401(k) plans have insufficient savings to maintain their standard of living in retirement (Browning, 2011). Many of these people will need to work longer than expected and to rely on Social Security and Medicare at a time when the future of these government programs has become uncertain (Browning, 2011). People also have difficulty achieving their health goals. More than two-thirds of adults in the United States are overweight or obese (National Institutes of Health, 2012), and the majority are not satisfied with their progress toward losing or maintaining their weight (International Food Information Council Foundation, 2011). Personal health consequences of being overweight include increased risk of heart disease, diabetes, and cancer (National Institutes of Health, 2012). Societal consequences of obesity include $147 billion a year in increased health care costs in the United States alone, representing almost 10% of all medical spending (Finkelstein, Trogdon, Cohen, & Dietz, 2009).

Given the importance of these problems, a substantial amount of research has investigated and identified conditions that lead people to engage in or disengage from their goals (Fishbach & Dhar, 2005; Fishbach, Dhar, & Zhang, 2006; Fishbach & Zhang, 2008; Louro, Pieters, & Zeelenberg, 2007). Accumulated evidence from studies based on control theory (Carver & Scheier, 1982, 1990; Lord & Levy, 1994) and on expectancy value theories of motivation (Atkinson, 1957; Louro et al., 2007) shows that both high and low progress can decrease motivation. In this article, we propose that high (low) goal progress can lead to *either* increased or decreased motivation depending on the level at which people construe their goal pursuit. We suggest this happens because higher levels of construal become prepotent at high levels of goal progress whereas lower levels of construal become prepotent at lower levels of goal progress. We further propose that people are more likely to engage in goal-congruent behavior when the level of their goal pursuit construal matches their level of goal

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http://dx.doi.org/10.1016/j.jcps.2015.12.003

progress. Specifically, we predict that people perceiving greater progress are more likely to engage in goal-congruent behavior by construing their goal pursuit in an abstract manner relative to a concrete manner. Conversely, people perceiving lesser progress are more likely to engage in goal-congruent activities by construing their goal pursuit in concrete terms relative to abstract terms. The major contributions of this article are showing that people's mental construal is influenced by goal progress and demonstrating that subsequent self-regulation is affected by an interaction between goal progress and level of goal construal.

In the following section, we first review the literature on the relationship between goal progress and subsequent goal pursuit. Then drawing from the literature of the construal level theory (Trope, Liberman, & Wakslak, 2007) and that of the action identification theory (Vallacher & Wegner, 1985, 1987), we formulate our research questions.

Theoretical framework

Impact of goal progress on subsequent self-regulation

Goals can be defined as "internal representations of desired states" (Austin & Vancouver, 1996, p. 338), and they are often represented in terms of progress or movement toward some abstract, desired state (Fishbach & Dhar, 2005). In particular, research based on control theory (Carver & Scheier, 1982, 1990) describes how monitoring a temporary discrepancy between the current state and the reference state influences subsequent self-regulation. The main insight from this research is that high goal progress induces a sense of goal attainment and thus signals that less effort is needed (Carver & Scheier, 1990). As a result, people are likely to decrease their investments in time and effort when they perceive sufficient goal progress. Relatedly, in the presence of multiple goals, research on the dynamics of self-regulation demonstrates that people are more likely to disengage from a focal goal as they experience greater goal progress on this goal. For example, Fishbach and Dhar (2005) induced different levels of goal progress by asking participants to indicate the amount of effort they had devoted to pursuing their academic goals compared to high versus low standards and found that greater goal progress led people to engage in activities that were inconsistent with a focal goal. Although work informed by control theory suggests that motivation is lowest at high levels of goal progress, other work indicates that motivation can be also lowest at low levels of goal progress.

For instance, Schmidt, Dolis, and Tolli (2009) posit that people tend to disengage from a focal goal when facing adversity in the course of goal pursuit because lack of progress indicates that continued investments in time and effort are unlikely to pay off in the end. This prediction that low progress can negatively affect goal pursuit is also well reflected in the expectancy value theories of motivation (Atkinson, 1957; Louro et al., 2007). Specifically, the expectancy value theories of motivation postulate a curvilinear relationship between goal expectancy and motivation, with motivation being highest at moderate levels of goal expectancy and at lowest at low and high levels of goal expectancy, respectively (Atkinson, 1957; Louro et al., 2007). Considering a positive relationship between goal expectancy and goal progress (Schmidt et al., 2009), this curvilinear relationship implies that both high and low progress undermine motivation. Combined, these studies raise important questions about how high (low) goal progress can lead to decreased motivation as well as how to best motivate people. The present research addresses these questions.

In the present research, we define goal progress as movement toward some desired state (Fishbach & Dhar, 2005). According to control theory (Carver & Scheier, 1990), people sense their progress toward a goal by assessing the discrepancy between the current state and the reference state over the course of goal pursuit. Consistent with previous research (e.g., Fishbach & Dhar, 2005), we thus assume that perceptions of goal progress can be affected by comparisons with a reference value such as ideal movement or social comparison. For example, according to this definition, if a person spent more time exercising than a reference value (e.g., personal expectations or social comparisons), he or she would perceive greater goal progress than if he or she spent less time than a reference value. In the next section, we review the relationship between goal progress and construal level and develop our research hypotheses.

Relationship between goal progress and construal level

Construal level theory posits that any action can be construed at either concrete or abstract levels depending on psychological distance. Concrete construals are contextualized representations that answer the question of how an action is to be performed, and abstract construals are decontextualized and answer the question of why an action is performed (Dhar & Kim, 2007; Trope et al., 2007). In accordance with construal level theory, action identification theory postulates that any action can be organized in a cognitive hierarchy, from low-level identities pertaining to how one acts to high-level identities pertaining to why one acts (Vallacher & Wegner, 1987).

Furthermore, action identification theory advocates the existence of an optimal level of identification, whereby identification level shifts in order to perform or maintain actions effectively (Houser-Marko & Sheldon, 2008; Vallacher & Wegner, 1987). To illustrate, consider different stages of learning golf. People generally want to understand the larger meanings of their actions, such as "enjoying playing goal" (Vallacher & Wegner, 1985, 1987; Wegner & Vallacher, 1986). However, if a person experiences failure or difficulty "driving a golf ball to the green," then "enjoying playing golf" is desirable but ineffective in the sense that the player's capacity to carry out such an action may simply be lacking. Thus, the theory posits that when performance of an action is poor, conscious concern shifts to the details of the action, perhaps thinking about "keeping one's eye on the ball" or "getting a good grip on the club" (Wegner & Vallacher, 1986, p.556). When a person can successfully perform an action, however, low-level identifications tell only pieces of a complete action, leading to ineffective performance of the complete action. Therefore, the theory asserts that people's

attention moves to a higher level of identification once people can successfully perform intended acts. That is, when a person can successfully drive a golf ball, thoughts may shift to "playing golf" or "winning the game," an ultimate reason for wanting to be able to drive the ball properly.

Research has shown that these conclusions also hold for a non-skill-related task (Vallacher & Wegner, 1987). For example, Wegner, Vallacher, Macomber, Wood, and Arps (1984) asked participants to drink coffee by using one of two different cups – a normal cup and an unwieldy cup weighing about one pound – and measured their identification of drinking coffee. They found that participants who used the normal cup were likely to endorse higher-level identities such as "prompting my caffeine habit" or "getting energized," which convey general meanings of the act. On the other hand, participants who used the unwieldy cup tended to give strong endorsement to lower-level identities such as "lifting a cup to my lips" or "swallowing," which convey the details or specifics of the act. A number of subsequent studies have further demonstrated that poor, unsuccessful performance, increased difficulty of enactment, complexity (i.e., variety of means or subacts), familiarity, enactment time, and learning time (i.e., the amount of time it takes to learn to do the action well) can move people to lower levels of identification (Vallacher & Wegner, 1987; Vallacher, Wegner, & Frederick, 1987). For instance, in Vallacher et al.'s (1987) study, participants received different levels of performance feedback (i.e., success vs. failure) on their artwork and rated how well each of the forty-four identities of drawing behavior described their earlier drawing behavior (e.g., "I created a work of art" and "I moved my hands"). They found that participants who thought they performed better than other students tended to describe their drawing behavior in higher-level terms (e.g., "I created a work of art") than did those who thought they performed poorer compared to other students. This accumulated evidence of research grounded in action identification theory indicates that performance level (e.g., performing better than others vs. performing poorer relative to others) is associated with mental construal and that an optimum level exists, whereby individuals construe an action at the level that helps them to effectively perform it. In the process of goal pursuit, this suggests that people making low, unsuccessful progress may pay more attention to specific means or subacts that are necessary and helpful to move toward their goals (a lower level of construal). On the other hand, people making high, successful progress will not find it necessary to search for further means or consider subacts, rather they will be likely to consider the general meaning or value of their goal (a higher level of construal). On this basis, we hypothesize the following:

H1. Greater perceived goal progress will lead to higher levels of construal than lesser perceived goal progress.

Influence of fit between goal progress and goal construal

Theories of mental construal generally distinguish between two different aspects associated with goal-directed actions, desirability, and feasibility (Bagozzi & Dholakia, 1999; Liberman & Trope, 1998). Desirability concerns the end state of an action, whereas feasibility pertains to the ease or difficulty of reaching the end state (Liberman & Trope, 1998). Also, in the language of action identification theory, desirability refers to the "why" of an action, which reflects the abstract, high-level aspects of an action, whereas feasibility corresponds to the "how" of an action, which mirrors the concrete, low-level aspects of an action (Liberman & Trope, 1998; Vallacher & Wegner, 1987). In the previous section, we proposed that greater perceived goal progress would draw people's attention to more abstract, higher levels of construal. Based on this relationship, we further propose that matching the primary aspects of goal pursuit (i.e., abstract and concrete aspects) with people's goal progress will influence engagement in the focal goals and subsequent self-regulation. Support for this so-called fit effect can be found the regulatory engagement theory (Higgins, 2006; Higgins, Camacho, Idson, Spiegel, & Scholer, 2008; Higgins & Scholer, 2009), which well describes the motivational influences of fit via the experience of engagement.

The regulatory engagement theory suggests that people experience motivational force when they engage in choices or decisions with strategies that fit their motivational orientation (Higgins, 2006). More specifically, it postulates that pursuing one's goal in a right or proper way influences the subsequent value of the goal, especially by intensifying the force of attraction toward the goal. For instance, Higgins et al. (2008) argued that whether the process of goal pursuit is considered by the actor as the proper or right way to pursue the goal in the given circumstances influences engagement as well as the value of their choice or decision. In line with this notion, recent studies have observed fit effect in consumer contexts (e.g. Labroo & Patrick, 2009, Lee, Keller, & Sternthal, 2010).

For instance, Lee et al. (2010) proposed that promotion-focused people tend to construe information at an abstract, high level whereas prevention-focused people tend to construe information at a concrete, low level. From this relationship, they further speculated that a correspondence between one's regulatory orientation and the level at which he or she construed the information would stimulate an experience of engagement that in turn would enhance processing persuasion. In one study, they induced regulatory mind-sets and then asked participants to evaluate a fictitious brand whose advertisement was described in terms of either an abstract, high-level construal (i.e., "why one should exercise") or a concrete, low-level construal (i.e., "how one should exercise"). They found that participants evaluated the brand more favorably when they reviewed the advertisement construed at the level that fit their regulatory focus than at the level that did not fit their regulatory focus due to the experience of engagement (e.g., feeling motivated).

Over the course of goal pursuit, people often think of why they pursue a goal as well as how to pursue the goal. On the basis of action identification theory, we predict that goal progress affects construal level and that this affects how they think about goal pursuit. Thus, depending on mental construal, there will be more and less appropriate manners people

consider in pursuing their goals. More precisely, we anticipate that because people tend to think more abstractly as they perceive greater progress, an abstract, superordinate level of their goal pursuit (i.e., abstract goal construal) will fit their mental construal and be perceived to be appropriate. On the other hand, people perceiving lesser progress may think more concretely, and thus concrete goal construal will fit their mental construal and considered appropriate. Following the notion that fit (appropriateness) effects increase goal engagement, we expect that the influence of perceived goal progress on self-regulation will depend on the level of goal construal.

H2. Relative to concrete goal construal, abstract goal construal will enhance subsequent self-regulation when perceived goal process is high but it will diminish subsequent self-regulation when perceived goal progress is low.

Five studies tested these hypotheses. Study 1 investigates the relationship between goal progress and construal level. Specifically, study 1a demonstrates that people who perceive greater progress tend to think at a more abstract, higher level by using a fewer number of groups when categorizing objects than people who perceive lesser progress. Study 1b provides further evidence on this relationship by showing that greater progress draws people's attention to more abstract aspects (i.e., "why") of goal pursuit than concrete aspects (i.e., "how").

Given the relationship between goal progress and mental construal, studies 2 and 3 examine the motivational influence of fit between goal progress and goal construal across different domains of self-regulation. Study 2a illustrates that fit between goal progress and abstract (i.e., "why") versus concrete (i.e., "how") thinking of pursuing an academic goal enhances goal-related efforts, whereby abstract (concrete) thinking leads people perceiving greater (lesser) progress to expend more effort toward a goal-congruent activity. Study 2b further examines the influence of fit on the subsequent pursuit of a goal-related action in the domain of money management. Lastly, study 3 replicates the findings of study 2 and shows that the fit between goal progress and goal construal influences actual self-regulatory behavior.

Study 1

Study 1 investigated how goal progress influences construal level. Previous research suggests that people often receive valuable feedback regarding their own progress through comparison to others who pursue similar goals (e.g., Mussweiler, 2003). Thus, following prior studies (Fishbach & Dhar, 2005; Fishbach et al., 2006), we manipulated goal progress through social comparison. We predicted that comparison with a low social standard (e.g., 1 h of exercise during the previous week) would induce greater perceived progress toward a fitness goal than comparison with a high social standard (e.g., 10 h of exercise). After manipulating goal progress, we examined its influence on construal level in multiple ways. In study 1a, we used a classification task (Liberman, Sagristano, & Trope, 2002), in which participants classified objects into categories. Researchers often use this classification task to measure construal level based on the premise that an abstract, higher-level construal leads to broader, more inclusive categories. Therefore, when people adopt an abstract, higher-level construal, they tend to use fewer categories to classify objects. In study 1b, we examined the influence of goal progress on cognitive shifts regarding the focal goal primed in the study as well as a set of unrelated actions. The premise for the focal goal was that more thoughts concerning abstract aspects (i.e., outcome or value) should appear in the high progress condition, whereas more thoughts concerning concrete aspects (i.e., means or subacts) should appear in the low progress condition. Then in a supposedly unrelated task, the 25-item Behavioral Identification Form (BIF; Vallacher & Wegner, 1989) was used as an additional assessment of construal level. The BIF questionnaire includes 25 activities, followed by two statements. One statement describes the activity on a low level of construal, and the other statement describes the activity on a high level of construal. For example, "locking a door" is followed by (1) "putting a key in the lock" (concrete construal) and (2) "securing the house" (abstract construal).

Study 1a

Methods

Seventy-seven undergraduate students (49 were male; M_{age} = 21.23) were randomly assigned to one of the two conditions (goal progress: high vs. low). On arrival, participants were informed that prior participants answered only the first item and that we were reusing their papers. When they received their booklets, participants first reported the amount of time they had spent working out during the previous week. On the following page, they found the fictitious participant's response for the amount of time he or she had spent exercising over the previous week. Depending on the experimental condition, the fictitious participant's response was either 1 h (low standard; high perceived progress) or 10 h (high standard; low perceived progress). As a manipulation check, participants also indicated their perceived goal progress on a 7-point scale (1 = no progress; 7 = a lot of progress).

Labroo and Patrick (2009) showed that positive mood evokes abstract, high-level construals. Considering the possibility that goal progress might induce affect, which would then influence construal level, we measured affect using eight items (e.g., "I feel proud of myself," "I feel regretful"; Louro et al., 2007). We asked participants to indicate their feelings toward their goal pursuit on 7-point scales (1 = not at all; 7 = very much). Participants then performed a classification task (Liberman et al., 2002), in which they classified items for each of two scenarios (i.e., going camping and organizing a yard sale) into groups. For the camping scenario, participants were asked to imagine that they were going with their family on a camping trip and were thinking about what to bring. They then placed objects (see Appendix A for the complete list of objects) into groups by writing down which objects belonged together and circling the objects that belonged in the same group. Because a higher-level construal allows people to think more abstractly and categorize objects in a more inclusive way, we predicted that high goal progress would lead to a

higher-level construal, which in turn would lead people to use fewer categories to classify objects than low goal progress.

Results

Our manipulation of perceived goal progress worked as expected. Although the actual amount of time spent working out was not significantly different in the high ($M_{\text{high progress}} = 5.02$) and low ($M_{\text{low progress}} = 4.30$; $F(1, 75) = 0.61, p = 0.44$) progress conditions, participants exposed to the low social standard (1 h, $M_{\text{high progress}} = 4.41$) perceived greater progress than those exposed to the high social standard (10 h, $M_{\text{low progress}} = 3.65$; $F(1, 75) = 3.99, p < 0.05$).

In the classification task, participants categorized given items into groups for two different scenarios. Thus, each participant had two dependent variables – one for each scenario – both of which measure construal level. To test whether goal progress affected construal level, we conducted a multivariate analysis of variance (MANOVA) on the numbers of categories in the camping trip and yard sale scenarios, with goal progress condition as the independent variable. Consistent with hypothesis 1, there was a significant effect of condition on the number of categories ($F(2, 74) = 4.35, p < 0.02$). Participants in the high progress condition used fewer categories to classify items than participants in the low progress condition for both the camping trip ($M_{\text{high progress}} = 5.16$, $M_{\text{low progress}} = 6.12$; $F(1, 75) = 5.32, p < 0.03$) and the yard sale scenarios ($M_{\text{high progress}} = 5.24$, $M_{\text{low progress}} = 6.52$; $F(1, 75) = 8.32, p < 0.01$, see Table 1). Also, the findings were unchanged and remained significant ($M_{\text{camping trip \& high progress\_adjusted}} = 5.17$, $M_{\text{camping trip \& low progress\_adjusted}} = 6.12$, $M_{\text{yard sale \& high progress\_adjusted}} = 5.27$, $M_{\text{yard sale \& low progress\_adjusted}} = 6.50$; $F(2, 73) = 4.02, p < 0.03$) when running this analysis with the amount of time spent working out as a covariate. These findings provide evidence supporting the hypothesis that greater perceived goal progress leads to higher-level construals.

Consistent with action identification theory (Vallacher & Wegner, 1987), these results suggest that people focus on a global perspective when they perceive they have made high goal progress, whereas they focus on specifics and details when they perceive they have made low goal progress.

We also tested whether affect mediated the relationship between goal progress and construal level since recent research suggests that positive affect leads people to adopt abstract, high-level construals (Labroo & Patrick, 2009). We found that goal progress evoked more positive affect; in contrast, however, we did not find evidence that affect mediated the relationship between goal progress and construal level (see Appendix B). Our results suggest a direct impact of goal progress on construal level that is not mediated by affect.

Table 1
Means, covariate-adjusted means, and standard errors combining all studies.

	Goal progress					
	High progress			Low progress		
	N	*M*	*SE*	*N*	*M*	*SE*
Study 1a						
Camping trip	37	5.16	0.26	40	6.12	0.32
($F[1, 75] = 5.32, p < 0.03$)						
Yard sale	37	5.24	0.24	40	6.52	0.37
($F[1, 75] = 8.32, p < 0.01$)						
Study 1b						
Ratio of "why" thoughts	43	0.47	0.06	36	0.27	0.06
Ratio of "how" thoughts	43	0.24	0.05	36	0.41	0.06
Number of "why" thoughts	43	2.42	0.33	36	1.69	0.39
Number of "how" thoughts	43	1.37	0.33	36	2.33	0.48
($F[2, 76] = 3.04, p = 0.05$)						
BIF	43	16.86	0.81	38	14.39	1.08
($F[1, 79] = 3.44, p < 0.07$)						
Study 2a						
BIF	58	16.55	0.70	58	15.00	0.61
($F[1114] = 2.81, p < 0.10$)						
BIF (adjusted means and SEs)	58	16.67	0.65	58	14.88	0.65
($F[1113] = 3.80, p = 0.05$)						
Abstract construal	29	4.48[a]	0.36	29	3.52[b]	0.27
Concrete construal	29	3.28[a]	0.34	31	4.16[b]	0.27
($F[1, 114] = 8.82, p < 0.01$)						
Abstract construal (adjusted means and SEs)	29	4.59	0.29	29	3.51	0.28
Concrete construal (adjusted means and SEs)	29	3.37	0.29	31	3.98	0.28
($F[1, 113] = 8.94, p < 0.01$)						
Study 2b						
Abstract construal	23	3.62	0.45	21	4.64[a]	0.48
Concrete construal	24	4.70	0.52	24	3.27[a]	0.45
($F[1, 88] = 6.56, p < 0.02$)						
Study 3						
Abstract construal	26	13.41[a]	2.20	26	21.69	2.69
Concrete construal	27	19.96[a]	2.48	24	16.96	2.75
($F[1, 101] = 4.98, p < 0.03$)						
Abstract construal (adjusted means and SEs)	26	13.53	2.58	26	21.72	2.61
Concrete construal (adjusted means and SEs)	27	19.94	2.55	24	16.63	2.68
($F[1, 98] = 4.94, p < 0.03$)						

Note. Covariate adjusted means and standard errors are included for study 2a and study 3.

[a] Significant differences at $p \leq 0.05$ between abstract and concrete goal construals in the high or low progress condition.

[b] Marginally significant differences at $p < 0.10$ between abstract and concrete goal construals in the high or low progress condition.

Study 1b

Methods

Eighty-one people from a large online subject pool (35 were males; $M_{\text{age}} = 33.44$) were randomly assigned to 2 conditions (goal progress: high vs. low).

First, we asked participants to provide their fitness goals in an open-ended question. They then specified the number of days they had exercised over the previous week. Then we manipulated perceived goal progress using low versus high standards (Fishbach & Dhar, 2005). All participants were given an article discussing Americans' workout habits. The article used in the high progress condition set a relatively low workout reference point and was entitled "Majority of Americans Exercise Less than Two Days a Week." The article in the low

progress condition, on the other hand, set a relatively high workout reference point and was entitled "Majority of Americans Exercise More than Five Days a Week." As in study 1a, participants indicated their perceived goal progress on a 7-point scale (1 = no progress; 7 = a lot of progress). Then to examine whether different levels of perceived goal progress draw people's attention to different aspects of goal pursuit, we asked participants to list thoughts that came to their mind as they considered the pursuit of their fitness goals. Following this thought generation task, participants completed the BIF questionnaire (Vallacher & Wegner, 1989).

To investigate the possible impact of involvement, we also measured the level of involvement in thought generation using two items ("To what extent were you trying hard to list your thoughts?" and "How much effort did you put into listing your thoughts?") on a seven-point scale (1 = not at all; 7 = very much). Finally, participants provided their demographic information.

Results

The manipulation of goal progress worked successfully. Although the number of days exercising over the previous week was not significantly different in the high ($M_{\text{high progress}} = 3.19$) and low ($M_{\text{low progress}} = 2.68$; $F(1, 79) = 1.16$, $p = 0.29$) progress conditions, perceived goal progress was greater in the high progress condition than in the low progress condition ($M_{\text{high progress}} = 4.58$, $M_{\text{low progress}} = 3.63$; $F(1, 79) = 6.06$, $p < 0.02$). Furthermore, no significant difference in involvement in the thought generating task ($\alpha = 0.87$) was found ($M_{\text{high progress}} = 5.47$, $M_{\text{low progress}} = 5.43$; $F = 0.01$, $p = 0.92$).

Goal progress and the aspects of goal pursuit

To explain the link between goal progress and construal level, we examined the types of thoughts participants listed when considering their goal pursuit. On average, participants listed about six thoughts ($M = 5.64$, $SD = 2.45$). Three judges, who were unaware of the hypotheses and experimental conditions, coded listed thoughts. We first asked two judges to classify each of the participant's thoughts into one of three categories, abstract (i.e., "why" one pursues a fitness goal), concrete (i.e., "how" to pursue a fitness goal), or other (Kappa = 0.751), and then asked a third judge to re-code conflicts between the two judges. We calculated ratios of abstract thoughts and concrete thoughts for each participant by dividing the number of abstract or concrete thoughts by the entire number of thoughts including abstract, concrete, and other thoughts. Two participants were dropped from the subsequent analysis because they listed no abstract or concrete thoughts. Finally, we performed a MANOVA on these two measures depending on goal progress. In support of our prediction that greater goal progress draws people's attention to more abstract aspects of their goal pursuit, participants in the high progress condition listed a larger proportion of abstract thoughts ($M_{\text{ratio}} = 0.468$, $M_{\text{thoughts}} = 2.42$) than concrete thoughts ($M_{\text{ratio}} = 0.244$, $M_{\text{thoughts}} = 1.37$). Conversely, participants in the low progress condition generated a greater proportion of concrete thoughts ($M_{\text{ratio}} = 0.408$, $M_{\text{thoughts}} = 2.33$) compared to abstract thoughts ($M_{\text{ratio}} = 0.267$, $M_{\text{thoughts}} = 1.69$; $F(2, 76) = 3.04$, $p = 0.05$; see Table 1). These results suggest that goal progress leads people to focus on different aspects (abstract vs. concrete) of goal pursuit.

Influence of goal progress on construal level

We first calculated participants' BIF scores. Participants' responses were specified as binary variables, in which we coded high-level construal as 1 and low-level construal as 0. Then we summed each participant's responses across the 25 items to obtain a BIF score. The result of an analysis of variance (ANOVA) examining the influence of goal progress (i.e., high vs. low levels) on the BIF scale was significant. Supporting hypothesis 1, participants in the high progress condition ($M_{\text{high progress}} = 16.86$) showed higher levels of construal than participants in the low progress condition ($M_{\text{low progress}} = 14.39$), and the difference was marginally significant ($F(1, 79) = 3.44$, $p < 0.07$; see Table 1). In addition, participants' thoughts and the BIF scale were significantly correlated ($r_{\text{abstract thoughts}} = 0.251$, $p < 0.03$; $r_{\text{concrete thoughts}} = -0.282$, $p < 0.02$). A bootstrap analysis (Preacher & Hayes, 2004; Zhao, Lynch, & Chen, 2010) further showed that the mean indirect effect of the thought ratio ("why" thoughts) was significant ($M = 3.089$), with a 95% confidence interval excluding zero (0.0106 to 2.1168). This suggests that goal progress influenced participants' thoughts regarding goal pursuit, which in turn affected the BIF scale. Consistent with the findings in study 1a, this result indicates that greater goal progress leads to a higher-level construal compared with lesser goal progress.

Discussion

The results of study 1 indicate that people tend to think more abstractly as they perceive greater progress. In study 1a, we used a classification task which was not directly relevant to the domain of self-regulation primed in the study to examine people's construal level. This raises a question whether the effects of goal progress on an unrelated task was carried over by the shifts in mental construal of focal goal pursuit. We addressed this question in study 1b by examining whether people focused on abstract versus concrete aspects of their goal pursuit in different goal progress conditions. The results revealed that greater progress tended to shift people's attention to abstract, superordinate aspects rather than concrete, subordinate aspects of goal pursuit. In addition, the results of the BIF scale showed that greater progress increased construal level, supporting Vallacher and Wegner's (1987) contention that task performance directs cognitive attention to different levels of identification. Taken together, these results suggest that greater perceived goal progress increases construal level.

Action identification theory has proposed several determinants of identification level, including the level of performance, action difficulty, complexity, familiarity, enactment time, and learning time (Vallacher & Wegner, 1987; Vallacher et al.,

1987). We assume that individuals perceiving greater progress tend to think abstractly as greater goal progress triggers a sense of success in goal pursuit, which allows higher-level, more comprehensive understanding of goal pursuit. On the other hand, individuals perceiving low progress will sense unsuccessful goal pursuit and seek for alternative means and subacts to more effectively pursue their goals. However, there are other potential explanations. For example, one may argue that individuals justify high progress by inferring that they put a lot of effort into an important focal goal or that they justify low progress by inferring that the goal was unimportant to them.

We ran a follow-up study to confirm this underlying process. One hundred fourteen people who had a weight loss goal were recruited from a large online subject pool (37 were males; M_{age} = 35.53) and randomly assigned to 2 conditions (goal progress: high vs. low). We first activated the focal goal by asking participants to specify their weight management goal and their weight at the moment. Then participants filled in a scale to indicate the number of pounds that they desired to lose in either a wide scale (50 lb; high progress condition) or a narrow scale (10 lb; low progress condition). Next, participants reported perceived goal progress, success, and belief of using a correct approach to their goal pursuit on a seven-point scale. In order to test alternative explanations, we also measured the amount of effort that participants perceived to have made, difficulty of goal pursuit, and goal importance.

The number of pounds that participants desired to lose did not significantly differ in two conditions ($M_{high\ progress}$ = 24.89, $M_{low\ progress}$ = 29.75; $F(1, 112) = 1.01$, $p = 0.32$). Participants in the high progress condition perceived greater goal progress ($M_{high\ progress}$ = 4.05) than those in the low progress condition ($M_{low\ progress}$ = 3.25; $F(1, 112) = 6.20$, $p < 0.02$), confirming the success of the goal progress manipulation. More importantly, participants in the high progress condition perceived greater success in their goal pursuit ($M_{high\ progress}$ = 4.47) than those in the low progress condition ($M_{low\ progress}$ = 3.37; $F(1, 112) = 12.21$, $p < 0.01$; $d = -0.65$). Compared with participants in the low progress condition ($M_{low\ progress}$ = 3.72), those in the high progress were more likely to think that they had been using a correct approach ($M_{high\ progress}$ = 4.49; $F(1112) = 5.50$, $p < 0.03$; $d = -0.44$). Perceived success ($r = 0.835$, $p < 0.001$) and the perception of using a correct approach to goal pursuit ($r = 0.723$, $p < 0.001$) were also significantly correlated with perceived goal progress.

In contrast to the above process measures, the evidence for other process measures, effort and difficulty, is weaker. The amount of effort that participants believed to have made was marginally greater for those in the high progress condition ($M_{high\ progress}$ = 4.77) than those in the low progress condition ($M_{low\ progress}$ = 4.09; $F(1, 112) = 3.42$; $p < 0.07$). Also, participants in the high progress condition felt marginally less difficulty in their goal pursuit ($M_{high\ progress}$ = 4.60) than those in the low progress condition ($M_{low\ progress}$ = 5.14; $F(1, 112) = 3.44$, $p < 0.07$). Participants in the high progress condition tended to consider their weight loss goal more important ($M_{high\ progress}$ = 5.67) than those in the low progress condition ($M_{low\ progress}$ = 5.23), but the difference was not statistically significant ($F(1, 112) = 2.53$, $p = 0.12$). According to these results, the sense of success and belief of using a correct approach seem to be the most likely explanations for the relationship between goal progress and construal level. However, these results do not completely rule out alternative explanations of the link between goal progress and construal level.

One important issue unaddressed in Studies 1a and 1b is how the understanding of the relationship between goal progress and construal level benefits consumer welfare. In the following studies, we examined how these findings affect subsequent self-regulation.

Study 2

In study 2, we tested our proposition that abstract thinking will be more likely to motivate people to engage in goal-congruent behavior than concrete thinking when people perceive greater goal progress, and that concrete thinking will be more likely to motivate people to engage in goal-congruent actions than abstract thinking when people perceive lesser goal progress. To test this prediction, we asked participants to consider concrete (i.e., "how") or abstract (i.e., "why") aspects of their goal pursuit and then to report their intention to engage in a goal-congruent activity. We predicted that participants in the high progress condition would be more likely to behave in a way congruent with their goals when considering their goal pursuits at an abstract level, whereas participants in the low progress condition would be more likely to behave in such a way when considering their goal pursuits at a concrete level.

Additionally, study 2a intends to show the goal progress effects on construal in study 1 are robust using a different goal, an academic goal. Furthermore, unlike study 1, which used external standards of comparison to manipulate goal progress, study 2a used an internal standard. More specifically, we asked participants to indicate the amount of time they had spent studying in the previous day and manipulated goal progress by having them fill in their response with either a narrow scale or a wide scale. Consistent with prior research (Fishbach & Dhar, 2005), we predicted that participants would perceive greater progress when they indicated the time spent on the narrow scale (which had 2 h as its end point) than on the wide scale (which had 8 h as its end point). To check the impact of perceived goal progress on construal level, we used the BIF questionnaire as we did in study 1b.

Study 2a

Methods

One hundred twenty-five undergraduate students participated in this study (36 were male; M_{age} = 19.40), but seven participants did not properly fill out the scale, which was used for the goal progress manipulation. Thus, one hundred eighteen were included in further data analyses (34 were male; M_{age} = 19.31). Participants were randomly assigned to a 2 (goal progress: high vs. low) × 2 (goal construal: abstract vs. concrete) between-subjects design.

First, we asked participants to provide their most important academic goal at the moment in an open-ended question. They then specified the amount of time they had spent studying in the previous day. We induced a sense of goal progress using two scales with different end points (2 h vs. 8 h; Fishbach & Dhar, 2005). Participants in the high progress condition indicated the amount of time they had spent studying on a narrow scale, and participants in the low progress condition indicated the amount of time on a wide scale. We further instructed them to fill in the entire scale if their time spent studying went beyond the end point. Next, participants indicated their perceived goal progress on a 7-point scale (1 = no progress; 7 = a lot of progress). Participants then completed the BIF questionnaire (Vallacher & Wegner, 1989).

Following the BIF questionnaire, we randomly assigned participants to two goal construal conditions to test the motivational influence of fit between goal progress and goal construal. In the abstract goal construal condition, participants were asked to write about why they should study for their course work, whereas in the concrete goal construal condition, they were asked to write about how they should study for their course work. We then asked participants to specify the amount of time they would spend studying that night, which reflects subsequent self-regulation. Finally, participants provided their demographic information.

Results

Our goal progress manipulation worked as expected. The actual amount of time spent on course work was lower in the high progress condition ($M_{\text{high progress}} = 3.92$) than in the low progress condition ($M_{\text{low progress}} = 4.54$), although this was not significant ($F(1, 116) = 2.07$, $p = 0.15$). Also, the amount of time spent on course work was not significantly different in the abstract and concrete goal construal conditions ($M_{\text{abstract construal}} = 4.08$, $M_{\text{concrete construal}} = 4.38$; $F(1, 116) = 0.48$, $p = 0.49$). In contrast, perceived goal progress was marginally greater in the high progress condition ($M_{\text{high progress}} = 5.69$) than in the low progress condition ($M_{\text{low progress}} = 5.35$; $F(1, 116) = 3.18$, $p < 0.08$), and this difference became significant after entering the number of hours spent on course work on the previous day as a covariate ($M_{\text{high progress\_adjusted}} = 5.72$, $M_{\text{low progress\_adjusted}} = 5.32$; $F(1, 115) = 4.47$, $p < 0.04$).

Influence of goal progress on construal level

We calculated participants' BIF scores to examine hypothesis 1, that greater perceived goal progress would lead to high levels of construal, following the same procedure used in study 1b. Two participants were excluded in the analysis because they did not complete the BIF questionnaire. An ANOVA examining the influence of goal progress (i.e., narrow vs. wide scales) on the BIF scale revealed a significant difference in the BIF scores in high and low progress conditions. Consistent with our hypothesis, participants in the high progress condition showed marginally higher levels of construal ($M_{\text{high progress}} = 16.55$) than participants in the low progress condition ($M_{\text{low progress}} = 15.00$; $F(1, 114) = 2.81$, $p < 0.10$; see Table 1). The difference became significant when the amount of time spent on course work on the previous day was included as a covariate ($M_{\text{high progress\_adjusted}} = 16.67$, $M_{\text{low progress\_adjusted}} = 14.88$; $F(1, 113) = 3.80$, $p = 0.05$). These results provide additional evidence that compared with lesser goal progress, greater goal progress leads to a higher-level construal.

Fit effects on expenditure of effort

We measured the amount of time participants intended to spend studying for course work to assess whether fit between goal progress and goal construal influenced subsequent self-regulation. An ANOVA results revealed the predicted pattern of the interaction ($F(1, 114) = 8.82$, $p < 0.01$). Participants in the high progress condition planned to spend significantly more time studying that night after abstract (vs. concrete) thinking about their academic goals ($M_{\text{abstract construal}} = 4.48$, $M_{\text{concrete construal}} = 3.28$; $t(56) = -2.44$, $p < 0.02$) than participants in the low progress condition who planned to spend marginally more time after concrete (vs. abstract) thinking ($M_{\text{concrete construal}} = 4.16$, $M_{\text{abstract construal}} = 3.52$; $t(58) = 1.68$, $p < 0.10$; see Fig. 1). We further tested the fit effect on self-regulation by including the amount of time participants had spent studying in the previous day as a covariate to control for between subject differences. The covariate was significant ($F(1, 113) = >26.24$, $p < 0.001$). More importantly, the analysis of covariance results showed the consistent pattern of the interaction ($M_{\text{high progress \& abstract construal\_adjusted}} = 4.59$, $M_{\text{high progress \& concrete construal\_adjusted}} = 3.37$; $M_{\text{low progress \& concrete construal\_adjusted}} = 3.98$, $M_{\text{low progress \& abstract construal\_adjusted}} = 3.51$; $F(1, 113) = 8.94$, $p < 0.01$).

Study 2b

Methods

Ninety-two undergraduate students participated in the study (69 were male; $M_{\text{age}} = 21.15$). This study used a 2 (goal progress: high vs. low) × 2 (goal construal: abstract vs. concrete) between-subjects design. Participants were randomly assigned to one of the four conditions.

We first primed the focal goal by asking participants to specify their money management goals in an open-ended question. We then provided participants with fictitious information on U.S. college students' saving habits. Participants in the high progress condition were told that U.S. college students were spending a lot more than they used to, spending approximately 50% of their disposable income on clothing and entertainment. Conversely, participants in the low progress condition were told that U.S. college students were spending a lot less than they used to, spending less than 10% of their disposable income on clothing and entertainment. After reading this information, participants reported their goal progress compared with the average college student on a 7-point scale (1 = no progress; 7 = a lot of progress).

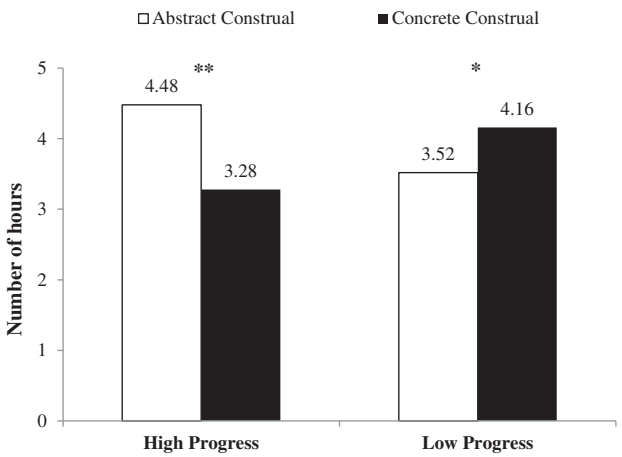

Fig. 1. Fit effects on the amount of time planning to spend studying for study 2a. An "**" indicates a significant difference ($p \leq 0.05$) and "*" a marginally significant difference ($p < 0.10$) in the abstract and concrete construal conditions according to *t*-tests.

We hypothesized that goal progress would interact with goal construal framing and subsequently influence self-regulation. To test this prediction, similar to study 2a, we asked participants to think about their goal pursuit at different levels of construal. Participants in the abstract construal condition wrote about why they should achieve their money management goal(s), and participants in the concrete construal condition wrote about how they should achieve their money management goals. We also asked them to report how much money they planned on spending for eating out with friends compared to their normal amount on a 100 mm line anchored by "much less than average" and "much more than average." Lastly, participants provided their demographic information.

Results

As predicted, participants in the high progress condition (i.e., compared themselves with students who were spending a lot) perceived making greater progress toward their money management goals than those in the low progress condition (i.e., compared themselves with students who were spending little) (Mhigh progress = 4.74; Mlow progress = 4.07; $F(1, 90) = 5.88$, $p < 0.02$). This result demonstrates that the manipulation of goal progress was successful.

Fit effects on goal-congruent behavior

An ANOVA on goal progress (high vs. low) × goal construal (abstract vs. concrete) yielded a significant interaction effect ($F(1, 88) = 6.56$, $p < 0.02$; see Fig. 2). Participants in the high progress condition intended to spend relatively less eating out with friends when they thought about their pursuit of money management goal(s) in an abstract terms ($M_{\text{abstract construal}} = 3.62$) rather than in a concrete terms ($M_{\text{concrete construal}} = 4.70$) although this was not significant ($t(45) = 1.57$, $p = 0.12$). Participants in the low progress condition planned to spend significantly less eating out when they construed their goal pursuit in a concrete manner rather than in an abstract manner ($M_{\text{concrete construal}} = 3.27$, $M_{\text{abstract construal}} = 4.64$; $t(43) = -2.08$, $p < 0.05$). Consistent with our expectations, these results provide support for the fit effects of goal progress and goal construal on self-regulation.

Discussion

Across different domains of self-regulation (fitness goals in study 1 and academic goals in study 2a) and different ways of assessing construal level (a classification task in study 1a and the BIF questionnaire in studies 1b and 2a), we found that greater goal progress leads to higher-level construals.

In addition, the results of study 2 indicate that compared to non-fit, fit between goal progress and goal construal is more likely to direct people's efforts toward goal-congruent activities. In study 2a, participants in the high progress condition planned to spend more time studying after thinking about their academic goals in an abstract manner relative to in a concrete manner, whereas participants in the low progress condition intended to spend more time after thinking in a concrete way relative to in an abstract way. Consistently, in study 2b, participants in the high progress condition planned to spend less eating out with friends when they thought about their pursuit of money management goal(s) in an abstract terms rather than in a concrete terms, whereas participants in the low progress condition intended to spend less eating out with friends after thinking in a concrete rather than in an abstract manner. Taken together, the results of study 2 suggest that compared to non-fit, fit between goal progress and goal construal is more likely to direct people's efforts toward goal-congruent activities.

Study 3

The purposes of study 3 were to examine the subsequent influence of fit between goal progress and goal construal on behavior and to show that our results are robust to a different form of goal progress manipulation. In earlier studies, we

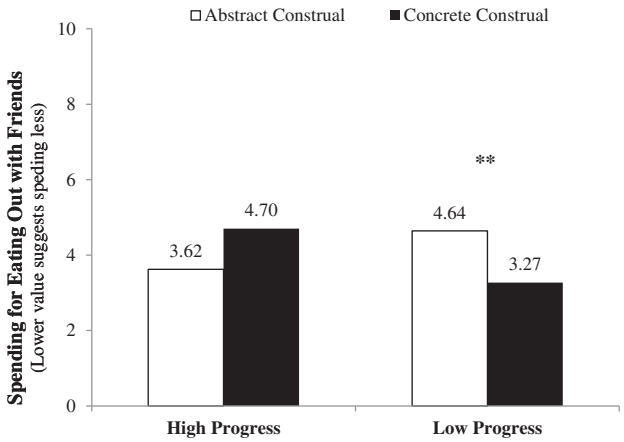

Fig. 2. Fit effects on spending for eating out for study 2b. An "**" indicates a significant difference ($p \leq 0.05$) and "*" a marginally significant difference ($p < 0.10$) in the abstract and concrete construal conditions according to *t*-tests.

manipulated goal progress by asking individuals to compare their efforts toward a goal with a reference value, such as social comparison. However, previous research often conceptualized goal progress as a discrepancy between the current and desired states rather than effort (Carver & Scheier, 1990; Hyland, 1988; Fishbach & Dhar, 2005). Following previous research (Fishbach & Dhar, 2005), we manipulated goal progress by asking participants to indicate how far off they were from their ideal state. We used a weight management goal as the focal goal. Participants were asked to indicate the discrepancy between their current weight and ideal weight in either a narrow scale, which included ±5 lb in both directions, or a wide scale, which included space for ±25 lb in both directions. Although the discrepancy between the current weight and ideal weight is numerically the same on both scales, it appears smaller on the wide scale than on the narrow scale. We then manipulated goal construal as we did in study 2.

To observe the fit effects on actual behavior, we had participants perform a taste testing survey in a supposedly unrelated task. Participants ate as many pieces of candy as they wished while answering the survey. If the fit between goal progress and goal construal motivates individuals to pursue their goals, we anticipated that participants would consume fewer pieces of candy when considering goals in a way that fit their level of progress than when it did not fit.

Methods

One hundred five female students (M_{age} = 20.89) who were trying to manage or lose weight were recruited for this study. We used a 2 (goal progress: high vs. low) × 2 (goal construal: high vs. low) between-subjects design. We brought one participant at a time into a lab, and participants were randomly assigned to one of the four conditions.

Two booklets were prepared for this study. In the first booklet, we activated the focal goal by asking participants to specify their weight management goal and current weight. Then participants were asked to indicate the discrepancy between their current weight and ideal weight in either a wide scale (±25 lb) or a narrow scale (±5 lb). Participants in the high progress condition filled in the narrow scale to indicate the discrepancy between their current and ideal weights, whereas participants in the low progress condition filled their weights using the wide scale. After filling in the scale, participants reported how much progress they perceived (1 = no progress; 7 = a lot of progress) and how close or far they were from obtaining their ideal weight (1 = not at all; 7 = very much). Next, we manipulated goal construal by asking participants to construe their goals in an abstract versus a concrete manner. Participants in the abstract goal construal condition wrote about why they should obtain their ideal weight, whereas those in the concrete goal construal condition wrote about how to obtain their ideal weight. We also assessed participants' involvement during the goal construal manipulation using two items. In the abstract goal construal condition, participants indicated how hard they thought about the reasons why they wanted to obtain their ideal weight and how much effort they put into thinking about the reasons. In the concrete construal condition, participants indicated the level of efforts they put into thinking about the ways to obtain their ideal weight. These items were measured using 7-point scales (1 = not at all/none; 7 = extremely/very much). Then participants provided the importance of the focal goal on 100 mm line scales anchored by "not at all important" and "very important." We also measured participants affect using PANAS (Watson, Clark, & Tellegen, 1988). Twenty words were related to either positive affect (e.g., interested, excited, strong, etc.) or negative affect (e.g., distressed, upset, guilty, etc.), and participants indicated the extent to which they experienced each of the feelings at the moment using a five-point scale (1 = very slightly or not at all; 5 = extremely). Last, participants reported their demographic information (i.e., age, gender, and primary language) and finished this first booklet.

We used a taste testing survey to test our prediction that the fit between goal progress and goal construal would lead to greater engagement in goal pursuit and subsequent goal-related behavior. When participants finished the first booklet, they were told that they completed the first task and would now perform a taste testing task. Participants were given a bowl of

candies of different colors and the second booklet entitled "Taste Test Survey." Participants were instructed to evaluate the candies by answering the survey and to eat as many candies as they wished during the task. We predicted that participants in the fit conditions would eat fewer pieces than those in the non-fit conditions because the motivational influence of fit would lead participants to control their consumption of candy.

Results and discussion

Participants' ideal weight ($M_{\text{high progress}} = 133.83$, $M_{\text{low progress}} = 131.44$; $F(1, 103) = 0.41$, $p = 0.53$) did not significantly differ in the high and low progress conditions. Participants' current weight also did not significantly differ in the high and low progress conditions ($M_{\text{high progress}} = 153.76$, $M_{\text{low progress}} = 144.53$; $F(1, 101) = 2.39$, $p = 0.13$). This analysis excludes two participants who did not indicate their current weight on the survey. Although the difference between participants' ideal weight and their weight at the moment of the experiment was marginally greater in the high progress condition ($M_{\text{high progress}} = 19.85$) than in the low progress condition ($M_{\text{low progress}} = 13.10$; $F(1101) = 3.69$, $p < 0.06$), participants in the high progress condition (i.e., used a wide scale to indicate current and ideal weights) perceived greater progress toward their weight management goals than those in the low progress condition (i.e., used a narrow scale to indicate current and ideal weights; $M_{\text{high progress}} = 4.20$, $M_{\text{low progress}} = 3.53$; $F(1, 103) = 5.65$, $p < 0.02$). The difference in perceived goal progress was also significant when including the difference between participants' ideal weight and their weight at the moment of the experiment as a covariate ($M_{\text{high progress\_adjusted}} = 4.24$, $M_{\text{low progress\_adjusted}} = 3.46$; $F(1, 100) = 7.09$, $p < 0.01$). This confirms that the manipulation of goal progress was successful. Furthermore, the difference between participants' ideal weight and their weight at the moment of the experiment did not differ in the abstract ($M_{\text{abstract construal}} = 14.52$) and concrete goal construal conditions ($M_{\text{concrete construal}} = 18.67$; $F(1, 101) = 1.37$, $p = 0.25$), indicating that the weight difference did not interact with any of the experimental factors.

Fit effects on actual behavior

To test how fit between goal progress and goal construal influenced actual behavior, we counted the number of candies that participants tasted during the taste test survey. An ANOVA on goal progress (high vs. low progress) × goal construal (concrete vs. abstract goal construal) showed a significant interaction effect ($M_{\text{high progress \& abstract construal}} = 13.41$, $M_{\text{high progress \& concrete construal}} = 19.96$, $M_{\text{low progress \& concrete construal}} = 16.96$, $M_{\text{low progress \& abstract construal}} = 21.69$; $F(1, 101) = 4.98$, $p < 0.03$). Furthermore, the interaction between goal progress and goal construal remained significant when including the difference between participants' ideal weight and the weight at the moment of the experiment as a covariate ($F(1, 98) = 4.94$, $p < 0.03$). Participants in the high progress condition ate relatively fewer pieces of candy after thinking about their pursuit of weight management goal(s) in abstract terms rather than in concrete terms ($M_{\text{abstract construal\_adjusted}} = 13.53$, $M_{\text{concrete construal\_adjusted}} = 19.94$; $t(52) = 1.98$, $p = 0.05$) compared to participants in the low progress condition who consumed fewer candies after considering their goal pursuit in a concrete manner rather than in an abstract manner terms ($M_{\text{concrete construal\_adjusted}} = 16.63$, $M_{\text{abstract construal\_adjusted}} = 21.72$; $t(49) = -1.23$, $p = 0.22$; see Fig. 3), although this last contrast was not significant. In addition, the covariate was not significant ($F(1, 98) = 0.004$, $p = 0.95$). These results provide further support for the motivational influence of fit between goal progress and goal construal.

Next, we tested the possible influence of confounding factors. We did not find a significant difference in participants' involvement in four conditions ($F(1, 101) = 1.09$, $p = 0.36$). Furthermore, the importance of the focal goal did not significantly differ in four conditions ($F(1, 101) = 1.82$, $p = 0.15$). Consistent with the finding in study 1, participants in the high progress condition reported more positive affect ($M_{\text{high progress}} = 2.90$) than those in the low progress condition ($M_{\text{low progress}} = 2.63$; $F(1, 103) = 4.30$, $p < 0.05$) on the PANAS. However, participants in the high progress condition reported more negative affect ($M_{\text{high progress}} = 1.65$) than those in the low progress condition ($M_{\text{low progress}} = 1.46$; $F(1, 103) = 3.46$, $p < 0.07$). To evaluate overall affect, we deducted the negative affect score from the positive affect score for each participant. Although participants in the high progress condition reported higher relative affect ($M_{\text{high progress}} = 1.25$) than those in the low progress condition ($M_{\text{low progress}} = 1.16$), the difference was not significant ($F(1, 103) = 0.23$, $p = 0.63$). In addition, we conducted a regression analysis to test whether the interaction between overall affect and goal construal (vs. the interaction between goal progress and goal construal) influenced subsequent self-regulation (i.e., consumption of candy). This interaction was not significant ($\beta = -2.98$; $t(101) = -1.01$, $p = 0.31$). These results provide evidence that involvement, goal importance, and affect are not confounding factors in this study.

In sum, after considering the pursuit of their weight management goals in an abstract or concrete manner, female dieters were more likely to limit their consumption of candy when they considered their goal pursuit in a manner that fit the level of their goal progress. This finding provides further evidence that the fit between goal progress and goal construal does indeed promote subsequent self-regulation.

In three studies, we tested the fit effect of goal progress and goal construal on regulatory behavior using different focal goals. In order to determine if the interaction effect is reliable, we ran a meta-analysis on studies 2a, 2b, and 3. We used Hedges' method (Hedges & Olkin, 1985; Hedges & Vevea, 1998) to calculate random-effects models for the high and low progress conditions separately. We converted *t*-statistics from the non-covariate adjusted results from studies 2a, 2b, and 3 into correlation coefficients and weighted each study by sample size. In the high progress condition, we found the mean effect size was $r = 0.271$ with a 95% confidence interval (CI) from 0.117 to 0.412 ($z = 3.402$, $p < 0.01$). The test for heterogeneity was insignificant ($Q = 0.195$, $df = 2$, $p = 0.91$). In the low progress condition, we found the mean effect size was $r = 0.227$ with a 95% CI from 0.070 to 0.374 ($z = 2.805$,

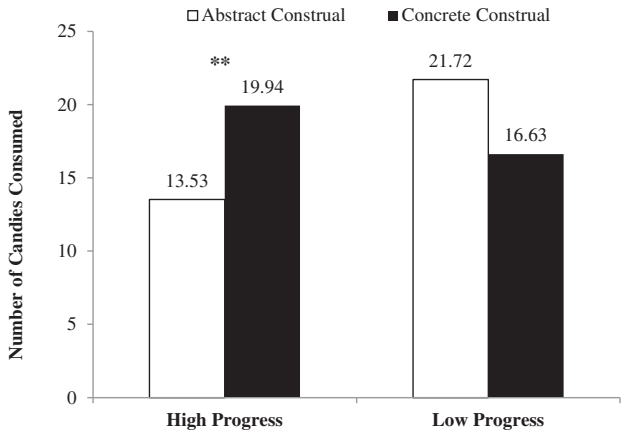

Fig. 3. Fit effects on consumption of candies for study 3. An "**" indicates a significant difference ($p \leq 0.05$) and "*" a marginally significant difference ($p < 0.10$) in the abstract and concrete construal conditions according to *t*-tests.

$p < 0.01$). The test for heterogeneity was insignificant ($Q = 0.441$, $df = 2$, $p = 0.802$). The meta-analyses suggest that the results are reliable for both the high progress condition ($p < 0.01$) and the low progress condition ($p < 0.01$), where *p*-values are based on random-effects models with non-covariate adjusted means.

General discussion

In line with previous research on action identification theory, we predicted that greater perceived goal progress would increase construal level. On the basis of this relationship, we further expected that fit between goal progress and goal construal would foster goal engagement and influence subsequent self-regulation. In study 1a, we used an external standard of comparison to induce a sense of goal progress (Fishbach & Dhar, 2005; Fishbach et al., 2006) and assessed construal level using a classification task (Liberman et al., 2002). We found that participants in the high progress condition classified objects in a more inclusive way using fewer categories than participants in the low progress condition. In study 1b, we manipulated perceived goal progress by using fictitious information on a relevant social comparison group's efforts toward the focal goal and examined the aspects participants primarily focused on and construal level. Consistent with the findings of study 1a, the results revealed that higher progress led to a higher construal level (i.e., higher BIF scores) and also drew participants' attention to more abstract, higher-level aspects of goal pursuit. These findings provide support for our hypothesis that greater progress evokes a higher level of construal.

In studies 2 and 3, we tested the influence of fit between goal progress and goal construal on subsequent self-regulation. In the context of academic achievement, study 2a examined how abstract versus concrete thinking influenced one's intended effort toward a goal-related activity under different levels of goal progress. Participants in the high progress condition planned to devote more time to studying for their course work after abstract thinking (i.e., "why" study for course work) than after concrete thinking (i.e., "how" to study for course work). Conversely, participants in the low progress condition intended to spend more time after concrete thinking than after abstract thinking. In study 2b, we examined the fit effects on engaging in goal-congruent behavior in the context of money management, providing additional evidence for H2. Study 3 replicated the fit effects on actual self-regulatory behavior in the domain of weight management. We recruited participants who were trying to lose or manage their weight and examined how fit influenced their consumption of candies in a seemingly unrelated taste test. We found that participants in the high progress condition better managed their weight management goal after construing their goal pursuit in an abstract manner than in a concrete manner. On the other hand, participants in the low progress condition better managed their weight management goal after construing their goal pursuit in concrete terms than in abstract terms.

These findings add to our understanding of the influence of goal progress on information processing in multiple ways. First, supporting action identification theory, our data show that different levels of perceived progress toward a focal goal triggers different mental construals.

Furthermore, the findings from study 1 indicate that the influence of goal performance is not limited to mental construals of goal-related actions. These findings provide empirical support the carry-over effects of processing styles to unrelated domains proposed by Förster and Dannenberg (2010).

Previous research indicates that both low and high progress can decrease motivation (Atkinson, 1957; Louro et al., 2007). The present research shows that high (low) goal progress can either increase or decrease motivation by examining how people's cognitive aspects are influenced by goal progress. According to our findings, construal levels at which people consider their goal pursuit moderate the influence of low (high) goal progress on subsequent goal pursuit. More specifically, low progress can increase motivation when one directs his/her attention toward manageable steps or details

rather than the larger meaning of goal pursuit. High progress, on the other hand, can increase motivation when one directs his/her attention toward a global meaning rather than specific steps of goal pursuit. In study 1b, we found that approximately 50% of the participants in the low progress condition considered some abstract aspects, and more than 50% of the participants in the high progress condition considered some concrete aspects of their goal pursuit. This indicates that there is room to increase motivation by drawing people's attention to appropriate aspects of goal pursuit depending on goal progress.

Regulatory engagement theory (Higgins, 2006) identifies an important outcome of fit effects: intensity of motivational force. The line of research grounded in regulatory engagement theory posits that the use of a proper way or means to pursue goals increase the value of the goals by intensifying the engagement in the goals (Higgins et al., 2008). Adding support to regulatory engagement theory, our findings from studies 2 and 3 suggest that an appropriate way of thinking one's goal pursuit according to goal progress facilitates goal-consistent behavior. Despite this evidence, the present research did not directly test whether feelings of fit drove the findings. Thus, further examination on the underlying process of the fit effects is required.

Regarding the relationship between goal progress and goal construal, we predict that individuals perceiving greater progress tend to think abstractly as greater goal progress triggers a sense of success in goal pursuit, which allows higher-level, more comprehensive representation of goal pursuit. On the other hand, individuals perceiving low progress will sense unsuccessful goal pursuit and search for alternative means and subacts to more effectively pursue their goals. In a follow-up study, we examined our proposed and alternative processes, such as perceived amount of effort, goal difficulty, and goal importance. Although our results indicate that the sense of success and belief of using a correct approach are the most likely explanations for the relationship between goal progress and construal level, it was impossible to completely rule out alternative explanations of the link between goal progress and construal level. Given that these alternative processes are also possible explanations of the link between goal progress and construal level, further examination is desirable.

Research on construal level theory has found that closer psychological distance leads to a concrete, lower-level construal (Liberman & Trope, 1998; Wakslak, Trope, Liberman, & Alony, 2006). This seems to contradict our finding that high goal progress leads to abstract, higher-level construal. However, researchers have suggested that goal progress and goal proximity are different constructs (Louro et al., 2007; Kozlowski & Bell, 2006; Sobh & Martin, 2011) with goal proximity referring to "the size of the discrepancy between the present and the desired goal state" (Louro et al., 2007, p. 176), while goal progress refers to (the degree of) movement toward a desired state. Furthermore, there are many times when these constructs are not correlated. For example, if a dieter loses two pounds in a week toward his ultimate goal of losing 40 lb, he could be high on goal progress (i.e., high movement toward an end state) while being low on goal proximity (i.e., large distance to an end state). Future research that directly manipulates both goal progress and goal proximity could help resolve this issue.

Zhang and Huang (2010) suggest that when the end-state of a goal is distant (close), people are concerned about primarily the attainability (value) of goals. One may argue that thinking of "how" ("why") influences the perceptions of goal attainability (value) and in turn affects subsequent motivation. This possibility is consistent with the classical view that motivation is determined by "cognitive" contents, such as value and goal expectancy (Atkinson, 1957; Louro et al., 2007; Vroom, 1964). However, the regulatory engagement theory indicates that motivation is influenced by not only the direction (e.g., importance) but also the intensity of value (Higgins, 2006). Particularly, we expect that the experience of engagement as motivational force accounts for the fit effects when focal goals are important and the end-states of the goals are not explicitly set (e.g., health and money management goals). Still, it is possible that the fit between goal progress and goal construal can change value or expectancy and in turn affect self-regulation (Appendix C). Future research can benefit from examining whether the effects of fit between goal progress and goal construal are also driven by changes in the value and/or attainability of goals.

The findings in this research offer implications for consumer welfare by providing an answer for the question of how to best motivate people. According to our findings, different levels of goal progress attract people's attention to different aspects of goal pursuit, whereby greater progress draws people's attention to abstract rather than concrete concerns. Because abstract thinking of goal pursuit fits abstract concerns in high progress conditions, abstract (vs. concrete) thinking is more likely to foster goal engagement and influences self-regulation. Conversely, as people perceive lesser goal progress, concrete rather than abstract thinking better fits their mental construal and thus is more likely to enhance engagement and self-regulation. Thus, in the course of goal pursuit, people should view their goal pursuit in a manner that fits their progress.

Many companies promote their products as a way to help people achieve their goals. Some companies employ abstract construal framing by emphasizing superordinate features or the end state of an action, whereas others employ concrete construal framing by stressing the means to achieve the end state. For example, HSBC, a large financial services company, motivates its clients by emphasizing *why* they need to plan for their retirement (i.e., abstract construal framing: "The quality of life you want in the future will depend on how well you plan for your retirement now"; http://www.hsbc.com/1/2/retirement). Conversely, Merrill Edge, another financial services company, emphasizes how its clients should plan for retirement (i.e., concrete construal framing: "Find out how to begin planning, saving and investing, and learn how to monitor your progress"; http://www.merrilledge.com/m/pages/retirement.aspx). Our findings demonstrate that the motivational influence of abstract versus concrete framing differs depending on goal progress. Therefore, companies should consider customized feedback or messages based on their customers' progress.

Appendix A

A.1. Objects used for the classification task in study 1a

A.1.1. Camping trip scenario

Brush, tent, matches, camera, soap, gloves, bathing suit, shovel, fishing pole, hat, snorkel, shirts, sweater, sneakers, coat, raft, dog, boots, marshmallows, socks, blanket, flashlight, pants, sunglasses, rifle, shoes, cigarettes, rope, hot dogs, canteen, toothbrush, underwear, beer, sleeping bag, pillow, insect repellent, potato chips, axe.

A.1.2. Yard sale scenario

Chairs, roller blades, sweaters, crib, candy dish, fish tank, board games, blender, bikes, coats, dumbbells, infant clothes, books, coffeemaker, puzzles, plates, CDs, toaster, toys, cutlery, shoes, skis, chess set, birdcage, ties, baseball cards, picture frames, juicer, ceramic figurines, glassware, boots, dolls, clock, records, T-shirts, lamps, skateboards, paintbrushes.

Appendix B

B.1. Mediation of affect in study 1a

Following Louro et al. (2007), we combined the eight items of positive and negative emotions into a single index (i.e., the difference between positive and negative emotions; positive scores indicate net positive mood). Then we performed a series of regression and bootstrap analyses to test the mediating role of goal-related emotions on the relationship between goal progress and construal level. We first regressed the number of categories for the camping trip scenario on goal progress (i.e., high vs. low) ($\beta = 0.96$; $t(75) = 2.31$, $p < 0.03$), then regressed the index of emotions on goal progress ($\beta = -1.19$; $t(75) = -2.48$, $p < 0.02$), and finally regressed the number of categories on the index of emotions. The regression analyses showed that the association between the index of emotions and the number of categories was not significant ($\beta = -0.10$; $t(75) = -0.98$, $p = 0.33$). The bootstrap analyses revealed that the mean indirect effect of emotions on the number of categories was 0.0469, with a 95% confidence interval including zero (−0.1760 to 0.2727). Consistently, the index of emotions was not significantly associated with the number of categories for the yard sale scenario ($\beta = 0.10$, SE = 0.11; $p = 0.34$). Bootstrap analyses showed that the mean indirect effect of emotions on the number of categories was −0.2379, with a 95% confidence interval including zero (−0.5495 to 0.0041). These results do not provide support for the mediating role of emotions on the relationship between goal progress and construal level.

Inconsistent with our results, recent research suggests that positive affect leads people to adopt abstract, high-level construals (Labroo & Patrick, 2009). A possible explanation for these conflicting findings is that the two studies measured affect differently. Labroo and Patrick (2009) were concerned with mood in general, whereas we measured specific feelings following previous self-regulation research (Louro et al., 2007). To test this explanation, we ran a study where we measured happiness using the same measure as Labroo and Patrick (2009) so that we could examine whether mood mediated the influence of goal progress on construal level. Consistent with the findings in study 1, goal progress was significantly related to both the BIF score ($\beta = 2.34$; $t(127) = 2.90$, $p < 0.01$) and mood ($\beta = 0.45$; $t(127) = 1.99$, $p < 0.05$). However, mood was not significantly related to the BIF score ($\beta = 0.28$; $t(127) = 0.89$, $p = 0.38$). This provides further evidence that our results cannot be explained by changes in affect.

Appendix C

We conducted a study similar to study 3 in this article to test whether goal value and/or goal expectancy can explain the fit effects. An ANOVA on goal progress (high vs. low) × goal construal (abstract vs. concrete) yielded a significant interaction effect only on goal value ($F(1, 92) = 4.74$, $p < 0.04$) not on goal attainability ($F(1, 92) < 1$, *NS*). Furthermore, the different perceptions of goal value occurred in the low progress condition but not in the high progress condition. Thus, the results do not support the theory that people in the high (low) progress condition perceived greater value (expectancy) of the focal goal after considering their goal pursuit in an abstract (concrete) manner than in a concrete (abstract) manner.

Appendix D. Methodological details

Methodological details of this article can be found online at http://dx.doi.org/10.1016/j.jcps.2015.12.003.

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