

How Do People Judge Meaning in Goal-Directed Behaviors: The Interplay Between Self-Concordance and Performance

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Abstract

Perceived performance and self-concordance are two sources of information people may utilize to judge meaning in goal-directed behaviors. We contend that either variable can adequately support the presence of meaning, even in the absence of the other. This perspective suggests that non-self-concordant goal pursuits can feel meaningful as long as one feels successful at the goals, and that failed goal pursuits can feel meaningful as long as they are self-concordant. Five studies investigated this potential interaction between performance and self-concordance. As hypothesized, we found a negative interactive pattern such that meaning was maintained when either performance or self-concordance was high. This interactive effect held true for the experience of meaning in personal goals (Studies 1 and 2), courses (Study 3), and work (Studies 4 and 5). This interactive pattern did not emerge when the outcome variable was either positive affect or job satisfaction, suggesting this compensation process was somewhat unique to meaning.

Keywords

meaning, self-concordance, perceived performance

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Existential theorists have long noted the need human beings have to find meaning in their lives (e.g., Frankl, 1969; Yalom, 1980). Empirical interest in the means by which people imbue their lives with meaning has grown in recent years with researchers identifying numerous antecedents of meaning (e.g., religious commitment and social relationships; Schnell, 2011). Research has also demonstrated that people are flexible in the way they utilize these sources of meaning such that they shift to alternative cues when a particular source does not affirm the presence of meaning in life (e.g., the competition of cues model; Hicks & King, 2008, 2009; Hicks, Schlegel, & King, 2010). The current article focuses specifically on the perception of meaning in goal pursuit. A substantial portion of daily experiences involve goal-directed behaviors (Cantor & Blanton, 1996) and goals are an important avenue through which individuals can draw global meaning (Emmons, 2003).

Two likely cues to the meaningfulness of a goal are how well one performs within the goal and how concordant the goal is with one's underlying values and interests (i.e., self-concordance; Sheldon & Elliot, 1999). The current research will explore whether these sources of meaning are equally viable pathways to meaning such that either can promote perceived meaning in goal pursuit, even in the absence of the other. To test this possibility, the current research examined the potential interaction between self-concordance and

perceived performance in predicting experienced meaning in goal-directed behaviors.

The processes at work in judging goal-specific meaning are important for understanding the dynamics of goal pursuit. Research has clearly documented the link between meaning and engaging in goal-directed behavior (e.g., in workplaces; Geldenhuys, Laba, & Venter, 2014; Hirschi, 2012; Steger, Dik, & Duffy, 2012; Wrzesniewski, McCauley, Rozin, & Schwartz, 1997). The experience of meaning may be particularly important when people encounter hints of failure. Failures can undermine motivation; however, experiencing meaning via self-concordance may provide the determination and energy to persist and eventually attain the goal. The perception of meaning in a goal that isn't progressing well could also be the reason why people sometimes are

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unwilling to disengage from unattainable goals. The current research may also shed light on how people maintain their engagement in goals that are initially not self-concordant (i.e., by finding meaning via one's performance).

Finally, we also explored whether this mutual compensation process would be somewhat unique to meaning as opposed to more affective judgments. Though not everyone agrees (Kashdan, Biswas-Diener, & King, 2008), there is reason to think that meaning and more affective judgments (e.g., satisfaction, enjoyment) are not one and the same (e.g., Deci & Ryan, 2008; Huta & Waterman, 2014). Indeed, a wealth of literature on traumatic experiences suggests that negative experiences can be sources of meaning (Park, 2010). Of particular relevance to the current work, Baumeister, Vohs, Aaker, and Garbinsky (2013) argue that "doing things that express and reflect the self are important for making life meaningful, but they are mostly irrelevant and occasionally even detrimental to happiness" (p. 513). This perspective suggests that self-concordance should be strongly tied to meaning judgments, perhaps even more than it is tied to affective judgments. Hence, we also examined the relationships between performance and self-concordance (along with their interaction) with variables such as positive affect and job satisfaction.

Perceived Performance and Self-Concordance as Sources of Meaning

Goal-directed behaviors are characterized by efforts to reach desirable ends. Perceived performance reflects an appraisal of the extent to which such ends are attained. As such, the link between perceived performance and perceived meaningfulness is a natural one. A fruitless struggle without satisfying output implies a sense of meaninglessness (e.g., "What was the point of the effort I expended if I didn't meet my goal?"). In contrast, feeling that one has succeeded in achieving desired outcomes should promote the experience of meaning. Indeed, a longitudinal study conducted by Stauner (2013) demonstrated that subjective evaluations of goal progress predicted changes in global meaning in life over time. This could happen directly or via other known sources of meaning such as increased self-efficacy (Bandura, 1986; Baumeister, 1991; Wood & Bandura, 1989), competence (Deci & Ryan, 2000; Ryan & Deci, 2000a, 2000b; Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001), or personal growth (Sheldon, Kasser, Smith, & Share, 2002). Accordingly, we expect that perceived performance should predict the experience of meaning in goal-directed behaviors.

Nevertheless, a sense of meaning, should also emerge from sources that are more abstract, profound, and long-lasting than mere perception of progress toward attainment of a concrete goal (Baumeister, 1991; George & Park, 2016). For example, a self-expressive goal should produce meaning via its linkage with one's core values or authentic self (Baumeister,

1991; Baumeister et al., 2013; Schlegel, Hicks, Arndt, & King, 2009; Schlegel, Hicks, King, & Arndt, 2011). Thus, goals that are in line with an individual's underlying values or interests should contribute to the experience of meaning, perhaps even when people feel like they aren't going well.

Sheldon and Elliot's (1999) self-concordance model is directly relevant to this suggestion. Originated from the concept of perceived locus of causality (PLOC) within self-determination theory (SDT; Deci, Eghrari, Patrick, & Leone, 1994; Deci & Ryan, 2000; Ryan & Connell, 1989; Ryan & Deci, 2000a, 2000b), the self-concordance model proposes that personal goals vary in the extent to which they emanate from the core self and thus fit with one's enduring interests, values, and needs. Engaging in self-concordant goals is linked to optimal functioning and well-being. For instance, individuals who perceived their goals as self-concordant are higher in openness, self-actualization, and vitality (Sheldon & Kasser, 1995). Self-concordant goals are also more likely to be attained than controlled goals, and once attained, promote need satisfaction, personal growth, and subjective well-being (e.g., Gillet, Lafrenière, Vallerand, Huart, & Fouquereau, 2012; Sheldon & Elliot, 1999; Sheldon et al., 2002).

The self-concordance model proposes that self-concordance leads to positive psychological outcomes primarily through goal attainment (Sheldon & Elliot, 1999). However, given the strong relationship between meaning and the self, self-concordance may provide meaning even when people perceive they fail to attain their goals. Specifically, the process of engaging in self-concordant goals provides people with the opportunity to get in touch with their authentic self, which itself fosters the experience of meaning (Deci & Ryan, 2000; Ménard & Brunet, 2011; Ryan & Deci, 2000a, 2000b; Schlegel et al., 2009; Schlegel et al., 2011). Indeed, the extent to which individuals' goals are integrated with their core values has been directly tied to a global sense of meaning (McGregor & Little, 1998). Based on these findings, self-concordance can serve as an additional source of meaning in goal-directed behaviors, independent from perceived performance.

Hypotheses About Compensation

Given that both perceived performance and self-concordance likely enhance meaning, the experience of engaging in self-concordant goals that are attained almost undoubtedly should be perceived as meaningful. However, at times, self-concordant goals are not attained. At other times, people may perform well in goals that are not self-concordant. How do people judge meaning in such cases? Drawing from previous work (Hicks & King, 2007, 2008, 2009; Hicks et al., 2010), we contend that perceived performance and self-concordance may fluidly compensate for each other in predicting meaning judgments.

To elaborate, Hicks and colleagues (Hicks & King, 2008, 2009; Hicks et al., 2010) have proposed that the extent to which people rely on particular sources for meaning depends

on three features of the information: relevance, cognitive accessibility, and valence. Being relevant to the judgment and cognitively accessible are both obvious necessary conditions for any source of information to inform a judgment. Information being of positive valence, however, seems particularly important for judgments of meaning. People seem reluctant to admit that life is low in meaning. This is perhaps unsurprising given that meaning is regarded as morally good and vital to mental welfare (Frankl, 1969; King & Napa, 1998; Scollon & King, 2004). Meaning judgments thus tend to be driven by information that affirms the presence of meaning (i.e., information with a positive valence). That is, people do not passively react to available and relevant sources of information, but actively search for confirmative evidence of meaning. If a source of information fails to establish meaning, it is likely to be ignored and spur a shift to alternative sources of information (e.g., Baumeister, 1991; Heine, Proulx, & Vohs, 2006). This compensation process has been demonstrated empirically with positive affect and religious commitments (Hicks & King, 2008), as well as positive affect and social relatedness (Hicks & King, 2009; Hicks et al., 2010).

From this perspective, it follows that when one source of meaning is disrupted, there will be a stronger relationship between meaning and alternative sources, provided these sources are relevant and accessible. However, the existing work on this topic primarily focuses on global judgments of meaning. Thus, it is unknown whether compensation processes will generalize to meaning judgments of more specific behaviors. There is some reason to think they may not, given that a low level of local meaning should be less threatening than a low level of global meaning. A compensation process is evidenced through a statistical interaction between two sources of meaning. If compensation is at play, there should be a stronger relationship between self-concordance and meaning when perceived performance is low (and vice versa). The current study examines whether compensation occurs in local meaning judgments of goals and behaviors as well as whether compensation is evident in other indices of well-being, such as positive affect.

The Present Studies

We conducted five studies across two different cultures to test the hypothesis that self-concordance and perceived performance serve as independent and alternative sources of meaning that can compensate for each other to predict perceived meaningfulness of goal-directed behaviors. Studies 1 and 2 are prospective studies that focus on the pursuit of personal goals. Studies 3, 4, and 5 extended our investigation from personal goals into more practical goal-relevant domains such as the classroom and the workplace. Across all types of goal-relevant behavior, we expected that the relationship between perceived performance and judgments of

meaning would be stronger when self-concordance is low (vs. high).

In addition to meaning judgments, we also examined positive affect (Studies 1-4) and job satisfaction (Study 5) as dependent variables. Whether and how the experience of meaning can be teased apart from pleasure-related feelings is a controversial question (Huta & Waterman, 2014; Kashdan et al., 2008; King, Hicks, Krull, & Del Gaiso, 2006). We speculated that even though self-concordance and perceived performance would likely predict affect-related judgments, we would not observe the compensation between the two variables on positive affect or job satisfaction. This hypothesis is based on the particular importance of self-expression to meaning (Baumeister et al., 2013; Schlegel, Hirsch, & Smith, 2013) and the idea that experiences can be meaningful even if they aren't enjoyable (Baumeister et al., 2013; Park, 2010, 2013).

Study 1

Study 1 was a 1-week prospective study (with two waves of data collection) investigating the experience of meaning in the context of idiographic personal goal pursuit. We hypothesized that people would perceive meaning even if they failed to reach their goals as long as the goals were high in self-concordance.

Participants

Participants were 132 students (40 men, 92 women, $M_{\text{age}} = 21.73$, $SD = 2.50$) at Nanjing University (China) recruited through online advertisements. Of these participants, 123 completed both waves of data collection. Participants received CNY30 (around US\$4.5) for the whole survey.

The sample sizes in the current studies were not determined a priori, and were subject to the resources of our laboratory. Yet, post hoc power analyses using the software PinT (Snijders & Bosker, 1993) for Studies 1 to 4 and G*Power (Faul, Erdfelder, Lang, & Buchner, 2007) for Study 5 indicated that power to detect the interaction between self-concordance and perceived performance in all the studies was above .80.

Procedure

The first survey was conducted in our laboratory. In this survey, participants were asked to list three goals they intended to pursue during the following week and indicate their reasons for choosing each goal. One week after the first survey, we sent participants emails inviting them to complete the follow-up survey online. In the survey, participants rated their progress of each goal, and their experience of meaning and positive affect while pursuing the goals.

Measures

Goal self-concordance. Goal self-concordance was measured at Wave 1. Following Sheldon and Kasser's (1995, 1998) work on self-concordance, we measured four types of motivations for engaging in the goals: *external* (i.e., "because somebody else wants you to or the situation demands it"), *introjected* (i.e., "because you would feel ashamed, guilty, or anxious if you didn't"), *identified* (i.e., "because you really believe it is an important goal to have"), and *intrinsic* (i.e., "because you are interested in the experience itself"). Participants responded to each item on a 7-point Likert-type scale ranging from 1 (*not at all for this reason*) to 7 (*completely because of this reason*). A self-concordance score was created for each goal by summing the identified and intrinsic scores and then subtracting the introjected and external scores.

Sheldon and colleagues recently argued that the self-concordance measure evidences a simplex structure (Sheldon, Osin, Gordeeva, Suchkov, & Sychev, 2017). In a simplex structure, the correlations among items far from each other are lower than correlations among items near each other and the scale does not yield a single underlying component (thus, computing an alpha makes little sense). Instead, the self-concordance measure is argued to yield two underlying components (one related to quality and the other related to quantity) that form a semicircular pattern. In the current studies, the correlations among the items followed the pattern Sheldon and colleagues suggested and principle component analyses yielded two components that showed a semicircular pattern (see Supplementary file, Part I). In such cases, Sheldon and colleagues (2017) argue that the difference score gives parsimonious and "valid and important information about the person's entire motivational system" (p. 1218).

Nevertheless, given concerns about difference scores, we conducted a number of supplemental analyses to examine the robustness of our findings across various ways of dealing with this measure. First, Sheldon and colleagues (2017) suggested it sometimes be better to partial out the quantity component of the measure (i.e., the strength of motivation) to examine the effect of the quality component (i.e., relative autonomy; see supplementary file, Part II). We also analyzed the four items separately as well as the two separate dimensions (i.e., autonomous and controlled motivation) separately (Supplementary file, Part III). Though there are minor discrepancies, all of these analyses are broadly consistent with the analyses reported in the primary text. Mini-meta-analyses for each approach are also reported in the supplement and these reveal significant interactions consistent with the results reported in the primary text.

Perceived goal performance. At Wave 2, participants responded to two items assessing their subjective appraisal of performance in each goal, "How much progress have you made in achieving this goal?" (from 1 = *very little* to 7 = *very much*), and "Are you satisfied with the progress of this goal?" (from 1 = *not at all* to 7 = *very satisfied*). Responses to the two items were averaged (Cronbach's $\alpha = .95$).

Goal-related meaning and positive affect. At Wave 2, participants indicated how meaningful the experience of engaging in each goal was on a 7-point Likert-type scale ranging from 1 (*completely meaningless*) to 7 (*very meaningful*). They also indicated the extent to which it was pleasant for them to have engaged in the goals. Responses to this item ranged from 1 (*not at all*) to 7 (*very much so*).

Results

Descriptive statistics are presented in Table 1. All the variables were positively correlated. As goals were nested within individuals, we used hierarchical linear models to examine our hypotheses.

A two-level linear regression model was conducted to predict goal-level meaning. On the goal level, we included self-concordance, perceived goal performance, and their interaction. These variables were grand-centered to provide an initial test of the associations among the absolute scores of self-concordance and perceived performance with meaning, as opposed to a purely within person process driving by relative scores within each individual (Enders, 2013; subsequently, we tested both within- and between-person components in one model). On the individual level, we adjusted the intercept with age and gender.¹ Results are presented in Table 2. The fixed effect of the interaction term was significant, $\beta = -.11$, $SE = .046$, $p = .016$.

We then delineated the interaction following the procedure suggested by Preacher, Curran, and Bauer (2006). As can be observed from Figure 1, the association between perceived goal performance and goal meaning varied as a function of self-concordance. When self-concordance was high (1 *SD* above grand mean), perceived performance predicted meaning, $\beta = .18$, $SE = .059$, $p = .002$. However, the association between perceived performance and meaning was stronger when self-concordance was low (1 *SD* below grand mean), $\beta = .40$, $SE = .073$, $p < .001$. If we treat perceived performance as the moderator, we can see that when perceived performance was high (1 *SD* above grand mean), self-concordance was not significantly associated with meaning, $\beta = .028$, $SE = .022$, $p = .21$. However, when perceived performance was low (1 *SD* below grand mean), self-concordance was positively associated with meaning, $\beta = .11$, $SE = .025$, $p < .001$. Previously reported self-concordance predicts the perceived meaning of goals that turned out not to progress well.

Because the predictors were grand-centered, the interaction includes both within- and between-person components. To explore whether both components were significant, we fit a two-level interaction model where at the first level, we included group-centered self-concordance, group-centered perceived goal performance, and their interaction, and at the second level, we included the group means of self-concordance, perceived goal performance, and their interaction (following Model 6.13, Enders, 2013). The results are presented in Table 3. We found that the within-individual component of

Table 1. Means, SDs, and Correlations Among the Main Variables.

	M (SD)	1	2	3	4
Study 1					
1. Self-concordance	2.91 (4.65)				
2. Perceived goal performance	4.70 (1.84)	.15**			
3. Positive affect	5.10 (1.66)	.45***	.48***		
4. Meaning of goal	4.92 (1.57)	.25***	.32***	.61***	
Study 2					
1. Self-concordance	6.10 (4.67)				
2. Perceived goal performance	4.25 (1.75)	.04			
3. Positive affect	4.77 (1.66)	.15**	.60***		
4. Posttest meaning of goal	5.34 (1.23)	.23***	.47***	.58***	
5. Effort	4.27 (1.64)	-.003	.68***	.47***	.44***
6. Baseline meaning of goal	6.23 (1.08)	.19***	.075	.064	.20***
7. Meaning in life	4.55 (1.20)	.11	.22*	.22*	.25*
Study 3					
1. Self-concordance	3.64 (6.13)				
2. Perceived course performance	5.03 (1.52)	.52***			
3. Positive affect	4.94 (1.65)	.40***	.67***		
4. Meaning of courses	5.09 (1.76)	.35***	.39***	.38***	
Study 4					
1. Self-concordance	-0.61 (3.67)				
2. Perceived task performance	5.91 (1.11)	.077			
3. Positive affect	5.16 (1.56)	.37***	.37***		
4. Meaning of task	5.91 (1.17)	.24***	.46***	.59***	
Study 5					
1. Self-concordance	4.20 (5.18)				
2. Perceived job performance	4.97 (1.07)	.056			
3. Job satisfaction	4.84 (1.15)	.17***	.46***		
4. Meaning of job	4.93 (0.93)	.20***	.53***	.67***	

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

interaction was significant, $\beta = -.25$, $SE = .070$, $p = .001$, but not the between-individual component, $\beta = -.25$, $SE = .16$, $p = .11$, suggesting that the interaction was mostly driven by within-person (i.e., goal-level) relationships.

Both perceived performance ($\beta = .44$, $SE = .053$, $p < .001$) and self-concordance ($\beta = .39$, $SE = .050$, $p < .001$) significantly predicted positive affect (see Table 2 and Figure 1). However, the interaction term was not significant, $\beta = -.056$, $SE = .046$, $p = .23$.

Discussion

The results of Study 1 provided preliminary support for our contention that people can flexibly find meaning in their goals through either perceived performance or self-concordance. We observed that when perceived performance was low, goals that are high in self-concordance are perceived as more meaningful than those low in self-concordance. However, when people believed they performed well, the effect of self-concordance disappeared. Notably, self-concordance was reported 1 week prior to the evaluations of perceived performance and meaning, thus self-concordance ratings were not influenced by goal progress. For positive

affect, the effects of self-concordance and perceived performance seemed to be additive. Therefore, it is unlikely that the experience of positive affect was also driven by a compensation process.

Nevertheless, 1 week may be such a short period of time that it constrained both the type of goals participants brought up (e.g., goals that are necessarily short term and concrete in nature) and their perceived performance (e.g., short-term goals might be more easily attained than long-term goals). In other words, the results of Study 1 might not apply to broader, longer term life goals. To address this issue, we conducted Study 2 to examine whether these results could be replicated in a different sample with longer term goals.

Study 2

Study 2 was a longitudinal survey that included two waves of data collection, separated by about 3 months. It extended Study 1 in several ways. First, we asked participants to list goals with longer durations (i.e., a semester). The outcome of long-term goals should have a larger influence on an individual's life than short-term goals. We wanted to know whether self-concordance could still compensate for the

Table 2. Meaning and Positive Affect as Predicted by the Interaction Between Self-Concordance and Performance (Standardized Solution).

Predictors	Study 1			Study 2			Study 3			Study 4		
	Meaning	Positive affect	Meaning	Positive affect	Meaning	Positive affect						
	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)						
Level 2 (intercept adjustments)												
Age	-.067 (.060)	.012 (.042)	-.033 (.055)	-.049 (.049)	.052 (.054)	-.048 (.044)	.24 (.089)**	.20 (.087)*				
Gender	-.015 (.060)	-.028 (.044)	-.081 (.054)	-.025 (.047)	-.11 (.054)*	.003 (.044)	.14 (.089)	.08 (.087)				
MIL	NA	NA	.19 (.056)**	.10 (.049)*	NA	NA	NA	NA				
Level 1 (predictors grand-centered)												
Baseline meaning of goal	NA	NA	.086 (.038)*	-.024 (.038)	NA	NA	NA	NA				
Effort	NA	NA	.16 (.050)**	.11 (.050)	NA	NA	NA	NA				
Perceived performance	.34 (.046)***	.44 (.053)***	.28 (.049)***	.49 (.0490)***	.28 (.047)***	.61 (.039)***	.24 (.053)***	.22 (.062)**				
Self-concordance	.21 (.045)***	.39 (.050)***	.16 (.038)**	.15 (.038)***	.19 (.047)***	.061 (.039)	.20 (.060)**	.33 (.070)***				
Self-concordance x Perceived performance	-.11 (.046)*	-.056 (.046)	-.12 (.035)**	-.023 (.035)	-.10 (.041)*	.015 (.034)	-.13 (.052)*	.036 (.058)				

Note. Gender is dummy coded as 1 = female, 0 = male. MIL = meaning in life.
 * $p < .05$. ** $p < .01$. *** $p < .001$.

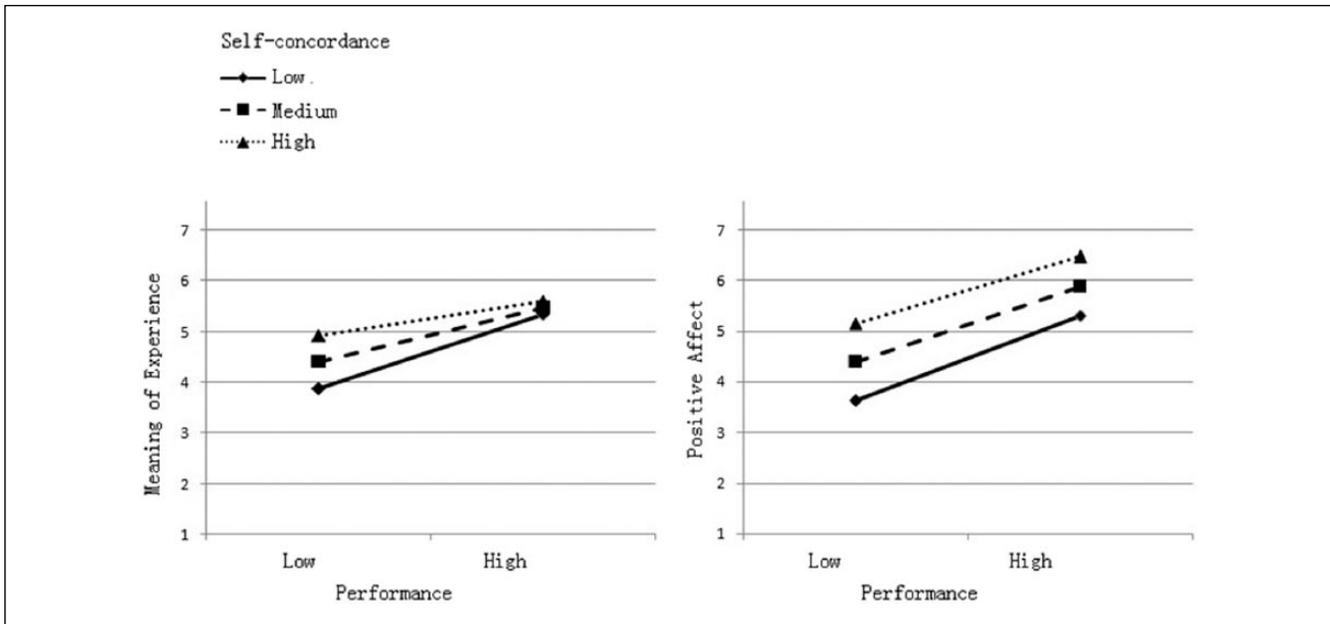


Figure 1. Interactions between self-concordance and perceived performance on meaning and positive affect (Study 1).

Table 3. A Two-Level Interaction Model to Predict Meaning.

Predictors	Study 1	Study 2	Study 3	Study 4
	β (SE)	β (SE)	β (SE)	β (SE)
Level 2 (between-person)				
Performance	.15 (.097)	.63 (.12)***	.23 (.10)	.52 (.11)***
Self-concordance	.20 (.10)	.29 (.09)**	.18 (.096)	.31 (.094)**
Self-concordance \times Perceived performance	-.25 (.16)	-.25 (.17)	-.044 (.13)	-.28 (.12)*
Level 1 (Within-person)				
Performance	.39 (.052)***	.37 (.039)***	.27 (.053)***	.12 (.068)
Self-concordance	.20 (.050)***	.15 (.042)**	.22 (.054)***	.14 (.092)
Self-concordance \times Perceived performance	-.25 (.070)**	-.096 (.051)	-.13 (.047)**	-.28 (.18)

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

potential loss of meaning posed by failing to achieve such goals. Second, we measured and controlled for a baseline measure of goal meaning, the amount of effort put into the goals, and global meaning in life. Goal effort might confound the effect of self-concordance on meaning as previous research has shown that self-concordance predicts goal effort (Sheldon & Elliot, 1999). Individuals who see their life as a whole as more meaningful may also be more likely to derive meaning from the goals they pursue. The use of these covariates allowed us to examine the robustness of the interaction observed in Study 1.

Method

Participants. Participants were 159 students (38 men, 121 women) at Nanjing University (China) recruited through

online advertisements. Of these, 102 completed both waves of data collection. Eight participants missing data on key variables had to be excluded from analyses. The final sample included 27 men and 67 women ($M_{\text{age}} = 20.71$, $SD = 2.11$). There were no significant differences between those who were retained and those who dropped out in terms of any of the initial variables (i.e., age, gender, goal self-concordance, and meaning in life). Participants received CNY30 (around US\$4.5) for the first survey section and CNY20 (around US\$3) for the second one.

Procedure. We conducted the first survey within 2 weeks of a new semester. Participants were asked to list five goals they intended to obtain during the semester and rate the reasons for engaging in each goal as well as how meaningful each goal felt. Global meaning in life was assessed during this

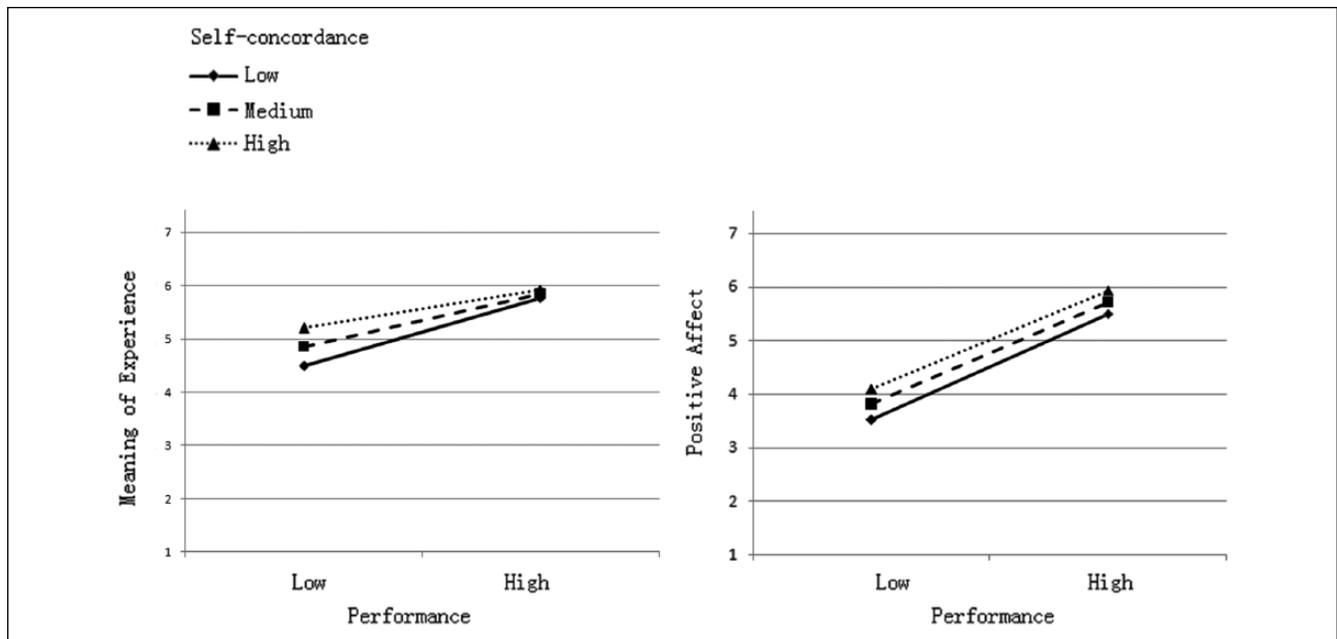


Figure 2. Interaction between self-concordance and perceived performance on meaning and positive affect (Study 2).

initial survey as well. Ten to 12 weeks later, participants returned to our laboratory. They rated how much effort they had put into each goal as well as the progress they had made on each goal. Then, they evaluated the amount of positive affect they experienced when striving for each goal and how meaningful each goal felt.

Measures

Initial survey: Goal self-concordance, baseline meaning of goal, and meaning in life. Goal self-concordance was measured with the same items as those used in Study 1. Baseline meaning of goal was measured with one single item “The goal is meaningful to me” (1 = *not true at all* to 7 = *definitely true*). We measured meaning in life with the five-item Presence of Meaning subscale of the Meaning in Life Questionnaire (MLQ; Steger, Frazier, Oishi, & Kaler, 2006). The Presence of Meaning subscale has been widely used in previous studies as a measure of meaning in life (e.g., Lambert et al., 2013; Schlegel et al., 2009). A sample item of this subscale is “I understand my life’s meaning.” Participants rated themselves on each item using a 7-point Likert-type scale, anchored at 1 (*not true at all*) and 7 (*definitely true*). This scale showed satisfactory internal consistency in the current investigation (Cronbach’s $\alpha = .80$).

Follow-up survey: Perceived performance, effort, and meaning of goals. Perceived goal performance was measured with the same two items as those used in Study 1 (Cronbach’s $\alpha = .94$). We assessed the amount of effort individuals put into each goal with one item, “How much effort have you put into the goal?” Answers were made along a 7-point scale ranging from 1 (*no effort at all*) to 7 (*very much effort*).

Meaning of goal was assessed with three items: “The goal is meaningful to me,” “Engaging in the goal is a meaningful experience,” and “Engaging in the goal makes my life meaningful.” Answers were made on a 7-point Likert-type scale ranging from 1 (*not true at all*) to 7 (*definitely true*; Cronbach’s $\alpha = .88$).

Results

Descriptive statistics are listed in Table 1. As in Study 1, hierarchical linear models were used to examine our hypotheses. At the goal level, we included self-concordance, perceived goal performance, and their interaction. In addition, we included baseline meaning of goal and effort as control variables. On the individual level, we adjusted the intercept with age, gender, and global meaning in life. Results are presented in Table 2. As predicted, the fixed effect of the interaction term was significant, $\beta = -.12$, $SE = .035$, $p = .001$.² We used the same two-level interaction model to assess the within-individual ($\beta = -.096$, $SE = .051$, $p = .061$) and between-individual components of the interaction ($\beta = -.25$, $SE = .17$, $p = .15$; Table 3).

As in Study 1, we delineated the interaction following the procedure suggested by Preacher et al. (2006). From Figure 2, we can observe that the strength of the association between perceived goal performance and meaning varied as a function of self-concordance. When self-concordance was high (1 *SD* above grand mean), perceived performance significantly predicted meaning, $\beta = .20$, $SE = .042$, $p < .001$. When self-concordance was low (1 *SD* below grand mean), the association between perceived performance and meaning was notably stronger, $\beta = .36$, $SE = .035$, $p < .001$. Viewed

another way, when perceived performance was high (1 *SD* above grand mean), self-concordance was not significantly associated with meaning, $\beta = .016$, $SE = .011$, $p = .16$. However, when perceived performance was low (1 *SD* below grand mean), self-concordance was positively associated with meaning, $\beta = .082$, $SE = .020$, $p < .001$.

The same hierarchical linear model was conducted with positive affect as the dependent variable. Results are presented in Table 2 and Figure 2. Both perceived performance and self-concordance significantly predicted positive affect ($\beta = .49$, $SE = .049$, $p < .001$ and $\beta = .15$, $SE = .038$, $p < .001$, respectively). However, the two did not significantly interact, $\beta = -.023$, $SE = .035$, $p = .51$.

Discussion

As in Study 1, we found that goal self-concordance moderated the effect of perceived goal performance on goal meaning. Even for goals that last for 2 to 3 months, self-concordance compensated for a lack of goal attainment. The pattern of results remained the same when baseline meaning of goal, effort, and meaning in life were statistically controlled for. But again, the compensating effect between self-concordance and perceived performance seemed to be unique to the experience of meaning as the interactive effect was not significant on positive affect. It is worth noting that self-concordance was assessed months before perceived performance and meaning. These prior reports endured as important predictors of the later perceived meaning of the goals and they were not influenced by the goal progress that played out over the course of the rest of the study.

Given the consistent evidence across Studies 1 and 2 for short- and long-term personal goals, we extended our investigation to more applied settings. School and work represent two contexts where experiences are composed mostly of goal-directed behaviors (e.g., taking courses, engaging in job task). From a practical perspective, it is important that people see their learning or work experiences as meaningful, rather than as a waste of time. Therefore, in Studies 3 through 5, we examined whether self-concordance and perceived performance would compensate for each other in providing meaning in academic and workplace settings.

Study 3

In Study 3, we examined undergraduate students' sense of meaning and positive affect associated with completing various courses. In line with Studies 1 and 2, we hypothesized that we would observe a negative interaction between self-concordance and perceived performance on the perceived meaning of courses (but not on positive affect).

Method

Participants. One hundred twelve undergraduate students (50 men, 62 women) from Nanjing University (China) participated

in this study. Participants were recruited via advertisements posted online. In the advertisements, we invited students to take part in a survey concerning university life. Because participants would be asked to recall the courses they took during previous semesters, we stated clearly that freshmen were not eligible. The mean age of participants was 20.34 years ($SD = 1.54$). They received CNY30 (around US\$4.5) for their participation. Five participants did not complete all the questionnaires and had to be excluded from further analysis.

Procedure. Participants completed the questionnaires in semiseparated cubicles in our laboratory. Participants were asked to recall five courses they took during the previous academic year. Regarding each course they listed, participants rated the reasons for choosing it and their perceived performance in the course. Participants also reported positive affect and personal meaning associated with each course.

Measures

Course self-concordance. Participants rated their motivations for taking the courses using the same items as in Studies 1 and 2, with the target being evaluated changed from goals to courses. Answers were made on a 7-point Likert-type scale ranging from 1 (*not at all for this reason*) to 7 (*completely because of this reason*). A self-concordance score was created for each course by summing the identified and intrinsic scores and subtracting the introjected and external scores.

Perceived course performance. Two items assessed participants' perceived performance in each course, "How well did you perform in this course?" (from 1 = *very badly* to 7 = *very well*), and "Are you satisfied with your performance in the course?" (from 1 = *not at all* to 7 = *very satisfied*). Responses to the two items were averaged (Cronbach's $\alpha = .73$).

Positive affect. Participants indicated to what extent they felt positive affect during each course on a single item: "How much pleasure or enjoyment did you have from learning the course?" Responses ranged from 1 (*not at all*) to 7 (*very much so*).

Meaning in attending courses. One item assessed the level of meaning participants experienced from each course: "How meaningful is the experience of learning this course to you?" Answers were made on a 7-point Likert-type scale ranging from 1 (*completely meaningless*) to 7 (*very meaningful*).

Results and Discussion

Descriptive statistics are presented in Table 1. All the variables were significantly correlated. Because courses were nested within individuals, we again used hierarchical linear models to examine our hypotheses.

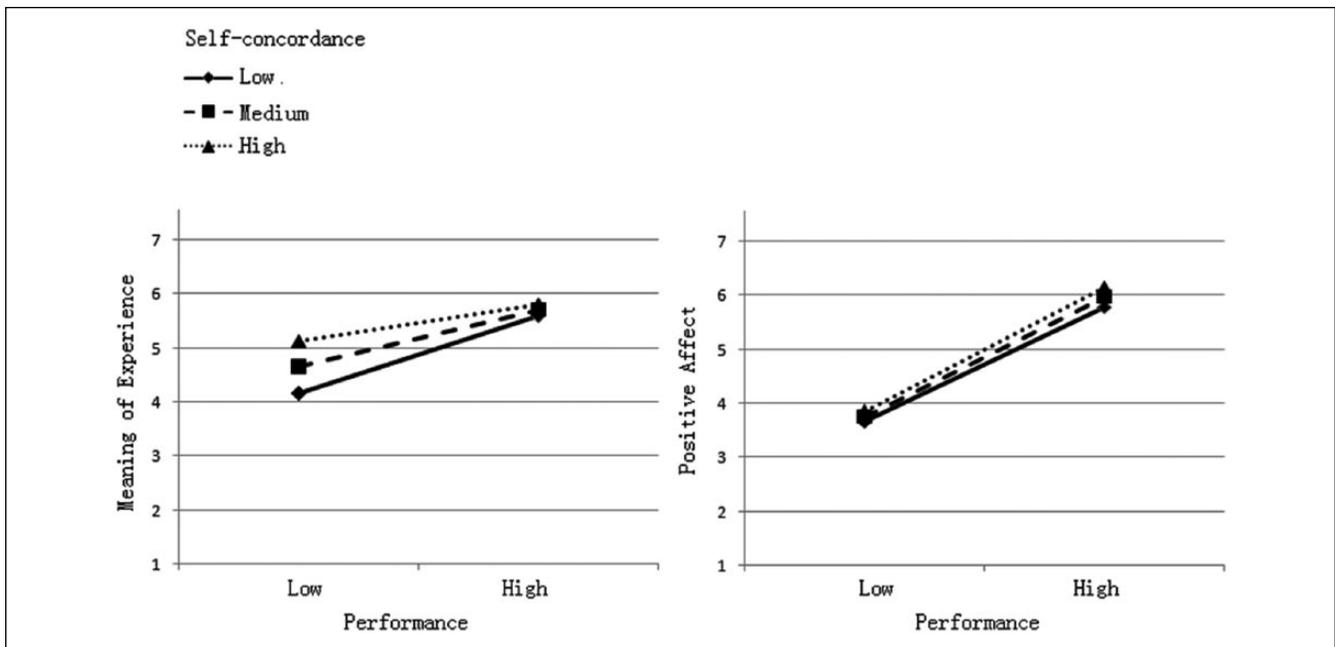


Figure 3. Interaction between self-concordance and perceived performance on meaning and positive affect (Study 3).

On the course level, we included self-concordance, perceived course performance, and their interaction. On the individual level, we included random effects for the intercept. In addition, we adjusted the intercept with age and gender. Results are presented in Table 2. The fixed effect of the interaction term was significant, $\beta = -.10$, $SE = .041$, $p = .014$. The interaction effect was significant within-individual, $\beta = -.13$, $SE = .047$, $p = .008$, but not between-individual, $\beta = -.05$, $SE = .13$, $p = .72$ (Table 3).

We delineated the interaction following the procedure suggested by Preacher et al. (2006). As shown in Figure 3, the association between perceived course performance and meaning varied as a function of self-concordance. When self-concordance was high (1 SD above grand mean), perceived performance significantly predicted meaning, $\beta = .22$, $SE = .078$, $p = .006$. When self-concordance was low (1 SD below grand mean), the association between perceived performance and meaning was substantially larger, $\beta = .47$, $SE = .071$, $p < .001$. If we treat perceived performance as the moderator, we can see that when perceived performance was high (1 SD above grand mean), self-concordance was not significantly associated with meaning, $\beta = .019$, $SE = .020$, $p = .31$. However, when perceived performance was low (1 SD below grand mean), self-concordance positively predicted meaning, $\beta = .080$, $SE = .021$, $p < .001$.

Only perceived performance ($\beta = .62$, $SE = .039$, $p < .001$), but not self-concordance ($\beta = .061$, $SE = .039$, $p = .12$), significantly predicted positive affect (Table 2). Moreover, self-concordance did not significantly moderate the effect of perceived performance on positive affect, $\beta = .015$, $SE = .034$, $p = .65$.

As hypothesized, we observed that self-concordance attenuated the relationship between perceived course performance and meaning in course attendance. This compensation process again did not emerge for positive affect. Unlike in cases of personal goals, positive affect experienced in attending courses seemed to only be a product of satisfactory performance. One potential explanation might be that perceived performance in courses is more consequential than the attainment of personal goals. Hence, perceived course performance might have played a more important role in the experience of positive affect and overshadowed the effect of self-concordance. In Study 4, we extended our investigation to another applied setting: the workplace.

Study 4

In organizational settings, job tasks represent the most prevalent form of goal-directed behaviors. Being able to see meaning in these experiences may be key to a global sense of meaning in one's career. In Study 4, we examined whether self-concordance in job tasks would moderate the effect of perceived task performance on meaning in job tasks. We also examined whether the interaction between perceived performance and self-concordance could be generalized to a different culture by recruiting participants from the United States.

Method

Participants and procedure. We recruited 200 fully employed adults (99 women, 101 men) on Mturk. The mean age was 35.64 years ($SD = 10.70$, ranged from 21 to 64). The majority

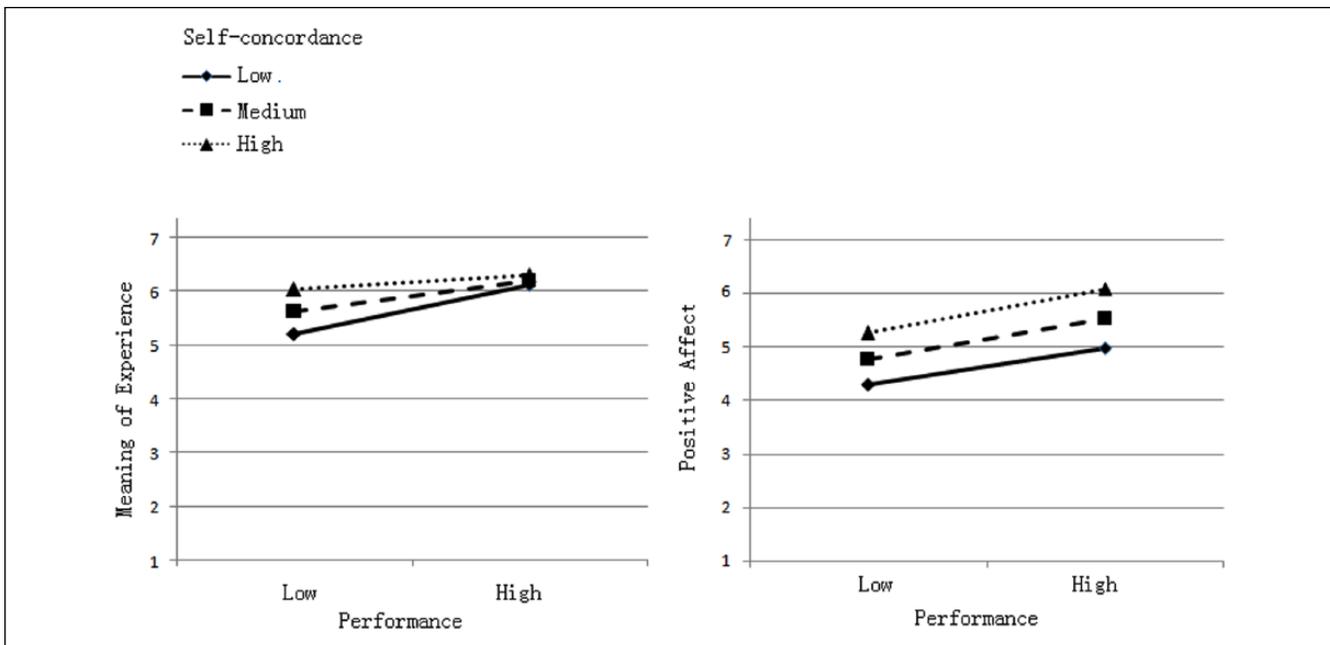


Figure 4. Interaction between self-concordance and perceived performance on meaning and positive affect (Study 4).

of the participants had at least some college education. The survey consisted of two online sessions that were separated by 1 week. Both sessions were conducted during the weekend. In the first session, participants were asked to briefly describe three job tasks they intended to accomplish in the next week. For each job task, they reported the reasons why they would engage in the task. In the second session, participants recalled the tasks they listed in the week before, reported their perceived performance on each task, as well as their experiences of meaning and positive affect. Among the 200 participants, eighty-nine completed both surveys and provided 223 tasks that could be matched across the two sessions. No significant differences were found between those who were retained and those who dropped out in terms of any of the initial variables (i.e., age, gender, and goal self-concordance). Participants were paid US\$0.35 for participating in each session.

Measures

Task self-concordance. Participants rated the same four types of motivations for engaging in the job tasks as in Studies 1 to 3. We modified the item to measure intrinsic motivation so as to be more in line with previous measures. The item reads as follows: “Because of the fun and enjoyment that it would provide me.” Other measures were the same as in Studies 1 to 3, with the target being evaluated changed to be job tasks.

Perceived task performance, task meaning, and positive affect. We measured perceived task performance with one single item: “I performed well on the task.” One item, “I think

the task is meaningful,” and one item, “I enjoyed doing the task” measured meaning of task and positive affect, respectively. Answers were made on a 7-point Likert-type scale and ranged from 1 (*strongly disagree*) to 7 (*strongly agree*).

Results and Discussion

Descriptive statistics are presented in Table 1. As job tasks were nested within individuals, we used hierarchical linear models to examine our hypotheses. On the task level, we included self-concordance, perceived task performance, and their interaction. On the individual level, we adjusted the intercept with age and gender. Significant fixed effects of perceived performance and self-concordance emerged, β s = .24 and .21, SE s = .057 and .066, ps < .001 and .003, respectively. The interaction effect was also significant, β = -.13, SE = .052, p = .015 (see Table 2). Further analyses showed that in contrast to Studies 1 to 3, the between-individual component was significant, β = -.28, SE = .12, p = .026, but not the within-individual component, β = -.28, SE = .18, p = .12.

We then delineated the interaction following the procedure suggested by Preacher et al. (2006). As shown in Figure 4, the association between perceived task performance and meaning of goal varied according to self-concordance. When self-concordance was low (1 SD below grand mean), perceived performance predicted meaning significantly, β = .41, SE = .12, p < .001. This effect disappeared when self-concordance was high (1 SD above grand mean), β = .12, SE = .092, p = .20. The interaction can also be delineated as, when perceived task performance was low (1 SD below grand mean), self-concordance significantly predicted task meaning, β =

.11, $SE = .044$, $p = .012$. When perceived task performance was high (1 SD above grand mean), the association between self-concordance and task meaning became nonsignificant, $\beta = .02$, $SE = .035$, $p = .49$.

Both self-concordance and perceived performance significantly predicted positive affect ($\beta = .33$, $SE = .070$, $p < .001$ and $\beta = .22$, $SE = .062$, $p = .001$, respectively; Table 2). However, the interaction between self-concordance and perceived performance on positive affect was nonsignificant, $\beta = .036$, $SE = .058$, $p = .53$.

Taken together, we observed the same compensation pattern between self-concordance and perceived performance on perceived meaning in job tasks, but not on positive affect. One question that follows is whether people would also be able to maintain a global sense of meaning in work through the compensation between self-concordance and perceived performance. Meaning in work is conducive to a variety of positive work-related outcomes, such as work commitment (Steger et al., 2012). Therefore, it is of both theoretical and practical value to test whether the compensation between self-concordance and perceived performance might hold for meaning in work. We thereby tested this possibility in Study 5.

Study 5

Jobs are comprised of various specific job tasks that constitute goal-directed behaviors. The meaning of these specific tasks may vary but the meaning of the job as a whole may vary as well. Similarly, employees' motivations behind engaging in a job may also be located along the intrinsic-extrinsic continuum. For instance, a job may be chosen because it fits individuals' strongly held interests and values (i.e., for intrinsic reasons) or because of the salary and benefits it offers (i.e., for external reasons). Thus, Study 5 examined whether self-concordance in choosing a job would attenuate the link between perceived job performance and meaning in work. Unlike Studies 1 to 4, we did not measure perceived performance of a specific goal, but made a global appraisal of how well people considered they had performed their jobs. Thus, Study 5 involves more global judgments than previous studies, but is still not as global as a judgment of a person's life as a whole. In other words, Study 5 involves judgments of a specific life domain that is goal-laden at both the specific and broad level.

We also assessed job satisfaction, a variable related to but conceptually distinct from meaning in work (Steger et al., 2012). We tested whether job satisfaction was subject to the interaction between self-concordance and perceived performance too. If the interaction effect was significant on meaning in work but not on job satisfaction, it would add to our contention that the effect is unique to meaning judgments.

Method

Participants and procedure. We contacted the human resource managers of five medium companies in Shenzhen

(a metropolis in South China), asking them to deliver the questionnaires to interested employees. Employees who voluntarily participated in the survey completed the questionnaires in paper-and-pencil format, and mailed them directly to us within a month. We received completed questionnaires from 655 participants (304 men, 351 women). Their ages ranged from 18 to 58 years ($M = 29.48$, $SD = 5.68$). The sample encompassed a broad range of occupations, including administrators, consultants, engineers, salesmen, and so forth. On average, participants had been working in the current position for 5 years ($SD = 4.49$, ranging from 1 month to 35 years). The majority of participants had completed at least 3 years of college education ($n = 587$, 89.6%). Most of them reported no religious beliefs ($n = 580$, 88.5%). The average monthly income for the sample was around CNY8,000 (US\$1,150).

Measures

Job self-concordance. Participants rated their motivations for choosing their current job using the same items as in Studies 1 to 3, with the target being evaluated changed to job. Answers were made on a 9-point Likert-type scale ranging from 1 (*not at all for this reason*) to 9 (*completely because of this reason*). A self-concordance score was created by summing the identified and intrinsic scores and subtracting the introjected and external scores.

Perceived job performance. We developed four face-valid items to measure participants' overall appraisal of how well they performed their jobs: "Compared to my colleagues, I have greater potentials," "Compared to my colleagues, my work performance is better," "My job performance is outstanding," and "My job performance is highly evaluated by my colleagues and supervisor." Participants responded to the items on a 7-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*; Cronbach's $\alpha = .85$).

Meaning in work. Meaning in work was assessed through the Work and Meaning Inventory (WAMI; Steger et al., 2012). The WAMI contains three subscales: *greater good motivation* (i.e., seeing work as serving a higher purpose), *positive meaning* (i.e., experiencing positive meaning in work), and *contribution to meaning-making* (i.e., seeing work as an avenue for meaning-making). Sample items are "I have a good sense of what make my work meaningful" (positive meaning), "I view my work as contributing to my personal growth" (contribution to meaning-making), and "My work really makes no difference to the world" (greater good motivations; reverse scored). Cronbach's alphas for the three subscales were .78 (positive meaning), .74 (contributions to meaning making), and .64 (greater good motivation), respectively. We combined all the items to form an index of meaning in work (Cronbach's $\alpha = .85$).

Job satisfaction. Job satisfaction was measured with three items: "I feel fairly well satisfied with my present job," "I

consider my job rather pleasant,” and “My job is better than most” (Cronbach’s $\alpha = .76$).

Results

Descriptive statistics are listed in Table 1. We conducted hierarchical regressions to predict meaning of work and job satisfaction. Table 4 presents the results. It can be observed that job self-concordance significantly moderated the association between perceived job performance and meaning of job, $\beta = -.41$, $t = -2.68$, $p = .008$, but not the association between perceived job performance and job satisfaction, $\beta < .001$, $t < .001$, $p = 1.00$.

We adopted Aiken and colleague’s (1991) procedure to illustrate the interaction between perceived job performance and self-concordance on meaning of job. Perceived job performance was highly associated with meaning of work when self-concordance was low (1 *SD* below mean), $\beta = .54$, $t = 13.76$, $p < .001$. This association was weaker when self-concordance was high (1 *SD* above mean), $\beta = .39$, $t = 10.31$, $p < .001$. Self-concordance significantly predicted meaning of work when perceived job performance was high, $\beta = .017$, $t = 2.39$, $p = .017$. However, when perceived job performance was low, the association between self-concordance and meaning of work was even stronger, $\beta = .047$, $t = 6.46$, $p < .001$ (see Figure 5).

Discussion

Instead of focusing on concrete goals and tasks, Study 5 examined the interaction between self-concordance and perceived performance on individuals’ perceptions of their jobs. In addition, it should be noted that some of the job performance items used in Study 5 assessed performance relative to one’s peers (e.g., “Compared to my colleagues, my work performance is better”). This is different from the performance measures in previous studies (e.g., “I performed well”). Yet, the results of Study 5 were in line with those from Studies 1 to 4, suggesting that the compensation between self-concordance and perceived job performance held for meaning in work. Participants who chose their current jobs for self-concordant reasons (vs. controlled reasons) experienced a higher level of meaning in work when they perceive their job performance as not satisfactory. In contrast, self-concordance and perceived job performance did not interact to predict job satisfaction. Together with Studies 1 to 4, Study 5 demonstrated that self-concordance and perceived performance can somewhat compensate for each other uniquely to maintain a positive sense of meaning.

Meta-Analysis

We conducted a random-effects meta-analysis to examine the overall interaction effect between self-concordance and perceived performance on meaning judgments across the five

Table 4. Meaning of Work and Job Satisfaction as Predicted by the Interaction Between Self-Concordance and Job Performance (Study 5).

	Meaning of work	Job satisfaction
Age	-.067	-.067
Gender	-.019	-.016
Self-concordance	.56***	.14
Perceived job performance	.60***	.45***
Self-concordance \times Perceived job performance	-.41**	<.001

Note. Gender is dummy coded as 1 = female, 0 = male.

** $p < .01$. *** $p < .001$.

studies. The overall interaction effect was significant, $r = -.14$, 95% confidence interval (CI) = $[-.10, -.19]$, $z = 6.48$, $p < .001$. Moreover, the test for residual heterogeneity was nonsignificant, $\tau^2 = .013$, $Q_E(4) = 4.23$, $p = .41$, suggesting that the effect was uniform across meaning in personal goals, tasks in academic and workplace settings, and work in general.

General Discussion

Experiences of meaning often persist despite frustrations and setbacks (e.g., Baumeister et al., 2013; Frankl, 1969; Park, 2010). This may be partially due to people’s ability to find meaning through multiple sources and substitute one source of meaning (e.g., perceived performance) with another (e.g., self-concordance). Across five studies, we found consistent evidence for this hypothesis. We observed that when performance on personal goals (Studies 1 and 2) or courses (Study 3) was perceived as poor, individuals could still maintain a sense of meaning if these goals or courses were initially chosen for self-concordant reasons. The same interaction pattern was observed in a workplace setting both in terms of the perceived meaning of specific job tasks (Study 4) and a more global sense of meaning in one’s work (Study 5). In addition, this pattern of interaction appeared to be at least somewhat unique to judgments of meaning. When the outcome variable was positive affect (Studies 1-4) or job satisfaction (Study 5), we no longer observed the interaction between self-concordance and perceived performance. These results were remarkably similar across two different cultures (China, United States) and different types of goal experiences (short-term goals, academic courses, long-term goals, work tasks).

Implications for the Compensation Process in Meaning-Making

Our findings fit into a line of previous research (Hicks & King, 2008, 2009; Hicks et al., 2010), suggesting a general compensation mechanism in how people judge meaning. When one information source does not adequately confirm meaning, people rely on alternative sources of information.

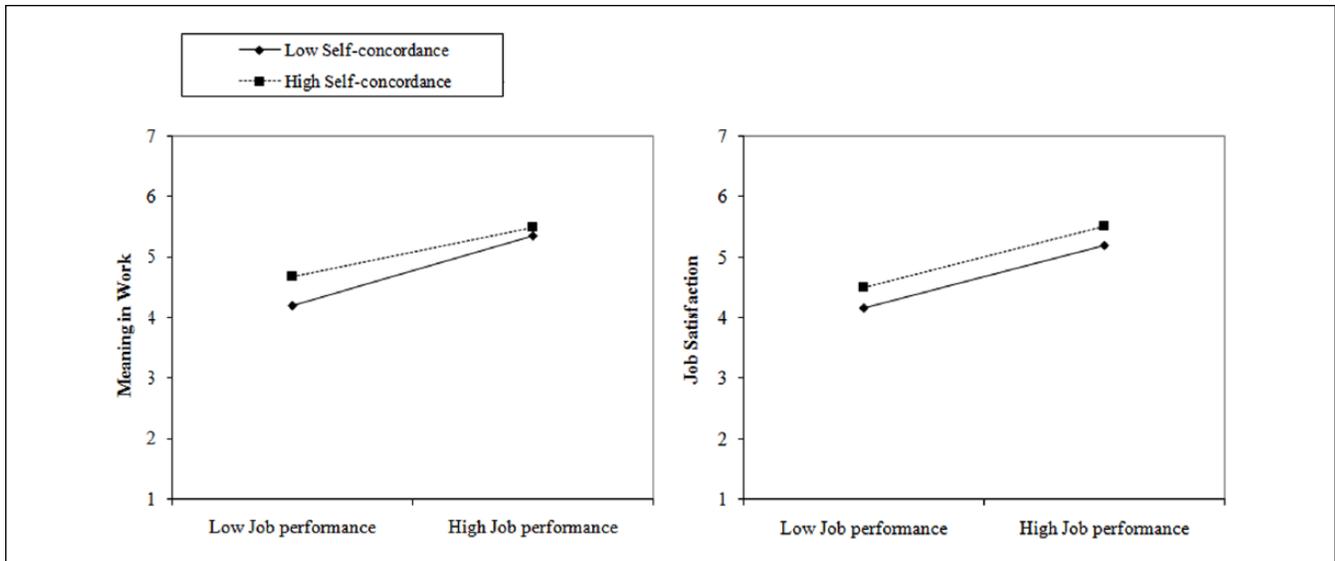


Figure 5. Interaction between self-concordance and perceived job performance on meaning in work and job satisfaction (Study 5).

While previous investigation focused on the compensation between categorically different domains (e.g., religion and positive affect, Hicks & King, 2009), we found a subtler form of compensation in that different *features* of the *same* goal were able to compensate for each other to maintain goal-level meaning. This implies that to find meaning, individuals may only need to reframe the source they have at hand, rather than to resort to other sources. As long as individuals turn to “confirmative” features of the same source, they can maintain a positive sense of meaning.

Our evidence also extended the literature by examining this compensation effect on goal-directed behaviors. This is unique to the extent that most existing research on compensation in meaning judgments examines one’s global sense of meaning in life as opposed to meaning in more specific personal events (though see Park, 2013; Park, Edmondson, & Mills, 2010; Steger & Park, 2012, for exceptions that examine meaning in daily experiences). The current research suggests that individuals are motivated not only to maintain global meaning in life, but also to maintain a positive meaning in goal-directed behaviors. The focus on meaning in goal pursuits in the current work is also unique to the extent that studies of meaning in goal pursuits per se are relatively absent from the literature (see Goldberg, Brintnell, & Goldberg, 2002 for an exception). This is somewhat surprising, given that people are constantly pursuing goals (e.g., Emmons, 2003; Sheldon, 2014) and investing great effort into their pursuits. Given the level of investment, it makes sense that individuals are evaluating whether their effortful goal-striving experiences are meaningful, just as they are judging whether their experiences, days, and lives have meaning. Furthermore, it is the meaning experienced in these

mundane everyday behaviors that presumably imbues life as a whole with meaning.

Implications for the Self-Concordance Model and SDT

Findings from the current studies bear intriguing implications for research on the self-concordance model and SDT (Ryan & Deci, 2000a, 2000b, 2017; Sheldon & Elliot, 1999). The self-concordance model focuses on the reasons individuals choose a personal goal and suggests that choosing goals for self-concordant (vs. controlled) reasons will lead to better performance and well-being. However, the model is relatively silent with regard to how individuals will react when they fail to achieve self-concordant goals. If anything, the self-concordance model suggests that failures in self-concordant goals are even more detrimental than failures in controlled goals, as setbacks may be “particularly frustrating or disappointing when the goals represent efforts towards growth and self-expansion” (Sheldon & Elliot, 1999, p. 484). Our results showed that the perceived meaning of engaging in self-concordant goals was not entirely dependent on the outcomes of the goals. Hence, the effect of self-concordance may be more robust than it has sometimes been conjectured, at least in terms of meaning judgments.

This pattern of results may be accountable within the tenets of the more general theory of SDT. Theorists of SDT outline three features of experience from which people draw meaning: a sense of autonomy (self-concordance), a sense of connection to interpersonally related others, and a sense of competence (i.e., “effectance in negotiating the terrain of life,” Ryan & Deci, 2000b, p. 326, also see Ryan & Deci,

2017). In the context of the current research, perceived performance may be seen a proxy for *competence*, a viable source of meaning. Indeed, results across the five studies suggest that perceived performance seems to dominate the judgments of goal meaning—even more so than initial self-concordance (see also Patrick, Knee, Canevello, & Lonsbary, 2007; Talley, Kocum, Schlegel, Molix, & Bettencourt, 2012). When perceived performance was high, even low self-concordant goals were judged to have as much meaning as highly concordant goals. On the contrary, perceived goal performance still mattered (though to a lesser extent) when self-concordance was high. Our findings thereby shed light on how individuals are able to draw meaning from goals initially not concordant with the self.

Still, our results are somewhat at odds with a few previous studies demonstrating a positive (rather than negative) interaction between goal self-concordance and goal progress in predicting well-being (e.g., Nix, Ryan, Manly, & Deci, 1999; Sheldon & Elliot, 1999; Sheldon & Kasser, 1998). A positive interaction suggests that failures in self-concordant goals are more detrimental than failures in controlled goals. One way to resolve this ostensible conflict is to take into account potential differences between meaning and the other types of well-being examined in earlier research (e.g., life satisfaction). Although the experience of failure in a self-concordant goal may be painful, it makes sense that people may still be able to perceive the meaning in that experience. This may reflect the more general ability people have to find meaning in negative experiences. Indeed, a whole host of research demonstrates that even very negative experiences, such as traumatic events, can be perceived as meaningful (e.g., see Park, 2010 for a review) and serve as a source of personal growth (e.g., Calhoun & Tedeschi, 2014; Hefferon, Grealy, & Mutrie, 2009). A less extreme version of this meaning appraisal may be playing out in the face of failed self-concordant goals.³ It should be emphasized that we are not arguing that meaning is completely separable from other types of well-being. As in previous studies (e.g., Kashdan et al., 2008), meaning was indeed highly correlated with positive affect in the current investigation. However, we tentatively suggest that the mechanisms through which people establish and maintain meaning may be different from the process people make other, more affective judgments of well-being—meaning may be found in unenjoyable experiences, particularly if those experiences are tied to the self (e.g., Baumeister et al., 2013; Hansen, 2012; Park, 2005).

Potential Boundary Conditions, Practical Implications, and Future Directions

Although we found consistent evidence for a negative interaction between self-concordance and performance on meaning judgments across five studies, there may be potential boundary conditions of this effect. For example, whereas some behaviors (e.g., searching for an ideal mate) are regarded

as important, others (e.g., eating snacks) are normally deemed as trivial. When a goal is trivial, it is, by definition, meaning-irrelevant. The attainment of such goals is unlikely to induce meaning even when they are self-concordant because it might not have any lasting or significant impact on someone's life. In addition, some behaviors, such as learning, might not have a salient performance component. When people engage in these behaviors, they may not conceive of their goals as reaching some preestablished standards, but rather an opportunity to explore and learn from the experience. When people focus on learning as opposed to performance, they are less likely to be threatened by negative information (Cianci, Klein, & Seijts, 2010; Deci, Koestner, & Ryan, 1999) and we may be less likely to observe the compensation effect.

In addition, at this point, it is not clear yet whether the mutual compensation between self-concordance and perceived performance is adaptive. On one hand, individuals' views of themselves may change as they receive feedback about what they are good at. On this view, the high levels of meaning reported by our participants may signal that the goals have become self-concordant over time (recall in Studies 1 and 2 self-concordance was measured at a prior point in time and not reassessed at the same time as the meaning measures). If people perceive meaning when they have performed well, this may lead them to embrace goals that they have performed well at wholeheartedly and come to believe such goals reflect their true values and interests (Sheldon & Houser-Marko, 2001). In this way, goal pursuits that are initially non-self-concordant may be experienced as positive "self-discoveries" about who one really is (Bench, Schlegel, Davis, & Vess, 2015; Schlegel, Vess, & Arndt, 2012) and over time becomes self-concordant. This could provide a healthy narrative about one's goal pursuit and also provide motivation to persist in the case of potential setbacks in the future. The compensation may thus serve as an adaptive coping strategy toward non-self-concordant goal pursuits.

On the contrary, the compensation might also lead individuals to continue goal pursuits incongruent with their inner selves only because these goals produce "tangible" success. This could help explain why people sometimes end up in careers that feel personally unsatisfying. At one point in time, the career may have felt meaningful because one was performing well in that domain, even though it was low in self-concordance. In other words, people may be reinforced into pursuing non-self-concordant goals, which may have a variety of negative consequences (e.g., Milyavskaya et al., 2009; Sheldon & Kasser, 1998; Sheldon & Niemiec, 2006). In addition, individuals may have difficulties in giving up unattainable goals when they believe these goals reflect their true selves, which may have adverse consequences in their lives. We speculate that whether this compensation process is adaptive or not could be subject to the features of a goal (e.g., whether the goal is able to provide need satisfaction and personal growth), general individual differences (e.g., motivational orientations toward seeking discovery and expression

of the authentic self; Deci & Ryan, 1985), as well as their interactions. Future research may examine the interaction of these factors as well as the long-term consequences of the compensation process on goal pursuit and attainment.

Limitations

The current research has several limitations to be addressed by future studies. First, we frequently used single-item measures that likely increased measurement error. This issue arose, in part, because participants were usually rating a number of goals on each of the constructs we assessed and we needed to keep the surveys manageable. This repetition of items somewhat attenuates the concerns; however, the use of single items remains less than ideal.

Second, the five studies we reported here were all correlational. Hence, we are unable to establish a causal relationship. The prospective approach in Studies 1, 2, and 4 ensured our measures of self-concordance were not contaminated by judgments of meaning (thus ruling out the possibility that when goals are perceived as meaningful, they are automatically “self-concordant”). However, it is likely that meaning judgments may have influenced individuals’ ratings of perceived performance. The prospective surveys tracing ongoing goals or tasks also had the merit of ecological validity. The tradeoff, nonetheless, was that we were unable to determine how the compensatory process unfolds as all measures were self-reported. We were inclined to suggest that self-concordance and perceived performance can mutually compensate each other. But it is possible that the compensation is unidirectional. For instance, engaging in self-concordant goals may be inherently meaningful and people compensate low self-concordance with perceived performance to maintain meaning, but not vice versa. To be certain about this process, future research should incorporate experimental procedures, such as to manipulate self-concordance or perceived performance.

A related issue is that we examined exclusively the subjective perception of performance. From our standpoint, perceiving oneself as having performed well is a key avenue for meaning-making. Yet, it remains open whether such perception is always accurate and whether objective attainment of a certain performance level, regardless of how people feel about it, will interact with self-concordance in the way we found. Future research could use more objective indicators (e.g., grade point average [GPA]) to assess performance so as to clarify if the compensation holds true regardless of people’s perceptions of their performance.

Finally, we would like to note some constraints over the generalizability of our findings. It is a strength of the current work that we collected samples from two different cultures (i.e., China and the United States) and a variety of settings (i.e., school and workplace). As such, what we have found are likely to hold true across cultures and among nonacademic populations. However, as we mentioned

above, the results probably do not apply to relatively trivial goals or goals that lack a clear performance component. It is also unclear whether the findings would generalize to objective goal performance as opposed to subjective performance. We have no reason to believe that the results depend on other characteristics of the participants, materials, or context.

Conclusion

Across five studies, we found consistent support that self-concordance negatively interacts with perceived performance in predicting judgments of meaning in goal-directed behaviors. In the judgments of meaning in goal-directed behaviors, our evidence suggested perceived performance might be the vital cue. However, when people do not perform well in the goals they are pursuing, they may rely more on the self-concordant reasons they engaged in the goal as an alternative source for meaning judgments. Thus, in line with some existing perspectives (Baumeister et al., 2013; Frankl, 1969; Park, 2010), we contend that the pursuit for meaning is resilient and people are able to compensate one source of meaning with another. Even at times of frustration or setbacks, individuals can still find meaning in what they have done.

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Notes

1. In all the studies reported here, the results are unchanged if we don’t control for age or gender. We originally included random effects of the slopes wherever the model can converge with the components included (i.e., in Studies 2 and 3), so as to explore whether the slopes varied across individuals. As we are not conceptually interested in this question and the random effects were all nonsignificant, we decided to exclude all the random effects of the slopes to make the model consistent across studies.
2. The interaction remains significant if we do not control for baseline meaning of goals, effort, and meaning in life ($\beta = -.13$, $SE = .036$, $p = .001$), or control for either one or two of them.
3. Consistent with this interpretation, we found preliminary evidence that the same interactive pattern was observed for judgments of personal growth and that this may mediate the relationship with meaning judgments in Study 2. Results can be found at <https://osf.io/frx28/>

Supplemental Material

Supplementary material is available online with this article.

References

- Aiken, L. S., West, S. G., & Reno, R. R. (1991). *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, CA: SAGE.
- Bandura, A. (1986). The explanatory and predictive scope of self-efficacy theory. *Journal of Social and Clinical Psychology, 4*, 359-373. doi:10.1521/jscp.1986.4.3.359
- Baumeister, R. F. (1991). *Meanings of life*. New York, NY: Guilford Press.
- Baumeister, R. F., Vohs, K. D., Aaker, J. L., & Garbinsky, E. N. (2013). Some key differences between a happy life and a meaningful life. *The Journal of Positive Psychology, 8*, 505-516. doi:10.1080/17439760.2013.830764
- Bench, S. W., Schlegel, R. J., Davis, W. E., & Vess, M. (2015). Thinking about change in the self and others: The role of self-discovery metaphors and the true self. *Social Cognition, 33*, 169-185. doi:10.1521/soco.2015.33.3.2
- Calhoun, L. G., & Tedeschi, R. G. (2014). The foundations of post-traumatic growth: An expanded framework. In L. G. Calhoun & R. G. Tedeschi (Eds.), *Handbook of posttraumatic growth: Research and practice* (pp. 1-23). New York, NY: Lawrence Erlbaum Associates.
- Cantor, N., & Blanton, H. (1996). Effortful pursuit of personal goals in daily life. In P. Gollwitzer & J. Bargh (Eds.), *The psychology of action: Linking cognition and motivation to behavior* (pp. 338-363). New York, NY: Guilford Press.
- Cianci, A. M., Klein, H. J., & Seijts, G. H. (2010). The effect of negative feedback on tension and subsequent performance: The main and interactive effects of goal content and conscientiousness. *Journal of Applied Psychology, 95*, 618-630. doi:10.1037/a0019130
- Deci, E. L., Eghrari, H., Patrick, B. C., & Leone, D. R. (1994). Facilitating internalization: The self-determination theory perspective. *Journal of Personality, 62*, 119-142. doi:10.1111/j.1467-6494.1994.tb00797.x/full
- Deci, E. L., Koestner, R., & Ryan, R. M. (1999). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological Bulletin, 125*, 627-668. doi:10.1037/0033-2909.125.6.627
- Deci, E. L., & Ryan, R. M. (1985). The general causality orientations scale: Self-determination in personality. *Journal of Research in Personality, 19*, 109-134. doi:10.1016/0092-6566(85)90023-6
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*, 227-268. doi:10.1207/S15327965PLI1104_01
- Deci, E. L., & Ryan, R. M. (2008). Hedonia, eudaimonia, and well-being: An introduction. *Journal of Happiness Studies, 9*, 1-11. doi:10.1007/s10902-006-9018-1
- Emmons, R. A. (2003). Personal goals, life meaning, and virtue: Wellsprings of a positive life. In C. L. M. Keyes & J. Haidt (Eds.), *Flourishing: Positive psychology and the life well-lived* (pp. 105-128). Washington, DC: American Psychological Association.
- Enders, C. K. (2013). Centering predictors and contextual effects. In M. A. Scott, J. S. Simonoff, & B. P. Marx (Eds.), *The SAGE handbook of multilevel modeling* (pp. 89-107). Los Angeles, CA: SAGE.
- Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*, 175-191. doi:10.3758/BF03193146
- Frankl, V. E. (1969). *The will to meaning: Foundations and applications of logotherapy*. New York, NY: New American Library.
- Goldenhuis, M., Laba, K., & Venter, C. M. (2014). Meaningful work, work engagement and organisational commitment. *SA Journal of Industrial Psychology, 40*, Article a1098. doi:10.4102/sajip.v40i1.1098
- George, L. S., & Park, C. L. (2016). Meaning in life as comprehension, purpose, and mattering: Toward integration and new research questions. *Review of General Psychology, 20*, 205-220. doi:10.1037/gpr0000077
- Gillet, N., Lafrenière, M. A. K., Vallerand, R. J., Huart, I., & Fouquereau, E. (2012). The effects of autonomous and controlled regulation of performance-approach goals on well-being: A process model. *British Journal of Social Psychology, 51*, 154-174. doi:10.1111/bjso.12018
- Goldberg, B., Brintnell, E. S., & Goldberg, J. (2002). The relationship between engagement in meaningful activities and quality of life in persons disabled by mental illness. *Occupational Therapy in Mental Health, 18*, 17-44. doi:10.1300/J004v18n02_03
- Hansen, T. (2012). Parenthood and happiness: A review of folk theories versus empirical evidence. *Social Indicators Research, 108*, 29-64. doi:10.1007/s11205-011-9865-y
- Hefferon, K., Greal, M., & Mutrie, N. (2009). Post-traumatic growth and life threatening physical illness: A systematic review of the qualitative literature. *British Journal of Health Psychology, 14*, 343-378. doi:10.1348/135910708X332936
- Heine, S. J., Proulx, T., & Vohs, K. D. (2006). The meaning maintenance model: On the coherence of social motivations. *Personality and Social Psychology Review, 10*, 88-110. doi:10.1207/s15327957pspr1002_1
- Hicks, J. A., & King, L. A. (2007). Meaning in life and seeing the big picture: Positive affect and global focus. *Cognition and Emotion, 21*, 1577-1584. doi:10.1080/02699930701347304
- Hicks, J. A., & King, L. A. (2008). Religious commitment and positive mood as information about meaning in life. *Journal of Research in Personality, 42*, 43-57. doi:10.1016/j.jrp.2007.04.003
- Hicks, J. A., & King, L. A. (2009). Positive mood and social relatedness as information about meaning in life. *Journal of Positive Psychology, 4*, 471-482. doi:10.1080/17439760903271108
- Hicks, J. A., Schlegel, R. J., & King, L. A. (2010). Social threats, happiness, and the dynamics of meaning in life judgments. *Personality and Social Psychology Bulletin, 36*, 1305-1317. doi:10.1177/0146167210381650
- Hirschi, A. (2012). Callings and work engagement: Moderated mediation model of work meaningfulness, occupational identity, and occupational self-efficacy. *Journal of Counseling Psychology, 59*, 479-485. doi:10.1037/a0028949
- Huta, V., & Waterman, A. S. (2014). Eudaimonia and its distinction from hedonia: Developing a classification and terminology for understanding conceptual and operational definitions. *Journal of Happiness Studies, 15*, 1425-1456. doi:10.1007/s10902-013-9485-0
- Kashdan, T. B., Biswas-Diener, R., & King, L. A. (2008). Reconsidering happiness: The costs of distinguishing between

- hedonics and eudaimonia. *Journal of Positive Psychology*, 3, 219-233. doi:10.1080/17439760802303044
- King, L. A., Hicks, J. A., Krull, J. L., & Del Gaiso, A. K. (2006). Positive affect and the experience of meaning in life. *Journal of Personality and Social Psychology*, 90, 179-196. doi:10.1037/0022-3514.90.1.179
- King, L. A., & Napa, C. K. (1998). What makes a life good? *Journal of Personality and Social Psychology*, 75, 156-165. doi:10.1037/0022-3514.75.1.156
- Lambert, N. M., Stillman, T. F., Hicks, J. A., Kamble, S., Baumeister, R. F., & Fincham, F. D. (2013). To belong is to matter: Sense of belonging enhances meaning in life. *Personality and Social Psychology Bulletin*, 39, 1418-1427. doi:10.1177/0146167213499186
- McGregor, I. U., & Little, B. R. (1998). Personal projects, happiness, and meaning: On doing well and being yourself. *Journal of Personality and Social Psychology*, 74, 494-512. doi:10.1037/0022-3514.74.2.494
- Ménard, J., & Brunet, L. (2011). Authenticity and well-being in the workplace: A mediation model. *Journal of Managerial Psychology*, 26, 331-346. doi:10.1108/02683941111124854
- Milyavskaya, M., Gingras, I., Mageau, G. A., Koestner, R., Gagnon, H., Fang, J., & Boiché, J. (2009). Balance across contexts: Importance of balanced need satisfaction across various life domains. *Personality and Social Psychology Bulletin*, 35, 1031-1045. doi:10.1177/0146167209337036
- Nix, G. A., Ryan, R. M., Manly, J. B., & Deci, E. L. (1999). Revitalization through self-regulation: The effects of autonomous and controlled motivation on happiness and vitality. *Journal of Experimental Social Psychology*, 35, 266-284. doi:10.1006/jesp.1999.1382
- Park, C. L. (2005). Religion as a meaning-making framework in coping with life stress. *Journal of Social Issues*, 61, 707-729. doi:10.1111/j.1540-4560.2005.00428.x
- Park, C. L. (2010). Making sense of the meaning literature: An integrative review of meaning making and its effects on adjustment to stressful life events. *Psychological Bulletin*, 136, 257-301. doi:10.1037/a0018301
- Park, C. L. (2013). The meaning making model: A framework for understanding meaning, spirituality, and stress-related growth in health psychology. *European Health Psychologist*, 15, 40-47. Retrieved from <https://www.ehps.net/ehp/index.php/contents/article/viewFile/ehp.v15.i2.p40/1041>
- Park, C. L., Edmondson, D., & Mills, M. A. (2010). Religious worldviews and stressful encounters: Reciprocal influence from a meaning-making perspective. In T. Miller (Ed.), *Handbook of stressful transitions across the lifespan* (pp. 485-501). New York, NY: Springer.
- Patrick, H., Knee, C. R., Canevello, A., & Lonsbary, C. (2007). The role of need fulfillment in relationship functioning and well-being: A self-determination theory perspective. *Journal of Personality and Social Psychology*, 92, 434-457. doi:10.1037/0022-3514.92.3.434
- Preacher, K. J., Curran, P. J., & Bauer, D. J. (2006). Computational tools for probing interactions in multiple linear regression, multilevel modeling, and latent curve analysis. *Journal of Educational & Behavioral Statistics*, 31, 437-448. doi:10.3102/10769986031004437
- Ryan, R. M., & Connell, J. P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. *Journal of Personality and Social Psychology*, 57, 749-761. doi:10.1037/0022-3514.57.5.749
- Ryan, R. M., & Deci, E. L. (2000a). The darker and brighter sides of human existence: Basic psychological needs as a unifying concept. *Psychological Inquiry*, 11, 319-338. doi:10.1207/S15327965PLI1104_03
- Ryan, R. M., & Deci, E. L. (2000b). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68-78. doi:10.1037/0003-066X.55.1.68
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. New York, NY: Guilford Press.
- Schlegel, R. J., Hicks, J. A., Arndt, J., & King, L. A. (2009). Thine own self: True self-concept accessibility and meaning in life. *Journal of Personality and Social Psychology*, 96, 473-490. doi:10.1037/a0014060
- Schlegel, R. J., Hicks, J. A., King, L. A., & Arndt, J. (2011). Feeling like you know who you are: Perceived true self-knowledge and meaning in life. *Personality and Social Psychology Bulletin*, 37, 745-756. doi:10.1177/0146167211400424
- Schlegel, R. J., Hirsch, K. A., & Smith, C. M. (2013). The importance of who you really are: The role of the true self in eudaimonia. In A. S. Waterman (Ed.), *The best within us: Positive psychology perspectives on eudaimonia* (pp. 207-225). Washington, DC: American Psychological Association.
- Schlegel, R. J., Vess, M., & Arndt, J. (2012). To discover or to create: Metaphors and the true self. *Journal of Personality*, 80, 969-993. doi:10.1111/j.1467-6494.2011.00753.x
- Schnell, T. (2011). Individual differences in meaning-making: Considering the variety of sources of meaning, their density and diversity. *Personality and Individual Differences*, 51, 667-673. doi:10.1016/j.paid.2011.06.006
- Scollon, C. N., & King, L. A. (2004). Is the good life the easy life? *Social Indicators Research*, 68, 127-162. doi:10.1023/B:SOCI.0000025590.44950.d1
- Sheldon, K. M. (2014). Becoming oneself: The central role of self-concordant goal selection. *Personality and Social Psychology Review*, 18, 349-365. doi:10.1177/1088868314538549
- Sheldon, K. M., & Elliot, A. J. (1999). Goal striving, need satisfaction, and longitudinal well-being: The self-concordance model. *Journal of Personality and Social Psychology*, 76, 482-497. doi:10.1037/0022-3514.76.3.482
- Sheldon, K. M., & Houser-Marko, L. (2001). Self-concordance, goal attainment, and the pursuit of happiness: Can there be an upward spiral? *Journal of Personality and Social Psychology*, 80, 152-165. doi:10.1037/0022-3514.80.1.152
- Sheldon, K. M., & Kasser, T. (1995). Coherence and congruence: Two aspects of personality integration. *Journal of Personality and Social Psychology*, 68, 531-543. doi:10.1037/0022-3514.68.3.531
- Sheldon, K. M., & Kasser, T. (1998). Pursuing personal goals: Skills enable progress, but not all progress is beneficial. *Personality and Social Psychology Bulletin*, 24, 1319-1331. doi:10.1177/01461672982412006
- Sheldon, K. M., Kasser, T., Smith, K., & Share, T. (2002). Personal goals and psychological growth: Testing an intervention to enhance goal attainment and personality integration. *Journal of Personality*, 70, 5-31. doi:10.1111/1467-6494.00176
- Sheldon, K. M., & Niemiec, C. P. (2006). It's not just the amount that counts: Balanced need satisfaction also affects well-being.

- Journal of Personality and Social Psychology*, 91, 331-341. doi:10.1037/0022-3514.91.2.331
- Sheldon, K. M., Osin, E. N., Gordeeva, T. O., Suchkov, D. D., & Sychev, O. A. (2017). Evaluating the dimensionality of self-determination theory's relative autonomy continuum. *Personality and Social Psychology Bulletin*, 43, 1215-1238. doi:10.1177/0146167217711915
- Snijders, T. A. B., & Bosker, R. J. (1993). Standard errors and sample sizes in two-level research. *Journal of Educational Statistics*, 18, 237-260. doi:10.2307/1165134
- Stauner, N. (2013). *Personal goal attainment, psychological well-being change, and meaning in life* (Doctoral dissertation, Psychology, University of California, Riverside). Retrieved from <http://escholarship.org/uc/item/3t34c68w>
- Steger, M. F., Dik, B. J., & Duffy, R. D. (2012). Measuring meaningful work: The work and meaning inventory (WAMI). *Journal of Career Assessment*, 20, 322-337. doi:10.1177/1069072711436160
- Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, 53, 80-93. doi:10.1037/0022-0167.53.1.80
- Steger, M. F., & Park, C. L. (2012). The creation of meaning following trauma: Meaning making and trajectories of distress and recovery. In T. Keane, E. Newman, & K. Fogler (Eds.), *Toward an integrated approach to trauma focused therapy: Placing evidence-based interventions in an expanded psychological context* (pp. 171-191). Washington, DC: American Psychological Association.
- Talley, A. E., Kocum, L., Schlegel, R. J., Molix, L., & Bettencourt, B. A. (2012). Social roles, basic need satisfaction, and psychological health: The central role of competence. *Personality and Social Psychological Bulletin*, 38, 155-173. doi:10.1177/0146167211432762
- Wood, R., & Bandura, A. (1989). Impact of conceptions of ability on self-regulatory mechanisms and complex decision making. *Journal of Personality and Social Psychology*, 56, 407-415. doi:10.1037/0022-3514.56.3.407
- Wrzesniewski, A., McCauley, C., Rozin, P., & Schwartz, B. (1997). Jobs, careers, and callings: People's relations to their work. *Journal of Research in Personality*, 31, 21-33. doi:10.1006/jrpe.1997.2162
- Yalom, I. (1980). *Existential psychotherapy*. New York, NY: Basic Books.