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What is This?

Where Do Self-Concordant Goals Come From? The Role of Domain-Specific Psychological Need Satisfaction

Marina Milyavskaya[1], Daniel Nadolny[2], and Richard Koestner[3]

Abstract

Previous research has shown that self-concordant goals are more likely to be attained. But what leads someone to adopt a self-concordant goal in the first place? The present research addresses this question by looking at the domains in which goals are set, focusing on the amount of psychological need satisfaction experienced in these domains. Across three experimental studies, we demonstrate that domain-related need satisfaction predicts the extent to which people adopt self-concordant goals in a given domain, laying the foundation for successful goal pursuit. In addition, we show that need satisfaction influences goal self-concordance because in need-satisfying domains people are both more likely to choose the most self-concordant goal (among a set of comparable choices), and are more likely to internalize the possible goals. The implications of this research for goal setting and pursuit as well as for the importance of examining goals within their broader motivational framework are discussed.

Every person has multiple important life goals that they pursue from day to day, often with varying degrees of success for each goal. Although much research has focused on understanding general self-regulation and the goal pursuit process, the reasons why people meet with success in some goal domains while facing failure in others remain unexplored. We are not surprised to hear of politicians, scientists and movie stars who, while successful in their work, face failures in their personal lives; of students who meet their academic goals, while neglecting their physical fitness; or of people who have happy and fulfilling relationships, but never seem to move up the corporate ladder. Beyond the trade-offs in time and energy that people face on a day-to-day basis, the domain in which each goal is situated may play an important role in goal pursuit, and the ultimate success or failure of our goals.

Previous research has shown that goal self-concordance (the extent to which our goals are in accordance with our true self, or our underlying feelings, values and desires; see Sheldon & Elliot, 1999, for a more extensive theoretical explanation of the term), affects how we pursue these goals and whether we ultimately succeed at them. An important aspect of the goal-setting process, however, remains unknown: Why are some goals we set more self-concordant than others? Goals are not set in a vacuum, but emerge within the context of important life domains, which represent "distinct spheres of human activity" (Emmons, 1995) such as work, leisure, relationships, family, or sports, to name a few.

These domains are thus likely candidates for explaining differences in goal self-concordance. In the present article, we propose that self-concordant goals are pursued in those domains that satisfy the basic psychological needs for autonomy, competence, and relatedness.

Self-Concordant Goals and Goal Pursuit

Goal self-concordance has been defined as the extent to which goals and strivings are pursued for autonomous versus controlled reasons and "express enduring interests and values" (Sheldon & Elliot, 1999). Autonomous reasons include pursuing a goal because of interest or enjoyment (*intrinsic*), because of the inherent importance of the goal (*identified*), and because the goal reflects one's values (*integrated*). On the contrary, controlled reasons for pursuing a goal include doing so because of shame, guilt, or other internal pressure such as contingent self-worth (*introjection*), and *external motivation*, which occurs when a goal is pursued because

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someone else wants it or because there are concrete gains or losses (e.g., money or grades) associated with the outcome. Self-concordance is typically calculated by summing the scores indicating endorsement for the autonomous reasons and subtracting the scores of the controlled reasons, or by averaging the autonomous reasons with the reverse scores of the controlled reasons. In other words, the more a goal is pursued for autonomous reasons and the less it is pursued for controlled reasons, the more self-concordant the goal.

Goal self-concordance has been shown to influence well-being through a process that includes goal persistence and attainment. Research has demonstrated that more self-concordant motivation leads to greater long-term effort devoted to achieving the goal (Sheldon & Elliot, 1999), resulting in greater likelihood of success. Goal attainment then leads to increases in feeling of autonomy, competence, and relatedness (Sheldon & Elliot, 1999), which in turn lead to increased well-being (Sheldon & Houser-Marko, 2001). This model has been extensively tested in whole and in parts and shown to work even after taking into account goal-related self-efficacy, goal importance, implementation intentions, behavior competencies, and whether the goal was approach- or avoidance-oriented (e.g., Koestner, Lekes, Powers, & Chicoine, 2002; Sheldon & Elliot, 1999).

One issue that the model has not addressed is why someone would set goals that are more or less self-concordant in the first place. Prior research has examined the role of personality variables, showing that traits including self-esteem, self-efficacy, locus of control, emotional stability, and proactive personality are positively related with the extent to which people set self-concordant goals (Elliot & Sheldon, 1998; Greguras & Diefendorff, 2010; Judge, Bono, Erez, & Locke, 2005). Because individuals who have positive core self-evaluations think of themselves as competent and capable, they are thought to be less amenable to external influence, and therefore more likely to pursue goals for internal reasons (Judge et al., 2005). However, it is likely that even those individuals with generally positive self-regard sometimes set and pursue goals that are controlled rather than autonomous, whereas someone with a generally negative view of self can nevertheless pursue some goals for autonomous reasons. Examining the underlying factors that determine the nature of a specific goal, such as the circumstances or characteristics of the domain in which the goal is set, rather than the broad aggregate of all goals set by a person, can shed light on the reasons why some of the goals we set are more self-concordant than others. For example, it may be that even a person who typically has high self-esteem may lack confidence when it comes to her job and so set less autonomous goals at work, instead following goals that are set for her by her superiors but which she does not personally endorse. Conversely, that same person may feel very competent and close with her family, which allows her to set more autonomous goals for herself in that domain. Focusing on these goals separately rather than aggregating across all of a

person's goals would further our understanding of the important characteristics of goals that influence self-regulation and goal success.

Although goals can exist at multiple levels of abstraction, most research on goal pursuit focuses on personal goals that people can articulate and consciously pursue in their day-to-day lives (Emmons, 1999). This approach assumes that such personal goals are contextual and are linked to broader plans or projects that people hope to accomplish in important areas of their lives. We propose that these broader projects, or domains, typically have many lower-level goals clustered within them, which share common influences and features. In other words, goals within a domain should share an underlying motivational component due to the common forces acting on the individual in that particular domain, even as goals in another domain may be pursued for very different reasons. This was supported in a recent study in which participants were asked their motivation for three goals in two different domains, with results showing that 37% of the variance in goal motivation was due to the domain (with 25% between person and 37% between goals; Milyavskaya, 2013). Taken together, our reasoning suggests that the context, or domain, in which a goal is generated may shape the nature of the goal and consequently affect goal pursuit. Specifically, we expect that individuals set more self-concordant goals in domains in which they experience greater satisfaction of the psychological needs for autonomy, competence, and relatedness.

The Role of Psychological Need Satisfaction

Self-determination theory (SDT) conceptualizes psychological needs not as individual differences but as essential nutrients that are required for optimal psychological growth and well-being (Deci & Ryan, 2000). Unlike other theories that are interested in whether different individuals are more likely to pursue some needs rather than others (e.g., need for achievement; McClelland, 1985), SDT focuses on individual differences in the degree to which each of the three basic needs of autonomy, competence, and relatedness are satisfied in each individual. These three needs are thought to be universal across people and cultures and applicable throughout all aspects of a person's life. Autonomy encompasses experiencing choice and volition in one's behavior and endorsing one's activities and actions in a personally authentic manner. Competence refers to feelings of effectiveness and mastery over one's environment and the ability to bring about desired outcomes. Finally, relatedness involves feeling close and connected to other people in one's everyday interactions. Although a great deal of research has examined the three needs separately, it is theorized that all three needs are essential and that missing any one of these needs result in sub-optimal outcomes (Deci & Ryan, 2000). This is akin to there being only one way of being healthy (when all the

needs are satisfied) but many various ways of being sick (when any one need is not).

Previous research has shown that psychological need satisfaction experienced in a given environment or domain influences people's motivation for pursuing further activities in that domain (Deci & Ryan, 2008). Although this link has been shown to occur in multiple life domains, including school (e.g., Sheldon & Krieger, 2007), health (Hagger, Chatzisarantis, & Harris, 2006), family (Milyavskaya & Koestner, 2011), and relationships (Patrick, Knee, Canevello, & Lonsbary, 2007), it has only been applied to motivation for engaging in the domains per se, and has not yet been applied to goals set in those domains. Goal setting and goal monitoring are thought to be essential requirements for effective self-regulation (Baumeister & Heatherton, 1996), which, in turn, is thought to be the key to adaptive, healthy functioning (Baumeister & Tierney, 2011). Given the large body of research demonstrating the unique and important role played by personal goals (e.g., Bandura, 1991; Dweck, 1991, Freund & Riediger, 2006), it is particularly important to examine motivation for goals rather than motivation for engaging in a domain more broadly. In assessing motivation for a domain, it may be difficult to know what component of a domain participants are thinking of when rating their motivation—is it their day-to-day behaviors, their long-term engagement with the domain, some particular aspect or feature of the domain, or their overall experiences in the domain (see Sheldon, 2014, for a further discussion of this distinction)? In contrast, idiographic goals are specific and personally set, so that the participant knows what they themselves mean by a given goal and can be specific in rating their motivation for the goal. In addition, motivation for engaging in the domain overall and for a goal set in the same domain may also differ. For example, someone may spend time with his family because he enjoys it (autonomous motivation for the family domain), but set for himself the goal of planning a family reunion because other family members expect him to do it (controlled motivation for goal).

Because domains that provide support for the basic psychological needs allow individuals to explore and express their authentic self, individuals experiencing need satisfaction in a given domain should be able to act more in line with their underlying values and beliefs, which would include setting and pursuing goals which are in line with these values and beliefs (i.e., self-concordant goals). In contrast, in domains where the basic psychological needs are not satisfied, people may feel pressured to conform to external standards or others' wishes (Deci & Ryan, 2000). In addition, such non-satisfying domains may lead people to lack self-knowledge, as they have not been able to freely explore action within the domain, or may even lead people to have inaccurate self-knowledge, as their self-perceptions change to match the goals and activities they have felt obligated or been forced to adopt (Fazio, Effrein, & Falender, 1981).

Although an individual may have a specific set of more or less self-concordant reasons for setting a given goal, the motivation for pursuing that goal may also vary. For example, a student whose goal to do well in school originated from her parents may, in the course of pursuing this goal, internalize the goal and feel that it more closely matches her own desires and core self. Given that need satisfaction is thought to facilitate the integrative process (Ryan, 1995), we expected that goals set in a domain where one experiences the satisfaction of psychological needs would be better integrated (i.e., more self-concordant) than those set in domains in which the needs are not satisfied.

Multiple Domains

To date, most studies that examine the progression of goal pursuit ask participants to set multiple goals and then aggregate these goals to compute mean scores on the variables of interest (e.g., Emmons, 1986; Sheldon & Elliot, 1999). This approach allows researchers to link goal-related and personality variables, and has generated a wealth of knowledge on the various aspects of goal pursuit; however, it overlooks potential differences based on the goals themselves. Though some studies do examine goal pursuit in a given domain such as academics (Koestner, Otis, Powers, Pelletier, & Gagnon, 2008), health (Koestner et al., 2008), or sport (Smith, Ntoumanis, & Duda, 2007), to our knowledge only one other study has examined differences in goals arising from the domain level (Sheldon & Elliot, 2000). In that study, the authors examined goal pursuit associated with different social roles, showing that while most goal progress led to similarly positive outcomes, people reported different levels of self-concordant motivation for different roles (Sheldon & Elliot, 2000). In particular, they found that friendship and romance-related goals were more intrinsically motivated, and that student and employment goals were experienced as more controlled (either externally or through introjects). As need satisfaction can vary among domains, and previous research has shown that people typically report different levels of need satisfaction in different life domains (with most need satisfaction reported with friends and in relationships and the least at school and work; Milyavskaya et al., 2009; Milyavskaya & Koestner, 2011), we expect that differences in need satisfaction could be responsible for these differences in goal self-concordance.

Goal Setting and Goal Integration

People may report pursuing more self-concordant goals in need-satisfying domains for two different reasons. First, people may actually select "better" goals in these domains— goals that are more in line with their values and interests. This explanation fits with the original self-concordance model hypothesis that people's deliberations over which goals to choose may be flawed, in that people sometimes choose to pursue goals that are not reflective of their underlying values and interests (Sheldon & Elliot, 1999). In a

domain where basic needs are satisfied, the organismic valuing process described by Carl Rogers (1951), where individuals determine values through their own thoughts and experiences rather than adopting values from others, is likely to function effectively and individuals are likely to pursue goals that reflect their true self. Alternatively, a person may more clearly see the personal relevance, interest, and value of any goals set in a need-satisfying domain (thereby viewing these goals as more self-concordant), such that a goal that is set in a need-satisfying domain is perceived as more personally relevant, interesting, or valuable than the same goal that is set in a non-need-satisfying domain independently of whether the goal originated from within the person themselves or from an outside source. Stated in another way, domain need satisfaction may influence goal pursuit in the *goal setting* phase in which individuals choose which goals to select, or in the *goal striving* phase, when the person is already engaged in goal pursuit (Lewin, Dembo, Festinger, & Sears, 1944). Either or both of these two processes could explain our hypothesized effects.

Present Studies

In three studies, we experimentally test whether people set more self-concordant goals in domains where they experience psychological need satisfaction (vs. non-satisfying domains). The second study also examines the effects of day-to-day variations in need satisfaction on daily goal self-concordance, testing the possibility that increased need satisfaction plays a role in how goals are internalized. Study 3 contrasts the two possible explanations for our findings, namely that people are more likely in general to internalize goals in a need-satisfying domain and that people are more likely to select a self-concordant goal that best fits with their interests and their values.

Study 1

In this study, participants were asked to think about two domains, one in which their psychological needs were satisfied and another in which they were not, and asked to imagine setting a new goal in each of these domains that they had not previously pursued. They then rated the reasons why they would pursue each goal. We hypothesized that goals set in need-satisfying domains would be more self-concordant than goals set in less need-satisfying domains.

Method

Participants and procedure. Participants were 50 American adults (60% female) recruited through Amazon Mechanical Turk for a brief, 10-min study on goals and life domains. They were 18 to 64 years old ($M = 36.2$ years, $SD = 13.35$). Participants were asked to name two domains or activities that were important to them. One was described as meeting

the three needs ("Please think of a domain or activity which is important to you, and in which you are free to make decisions and to do the things you want, and where you feel competent and connected to others."), while the other one was less need-satisfying ("Please think of a domain or activity which is important to you, but which makes you feel pressured or constrained, less competent than you would like to be, and not particularly connected to others."). The order in which these domains were elicited was randomized. Participants then rated their need satisfaction in each of these domains, and were asked to imagine themselves setting a goal in that domain that they were not already pursuing. Finally, they were asked to rate their reasons for pursuing each of these goals.

Measures

Domain need satisfaction. Participants rated each domain on a six-item measure of need satisfaction initially developed for use with memories (Philippe, Koestner, Beaulieu-Pelletier, & Lecours, 2011) and adapted here to assess domains. Sample items include "In this domain I feel free to do things and think how I want" (autonomy), "In this domain I feel competent or capable" (competence), and "In this domain I feel connected to people" (relatedness). One item assessing autonomy was negatively worded ("In this domain I feel obliged to do things or think in certain ways") and reverse-coded. A mean score of overall need satisfaction was obtained for each domain ($α = .75$ for the need-satisfying domain; $α = .68$ for the non-satisfying domain).[1] All responses were made on a 7-point scale of −3 (*strongly disagree*) to 3 (*strongly agree*).

Goal self-concordance. Participants were asked to rate their motivation for pursuing that goal using four items that assessed external ("Because somebody else wants you to, or because you'll get something from somebody if you do"), introjected ("Because you would feel ashamed, guilty, or anxious if you didn't—you feel that you ought to strive for this"), identified ("Because you really believe that it is an important goal to have—you endorse it freely and value it wholeheartedly"), and intrinsic ("Because of the fun and enjoyment which the goal will provide you—the primary reason is simply your interest in the experience itself") reasons for goal pursuit (Koestner et al., 2002). All responses were made on a 7-point scale of −3 (*strongly disagree*) to 3 (*strongly agree*). We computed a general measure of self-concordance for each goal by adding the intrinsic and identified (autonomous) scores and subtracting the external and introjected (controlled) scores.

Results

As a manipulation check, we first wanted to verify that domains generated from the "need-satisfying" description were indeed rated higher on need satisfaction than non-need-satisfying domains. As expected, participants reported higher

need satisfaction in need-satisfying ($M = 5.84$, $SD = .91$) rather than non-satisfying ($M = 3.53$, $SD = 1.04$) domains, $t(48) = 13.16$, $p < .001$, Cohen's $d = 1.88$. We then tested our main hypothesis that people set more self-concordant goals in need-satisfying domains. Results showed that participants did report more self-concordant reasons for pursuing goals set in a need-satisfying domain ($M = 5.80$, $SD = 4.87$) than goals set in a non-need-satisfying domain ($M = 2.29$, $SD = 5.26$), $t(47) = 4.12$, $p < .001$, Cohen's $d = .59$.[2] Finally, we were interested in whether the amount of need satisfaction reported in each domain could predict the self-concordance of the goal set in that domain. Regression analyses showed that this was the case both in the need-satisfying domain, $\beta = .35$, $R^2 = .13$, $F(1, 47) = 6.73$, $p < .05$, and in the non-satisfying domain, $\beta = .39$, $R^2 = .15$, $F(1, 47) = 8.26$, $p < .01$.

Brief Discussion

In this first study, we showed that goals set in need-satisfying domains are more self-concordant than those set in domains in which the basic psychological needs are unsatisfied. Furthermore, we found that in both domains, the amount of need satisfaction reported in the domain predicted the extent to which the goal was pursued for self-concordant reasons. Although need satisfaction and self-concordance were assessed in the same session, it is unlikely that goal self-concordance could have influenced reports of need satisfaction because participants were asked to generate goals that they have not previously pursued. This study thus provides initial evidence that domain need satisfaction is an antecedent of goal self-concordance.

Study 2

We designed a second study to replicate Study 1 with goals that were actually pursued rather than imagined, while allowing us to examine whether changes in need satisfaction also affect self-concordance. Consequently, Study 2 was a week-long daily diary study in which participants were asked to generate and pursue a novel goal in either a need-satisfying or a non-need-satisfying domain. This allowed us to look both at goal self-concordance across experimental conditions, as well as conduct within-person analyses looking at how people's motivation for their goals change across time. We hypothesized that (a) participants asked to generate a goal in a need-satisfying domain (need-satisfying condition) would set more self-concordant goals than those who generated a goal in a domain characterized by a lack of psychological need satisfaction (non-satisfying condition); (b) day-to-day changes in need satisfaction would predict daily feelings of goal self-concordance.

Method

Participants and procedure. One hundred sixty-nine participants (86% female) ages 18 to 48 ($M = 21.15$, $SD = 4.37$) were recruited through online advertisements on the university classified website as well as through the extra-credit subject pool at a large Canadian university. All participants were sent the initial survey on a Sunday morning. In this survey, participants were asked to name either a need-satisfying or non-satisfying domain using the same description as in Study 1, and completed measures of domain need satisfaction. Participants were then asked to think of a new goal in that domain that they would like to accomplish in the next week (and not a goal that they were already pursuing), and rated various features of this goal including goal self-concordance. Examples of reported goals included "attend the gym twice this week," "write three excellent essays," and "learn a finger picking song on guitar." Every day for the seven following days, participants were sent a brief electronic survey at 6:00 p.m. that they were asked to complete by the end of that evening. Each brief survey assessed domain need satisfaction and goal self-concordance experienced during that day.

Measures

Time 1 domain need satisfaction. The 18-item measure of need satisfaction used by Sheldon and Gunz (2009) was adapted for measuring need satisfaction in specific life domains. Items assessed autonomy (e.g., "In this domain, I am free to do things my own way"), competence (e.g., "In this domain I often struggle doing something I should be good at"; reversed), and relatedness (e.g., "In this domain I feel close and connected with other people"). Nine of the 18 items were negatively worded. Responses were made on a 7-point scale, ranging from −3 (*strongly disagree*) to 3 (*strongly agree*). As we were interested in assessing overall domain need satisfaction, we combined all the items to form a measure of overall need satisfaction in the domain. This scale had a good reliability, $\alpha = .88$.

Goal features. Goal self-concordance was assessed using the same four items as in Study 1. In addition, participants rated the importance of the goal ("How important is this goal to you?"), their commitment to the goal ("How committed do you feel toward this goal?"), and the difficulty of the goal ("How challenging do you think it will be to attain this goal?"). Each of these one-item measures was rated on a scale of 1 (*not at all*) to 7 (*extremely*).

Daily domain need satisfaction. On each follow-up, domain need satisfaction was assessed using one item for each need: "Today I felt competent or capable in this domain" (competence); "Today I felt close and connected to other people" (relatedness); "Today I felt free to do things and think how I want" (autonomy). This was rated using a sliding scale with values ranging from 0 to 100. To make the scores more similar to other variables, we scaled the scores by dividing them by 10. The three-item measure was reliable, with alphas ranging from .75 to .87.

Daily self-concordance. Each day, participants were asked to rate their motivation for pursuing that goal on that day using the same four items as at the initial assessment.

Table 1. Mean Domain and Goal Characteristics in Need-Satisfying and Need-Thwarting Conditions in Study 2.

Variable	Need-satisfying (*n* = 83)	Non-need-satisfying (*n* = 86)	*t*	Cohen's *d*
	M (*SD*)	*M* (*SD*)		
Domain need satisfaction	5.00 (0.91)	3.75 (0.64)	10.40**	1.59
Self-concordance	2.43 (5.31)	−0.86 (4.89)	1.20**	.64
Goal importance	5.94 (1.00)	5.92 (1.12)	.13	.02
Goal commitment	5.83 (1.06)	5.63 (1.12)	1.22	.18
Goal difficulty	5.17 (1.44)	5.38 (1.28)	1.03	.15

**p < .001.

Results

We first tested the differences between conditions on initial measures of need satisfaction and goal self-concordance. Supporting the validity of our manipulation, participants in the need-satisfying domain condition reported greater need satisfaction (*M* = 5.00, *SD* = .91) than those in the non-satisfying domain condition (*M* = 3.75, *SD* = .64), *t*(167) = 10.40, *p* < .001, Cohen's *d* = 1.59. To test our first hypothesis, we compared self-concordance across conditions and found that goal self-concordance was higher for those who set a goal in a need-satisfying (*M* = 2.43, *SD* = 5.31) rather than non-satisfying (*M* = −0.86, *SD* = 4.89) domain, *t*(167) = 4.20, *p* < .001, Cohen's *d* = .64. There were no differences between conditions on ratings of importance of the goal, commitment to the goal, or goal difficulty (see Table 1).

To provide a dynamic test of the influence of need satisfaction on motivation, we conducted analyses on the daily reports of motivation. Using multilevel analyses with days nested within individuals, we tested whether self-concordance on a given day could be predicted by a change in need satisfaction from the prior day. Specifically, we predicted that on days on which domain need satisfaction increased participants would endorse the domain-specific goal they were pursuing for more self-concordant reasons, controlling for prior motivation. We included condition as a Level 2 predictor of daily motivation. The change in need satisfaction from the previous day, the prior day's score of need satisfaction (to control for baseline), and the prior day's score of self-concordance were included as predictors at Level 1, with measures specified as repeated across days with a first-order autoregressive covariance structure. Both the prior day self-concordance and the change in need satisfaction were significant predictors, *b* = .92, *SE* = .02, *t*(315.65) = 54.32, and *b* = .21, *SE* = .05, *t*(707.97) = 4.20, respectively, both *p*s < .001. Thus, increased need satisfaction on a given day was associated with feeling greater self-concordance about the goal on that day. Neither condition, nor the previous day's levels of need satisfaction were significant predictors of daily fluctuations in motivation. Follow-up analyses showed that there were no interactions with condition, meaning that the predictors had the same effects on self-concordance across both conditions.[3]

A supplementary examination of the domains that participants selected showed that school was nominated as a need-satisfying domain by 37% of participants and as a non-satisfying domain by 64%. Importantly, the difference in self-concordance between goals set in need-satisfying and non-satisfying domains was the same when looking at the school domain only, suggesting that even within a given domain (e.g., school) experiencing increased need satisfaction leads to more self-concordant goals.

Brief Discussion

In this study, we again showed that people set more self-concordant goals in domains in which they experience need satisfaction. This influence of need satisfaction was restricted to self-concordance, as goal importance, commitment, and difficulty did not differ between conditions. It may be expected that when prompted to set a goal for the purpose of the study, people would be more committed to goals that they would have set for themselves anyways and consider these goals more important. Comparing goals set in the two types of domains on these dimensions allows us to (indirectly) test whether people would be equally likely to actually set the goals in those domains without researcher interference.

Importantly, this study showed that day-to-day changes in need satisfaction result in day-to-day changes in self-concordance, although the goal itself remained the same. This suggests that people are better able to internalize goals when they experience need satisfaction in the domain in which the goal is set. This was the case across both conditions. Participants thus reported selecting more self-concordant goals in a need-satisfying domain, and were also better able to internalize their goals on days when they experienced increased need satisfaction throughout the week. As prior day self-concordance also played a (much larger) role, this finding does not mean that initial goal self-concordance does not matter. Instead, the results of this study suggest that pursuing a goal in a need-satisfying domain can help people to internalize these goals so that even goals that originate from outside the self (e.g., are set because of some external reasons) can become more self-concordant over time if the domain is supportive of basic psychological needs. Although

the internalization of goals is typically examined over a longer time course, our findings suggest that similar effects may be occurring, to some extent, even on a day-to-day basis. For example, a goal of working on writing a course paper can feel personally important and even interesting on days when a student experiences autonomy, competence, and relatedness in his school environment, but less so after a long day of sitting in a classroom where he is made to feel controlled, incompetent, or disconnected.

Study 3

One additional question not fully addressed by the previous studies is *why* people rate goals associated with need-satisfying domains as more self-concordant. First, it is possible that people generally internalize all goals in a need-satisfying domain to a greater extent, such that the goals are the same but people perceive the goals as being in line with their true self. This was partially supported in Study 2, where people's ratings of self-concordance for their goal fluctuated on a day-to-day basis based on their need satisfaction. The second possibility is that people are actually selecting "better" goals—goals that are most self-concordant. Either of these two alternate processes, or their conjunction, may be responsible for our earlier findings that domain need satisfaction influences self-concordance. To distinguish between these two explanations, participants in this study rated their motivation toward four specific goals (which were the same for all participants). The goals were framed as being related to either their most or least need-satisfying domain, and participants were asked to choose which of the goals they would prefer to pursue.

This study also addresses a limitation of the first two studies, which was that participants were led to set goals that they may not have pursued otherwise. This would be especially problematic if there were differences among need-satisfying and non-satisfying domains (such that, for example, people would be naturally pursuing those goals in need-satisfying but not in non-satisfying domains). In the present study, all participant were asked to rate the same four goals, which were narrowly related to meditation so that participants would not have considered any of those specific goals for themselves otherwise (removing any differences between conditions). In addition, we allowed participants to choose which goal to pursue and then provided them with the opportunity to actually follow-up (by requesting more information).

Our hypotheses were based on the two complementary explanations. First, we hypothesized that any goals considered relevant to a need-satisfying domain would be better internalized and rated as more self-concordant than the exact same goals in a non-need-satisfying domain. Second, we expected that people setting goals related to a need-satisfying domain would be more likely to actually select the most self-concordant goal. Finally, we were also interested in whether considering setting a goal in a need-satisfying domain would lead participants to actually take concrete steps toward pursuing that goal.

Method

Participants and procedure. One hundred eighty-two university students (79% female) participating in a large prospective study of goal pursuit completed all materials relevant to the present study. In December, participants completed measures of psychological need satisfaction in four domains (school, social life, health/physical well-being, and activities/hobbies). Two months later (in February), all participants were presented with a brief description of mindfulness meditation, a positive activity that is not inherently domain-specific. We then asked participants to think about how mindfulness meditation could be related to one of the four domains (school, social life, health/physical well-being, hobbies/activities) they were previously asked about. Based on initial ratings of domain need satisfaction, participants were randomly assigned to either write about how learning mindfulness could impact their *most* need-satisfying domain (need-satisfying domain condition) or their *least* need-satisfying domain (non-satisfying domain condition). Participants were then presented with four different goals related to mindfulness practice. They were asked to imagine themselves pursuing each goal, and were asked about their reasons for pursuing the goal, including items assessing both autonomous and controlled motivation. They were then asked to choose which one of the four goals they would pursue if they had to pursue only one. Finally, participants were also asked whether they would want the experimenters to send them additional information on mindfulness by email.

Materials

Domain need satisfaction. Need satisfaction in four domains (school, social life, health, and activities/hobbies) was assessed using the same six items as in Study 1.

Goal self-concordance. Participants were asked to imagine pursuing each of four goals (randomized within participants) related to mindfulness: (a) practicing mindfulness meditation for 15 min every day for the next week, (b) practicing mindfulness meditation for 15 min 3 times a week for the next month, (c) finding some reading materials to further learn about mindfulness meditation, and (d) taking a free online workshop on mindfulness meditation. After each mindfulness goal they rated the extent to which the goal was extrinsic ("Somebody else would want me to pursue this goal, or I would get something from somebody for pursuing it."), introjected ("I ought to strive for this and would feel ashamed, guilty, or anxious if I didn't pursue this goal."), intrinsic ("This goal would provide me with fun and enjoyment, and I would pursue it simply for my interest in the experience itself."), and integrated ("This goal fits well with who I am and reflects what I value most in life."). In line with our other studies, we computed mean goal self-concordance using the

mean of the intrinsic and integrated items and the mean of the reversed extrinsic and introjected items.

Results

To test our first hypothesis that people internalize goals situated in a need-satisfying domain to a greater extent than goals related to a non-satisfying domain, we looked at the mean self-concordance for all four goals in both conditions (related to either a need-satisfying or a non-satisfying domain). A one-way ANOVA showed that there was no difference between conditions in mean goal self-concordance ($M = 4.58$, $SD = .93$ for need-satisfying condition; $M = 4.48$, $SD = 1.10$ for non-satisfying condition), $t(180) = .67$, $p = .50$, Cohen's $d = .10$. However, when we looked separately at autonomous (mean of intrinsic and integrated) and controlled (mean of extrinsic and introjected) motivation, we found that participants in the need-satisfying domain condition reported more autonomous motivation ($M = 4.31$, $SD = 1.49$) than those in the non-satisfying domain condition ($M = 3.83$, $SD = 1.58$), $t(180) = 2.07$, $p = .04$, Cohen's $d = .31$. This was not the case for controlling motivation, $M = 3.15$, $SD = 1.38$ and $M = 2.88$, $SD = 1.27$ for the need-satisfying and non-satisfying conditions respectively, $t(180) = 1.38$, $p = 168$, Cohen's $d = .20$. This provides partial support for the first hypothesized process, that the goals set in a need-satisfying domain are more self-concordant because goals are more likely to be considered in line with the self independently of the goal content.

To test our second hypothesis that people do select more self-concordant goals, we looked at the likelihood of selecting the most self-concordant goal in each condition. A new variable was created based on whether the one goal they selected to pursue was rated as most self-concordant or tied for most self-concordant compared with their ratings of the other goals (coded as 1), or was not among the most self-concordant (coded as 0). In the need-satisfying condition, 58.6% of participants selected their most self-concordant goal to pursue, compared with 42.1% in the non-need-satisfying condition (Pearson $\chi^2 = 4.96$, $p < .05$). Similarly, in a binary logistic regression, condition was a significant predictor of selecting the most self-concordant goal, $B = .673$, Wald $\chi^2 = 4.98$, $p < .05$. The analysis showed that participants in the need-satisfying condition were almost twice as likely to select the most self-concordant goal compared with those in the non-satisfying condition (odds ratio = 1.95). This held true even after we controlled for the ease of the chosen goal.

Finally, we were interested in whether participants in the need-satisfying domain would be more likely to take steps toward pursuing the goal. We asked all participants whether they were interested in receiving an email with additional information about mindfulness meditation, coded as 1 = yes and 0 = no. Among participants in the need-satisfying condition, 65.5% indicated they would like to receive further info, compared with 50.5% of participants in the non-satisfying condition (Pearson $\chi^2 = 4.18$, $p < .05$). A binary logistic regression analysis showed that those in the need-satisfying condition were 87% more likely to request additional information, $B = .62$, Wald $\chi^2 = 4.15$, $p < .05$, odds ratio = 1.86.

Brief Discussion

In this study, we tested two hypotheses for explaining why people rate goals in a need-satisfying domain as more self-concordant, finding evidence for both. First, this study showed that people generally perceive potential goals in a need-satisfying domain as more autonomous than identical goals set in a non-satisfying domain. Although we did not find any results for a combined score of self-concordance, this is likely because the scores for controlling motivation seemed to follow the same trend as autonomous motivation, with people reporting greater overall motivation (both autonomous and controlled reasons) for goals set in need-satisfying domains. This is similar to prior findings for academic motivation, which have shown that a large proportion of students experience high levels of both autonomous and controlled motivation (combined with low amotivation; Ratelle, Guay, Vallerand, Larose, & Senecal, 2007). Although SDT concerns itself with the type of motivation, the total amount of motivation may also sometimes be important to consider. Someone who had no interest in pursuing a given goal would not be likely to endorse any of the reasons for pursuing the goal, resulting in lower scores on both the autonomous and controlled items, as was evidenced in the present study when the meditation goals were related to a non-satisfying domain. However, as only ratings of autonomous (and not controlled) motivation were significantly different across the two conditions, and as there is some evidence suggesting that autonomous, rather than controlled motivation, drives the positive effects of self-concordant goals on goal progress (Koestner et al., 2008), we thought that our results helped to demonstrate that people's perceptions of their goals depend on the need satisfaction experienced in the domain in which the goal is set. These results also fit well with our results from Study 2, which showed fluctuations in perceived goal self-concordance in response to changes in domain need satisfaction. Overall, results from these two studies suggest that people are more likely to integrate goals related to need-satisfying domains into their core self.

We also found evidence supporting our second hypothesis. When considering multiple goals that fall within a need-satisfying domain, participants more often chose the most self-concordant goal, compared with when considering goals within a less need-satisfying domain. This supports the original self-concordance model hypothesis that people's deliberations over which goals to choose may be imperfect, in that people sometimes choose to pursue goals that are not reflective of their underlying values and interests (Sheldon & Elliot, 1999). Not only do people in need-satisfying domains perceive their goal choices as generally more autonomous, they

are then more likely to actually select the goal that is most self-concordant and to take concrete steps toward pursuing that goal (in the form of requesting more information).

General Discussion

The present research experimentally demonstrates that domain need satisfaction is an antecedent to adopting self-concordant goals. While previous research has identified personality characteristics that lead to greater goal self-concordance, this is the first work to explain the origins of within-person variation in the self-concordance of goals. Across three studies, including experimental and daily diary methodologies, we found that domain-related need satisfaction predicts the extent to which people adopt self-concordant goals in those domains, laying the foundation for successful goal pursuit.

In the first two studies, we found that participants set more self-concordant goals when assigned to come up with a goal in a self-generated need-satisfying domain rather than non-satisfying domain. This was true for both general goals (Study 1) and for short-term goals (Study 2). Moreover, in Study 2 we showed that daily fluctuations in domain need satisfaction result in fluctuations in perceived goal self-concordance: When people experience additional need satisfaction in a domain, they perceive goals related to that domain as more in line with their values and interests. In Study 3, we showed that individuals setting a goal in a need-satisfying domain are more likely to select more self-concordant options. This supports the notion that a lack of self-concordance arises because "some people's deliberations may have been flawed" (Sheldon & Elliot, 1999, p. 482). Indeed, when given many choices of goals to pursue, participants selecting a goal in a domain where they experienced relatively low need satisfaction were less likely to choose the goal that was most representative of their true self. In the same study, we showed that people also perceive the same goals as more autonomous when these goals are linked to a need-satisfying versus non-satisfying domain, suggesting that it is not only people's deliberations that can be affected but their perceptions of the choices themselves. This is in line with the results of our second study, which showed that domain need satisfaction influences perceptions of goal self-concordance.

Although in the present studies we have used psychological need satisfaction as a predictor of goal self-concordance, we did not investigate the conditions that give rise to such experiences of need satisfaction. Previous research has shown that need satisfaction is linked to the environmental supports for autonomy, competence, and relatedness that are present in a given domain (Deci & Ryan, 2000). Indeed, in his paper on the hierarchical nature of motivation, Vallerand (1997) proposed that need satisfaction was itself a mediator between social factors (such as contextual autonomy support) and motivation. This has been supported by studies that found that autonomy-supportive climates were predictive of

need satisfaction, which in turn predicted motivation and positive outcomes (e.g., Sarrazin, Vallerand, Guillet, Pelletier, & Cury, 2002; Standage, Duda, & Ntoumanis, 2003). However, although need satisfaction is based on the supports available in the environment itself, it is also contingent on the individual's "inner resources to find or construct the necessary nourishment" (Deci & Ryan, 2000, p. 229). It is thus likely that experiences of need satisfaction are not merely a proxy for the amount of support available in a domain, but represent a separate entity that could serve as an independent variable predicting important outcomes in its own right. Future research is needed to determine the extent to which the supports available in a domain influence need satisfaction and goal self-concordance, using objective measures to assess the quality of social climates.

The present research also highlights the important, and often neglected, relationship of goals to their broader motivational framework. Goals do not exist in isolation, but are instead situated within domains that explain more than 70% of the variance in goal-related variables including motivation and attainment (Milyavskaya, 2014; Nurmi, Salmela-Aro, & Aunola, 2009). By aggregating across domains as is typically done in most studies, important information regarding the effects of that specific domain is lost. The present set of studies has shown that each of us benefits from setting goals in life domains where we perceive our basic psychological needs to be satisfied. In these domains, our goals are especially likely to be attuned to our true interests and values, and this self-attunement fuels effortful persistence. Understanding how these domains influence and shape the goals people adopt, the resources (both environmental and psychological) that they have available to aid in goal pursuit, and the potential drawbacks and impediments that come from the domain itself are all critical for developing an accurate understanding of what leads people to succeed or fail in their goals. Further examination of how domains influence the self-regulation and pursuit of specific goals will likely be a fruitful area of inquiry.

In the present studies, we examined overall need satisfaction by combining the ratings of autonomy, competence, and relatedness. This was done for a number of reasons. First, although initial research testing the existence and importance of the needs considered the effects of each need separately, most of this research has found similar effects of these three needs on basic outcomes (e.g., Reis, Sheldon, Gable, Roscoe, & Ryan, 2000). This is not surprising, considering that theoretically the three needs are considered to be universally important (Deci & Ryan, 2008), and that they are often highly correlated (e.g., Gagné, 2003). Given that all three needs are essential, it follows that missing any of them would result in sub-optimal outcomes. Other recent research that examines more complex questions about the role of these needs typically combines the three needs into one overall measure of need satisfaction. For example, overall need fulfillment in relationships has been shown to be related to numerous indicators of individual and relational

well-being (Patrick et al., 2007), and overall need satisfaction at work has been linked with job satisfaction and other job-related outcomes (Vansteenkiste et al., 2007). Alternatively, the three needs are often included as indicators of a latent construct of need satisfaction in measurement models, with the latent variable of overall need satisfaction then used in the structural part of the models (e.g., Deci et al., 2001; Niemiec, Ryan, & Deci, 2009). Based on these research traditions, we chose to examine the effects of overall need satisfaction rather than the effects of each need separately. Examining the role of individual needs would be further complicated by the fact that the needs are not independent of each other. Specifically, as each of the needs is not independent but is correlated with the other needs, including the three needs in a regular multiple regression analysis and interpreting the beta weights (as is commonly done) provides biased estimates of the role of each predictor as some of the predictors are "given credit" for explained variance that is shared with one or more of the other predictors (Pedhazur, 1997; for a thorough discussion of the problem, see Nathans, Oswald, & Nimon, 2012). To fully untangle the role of each need, future research can experimentally manipulate the availability of each of the three needs to examine their unique and shared impact on self-concordance, similarly to what Sheldon and Filak (2008) did for task motivation and outcomes.

While the present work expands our understanding of the origins of self-concordant goals, it also raises new theoretical and practical questions. For example, in cases where a goal can be linked to multiple domains, would the self-concordance of the goal stem from a cognitive blending of the different domains? Or would people base goal selection and perceptions of goal self-concordance on experiences in only one of the domains, and if so which one—the one that is most salient, the one in which the person people spends the most time, or the most need-satisfying one? Domains can also be thought of as a type of goal categorization process; drawing on the categorization, subtyping, and goal systems research may yield new ways of understanding the interplay among need satisfaction at different levels of experience and their influences on goals and goal pursuit. For example, recent research shows evidence of both top-down and bottom-up effects of need satisfaction at the person, domain, and situation level (Milyavskaya, Philippe, & Koestner, 2013); the effects of need satisfaction across these levels on goal setting and goal pursuit could be considered. In the present research, we also showed that an identical goal can be linked to different domains, suggesting the potential for mental flexibility in goal setting and selection. It would be interesting to investigate what goal characteristics or mental mindsets result in such flexibility, or conversely lead to a more rigid identification with a particular domain. It is our hope that future research will help address these questions, while also providing new insights into facilitating successful goal pursuit.

In conclusion, the present research shows that to fully understand motivation it is necessary to look at the contexts in which people set and pursue their personal goals. While we found that need satisfaction at the domain level influences both perceived goal self-concordance and also leads people to adopt more self-concordant goals, other domain or contextual characteristics (such as the presence of a supportive other) are also likely to play a role in the conative process. Overall, this research presents a new way of understanding the successes and failures in the goals that we pursue. By choosing and linking our goals to life domains in which we experience autonomy, competence, and relatedness, we create goals that are in our line with our core interests and values, setting the stage for more successful goal pursuit and increased well-being.

Declaration of Conflicting Interests

Funding

Notes

1. Alpha was higher (.88 for the need-satisfying domain, .80 in the non-satisfying domain) when the reversed autonomy item was removed. Because the reversed item (feeling controlled) is an important component of autonomy, we kept it in the analyses despite its poor fit with the other items. Removing the item did not affect the results.
2. A follow-up study ($N = 59$) conducted at the request of one of the reviewers replicated this effect and showed that it held even when valence of the goal was taken into account: multilevel analyses showed that the effect of domain type on self-concordance held when including affect in the model, $M = 5.17$, $SE = .57$ in need-satisfying domain, $M = 3.59$, $SE = .57$ in non-satisfying domain, $F(1, 68.90) = 5.15$, $p < .05$.
3. Additional analyses of the role of self-concordance on need satisfaction showed that daily need satisfaction was also affected by changes in self-concordance from the previous day, $b = .11$, $SE = .03$, $t(708.86) = 4.19$, $p < .001$, such that on days when self-concordance increased, need satisfaction also increased. Daily need satisfaction was also affected by condition, $b = .27$, $SE = .12$, $t(252.34) = 2.19$, $p = .03$, and by the prior day's need satisfaction, $b = .69$, $SE = .03$, $t(331.05) = 24.82$, $p < .001$. While a thorough discussion of this finding is outside the scope of this article, it lends further support to Sheldon and Houser-Marko's (2001) upward spiral hypothesis.

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