

Goal pursuit: Current state of affairs and directions for future research

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Abstract

Personal goals are ubiquitous in everyday life, with people typically pursuing multiple personal goals at any given time. This paper provides a review and synthesis of the vast and varied research on personal goals. A growing body of research shows that goals are best conceptualized as a distinct unit of analysis, with extensive within-person variations in both goal characteristics and attainment. In this paper, we review existing literature on personal goals, examining the process of goal pursuit from start to finish, including goal setting, goal pursuit and self-regulation, and the outcomes associated with attainment and/or failure. We also address the many aspects of personal goal pursuit that are still poorly understood, highlighting directions for future research.

Keywords: goal pursuit, personal goals, self-regulation, motivation

Goal Pursuit: Current State of Affairs and Directions for Future Research

We all have various goals that we are trying to accomplish – lose 10lbs, stop smoking, find a new job, be kinder to our partner, or finish that paper by the end of the week. Whether these pursuits can be attained within a specific time or are on-going tasks that need to be maintained across our lives, such goals occupy a large portion of our time and mental energy. Given the centrality of goals in our everyday lives, it is no wonder that goals are studied across a variety of sub-disciplines, including (but not limited to) social, personality, organizational, cognitive, health, education, sport, and developmental psychology, as well as allied fields such as behavioural economics and neuroscience. Within these fields, goals have been studied on a variety of different levels, from the speed of button presses or problem solving in a lab setting (e.g., Brandstätter, Lengfelder, & Gollwitzer, 2001; Freitas, Liberman, & Higgins, 2002) to engagement in specific health behaviours (e.g., Gollwitzer & Oettingen, 1998), educational and occupational attainment (e.g., Elliot, McGregor, & Gable, 1999), and navigation of broader life tasks (e.g., Emmons, 1986; Kasser & Ryan, 1996). While this diversity has certainly led to a variety of notable advancements that help us understand the goal pursuit process, it has also resulted in a fragmented literature that is difficult to reconcile. Despite this issue, one underlying notion that seems to be well agreed upon is that people have multiple personal goals that they are simultaneously motivated to attain. While such goals can be studied at a variety of levels (e.g., my goal to lose weight can be linked to my broader value of living a healthy life), this review predominantly focuses on personal goals that are pursued in an individual's day-to-day life. Specifically, we will examine the process of goal pursuit from start to finish, including goal setting, goal pursuit and self-regulation, and the outcomes associated with attainment and/or failure. We also address the many aspects of personal goal pursuit that are still poorly understood, highlighting directions for future research.

Personal Goals

The disparate ways in which goals are studied can also be seen in the proliferation of goal definitions (see Elliot & Fryer, 2008, for a review). In the present paper, we define a goal as being a *cognitive representation of a desired end state that a person is committed to attain*. This definition highlights three key components. First, *cognitive representation* refers to the use of a future-oriented image to make decisions that ultimately guide an individual's behaviour. This is a critical distinction to make, as some previous theory and research has equated having a goal with general behaviour, innate biological responses (e.g., neurons firing; Austin & Vancouver, 1996), or even going so far as to say, "in some sense, the endpoint of every action, however minute, is a goal" (Beach, 1985, p. 124). By focusing on mental representations we emphasize that goals are limited to sentient beings, and exclude more mechanistic functions (e.g., plants orienting towards sunlight; Elliot & Fryer, 2008). Second, *desired end state* implies that there is some *thing* that an individual wants¹ to move toward or attain (whether it is more abstract or concrete). Without this drive, goals would not have any energy to encourage action or sustain motivation, and instead we would wander around aimlessly engaging in behaviours without any sense of meaning or purpose. Finally, we draw on the term *commitment* to further distinguish between goals and wishes and/or fantasies (Gollwitzer, 1990). Underlying the term commitment is intent, without which an individual would not be motivated to move toward the desired end state. Given that we are specifically interested in personal goals that individuals set and pursue in the course of their day-to-day lives, we further define *personal goals* as those explicitly identified and endorsed by

¹ Here we refer to "want" as a more general term without assigning any specific motivational properties (e.g., want-to versus have-to motivation, which we discuss later on).

an individual, as opposed to goals either assumed to exist or explicitly assigned by a researcher (e.g., solving anagrams in a lab task; broader health goals assumed to exist in health research).

Goals as a Unit of Analysis

One implicit assumption in the existing literature is that goal pursuit unfolds in a similar way across all goals. This is evident in studies that prime different goals, as the prime is assumed to facilitate similar behaviour for all people (e.g., priming achievement would lead everyone to perform better; Custers & Aarts, 2010), or studies that examine one specific goal and draw broad conclusions about the mechanisms of general goal pursuit (e.g., Bandura & Wood, 1989). The underlying assumption here is that all people value and pursue the same goals (or types of goals), therefore leading to similar behavioural responses. One approach to counter this assumption is to use an idiosyncratic approach, whereby participants are asked about the various goals that they pursue in their daily lives (e.g., Little, 1983; Emmons, 1989). While this approach starts to move the field in the right direction, researchers have tended to aggregate across all elicited goals in order to understand how their aggregated properties influence goal attainment (e.g., Emmons & King, 1988; Little, 1983; Sheldon & Elliot, 1999). Thus, even though researchers obtain a wealth of information regarding the specific characteristics for each individual goal (e.g., commitment, motivation, progress), a lot of this information gets lost. Historically, this approach was in part due to the complexity of statistical methods required to analyse these goals separately. However, this is no longer the case, as technological advances have given rise to statistical software specifically designed to conduct multilevel analyses. That is, since each person typically pursues multiple goals, these goals can be considered ‘nested’ within the person, with analyses distinguishing the variability due to differences between people (i.e., how Mark’s goals generally

differ from Julie's goals), and the variability across one person's goals (i.e., how Julie's goals differ one from one another; Raudenbush & Bryk, 2002).

Based on recent research using this updated nested approach, results consistently suggest that most of the variance in goal characteristics is at the within-person (goal) level. For example, studies asking about goal motivation find that approximately 60 to 80% of the variance is at the within-person level (Holding, Hope, Harvey, Marion Jetten, & Koestner, 2017; Milyavskaya, Inzlicht, Hope, & Koestner, 2015; Werner, Milyavskaya, Foxen-Craft, & Koestner, 2016). Similarly, Nurmi and colleagues (2009) found that appraisals of personal goals on multiple dimensions (such as importance, commitment, meaning) vary predominantly within-person – only 5-24% of the variation in these appraisals is between individuals, whereas the overwhelming majority of variance is among goals within the same person. Importantly, research that examines progress across time also finds that approximately 80 to 95% of the variance in goal attainment is at the within-person level (Holding et al., 2017; Milyavskaya & Inzlicht, 2017; Milyavskaya et al., 2015; Werner & Milyavskaya, 2017; Werner et al., 2016). By aggregating across goals, researchers ignore this variability. Instead, a growing body of research suggests that the appropriate level of analysis for understanding goal pursuit is at the goal level.

The Process of Goal Pursuit

Research has long distinguished between different phases of goal pursuit, beginning with Lewin, Dembo, Festinger, and Sears (1944) who differentiated between goal setting and goal striving. Others have elaborated on this distinction by positing a process of goal pursuit that changes across time. For example, Little (1983) proposed that personal projects, which are akin to personal goals, progress through four stages: inception, planning, action, and termination. Similarly, the Rubicon Model of Action Phases (Gollwitzer, 1990; Heckhausen & Gollwitzer,

1987) proposes that goal pursuit progresses through four distinct, temporally defined phases. In the *predecisional* phase, an individual is considering options and evaluating their wishes and desires. Once an individual generates an intent to pursue a given goal, they “cross the rubicon” into the *preactional* phase, where they then decide on the details of how, when, and where they will pursue the goal. This then leads to the *actional* phase, where the individual enacts these plans and engages in activities aimed to attain the desired end state. The actional phase leads to a concrete outcome (attainment or failure), which then results in a *post-actional* re-evaluation of the goal and its related actions, thereby serving to guide future goal pursuit.

Although these four phases are theoretically distinguishable, much research has retained Lewin’s original distinction between goal setting and goal striving. Here, we will focus our review on these phases of the goal pursuit process, as well as the possible ensuing outcomes (attainment, abandonment, resetting). Additionally, we propose that the process of goal pursuit is not always linear, but instead can frequently be cyclical, as goals can be adjusted rather than attained or abandoned, and the result of either attainment or abandonment often feeds into decisions regarding new goals.

Goal Setting

In our day-to-day lives we are constantly bombarded with a plethora of potential goal-related stimuli – so how do people decide what goals to actually pursue? According to past research, the simple answer to this question is: we pursue what we wish, so long as it is something that we can realistically expect to attain. In more scientific terms, people decide what goals they will pursue based on desirability (the value of attaining the goal) and feasibility (the likelihood that the goal could be attained). These have also been termed value and expectancy (Wigfield & Eccles, 2000). Together, the multiplicative combination of feasibility/expectancy

and desirability/value has been referred to as ‘expected utility’ (Locke & Latham, 2002), with potential goals with the highest expected utility adopted as personal goals to be pursued.

Going further back, the wishes, as well as their associated assessments of desirability and feasibility, must come from somewhere. That is, both the content of the goal itself and the underlying reasons for setting and pursuing the goal must be grounded in a person’s previous experiences, as well as current constraints. However, very little research and theory looks at the origin of goals. In the organizational and sports psychology literatures, goals are often assumed to be assigned by others (e.g., a supervisor or a coach; Kernan & Lord, 1988), although some researchers suggest that such assigned goals may be meaningless until they are internalized (Austin & Vancouver, 1996). Additional research has proposed that our upbringing, personality, and lay theories of the world influence the content of our goals. For example, research on parenting has shown that what our parents value and how they relate to us can shape our desires (e.g., Soenens, et al., 2015). Other research focuses on how personality may shape the nature of our goals – for example, individuals with a promotion focus would be more likely to set approach/promotion goals (Higgins, 1998). Given that goals are often domain-specific (i.e., academic, work, relationship, etc.), certain characteristics of the domains can also influence the goals that people set. For example, research finds that a person will set more autonomous goals in domains where they experience greater satisfaction of the basic psychological needs for autonomy, competence, and relatedness (compared to other domains; Milyavskaya, Nadolny & Koestner, 2014). Similarly, our feelings of self-efficacy (both general and domain-specific) directly influence the feasibility dimension, such that when we experience greater self-efficacy we feel better able to achieve desired outcomes (Bandura, 1989; Pajares, 1996). Expectancy and value can also come from previous experiences within a domain or with a goal, promulgating the

cyclical nature of the goal pursuit process. For example, if Jill sets a goal of getting an A in Math class, but subsequently gets a B, she may revise her expectations the following semester and aim for a B+ (instead of an A).

Characteristics of Personal Goals. Each goal that a person decides to pursue can be considered along a number of dimensions, or characteristics (Little, 1983; Little, Salmela-Aro, & Phillips, 2006). While some researchers are interested in the constellations of such characteristics (e.g., McGregor & Little, 1998), most of the research that actually examines progress focuses on one or two features, ignoring others (e.g., McGregor et al., 2006). We now review some of the most frequently studied characteristics; this list is by no means complete, but represents the most common features of goals that are examined in the personal goal pursuit literature. Indeed, the personal projects paradigm identifies a comprehensive variety of 27 characteristics, including goal importance, enjoyment, commitment, time adequacy, challenge, and difficulty (Little, 1983; Little et al., 2006). Although discussing all these in detail is outside the scope of this brief review, we will briefly outline some of them here. For a more detailed discussion, see Austin and Vancouver (1996) and Fujita and MacGregor (2012).

One important distinction is between abstract and concrete goals (Fujita & MacGregor, 2012). Abstract goals are broader or more general goals (e.g., be less selfish) that typically involve numerous actions in multiple contexts, and often do not have a concrete end point signalling that the goal is 'attained.' These goals generally encompass one's broader identity and values (Kasser & Ryan, 1996, Schwartz, 1992), and, in models where goals are hierarchically organized, have been proposed to represent the highest levels of the hierarchy (Carver & Scheier, 1982). Concrete goals, on the other hand, are specific actions that are often carried out during a specific context or time (e.g., go to the gym today), and most importantly, usually (although not

always) have a concrete end point. Another similar characteristic is the degree of specificity, which has been typically studied in the organizational literature (Locke, Chah, Harrison, & Lustgarten, 1989). This research frequently finds that more concrete goals are more likely to be attained (See Locke & Latham, 2002). However, the relation between goal abstraction/specificity and goal attainment has not been examined for personal goals set and pursued outside of a lab setting, so it is unknown how generalizable these results are to real-world experiences.

In the organizational literature, Goal Setting Theory (Locke & Latham, 2002, 2013) further posits that goal difficulty is a key factor in determining performance, such that people put in more effort and perform better when they pursue difficult yet attainable goals. Although extensive support for this theory is available (see Locke & Latham, 2002), the research either uses lab studies (with performance goals such as solving a certain number of anagrams; Erez & Judge, 2001), and/or goals set by other people (the researcher, boss, or coach). However, it is unknown whether goal difficulty would similarly affect progress on idiosyncratic personal goals.

Another aspect of personal goals concerns their aim, or the direction toward which a goal is focused – towards or away from some end state. Approach and avoidance motivation have been deemed a fundamental component of motivation and behaviour, such that people tend to move toward positive stimuli and move away from negative stimuli (Elliot, 1999). While approach and avoidance can be conceptualized at a variety of levels (e.g., personality, neural underpinnings), at the personal goal level the idea is that people tend to approach desirable end-states and avoid undesirable end-states. For example, a student may have the goal to do well on the upcoming test, or to avoid failing it. An extensive body of research indicates that approach goals are more likely to be attained and lead to a host of positive outcomes (e.g., well-being, performance) compared to avoidance goals (Elliot, Sheldon, & Church, 1997; Elliot et al., 1999).

However, one recent study using a goal-specific approach and Bayesian analyses found very strong evidence in support of a null effect for both approach or avoidance motivation on goal progress (Werner, Milyavskaya, & Koestner, 2017).

Quality of Motivation. One of the most frequently studied features of personal goals is the person's motivation for pursuing and attaining the goal. While the amount of motivation an individual has can partially predict behaviour (Wigfield & Eccles, 2000), there is a qualitative difference in the types of motivation that one may have. Research in Self-Determination Theory contrasts autonomous motivation for pursuing a personal goal with controlled motivation (Deci & Ryan, 2000; Koestner, Otis, Powers, Pelletier, & Gagnon, 2008). Autonomous motivation is when an individual pursues a goal out of inherent interest or personal importance, whereas controlled motivation occurs when pursuing a goal for external reasons, such as to please others, obtain rewards, or avoid guilt or shame. In essence, autonomous goals (also termed self-concordant; Sheldon & Elliot, 1999) are pursued because it is something that an individual genuinely *wants to* do, whereas controlled goals are pursued because they feel they *have to* (Milyavskaya et al., 2015). While controlled goals are still likely to be personally set and endorsed, such pursuits are self-discrepant and do not reflect what the individual truly wants, thereby resulting in lower quality motivation and detracting from goal attainment. Indeed, a large body of literature now confirms that autonomous goals are more likely to be attained (see Ryan & Deci, 2017 for a recent review). However, the role of controlled motivation is less clear: some studies show a negative effect of controlled motivation on goal attainment, while others show no effect, and many studies treat autonomous and controlled motivation as a continuum (rather than as two separate dimensions), making the examination of the distinction more difficult.

Relation to Other Goals. Most goals that a person sets are related to other goals, whether it be a short-term goal set in the service of a broader goal (facilitating), or a goal that conflicts with another goal (e.g., by competing for time or other resources). Some research that has examined the degree of conflict or facilitation among pairs of goals finds that people are less likely to act on goals that actively conflict with other goals (Emmons & King, 1988). Others have shown that facilitation and interference are not simply two sides of a continuum, but are instead two separate dimensions. In line with this idea, 2018-04-02 3:50:00 PM find that only facilitation is related to goal pursuit, while interference is unrelated to goal pursuit, and instead contributes to lower well-being.

Besides simply looking at the interference among goals, many theories have been proposed to explain how goals are organized and influence one another. For example, according to Control Theory (Carver & Scheier, 1982), goals are nested within each other at progressively more abstract levels of generality, with more abstract goals (i.e., our identity and values) guiding the standards that we set as our subordinate goals. Most goals that we consciously set and pursue in our day-to-day lives are at the intermediate levels of the hierarchy. Indeed, most theories (e.g., Control Theory, Carver & Scheier, 1982; Goal Systems Theory, Kruglanski et al., 2002) suggest that goals are organized hierarchically, with short-term goals acting as means in the service of broader goals. Alternative perspectives, however, highlight different aspects of goal organization: Cognitive models (e.g., accessibility theory, Higgins, Rholes, & Jones, 1977; spreading activation theory, Collins & Loftus, 1975) propose that goals, like other cognitive representations, are organized as a network. Others view goals as sequential, based on the timing of the goals (e.g., Heckhausen, Wrosch, & Schulz, 2010). While hierarchical theories are the most prevalent in the literature, they have not been adequately tested outside of the lab. Recent

research also suggests that lay people's perception of how their own goals are organized are more in line with the networks and sequential perspectives (Kung & Scholer, 2016).

Goal Pursuit

Once an individual is committed to pursuing a goal, self-regulatory processes take over to carry out its pursuit. Self-regulation, or the process of working towards a goal, can be viewed as a discrepancy-reducing feedback loop (Carver & Scheier, 1982). Using the goal as a reference, a person compares their present state to the desired end state (i.e., "am I on track for my goal?"). If a discrepancy is detected, the person acts to reduce this discrepancy, thereby engaging in goal-promoting behaviour. Other than taking direct steps towards the desired end-state (e.g., going to the gym, eating healthy food, studying for a midterm), people also plan for how they will pursue the behaviour, monitor progress to ensure that they are on track, and shield against distractions. Although self-regulation frequently requires effort, the process of goal pursuit can also unfold automatically, requiring less or no effort. Finally, individuals must navigate multiple goals, balancing time and resources to pursue multiple goals that invariably influence one another.

Planning. Broader goals (e.g., get an A in biology class) can be broken down into smaller actions needed to achieve this goal – for example, attend the lecture today or read 20 pages from the textbook this week. These have variously been called steps, subgoals, or means (e.g., Houser-Marko & Sheldon, 2008; Kruglanski et al., 2002), and are usually more concrete than the broader goal, but can also be personal goals in their own right. Research has shown that focusing on such smaller concrete steps can be beneficial, particularly at the start of goal pursuit, so that each step is viewed as making (relatively) greater progress (Koo & Fishbach, 2012).

One way of breaking down a goal into specific, contextualized actions is by setting implementation intentions (Gollwitzer, 1999), which are specific if-then plans that serve to

associate a goal-promoting response with a situational cue. For example, ‘if I crave a cigarette, then I will chew gum instead’ or ‘after class on Tuesdays I will go to the gym’. Because an individual already has a pre-determined response to a given situation, they do not have to waste time, energy, or resources coming up with a response in the moment, which helps to shield against desirable temptations or distractions. Research consistently finds that when people are asked to make such plans for their goals, they are more likely to attain them (Gollwitzer & Sheeran, 2006), and that those goals for which a person has a concrete plan are more likely to be attained (compared to other goals). Although such plans are undoubtedly beneficial, it is still unclear how frequently people spontaneously set specific implementation intentions.

Monitoring and Adjusting to Feedback. Given the central role of feedback in the self-regulation process, an important component of goal pursuit is how people obtain and react to feedback. One way of obtaining feedback is by actively monitoring progress. By identifying discrepancies between the current and desired states, a person can recognize when they fall short and more effort is needed. Alternatively, instead of directly monitoring progress towards a goal, a person can monitor behaviours relevant to the goal (e.g., if the goal is to lose weight, going to the gym may be a behaviour performed in the service of the goal). A recent meta-analysis found that interventions that prompt participants to monitor their progress had a small-to-medium effect ($d = .40$) on goal attainment, and that monitoring progress more frequently is directly related to greater goal attainment (Harkin et al., 2016). Furthermore, prompts to monitor outcomes (rather than behaviours) led to greater goal progress, while monitoring only behaviour (but not outcome) did not reliably affect goal progress. This research also found that monitoring was more effective when the information was recorded and when it was made public (Harkin et al., 2016).

In addition to negative feedback signalling that more effort is needed, positive feedback (i.e., that progress is being made at an acceptable pace) can play a role in goal pursuit (Fishbach, Eyal, & Finkelstein, 2010). If positive feedback signals that sufficient progress is being made, it can lead to (temporary) disengagement from goal pursuit and instead enact coasting behaviours (Carver, 2003). In other words, if an individual is doing a good job in pursuing their goal, they may start to slowly ease away from the determined pursuit of their goal. Alternatively, positive feedback can also boost levels of self-efficacy and signal higher levels of commitment (Bandura & Cervone, 1983). For example, a student envisioning a STEM career who receives positive praise from her math teacher may think, “maybe I can do well in this subject, maybe math is for me after all”, thus intensifying her future efforts and eventually leading her to make more progress on the goal of pursuing a career in STEM. The effects of positive (and negative) feedback may thus depend on whether the feedback is interpreted as providing information about commitment or progress; such interpretation depends on the amount of experience that a person has with a given goal or goal domain. When there is little experience in a goal domain, people are especially attuned to signals of commitment (e.g. ‘Is this for me? Can I actually do this?’), whereas with more experience people shift to focus on progress (e.g., ‘How am I doing? What can I do to do better?’; Fishbach et al., 2010). This is also evident in the type of feedback that people seek as they progress – when starting on a new goal a person is more likely to seek positive feedback, but as commitment and expertise become more established they are more likely to seek more constructive negative feedback related to progress (Finkelstein & Fishbach, 2011).

Resisting Temptations. In addition to comparing one’s present state to the desired goal and enacting behaviours to attain the goal, people must also shield themselves from immediate

tempting desires that threaten goal pursuit. A desire is “an affectively charged motivation toward a certain object, person, or activity that is associated with pleasure or relief from displeasure” (Hofmann & Van Dillen, 2012). When a desire conflicts with a longer-term goal, it represents a temptation that, if indulged, can derail goal pursuit (Hofmann et al., 2012). When desires are strong, resistance (i.e., effortful self-control) needs to be applied to refrain from indulging in the desire. The more a desire conflicts with an important goal, the more effortful self-control will need to be applied, and the more likely that the desire will be successfully resisted (Hofmann et al., 2012). Some models propose that we (either consciously or unconsciously) evaluate the value of indulging on one hand and of the broader goal on the other. The result of this valuation process determines the outcome, as the option with the greatest ‘value’ (across multiple value sources) is enacted (Berkman, Hutcherson, Livingston, Kahn, & Inzlicht, 2017). Additionally, experiencing the temptation itself can sometimes remind us of our goals, strengthening the value of the goals and lessening the value of temptation (Fishbach, Friedman, & Kruglanski, 2003).

Effortless Self-Regulation. An alternative perspective on self-regulation and goal pursuit is that it can occur automatically (Fitzsimons & Bargh, 2004), effortlessly (Gillebaart & de Ridder, 2015; Werner et al., 2016), or habitually (Wood & Neal, 2007). That is, instead of consciously exerting effortful self-control to promote goal-directed behaviour, people frequently take steps toward their goals in an automatized manner, as a function of responding to situational cues. Although controversial (see Cesario, 2014), research on goal priming suggests that simply activating a mental representation of a goal can lead people to act in goal-directed ways (e.g., Chartrand & Bargh, 1996). More established research on implementation intentions finds that it is possible to automatize goal pursuit by linking a behaviour to cues in the environment, such that the behaviour begins to automatically occur when the cue is encountered. Research has also

shown that people are more likely to set implementation intentions when a goal is autonomous (Koestner et al., 2002). Goal autonomy has also been linked with more effortless goal pursuit in a study contrasting effortful (“I tried really hard”) and effortless (“it felt easy and natural to pursue this goal”) goal pursuit, which found that effortless goal pursuit mediated the link between autonomy and progress (Werner et al., 2016). That is, autonomous goals are more likely to be attained precisely because conscious effort is not necessarily required. Research on habits further finds that when a behaviour is repeatedly paired with a situation, this behaviour continues to be enacted when the situation is encountered. Goals can direct the formation of good (goal-promoting) habits by “motivating repetition that leads to habit formation” (Wood & Neal, 2007, pg. 843). Together, this research provides strong evidence that goal pursuit can unfold automatically and effortlessly.

One recent perspective on self-regulation as effortful or effortless is the process model of self-control (Duckworth, Gendler, & Gross, 2016), which proposes that impulses wax and wane on a cycle comprised of situation, attention, appraisal, and response. Upon encountering a situation (e.g., a box of cookies sitting out on the kitchen table), a person can direct their attention towards or away from the temptation (ignore or look at the cookies), appraise the situation as threatening to a focal goal or as benign, and enact a behavioural response (e.g., eat the cookies or put them back in the cupboard). To exercise effective self-regulation, a person can target any of these stages in the cycle. They can select or change the situation so that the temptation is less likely to be encountered, change their attention, or how they think about the temptations. Here, the person attempts to shift the value away from the temptation and bolster the value of the goal-congruent option (Berkman et al., 2017). Finally, if all else fails and the desire is not diminished, the person must use effortful control (i.e., willpower) to resist.

Growing evidence supports the model's proposition that applying self-regulatory strategies earlier in the cycle is more effective and leads to better goal pursuit. Individuals who are generally more successful at self-regulation (i.e., exhibit high trait self-control; Tangney, Baumeister, & Boone, 2004) are more likely to report avoiding tempting situations (Ent, Baumeister, & Tice, 2015), feel less tempted by common temptations (e.g., playing video games), and have to use their willpower less frequently (Hofmann et al., 2012). More recently, Milyavskaya and Inzlicht (2018) found that the frequency and strength of temptations that conflict with personal goals are related to greater goal progress three months later. The proportion of temptations that are resisted, and the strength of the resistance were completely unrelated to goal progress. This again provides support for the situation selection perspective on self-regulation – if you want to attain your goals, set up your environment in such a way as to reduce temptations. Additionally, research has identified motivation for the goal as having a direct influence on both the strength and frequency of desire, with autonomous goals less likely to elicit tempting desires than less autonomous goals (in within-subject analyses; Milyavskaya et al., 2015).

Pursuing Multiple Goals. People generally have more than one goal that they want to attain, and so they must use strategies to manage the pursuit of multiple goals. Two alternate strategies have been identified: sequential and concurrent goal pursuit (Orehek & Vazeou-Nieuwenhuis, 2013). In sequential goal pursuit, a person focuses on their goals one at a time, while inhibiting thoughts and cognitions related to other goals (a process known as goal shielding; Shah, Friedman, & Kruglanski, 2002). Alternatively, a person engages in actions that can simultaneously lead to progress on multiple goals (e.g., attending a study session with others can simultaneously help a student's academic and social goals). Such actions are known as

multifinal (Kruglanski et al., 2002). However, even when a person is pursuing goals sequentially, they frequently shift their attention from one focal goal to another (Shah et al., 2002). Some research has examined when and how this occurs, focusing on the role of emotional feedback and proximity to goal attainment in determining the dynamics of shifting to new goals (Louro, Pieters, & Zeelenberg, 2007). Specifically, this research found that the positive emotions that result from making progress on one's goals, coupled with high expectancy of imminent attainment, lead to decreased effort on the focal goal and increased efforts towards competing goals. Conversely, if little progress is being made but the goal is close, people will maintain or increase effort towards the focal goal.

Goal Attainment, Adjustment, or Disengagement

Despite the arduous pursuit of our goals, the reality is that sometimes things work out and sometimes they do not. While failing to attain a desired goal is certainly not a pleasant experience, there are different paths one can take in the event that such an experience occurs. If the goal is still deemed to be desirable and worth pursuing, people can re-evaluate their goal and/or alter their strategy to increase the chance of attainment the next time around. Conversely, if the goal is no longer worthwhile, the person can disengage or abandon the goal entirely in favour of more fruitful pursuits. This ability to flexibly amend a goal is termed goal adjustment.

Research on goals that is concerned with task performance (Bandura, 1989; Locke & Latham, 2002) or specific behaviours (e.g., weight loss, Powers, Koestner, & Gorin, 2008) frequently include specific, objective indicators of goal progress and attainment (e.g., a final grade, number of puzzles completed, lost weight). These, however, are usually not related to an individual's specific goal – for example, if two individuals lost 10lbs, but one had a goal of losing 10lbs and the other of losing 20lbs, only one attained their goal, although the objective

value of pounds lost is the same. In contrast, most research that examines personal goals uses subjective goal progress, rather than objective indicators or discrete attainment, as the outcome. Typically, progress is measured using a Likert scale that assess agreement with items such as “I have made progress on this goal” (e.g., Koestner et al., 2002, 2008). Some research that has examined discrete goal status finds that between 26% (for semester long goals) to 40% (for week-long goals) were attained, 10-12% were failed, and only 4-6% were abandoned; the others (45-55%) were listed as some progress made (Levine, Werner, Capaldi, & Milyavskaya, 2017). These studies, however, were conducted with undergraduate students and short-term (week-long) to medium-term (semester-long) goals, and it is unknown whether similar rates of goal attainment would be found in other populations and with broader, longer-term goals. Additionally, goal progress was not examined in conjunction with goal standing, so it is still unknown if the amount of perceived progress that participants indicate is related to their standings on these goals. It is also unknown whether progress is perceived to increase or plateau, or if the total amount of progress made towards a goal can be perceived to decrease over time. As is described below in the future directions section, a lot more research is needed to better understand what constitutes successful goal attainment of personal goals.

Consequences of Goal Progress. Research consistently finds that making greater progress on one’s goals leads to more positive affect and greater well-being (Emmons, 1986; Sheldon & Elliot, 1999), whereas the opposite is found when less progress is made. Additionally, making progress on one’s goals has been linked to greater psychological need satisfaction (Sheldon & Elliot, 1999; Werner & Milyavskaya, 2017). Although some have suggested that this is especially true when the goals are autonomous (Sheldon & Elliot, 1999), others have shown that there are only main effects but no interaction between progress and self-concordance, such

that goal progress is generally beneficial (Werner & Milyavskaya, 2017a). Together with other research on the role of need satisfaction in goal setting (Milyavskaya et al., 2014), this suggests a reciprocal relationship where greater need satisfaction in a domain leads to more self-concordant goals that are more likely to be attained, which leads to greater need satisfaction and in turn even more self-concordant goals. Some evidence for this ‘upward spiral’ has indeed been found (Sheldon & Houser-Marko, 2001). Similarly, the short-term affective consequences of goal progress (i.e., feeling good after making some progress) feeds back into the goal pursuit process (e.g., Louro et al., 2007).

Action Crises and Goal Disengagement. Sometimes, when a goal is no longer perceived as desirable, feasible, or attainable, individuals disengage from the goal. In the case of truly unattainable goals, such disengagement is adaptive (Wrosch et al., 2003). Failure to disengage from an unattainable goal is linked to more intrusive thoughts (van Randenborgh, Hüffmeier, LeMoult, & Joormann, 2010) and depressive symptoms (Wrosch et al., 2003), whereas disengagement can be an adaptive self-regulatory strategy with positive benefits (Miller & Wrosch, 2007; Wrosch et al., 2003). Decisions to disengage are typically preceded by a period of intrapsychic conflict between continued engagement and disengagement; this conflict is dubbed an action crisis (Brandstätter, Herrmann, & Schüler, 2013). Although such action crises do not necessarily lead to goal disengagement since they can be overcome in favour of continued engagement, the severity of action crises nevertheless relates to lower goal progress (Holding et al., 2017). Whether this is directly due to greater conscious goal disengagement, or occurs because both action crises and goal progress are influenced by external factors, such as the presence of supportive others, is still unknown. Decisions to disengage from a goal can also be accompanied by decisions to reengage in a new goal. Such goal reengagement has been linked to

positive outcomes, including greater well-being (Ntoumanis, Healy, Sedikides, Smith, & Duda, 2014). However, goal reengagement is often examined as a personality trait, rather than examining the new goals set by an individual. Therefore, future research is needed to examine the types of goals that people actually set after goal disengagement, and if these new goals are different from goals that are failed (e.g., is the goal of the same content, but a lower standard? Or does a person take an entirely new path?).

Goal Adjustment. Research on this latter stage of the goal process mostly focuses on goal attainment and disengagement, but little is known about how people shift their goals. For example, does there come a time when the student decides that it is not realistic to obtain an A in the course, so her goal shifts to obtaining a B+? Some theoretical work discusses such shifts as recalibrations of the reference value in the feedback loop underlying self-regulation (Carver & Scheier, 2002) but little empirical work has examined how these shifts occur during actual goal pursuit. Given that the timescale of goal pursuit varies greatly depending on the goal itself and its abstraction level, some goals may be adjusted on a daily basis (e.g., my goals for what I plan to accomplish this week shift fluidly based on how much I accomplish on any given day and new tasks that arise), while for other goals months or even years may pass before a person readjusts a goal (e.g., a couple may unsuccessfully try to have a child for many years before deciding to adopt). Alternatively, some goals may become ‘frozen’, where no progress is made yet individuals do not give up on the goal (Davydenko, Werner, & Milyavskaya, 2017). Research at the appropriate time scales is needed to understand the fluidity of goal adjustment.

Role of Others

Although goal pursuit is often studied as an individual endeavour, other people in our lives are usually inextricably involved in our goal pursuits. A great deal of research in this area

has examined the support that goal pursuers receive from other people in their lives – predominantly romantic partners and friends, but also colleagues, supervisors, parents, teachers, coaches, and health care providers. Research has found that support from all these sources can benefit goal pursuit (e.g., Jakubiak & Feeney, 2016), and that responsive support is particularly beneficial (Feeney, 2004). A great deal of research has specifically focused on autonomy support, which occurs when the support provider acknowledges the person’s feelings, listens to their perspective, encourages choice, and refrains from control or pressure (Grolnick & Ryan, 1989; Koestner et al., 2012). Using a variety of methods including daily diary, longitudinal, and experimental studies, research consistently shows that such support is related to better goal attainment for a variety of personal goals. Such autonomy support has been distinguished from directive support where the partner provides encouragement and guidance by making suggestions and problem solving. In research that compares the two directly, autonomy support is associated with greater internalization of goals and greater goal progress, while directive support has either no effect or a small negative effect (Koestner et al., 2012; Koestner et al., 2015). A separate line of research has distinguished between visible and invisible support (Bolger, Zuckerman, & Kessler, 2000), finding that invisible support led to better goal progress over the course of a year (Girme, Overall, & Simpson, 2013). Although distinct, these two lines of research (autonomous vs. directive, invisible vs. visible support) share many similarities, and future research can determine whether they tap into similar underlying behaviours and influence goal pursuit through similar mechanisms.

In addition to helping close others pursue their own goals, people sometimes set goals for close others – for example, a woman who wants her husband to lose weight, or a father who wants his daughter to succeed in school. Such vicarious goals can influence how these

individuals support the goal pursuer, and the ultimate outcome of the goal (Carbonneau & Milyavskaya, 2017). Given that often times people know the goals that others have for them, some research has found that the mere thought of these others can influence goal setting and pursuit (Fitzimons & Bargh, 2003; Shah 2003). For example, in one study, participants who were primed with ‘father’ performed better on an academic task when they reported that their father valued such tasks and when they were close to their father (Shah 2003). Many of these studies, however, have used very small sample sizes, and caution is warranted. Additionally, whether this research, which often uses broader general goals such as ‘achievement’, translates to idiosyncratic personal goals is still unknown.

Close others can also be instrumental to our goal pursuit, helping us to attain our goals - for example, if I have the goal of losing weight but my partner is the one who goes grocery shopping and refrains from buying junk food. People can typically identify who these instrumental others are for each goal, and, as described above, the type of support that these instrumental others provide can shape goal pursuit. Recently, the disparate research on how others help with goal pursuit has been formalized into *transactive goal dynamics theory*, which describes the interdependent nature of goal pursuit and “conceptualizes two or more interdependent people as one single self-regulating system” (Fitzsimons, Finkel, & vanDellen, 2015).

Future Directions

Research on goal pursuit comes from many research areas, including social, personality, organizational, cognitive, and developmental psychology. While leading to many new insights, this has also resulted in a preponderance of theories and research to explain specific aspects of goal pursuit. One of the priorities in this literature would be to develop more cohesive models

that incorporate the multiple aspects of goal pursuit outlined above. Although models have been developed to examine some aspects of goal pursuit (e.g., the progression of goals through temporal stages, Gollwitzer, 1990; dealing with multiple goals, Neal, Ballard, & Vancouver, 2017; self-control, Kotabe & Hofmann, 2015; self-regulation, Wilkowski & Ferguson, 2016), there is no single model that can incorporate and address all of these components. A comprehensive model would include predictions about goal selection and goal setting, the process of goal pursuit and self-regulation, managing multiple goals in real-time, and decisions to alter or abandon a goal.

One key direction in creating a unified model is a better understanding of the characteristics, both of the person and of the goal, that actually influence goal pursuit. Although there are many theories and papers that look at various characteristics in isolation (e.g., how does motivation predict goal progress? How do implementations predict goal progress?), few researchers ever attempt to integrate these theories (see Webb & Sheeran, 2005). This results in a fragmented field. Furthermore, some of the constructs that have been suggested to play a role in goal pursuit may be the same construct under different names. By including multiple measures into one study, researchers can examine how these relate to each other, and determine unique and strongest predictors of goal pursuit.

Reconciling Trait Approaches with Goal-Specific Approaches

A critical inconsistency in the goal literature is that self-regulation is often studied at a trait level, while most of the variance in goal attainment is at the goal level. Indeed, traits such as conscientiousness and trait self-control have been consistently linked with beneficial self-regulatory outcomes (see de Ridder, Lensvelt-Mulders, Finkenauer, Stok, & Baumeister, 2012). It would thus seem that conscientious individuals are generally better at attaining their goals. But

how can this be reconciled with the large within-person variation in personal goal attainment? If only about 5-20% of the variance is at the between person level, this means that any individual difference would contribute very little to overall goal attainment. This may be the reason why the effects of trait self-control on outcomes are generally small. However, there may be a way that individual traits affect the goals that people set, thereby influencing goal-specific outcomes. For example, perhaps people with higher levels of trait self-control generally set better goals, such that progress on even one of those goals translates into broad success. Alternatively, there may be many ways to be 'successful' despite not attaining some personal goals. Individual differences may relate to how flexible people are in changing and resetting goals and in finding multiple means to pursue the same broader goals.

It may also be the case that the studies that focus on traits and general success use a proscriptive, societally accepted definition of success (e.g., earning more money, receiving more education); this may not necessarily be the same as attaining one's personal goals, as not all people may strive for these 'successes'. Much more research is needed to reconcile these trait and goal-specific perspectives. Studies can directly examine, for example, whether trait self-control influences the types of goals that people set, whether more conscientious people are pursuing more (or fewer) goals simultaneously, and whether these individual differences relate to more flexible goal pursuit. Future research can also examine possible predictors of variability, such that, for example more conscientious individuals may have less variability in goal attainment across their goals than someone who is less conscientious.

Validating Instruments

Some of the problems with research on personal goal pursuit comes from measures that are used to assess the numerous constructs of interest. For example, in the personal projects

paradigm, participants rate various characteristics for each goal (e.g., difficulty, importance, commitment) using one item per characteristic (e.g., Nurmi et al., 2009). Similarly, research on goal pursuit uses one item to assess effort, and two to three items to assess progress (e.g., Sheldon & Elliot, 1999; Werner et al., 2016). Although this is often necessary to keep the surveys to a reasonable length (especially since participants are reporting on multiple goals), it often precludes the possibility of using statistical analysis to ensure construct validity.

As an example of this issue, there is an outstanding question of whether goal motivation is best conceptualized as a continuum or as two separate dimensions. Conceptually, self-concordance is supposed to be one dimension along a continuum (Deci & Ryan, 2000), with a score frequently calculated by subtracting controlled motivation from autonomous motivation. Other research, however, frequently finds that these dimensions are uncorrelated (or positively correlated), showing that while autonomous motivation is consistently related to positive goal outcomes, controlled motivation is either negatively or unrelated to progress. This seems to suggest that a better approach is to examine the two types of motivation separately (Koestner et al., 2002). Conversely, a recent large meta-analysis of the motivation scales suggests that people do indeed experience different types of motivation to different degrees of self-determination, providing evidence in favour of the continuum approach (Howard, Gagné, & Bureau, 2017). However, this meta-analysis focused on behavioural regulation using established scales of motivation, with multiple items per motivation type. Future research would greatly benefit from examining whether a dichotomous or continuum approach is most suitable for personal goals. The problem, however, is that the typical assessment of goal motivation in longitudinal goal research uses one item per motivation type (intrinsic, integrated, introjected, and extrinsic, and sometimes identified; 4 or 5 items total), so that more complex factor analyses are impossible.

Timescales

One aspect of goal pursuit that is often overlooked is the idea that goals can unfold over many different timescales – some goals can be accomplished in a few days, while others take months or even years, and others are constantly ongoing and must be maintained. With the exception of values and life goals (which require active maintenance), different timescales are used interchangeably and often treated in the same manner (e.g., a week-long goal may be compared to a month-long goal). Future research is needed to understand whether the process of goal pursuit is the same for goals on different timescales, especially since broader goals are frequently broken down into smaller goals that are pursued over a shorter time (e.g., a month-long goal can be broken down into both weekly and daily goals). For research to understand the process of goal pursuit, these timescales need to be taken into account. This is especially important for investigating goal adjustment, as well as other questions concerning the possible fluctuation in goal-relevant variables, such as abstraction, motivation, and even progress.

Considering the timescale over which goal pursuit unfolds is necessary to properly design studies that can provide valid information on the various aspects of goal pursuit. Currently, even those studies on personal goal pursuit that include multiple assessment to examine process and outcomes vary greatly in the frequency and delay of assessments, ranging from asking about progress daily (Wilkowski & Ferguson, 2016), weekly (Werner & Milyavskaya, 2017a), by semester (Sheldon & Kasser, 2001), or yearly (Duckworth, Peterson, Matthews, & Kelly, 2007), often without any justification for why those frequencies were selected. Additionally, some goals might have specific ‘turning points’ – for example, receiving their midterm grade may prompt the student to re-evaluate their goal for their end-of semester grade, and a successful competition may lead an athlete to set a higher goal for a subsequent competition (Donovan & Williams,

2003). Given that such turning points are likely highly idiosyncratic for separate goals, researchers need to carefully consider the frequency of measurements in their studies to capture such variations. Assessments that are too close together will likely miss the longer-term consequences of goal pursuit (e.g., whether the goal is attained) for more abstract goals, but those assessments that are too far apart will miss the opportunity for detecting important shifts in goal adjustment and the progression of smaller sub-goals. One possible technique that could be especially useful in goal research is measurement-burst designs (Sliwinski, 2008), which consist of combining intensive repeated-measures assessments with longer term (e.g., weekly, monthly) assessments to examine both fine-grained and longer-term variability in goal pursuit.

What Constitutes Successful Goal Pursuit?

Despite the extensive literature on goals, what constitutes successful goal pursuit is not completely clear. That is, are we as researchers interested in determining whether some progress is made (and if so, how much progress is meaningful), or if a goal is attained? No research has directly examined how these are related. One reason may be that objective indicators for most idiosyncratic goals are difficult to determine. As described above, one benefit in subjective assessments is that they are the same across goals, so that within-person analyses can be conducted. How this would look like for objective measures is unclear – that is, can a goal such as ‘lose 10 lbs’ be compared with a goal of ‘earning an A’, even though objective indicators for both are available? Future research is needed on both objective and subjective goal attainment to triangulate what constitutes ‘successful’ goal pursuit. This can then be used as an outcome criterion to test models of goal pursuit. The eventual aim would be to develop and test predictive models, where researchers could use the characteristics of a person’s goals to accurately predict actual goal progress.

Goals as Networks

Very little research on personal goals has considered them in the broader context of other goals that people are simultaneously pursuing. Although some research has examined how goals facilitate or conflict with other goals (Emmons & King, 1988; Riediger & Freund, 2004), the implications of such conflict or facilitation for how a person actually juggles these goals in their daily life has not been examined. Additionally, even though research has identified sequential and concurrent strategies of goal pursuit (Orehek & Vazeou-Nieuwenhuis, 2013), the focus has been on goal planning using lab studies, and so it is unclear how this actually occurs naturally in idiosyncratic goal pursuit in daily life. Future research thus needs to consider not only the pursuit of specific goals, but also how these goals relate to one another. With the popularization of statistical techniques such as network analysis, it could be especially interesting to examine goals as networks in order to better understand how they relate to (or conflict with) one another. For example, do people have separable clusters of goals (where some goals are relatively independent, or only linked to one long-term goal), or do many of the goals cluster together? Are there individual differences that can predict how goals are organized? How does the structure of the network affect goal attainment? Using a network approach for the study of goal pursuit can pave the way for new insights on goal setting and pursuit.

Conclusion

Overall, there is a rich literature on goal pursuit stemming from many areas in psychology. This brief review focused on personal goals and the cycle of goal pursuit, while unfortunately ignoring some other aspects of goal pursuit (e.g., goal automaticity; Aarts & Dijksterhuis, 2000). Indeed, a complete review of the literature could fill numerous books. Nevertheless, this brief review highlights some key aspects of goal pursuit research: Goals are

best conceptualized as a distinct unit of analysis, with extensive within-person variations in both goal characteristics and attainment. Numerous characteristics of goals have been identified as contributing to successful goal pursuit; however, this literature remains scattered and a more comprehensive model is needed to integrate these disparate findings. Future research can focus on understanding the interplay between goals and individual differences, how goals relate to each other, and how people set, pursue, readjust, and juggle multiple goals both in their day-to-day lives and over longer courses of time.

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