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Current Opinion in Psychology

Time in relation to goals

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One of the most important aspects of goals is time. From how goals are set to the dynamics of goal pursuit, time plays an important and multifaceted role. Goals to walk 10 000 steps per day or to call one's parents once a week, for example, are defined by time (e.g. a day or week), pursued over time (e.g. for multiple days or multiple weeks), and subject to constraints on time (e.g. needing to also spend time on work). This article discusses three key ways to think about time in relation to goals: time as a defining feature of goals, as a dimension of goal pursuit, and as a constraint on goal pursuit. I discuss prior research relevant to this organizing framework and conclude with a discussion of emerging topics and opportunities for further investigation.

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Current Opinion in Psychology 2019, **26**:32–36

This review comes from a themed issue on **Time**

Edited by **Cassie Mogilner Holmes** and **Sanford DeVoe**

https://doi.org/10.1016/j.copsyc.2018.04.013

Goals and time are inextricably linked. From how goals are set to the dynamics of goal pursuit, time plays an important and multifaceted role. Goals are defined by time. A goal to walk 10 000 steps per day or to call one's parents once a week, for example, specify an amount of time (one day or one week) to achieve the desired outcome and a frequency of reoccurrence. Goals are also pursued over time. A goal to lose 10 pounds before one's wedding or to save $10 000 by the end of the year, for example, unfold over many days, weeks, and months. Lastly, goals are constrained by time. Goals to stay healthy and fit, to cultivate social relationships, and to excel at work, for instance, all require time to pursue and therefore compete for whatever time people have available.

This article reviews three key ways to think about time in relation to goals. In particular, I discuss how goals are defined by time, pursued over time, and constrained by time. I review past research related to each of these three topics, and conclude with a discussion of emerging lines of inquiry and opportunities for further investigation.

Time as a defining feature of goals

Time is an important component of setting goals. Goals have multiple temporal features, and how those features are defined has important implications for goal pursuit. These features include temporal specificity, temporal boundedness, and temporal duration.

First, goals are defined by their temporal specificity, that is, the time within which the goal objective should be achieved (e.g. walk 10 000 steps *per day*). Goals can be temporally vague or specific. For instance, a goal to lose 10 pounds is temporally vague, whereas a goal to lose 10 pounds in 3 months is temporally specific. This notion of temporal specificity relates to prior research on goal specificity [1,2], which has primarily focused on the precision of the goal objective (e.g. lose 10 pounds versus lose as much weight as possible). This work has found numerous benefits to setting specific goal objectives [3,4], including improved performance [5,6]. Similar benefits may also emerge from setting temporally specific goals (e.g. helping people calibrate their efforts and encouraging them to work harder). Temporally specific and temporally vague goals can both have specific or vague end-states (Table 1).

Second, goals can be defined by their temporal boundedness, that is, whether there is an explicit temporal cut-off after which the goal is no longer pursued. Goals can be finite or ongoing. Finite goals are pursued for a fixed duration, such as one week, one month, or one year. Ongoing goals, in contrast, are pursued in perpetuity. For instance, a goal to walk 10 000 steps per day for one month is finite (i.e. temporally bounded), whereas a goal to walk 10 000 steps per day every day for the rest of one's life is ongoing. Maintenance goals (e.g. a goal to maintain one's weight) are a class of ongoing goals, in that they are by definition 'maintained' in perpetuity with the objective of avoiding change rather than enacting change [7,8]. Finite and ongoing goals too can have specific or vague end-states (Table 2).

Third, goals can be defined by their temporal duration; that is, the future horizon over which they are pursued. Goals can be short-term or long-term. For instance, a goal to diet for a week is a short-term goal, whereas a goal to diet for a year is a long-term goal. A goal to walk 10 000 steps per day for a week is a short-term goal, whereas a goal to walk 10 000 steps per day for a month is a long-term goal. This short-term long-term distinction

Table 1

Goal typology A

	Specific end-state	Vague end-state
Temporally specific	Lose *10 pounds* in **one month**	Lose *as many pounds as possible* in **one month**
Temporally vague	Lose *10 pounds*	Lose *as many pounds as possible*

Note: End-state in italics, temporal specificity in bold.

Table 2

Goal typology B

	Specific end-state	Vague end-state
Finite	Walk *10 000 steps* per day for **one month**	Walk *as many steps as possible* per day for **one month**
Ongoing	Walk *10 000 steps* per day **everyday**	Walk *as many steps as possible* per day **everyday**

Note: End-state in italics, temporal boundary in bold; all goals temporally specific (i.e. per day).

relates to research on construal level and self-control [9–12], which considers how envisioning goal pursuit at different future points impacts motivation [13,14•,15–17]. Etkin and Ratner [14•], for example, found that means compatible with a concrete mindset increases motivation in the near future, whereas means compatible with an abstract mindset increases motivation in the far future.

Importantly, temporal duration refers to not just how far into the future people look (e.g. one week or one month), but also to the period of time for which the goal is pursued (e.g. each day starting today through the end of the month). Temporal duration may therefore influence goal pursuit in ways beyond its effect on construal (e.g. perceived goal difficulty [18]).

Another way to categorize the temporal duration of goals is as one-shot or recurring. As implied by the name, one-shot goals occur only once (e.g. saving enough money to pay for college). Recurring goals, in contrast, are set, pursued, and completed iteratively. Earning a free 11th cup of coffee after purchasing 10, for instance, reoccurs with each new loyalty card. Although the majority of goals research implicitly treats goals as one-shot, many if not most of people's goals are recurring. Construing goals as recurring introduces important dynamics, such as goal revision [19] and goal reengagement [20•,21], which one-shot goals lack. Moreover, motivational dynamics during goal pursuit may differ if the goal is recurring versus one-shot [22–24].

Time as a dimension of goal pursuit

In addition to being a defining feature of goals, time is also a dimension of goal pursuit. Goal pursuit follows a time course, and people's location along this course influences a variety of goal-related phenomena, including means selection, motivation, and performance.

The time course of goal pursuit is typically described in terms of goal progress. Goal progress refers to the amount one has accomplished toward achieving a goal. If the goal is to walk 10 000 steps per day, for instance, goal progress would be the number of steps taken so far that day (e.g. 4000 steps). Goal progress accumulates over time, with more progress often being made the more time has elapsed. Eight hours into the day, for instance, a person will have accumulated (or at least have had the opportunity to accumulate) more steps toward their 10 000 step goal than they will have one hour into the day. Thus, 'high progress' typically corresponds to more time elapsed since the beginning of goal pursuit, whereas 'low progress' corresponds to less time elapsed.

A great deal of research has explored how goal progress shapes motivation. Within this literature, the majority of evidence supports the notion that motivation increases with accumulated goal progress [25–28,29••,30]. Often called the 'goal gradient' or 'goal looms larger' effect, people tend to work harder at a goal (e.g. take the stairs rather than the elevator) when their progress toward achieving it is high (e.g. having accumulated 9000 steps so far in the day) versus low (e.g. having accumulated just 2000 steps so far in the day). There are some notable exceptions, such as when people infer enough progress has been made [31] or the goal objective is not well-defined [32•]. Still, across a broad range of lab and field contexts (e.g. earning points, donating money, purchasing coffee), accumulating goal progress has been found to increase motivation.

Recently, there has been an emerging interest in how the drivers of motivation shift along the goal progress continuum. This work demonstrates that the factors that motivate people early on in the course of goal pursuit (when goal progress is low) differ from those that motivate people later on (when goal progress is high) [33,34••,35,36]. Research by Huang, Zhang, and colleagues, for instance, finds that having made little progress so