Consciousness and Cognition 66 (2018) 26–39

Contents lists available at ScienceDirect

Consciousness and Cognition

journal homepage: www.elsevier.com/locate/concog

Full Length Article

Wanting or having to: The role of goal self-concordance in episodic future thinking

Alexandra Ernst[a,*], Frederick L. Philippe[b], Arnaud D'Argembeau[a]

[a] Psychology and Neuroscience of Cognition Research Unit, Department of Psychology, University of Liège, Belgium
[b] ELABORER – Laboratory for Research on Emotions and Representations, Department of Psychology, University of Quebec at Montreal, Canada

ARTICLE INFO

Keywords:
Episodic future thought
Goals
Motivation
Self-concordance
Psychological needs

ABSTRACT

While it is established that goal processing is a central component of episodic future thinking, how personal goals shape future event representations is not fully understood. Here, we explored the influence of the source of motivation underlying goal pursuit. Personal goals differ in their degree of self-concordance, which depends on the primary motives underlying goal pursuit. We distinguished between self-concordant (what one *wants* to achieve) and non-self-concordant (what one *has* to achieve) goals. Participants were asked to imagine specific future events associated with each type of goals. We found that self-concordant future events have a privileged phenomenological status: they are associated with a stronger sense of "realness" and of pre-experiencing the future, are more integrated with autobiographical knowledge, and are characterized by more positive and intense emotions. Furthermore, psychological need satisfaction was a characteristic component of self-concordant future thoughts. Implications of these findings for motivation and goal pursuit are discussed.

1. Introduction

People spend a great deal of time thinking and planning for events that might happen in their personal future (Berntsen & Jacobsen, 2008; D'Argembeau, Renaud, & Van der Linden, 2011). Functional theories of prospection (Baumeister, Vohs, & Oettingen, 2016; Bulley, Henry, & Suddendorf, 2016; Miloyan & Suddendorf, 2015) have emphasized the adaptive value of future-oriented thoughts in guiding actions toward desired outcomes. As such, most future thoughts are not incidental but represent future possibilities that are relevant to current needs and goals. In this context, goals serve to specify and direct actions, fostering people's energy, persistence, and self-regulation until goal achievement (Sheldon, 2014).

Within the last years, the field of prospection has undergone a surge of interest in the role of personal goals in the mental simulation of specific future events—often referred to as episodic future thinking (Atance & O'Neill, 2001; Szpunar, 2010). In particular, research has shown that personal goals facilitate the construction of episodic future thoughts (D'Argembeau & Mathy, 2011) and contribute to organize them in coherent networks of personal events (D'Argembeau & Demblon, 2012; Demblon & D'Argembeau, 2014). Furthermore, mental representations of future events that are connected to personal goals have a privileged status in terms of their phenomenology and cognitive-emotional impact: they are more vivid, more frequently rehearsed, more important, more positive and emotionally intense, and have a greater impact on current mood than future thoughts unrelated to personal goals (Cole & Berntsen, 2016). Representations of goal-related future events are also better integrated with autobiographical knowledge (e.g., they

* Corresponding author at: Department of Psychology – Psychology and Neuroscience of Cognition Research Unit, University of Liège, Place des Orateurs 1 (B33), B-4000 Liège, Belgium.
E-mail address: alexandra.ernst@uliege.be (A. Ernst).

https://doi.org/10.1016/j.concog.2018.10.004
Received 27 July 2018; Received in revised form 19 September 2018; Accepted 15 October 2018
Available online 01 November 2018

are linked to general expectations that one has about oneself and one's life) and are associated with a stronger sense of "pre-experiencing" the future (referred to as autonoetic experience; Lehner & D'Argembeau, 2016).

While these findings indicate that goal processing is a central component of episodic future thinking (D'Argembeau, 2016), how personal goals shape and influence future event representations is not yet fully understood. Indeed, research has thus far simply compared representations of goal-related versus goal-unrelated future events (Cole & Berntsen, 2016; D'Argembeau & Mathy, 2011; Lehner & D'Argembeau, 2016) and no study to date has examined how the nature and qualitative properties of personal goals influence the representation of associated future events. Most notably, an important feature of personal goals is the source of motivation underlying goal pursuit (Milyavskaya, Nadolny, & Koestner, 2014; Milyavskaya, Inzlicht, Hope, & Koestner, 2015). This raises the question of whether we contemplate personal future scenarios in the same way when they correspond to things we want to or things we have to do (Milyavskaya et al., 2015).

An interesting conceptual framework for addressing this issue comes from self-determination theory (Deci & Ryan, 2000; Ryan & Deci, 2017), which conceives motivation as a continuum of different sources that influence cognition and behavior. At one end, autonomous motivation reflects the most self-determined form of motivation and refers to behaviors that meet inherent interests, values, or satisfactions. At the opposite end, controlled motivation corresponds to behaviors that are driven by external pressures or are performed because of their instrumental value. According to Sheldon and Elliot's self-concordance model (1998, 1999), these sources of motivation reflect the degree to which goals are integrated with the self. In this model, self-concordant goals derive from autonomous motivation and personal choice and endorsement. Goals are thus pursued because of their inherent interest and enjoyment (i.e., intrinsic motivation), because they are personally important (i.e., identified motivation), or because the goal reflects personal convictions, values, or beliefs that are core to the person's identity (i.e., integrated motivation; Milyavskaya et al., 2015; Sheldon, 2014; Sheldon & Elliot, 1998, 1999). Conversely, non-self-concordant goals have no direct connection to the self and instead stem from controlled motivation. Goals are thus pursued because of external coercions or pressures, such as environmental circumstances or incentives (i.e., extrinsic motivation), or to avoid negative feelings (e.g., guilt, shame, or anxiety) or sanctions (i.e., introjected motivation; Milyavskaya et al., 2015; Sheldon & Elliot, 1998, 1999). In short, self-concordant goals typically correspond to personal projects that one wants to achieve, whereas non-self-concordant goals usually refer to things that one has to do (Milyavskaya et al., 2015).[1] Research based on this model has shown that self-concordant goals lead to more implementation intentions (Carraro & Gaudreau, 2011) and sustained effort in goal pursuit (Sheldon & Elliot, 1998, 1999), are more frequently rehearsed (Higgins, 1996), and promote self-regulation (Milyavskaya et al., 2015) and successful goal achievement (Koestner, Otis, Powers, Pelletier, & Gagnon, 2008).

Self-concordant goals are expected to be more effective than non-self-concordant goals because they are more likely to satisfy basic psychological needs. According to self-determination theory (Deci & Ryan, 2000; Ryan & Deci, 2017), there are three basic universal needs that people strive to satisfy: autonomy (i.e., the desire to be in control of one's own behavior, to feel volitional and authentic in one's actions), competence (i.e., the need to be effective and develop mastery), and relatedness (i.e., the need to feel connected to others, to care for others and be cared for by others). Research on autobiographical memory has shown that need satisfaction is a specific cognitive-affective component of memories for personal past events, which is distinct from other memory features such as their emotional valence, personal significance, or vividness (Philippe, Koestner, Beaulieu-Pelletier, & Lecours, 2011; Philippe, Koestner, Beaulieu-Pelletier, Lecours, & Lekes, 2012). Furthermore, it has been found that the level of need satisfaction characterizing memories acts as a motivational property to predict future actions and behaviors (e.g., Philippe, Koestner, & Lekes, 2013). Surprisingly, although future thinking undoubtedly plays an important role in motivating future behaviors, few studies to date have examined whether need satisfaction is also a characteristic component of future event representations (but see Demblon & D'Argembeau, 2016). This question is important since it is believed that goal information in the form of future event representations is used to guide the satisfaction of basic psychological needs (Dweck, 2017).

In the present study, we examined how different types of motivation underlying goal pursuit influence the characteristics of episodic future thoughts. Previous research has shown that episodic future thinking can be characterized along three main dimensions: sensory-perceptual characteristics (e.g., vividness), cognitive feelings (e.g., autonoetic experience), and the integration of imagined events with autobiographical knowledge (D'Argembeau & Van der Linden, 2012; Ernst & D'Argembeau, 2017). Following the self-concordance model (Sheldon & Elliot, 1998, 1999), we expected that episodic future thoughts derived from self-concordant goals would be more integrated with autobiographical knowledge (as indicated by their personal importance, links with other events, and underlying identity motives). Most importantly, we also predicted that self-concordance would impact cognitive feelings, leading to a stronger sense of "realness" when imagining events (belief in occurrence; Ernst & D'Argembeau, 2017) and a sense of pre-experiencing the future (autonoetic experience; D'Argembeau & Van der Linden, 2012). Our primary interest lied in these two properties of episodic future thoughts (autobiographical integration and cognitive feelings) because the integration and perceived "reality" of imagined events may play a key role in determining people's decisions and actions (Baumeister et al., 2016). On the other hand, we did not have specific hypotheses regarding the influence of goal self-concordance on the sensory-perceptual characteristics of mental representations. Besides these three dimensions of episodic future thoughts, we assessed other event features that are

[1] The construct of goal self-concordance is conceptually related to the notion of possible selves (Markus & Nurius, 1986), and more specifically self-regulatory possible selves (i.e., possible selves that represent a self-defining goal and include specific behavioral strategies for pursuing this goal; Hoyle & Sherrill, 2006). However, the distinction between hoped for and feared possible selves (i.e., states that one wants to attain or to avoid) does not completely overlap with the notion of self-concordant and non-self-concordant goals because non-self-concordant goals are not necessarily associated with avoidance but may instead represent things that have to be attained although one feels coerced to do so.

typically included in studies of episodic future thinking (e.g., emotion, rehearsal, temporal distance; Cole & Berntsen, 2016; Ernst & D'Argembeau, 2017; McDermott, Wooldridge, Rice, Berg, & Szpunar, 2016), although we did not have hypotheses concerning these variables.

Our second aim was to investigate the degree of need satisfaction within episodic future thoughts. Based on self-determination theory, we hypothesized that future events derived from self-concordant goals would be more need-satisfying in terms of autonomy, competence, and relatedness. This would provide further evidence that need satisfaction is a characteristic component of episodic future thoughts (Demblon & D'Argembeau, 2016) and that goal information in the form of future event representations is driven by basic psychological needs (Dweck, 2017).

In summary, our overarching aim was to better understand how mental representations of future events are shaped by personal goals. To test our hypotheses, we compared verbal descriptions and ratings of phenomenological characteristics of future events produced in association with self-concordant and non-self-concordant goals.

2. Material and methods

2.1. Participants

Forty-nine students took part in the study but data from two participants were excluded due to difficulties in following the instructions. The final sample included 47 participants (36 women; mean age = 22.19 years, $SD = 2.50$; mean education years = 15.17, $SD = 2.41$). All participants were students in Belgian or French universities, were fluent in French, and participated in this experiment as volunteers. None reported the presence of a current depression episode. The sample size was determined a priori in order to have sufficient statistical power (i.e., 90%) to detect medium within-subjects differences ($d = 0.5$) using an alpha of 0.05 (two-tailed; Faul, Erdfelder, Lang, Buchner, & Kiel, 2007). The study was approved by the University of Liège Ethics Committee and all participants gave written informed consent.

2.2. Material and procedure

Participants were first asked to select a series of personal goals. Personal goals were defined as personal objectives or projects that are frequently thought about, for which one makes plans, and that one strives to achieve, with more or less difficulty (Lehner & D'Argembeau, 2016). These projects could be achieved more or less quickly, and could refer to any life domain, such as school, work, family, intimate relationships, leisure activities, and material goods. More specifically, participants were instructed to select six personal projects associated with different goal orientations: three that were primarily driven by self-concordant motives and three that were primarily driven by non-self-concordant motives (selected in a counterbalanced order). This distinction was based on Sheldon and Elliot's self-concordance model (1999) that categorizes personal goals on the basis of their degree of self-concordance, depending on the primary motive(s) underlying goal pursuit. Self-concordant goals are generally driven by autonomous reasons (i.e., intrinsic, integrated, and identified motivations) and refer to projects that are pursued because they provide fun or enjoyment, reflect one's personal values, or out of personal interest and importance. Conversely, non-self-concordant goals are essentially motivated by controlled reasons (i.e., introjected and extrinsic motivations), and correspond to projects that are pursued because one would feel ashamed, guilty, or anxious not to do it or because one feels obliged to (for instance because somebody else or the situation requires it). The instructions emphasized that these goal orientations are not strictly dichotomous and that some personal goals could in part be driven by both types of motivation. However, participants were instructed to produce personal goals that reflect as distinctly as possible these two types of goals.

To verify the primary goal orientation of the selected projects, participants were asked to rate their reasons for pursuing each personal goal on a series of 9-point rating scales (adapted from Sheldon & Elliot, 1999), ranging from 1 (*not at all for this reason*) to 9 (*completely for this reason*): two items assessed non-self-concordant motives ("you pursue this goal because somebody else wants you to or because the situation demands it"; "you pursue this goal because you would feel ashamed, guilty, or anxious if you didn't") and two items assessed self-concordant motives ("you pursue this goal because of the fun and enjoyment that it provides you"; "you pursue this goal because you really believe it's an important goal you have"). For each goal, a score of self-concordance was then calculated by subtracting the sum of ratings for non-self-concordant motives from the sum of ratings for self-concordant motives.

After the six personal goals had been produced, participants were asked to generate one specific future event (i.e., a unique episode happening at a specific time and place, and lasting no longer than a day) in association with each goal. The instructions specified that the imagined event should be directly linked or part of the corresponding goal. Examples were provided to ensure participants' understanding of the notion of specificity. There was no instruction on the temporal distance of events. For each event, participants provided a short title summarizing the essence of the event and specified the place/location where it will occur and an estimated date of occurrence; this enabled us to verify the specificity of the selected events.

After having generated the six future events, participants were asked to imagine each event in as much detail as possible, including details about location, actions, people, objects, emotions, and so on. Participants' descriptions were audio-recorded and later transcribed for scoring. Immediately after each event description, participants completed a series of ratings using 7-point Likert scales (see Appendix A). Three rating scales assessed cognitive feelings when imagining the event (D'Argembeau & Van der Linden, 2012; Ernst & D'Argembeau, 2017; Lehner & D'Argembeau, 2016): one item for belief in occurrence (the subjective feeling that an event will really occur in the future), and two items for autonoetic experience (one for mental time travel and one for the feeling of pre-experiencing the event). Another set of items assessed the sensory-perceptual characteristics of future events (Ernst &

D'Argembeau, 2017; Lehner & D'Argembeau, 2016; Sutin & Robins, 2007), including the amount of sensory details, the overall clarity of the mental representation, and the visual perspective adopted (one item for the first-person perspective and one item for the third-person perspective).

The integration of future events in a broader autobiographical context was also assessed (Ernst & D'Argembeau, 2017; Lehner & D'Argembeau, 2016). Specifically, participants rated the personal importance of the events, the extent to which they are related to other past and/or future personal events, their personal plausibility (i.e., the judgment that an event has the potential to occur to the self; Scoboria, Mazzoni, Kirsch, & Relyea, 2004), and the extent to which they meet identity motives. Identity motives refer to motivational pressures toward particular ways of seeing oneself that guide identity construction, which include motives for self-esteem (i.e., seeing oneself in a positive light), distinctiveness (i.e., believing that one is distinct from other people), continuity (i.e., experiencing a sense of personal continuity over time despite life changes), belonging (i.e., being included and accepted within a social circle), efficacy (i.e., feeling competent and capable of influencing one's environment), and meaning (i.e., feeling that one's life is meaningful; Vignoles, Manzi, Regalia, Jemmolo, & Scabini, 2008; Vignoles, Regalia, Manzi, Golledge, & Scabini, 2006).

In addition, the emotional valence and intensity of events was also assessed, both for anticipatory and anticipated emotions (which correspond, respectively, to emotions experienced in the present versus emotions expected to occur in the future; Barsics, Van der Linden, & D'Argembeau, 2016; Baumgartner, Pieters, & Bagozzi, 2008). Some additional items measured the frequency with which participants had previously thought and talked about the event (i.e., rehearsal), the event's subjective temporal distance (i.e., the feeling that the event is temporally close or distant from the present, regardless of its objective moment of occurrence), and the subjective easiness of imagining (Ernst & D'Argembeau, 2017; Lehner & D'Argembeau, 2016).

Finally, participants rated the level of psychological need satisfaction associated with each future event, using items derived from previous research on the role of psychological need satisfaction in autobiographical memories (Bouizegarene & Philippe, 2016; Philippe et al., 2011; Philippe et al., 2012). Each of the three basic psychological needs from self-determination theory (i.e., autonomy, competence, and relatedness; Deci & Ryan, 2000) was assessed by two items.

To ensure that participants understood all instructions and items, they first had to complete one practice trial, with a non-personal event provided by the experimenter ("imagine you are lying on a sandy beach in a tropical bay"; Hassabis, Kumaran, & Maguire, 2007), in order to familiarize them with the entire procedure. All instructions and measures were presented in French.

Finally, participants filled out the Balanced Time Perspective Scale (BTPS; Webster, 2011; French version by Barsics, Rebetez, Rochat, D'Argembeau, & Van der Linden, 2017) to explore whether individual differences in the affective and identity components of future time perspective were associated with phenomenological properties of future event representations associated with self-concordant and non-self-concordant goals. The BTPS is a 28 item-scale measuring the balance between the tendency to think about both one's past and future in positive ways. Each statement is rated on a 7-point Likert scale (ranging from 1, *strongly disagree* to 7, *strongly agree*), with half of the items referring to past orientation and the other half to future orientation. Past orientation was included during the testing session because it formed part of the original scale but this subscale was not used in the subsequent analyses since we were specifically interested in future-oriented thoughts. The total testing time was about an hour and a half.

2.3. Scoring of event details

Verbal descriptions of future events were transcribed verbatim and scored using the standardized Autobiographical Interview procedure (Levine, Svoboda, Hay, Winocur, & Moscovitch, 2002). The central event was first determined and then each distinct detail or chunk of information was categorized as either internal (i.e., details referring to the main event, including happenings, people, time, place, sensory perceptions, thoughts, and emotions) or external (i.e., details that do not refer to the central event, semantic information, repetitions and metacognitive statements). The numbers of internal and external details were tallied. All future events were scored by the first author and a second rater independently scored all the descriptions to assess the reliability of scoring. Intraclass correlation coefficients (Portney & Watkins, 2000) showed a high inter-rater agreement for both internal and external details (ICC = 0.96 and 0.85, respectively).

3. Results

A total of 282 personal goals was collected (141 in each goal condition). As a manipulation check, we first verified the primary orientation of goals generated in each condition using the self-concordance score (averaged across the three goals within each condition). Positive scores indicate that goals were primarily self-concordant, whereas negative scores indicate that goals were primarily non-self-concordant. As expected, self-concordance scores were significantly higher for goals produced in the self-concordant condition ($M = 12.37$, $SD = 2.21$) compared to goals elicited in the non-self-concordant condition ($M = -7.82$, $SD = 3.21$), $t(46) = 31.95$, $p < 0.001$, $d = 7.37$. Examples of self-concordant and non-self-concordant goals and of associated future events produced by the participants are provided in Appendix B.

Prior to data analysis, the specificity of future events associated with goals was also checked. One non-specific event was excluded, leaving 141 future events in the self-concordant condition and 140 events in the non-self-concordant condition. Statistical analyses examined whether future events associated with self-concordant and non-self-concordant goals differed in terms of imagined details, phenomenological characteristics, and psychological need satisfaction. For each dependent variable, data were averaged across the three events in each condition and were analyzed using *t*-tests for dependent samples or repeated measures ANOVAs. When classic parametric assumptions were not met, we ran complementary analyses using robust statistical methods (Field & Wilcox, 2017). In most cases, classic and robust methods yielded similar results (in which case only the results obtained using the classical

Table 1
Mean ratings (and standard deviations) of the phenomenological characteristics and event features of episodic future thoughts associated with self-concordant and non-self-concordant goals.

	Self-concordant	Non-self-concordant	$t(46)$	p	d
Cognitive feelings					
Belief in occurrence	5.52 (0.77)	4.84 (1.17)	3.80	< 0.001*	0.71
Autonoetic experience	5.46 (0.82)	4.79 (1.12)	4.00	< 0.001*	0.68
Sensory-perceptual characteristics					
Vividness	4.87 (0.87)	4.30 (0.91)	4.28	< 0.001*	0.64
First-person perspective	5.63 (1.42)	5.56 (1.34)	0.41	0.68	0.05
Third-person perspective	2.35 (1.44)	2.28 (1.38)	0.46	0.65	0.06
Autobiographical context					
Personal importance	5.80 (0.90)	3.99 (1.29)	7.13	< 0.001*	1.64
Link with other personal events	3.91 (1.48)	3.30 (1.39)	2.64	0.01*	0.43
Personal plausibility	5.64 (0.81)	5.56 (0.79)	0.49	0.62	0.09
Identity motives					
– Self-esteem	5.60 (1.13)	3.86 (1.44)	6.68	< 0.001*	1.35
– Distinctiveness	3.93 (1.69)	2.95 (1.44)	4.08	< 0.001*	0.62
– Continuity	5.23 (1.15)	4.03 (1.48)	4.30	< 0.001*	0.90
– Belonging	4.87 (1.51)	3.03 (1.17)	6.93	< 0.001*	1.36
– Efficacy	5.26 (1.14)	3.37 (1.46)	6.48	< 0.001*	1.45
– Meaning	5.70 (1.03)	3.41 (1.44)	9.89	< 0.001*	1.81
Rehearsal	3.74 (1.45)	3.18 (1.37)	2.65	0.01*	0.40
Easiness of imagining	5.33 (0.85)	4.77 (0.81)	3.80	< 0.001*	0.67
Subjective temporal distance	4.35 (1.14)	4.26 (1.20)	0.36	0.72	0.08

* Indicates differences that remained significant after applying a correction for multiple comparisons using the Benjamini-Hochberg procedure (Benjamini & Hochberg, 1995).

statistical model are reported, for the sake of conciseness). When the two statistical methods deviated, the robust model is reported (as recommended by Field & Wilcox, 2017).

3.1. Amount of event details

The amount of internal and external details verbally reported for future events was on average 28.16 (SD = 16.53) and 12.28 (SD = 9.77) for self-concordant goals, and 27.83 (SD = 17.61) and 11.88 (SD = 10.23) for non-self-concordant goals. A repeated measures ANOVA, with goal orientation (self-concordant, non-self-concordant) and type of details (internal, external) as within-subjects factors, showed that the number of details did not significantly differ between the two goal orientations, $F(1, 46) = 0.14$, $p = 0.71$, $\eta_p^2 = 0.003$. There was a significant main effect of the type of details, $F(1, 46) = 73.86$, $p < 0.001$, $\eta_p^2 = 0.62$, showing that more internal than external details were produced. The goal orientation × type of detail interaction was not significant, $F(1, 46) = 0.003$, $p = 0.96$, $\eta_p^2 = 0.001$.

3.2. Phenomenological characteristics and event features

The mean ratings for the phenomenological characteristics of episodic future thoughts associated with self-concordant and non-self-concordant goals are shown in Table 1, along with the results of the corresponding paired t-tests.

First, we examined whether future events associated with the two goal orientations differed in terms of the cognitive feelings accompanying their mental simulation, in particular belief in occurrence and autonoetic experience. The two items measuring mental time travel and the sense of experiencing the event were averaged to form an index of autonoetic experience (Spearman-Brown coefficients = 0.84 and 0.86, respectively for future events associated with self-concordant goals and non-self-concordant goals). Consistent with our hypotheses, ratings of belief in occurrence and autonoetic experience were significantly higher for future events deriving from self-concordant goals (Table 1).

As expected, we also found that future events that were associated with self-concordant goals were better integrated with autobiographical knowledge. Indeed, these events were associated with higher scores for autobiographical context measures, including their personal importance[2] and link(s) with other personal events. Furthermore, all identity motives (self-esteem, distinctiveness, continuity, belonging, efficacy and meaning) were rated as being met to a greater extent when imagining future events deriving from self-concordant than non-self-concordant goals. Nonetheless, the two types of future events received equivalent ratings for personal plausibility.

[2] Although this finding may not seem surprising given that personal importance is one of the defining features of self-concordant goals, it should be noted that this difference refers to the importance of imagined future events and not the importance of goals per se. Future event representations may be imbued with personal significance when they are connected to higher-order self-concordant goals.

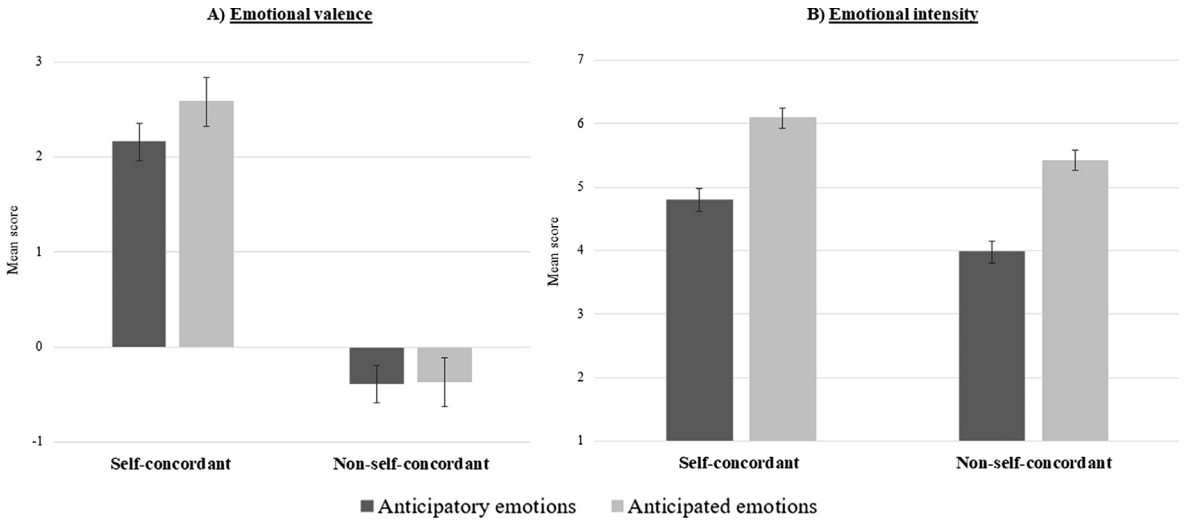

Fig. 1. Mean ratings of emotional valence (A) and emotional intensity (B) as a function of the type of future-oriented emotions (anticipatory vs. anticipated) and the type of future events (self-concordant vs. non-self-concordant goals). Error bars show 95% confidence intervals for within-subject designs (O'Brien & Cousineau, 2014).

To examine the sensory-perceptual characteristics of episodic future thoughts, we computed a vividness index by averaging ratings of the sensory details and overall clarity of the mental representation (Spearman-Brown coefficients = 0.74 and 0.75, respectively for the self-concordant and non-self-concordant conditions). This index was significantly higher for future thoughts associated with self-concordant goals. On the other hand, the visual perspective of mental representations (first-person and third-person) did not significantly differ between the two types of events.

The emotional characteristics of episodic future thoughts was also examined by conducting repeated-measures ANOVAs on emotional valence and intensity ratings, with goal orientation (self-concordant, non-self-concordant) and the type of emotions (anticipatory, anticipated) as within-subjects factors (see Fig. 1 for mean ratings). Regarding emotional valence, we found a significant main effect of goal orientation, $F(1, 46) = 153.10$, $p < 0.001$, $\eta_p^2 = 0.77$, indicating that episodic future thoughts were associated with more positive emotions in the self-concordant than in the non-self-concordant condition. Anticipated emotions (i.e., emotions that are expected to be experienced in the future) were judged as more positive than anticipatory emotions (i.e., emotions that are currently experienced when imagining the future), $F(1, 46) = 11.21$, $p = 0.002$, $\eta_p^2 = 0.20$. Besides, there was a significant goal orientation × type of future-oriented emotions interaction, $F(1, 46) = 8.89$, $p = 0.005$, $\eta_p^2 = 0.16$. Follow-up comparisons (paired *t*-tests) showed that in the self-concordant condition anticipated emotions were judged more positive than anticipatory emotions ($p < 0.001$), whereas no difference was observed in the non-self-concordant condition ($p = 0.85$). With regard to emotional intensity, we found a significant main effect of goal orientation, $F(1, 46) = 30.57$, $p < 0.001$, $\eta_p^2 = 0.40$, a main effect of type of future-oriented emotions, $F(1, 46) = 119.41$, $p < 0.001$, $\eta_p^2 = 0.72$, but no significant interaction, $F(1, 46) = 0.60$, $p = 0.44$, $\eta_p^2 = 0.01$. Episodic future thoughts were rated as emotionally more intense in the self-concordant condition than in the non-self-concordant condition, and emotional intensity was also higher for anticipated than anticipatory emotions.

Finally, we examined whether additional event features differed between the two goal conditions, including the frequency of rehearsal, the difficulty to imagine events, and their temporal characteristics (objective and subjective temporal distance). Our results showed that future events associated with self-concordant goals were more frequently rehearsed and were easier to imagine than future events derived from non-self-concordant goals. The objective temporal distance of future events was calculated by counting the number of months between the date of the testing session and the estimated date of occurrence of events, which showed that future events were estimated as less distant in the non-self-concordant condition ($M = 45.78$, $SD = 58.80$) than in the self-concordant condition ($M = 57.98$, $SD = 40.10$; robust statistical test on the 20% trimmed means, $M_{diff} = 21.5$, $Y_t(28) = 3.30$, $p = 0.003$). Interestingly, however, the two conditions did not differ in terms of the subjective temporal distance of imagined events (see Table 1).

In summary, the previous analyses showed that events imagined in relation to self-concordant goals were associated with higher levels of belief in occurrence, autonoetic experience, and vividness, and were also better integrated in an autobiographical context. It is worth noting, however, that self-concordant events were rated as being more positive than non-self-concordant events. Given that previous studies have shown that characteristics of imagined future events such as their vividness and importance are influenced by their emotional valence (D'Argembeau et al., 2011; D'Argembeau & Van Der Linden, 2004; de Vito, Neroni, Gamboz, Della Sala, & Brandimonte, 2015; Rasmussen & Berntsen, 2013), it remains possible that (some of) the differences observed in the current study were due to the valence of produced events rather than their goal concordance per se. To examine this possibility, we conducted a series of regression analyses with each phenomenological characteristic that showed a significant difference in our previous analyses (see Table 1) as outcome variable, and with both the type of goal (self-concordant vs. non-self-concordant) and the valence of the event (i.e., its anticipated emotional valence) as predictors. For these analyses, we fitted multilevel models (with events as level 1

Table 2
Mean (and standard deviations) psychological need satisfaction scores of future events associated with self-concordant and non-self-concordant goals.

	Self-concordant	Non-self-concordant	$t(46)$	p	d
Autonomy	1.54 (1.07)	−0.88 (1.03)	11.28	< 0.001*	2.29
Competence	1.76 (0.62)	−0.34 (1.11)	11.36	< 0.001*	2.33
Relatedness	1.65 (0.89)	0.32 (0.98)	7.54	< 0.001*	1.41

* Indicates differences that remained significant after applying a correction for multiple comparisons using the Benjamini-Hochberg procedure (Benjamini & Hochberg, 1995).

units and participants as level 2 units) in order to take the hierarchical structure of the data into account (Goldstein, 2011). These analyses showed that all event characteristics were significantly predicted by goal condition (self-concordant vs. non-self-concordant), even when the valence of events was taken into account (all $ps < 0.05$), except for links with other events ($p = 0.23$) and the identity motive of continuity ($p = 0.11$). These additional analyses thus demonstrate that most of the observed differences between goal conditions were not simply due to the emotional valence of imagined events.

We also conducted additional analyses to examine whether differences in cognitive feelings between the two goal conditions can be accounted for by differences in the vividness of episodic future thoughts. Indeed, previous research has shown that cognitive feelings such as the sense of pre-experiencing the future is in part determined by the sensory-perceptual qualities of mental representations (D'Argembeau & Van der Linden, 2012), so it remains possible that the differences in cognitive feelings observed in the present study are due to the higher vividness of self-concordant thoughts. To examine this issue, we conducted multilevel regression analyses with each cognitive feeling (i.e., autonoetic experience, belief in occurrence) as outcome variable, and with both the type of goal (self-concordant vs. non-self-concordant) and the vividness index as predictors. These analyses showed that both cognitive feelings were significantly predicted by goal condition, even when the vividness of mental representations was taken into account (all $ps < 0.05$).

3.3. Psychological need satisfaction

Future events associated with self-concordant goals were rated as fulfilling all three basic psychological needs (autonomy, competence, and relatedness) to a greater extent than future events associated with non-self-concordant goals (see Table 2). In addition, the negative scores obtained for autonomy [95% CI: −1.18, −0.57] and competence [95% CI: −0.66, −0.01] in the non-self-concordant condition indicated that these future events were actually judged as slightly need thwarting for these two dimensions.

3.4. Correlations between the phenomenological characteristics of episodic future thoughts and individual differences in time perspective

Finally, we conducted exploratory correlational analyses to examine whether the phenomenological properties of future event representations derived from self-concordant and non-self-concordant goals were associated with individual differences in future time perspective (Table 3). We found a series of positive correlations between the BTPS (future subscale) and the phenomenological properties of episodic future thoughts, but only for events derived from self-concordant goals. In particular, our results showed that the more participants were oriented toward the future, the more their self-concordant future event representations were associated with belief in occurrence, autonoetic experience, personal importance, and meaning. In addition, participants' future orientation was also positively associated with the easiness of imagining events, as well as the emotional valence and intensity of anticipatory emotions.

4. Discussion

While recent studies have shown that personal goals play an important role in the construction, organization and phenomenology of episodic future thoughts, virtually nothing is known about whether and how the nature and quality of goals influence mental representations of associated future events. To examine this question, we compared the features of episodic future thoughts prompted by self-concordant (i.e., things that one *wants* to achieve) versus non-self-concordant (i.e., things that one *has* to achieve) goals. Our results demonstrate that goal self-concordance enhances the sense of "realness" of imagined events and modulates the affective qualities of episodic future thoughts. Furthermore, we found that psychological need satisfaction is a characteristic component of self-concordant episodic future thoughts.

An important finding of this study is that phenomenological features that are at the crux of episodic future thinking—the feeling of "pre-experiencing" one's personal future—are modulated by goal self-concordance. More specifically, we found that future events derived from self-concordant goals were associated with a stronger belief in occurrence and a stronger impression of going into the future to pre-experience imagined scenarios (i.e., autonoetic experience). This stronger sense of "realness" attached to episodic future thoughts may stem from the integration of imagined events with autobiographical knowledge (e.g., with personal goals and general expectations about the self and one's life; Ernst & D'Argembeau, 2017). Indeed, future events that were associated with self-concordant goals were judged more important and more linked to other personal events, and were perceived as satisfying identity

Table 3
Correlations between the future subscale of the BTPS and the phenomenological properties of episodic future thoughts associated with self-concordant and non-self-concordant goals.

	BTPS – Future orientation			
	Self-concordant		Non-self-concordant	
	r	*p*	*r*	*p*
Cognitive feelings				
Belief in occurrence	0.46	0.001*	0.15	0.32
Autonoetic experience	0.45	0.002*	0.05	0.74
Sensory-perceptual characteristics				
Vividness index	0.28	0.06	0.19	0.22
First-person perspective	0.24	0.86	0.13	0.37
Third-person perspective	0.08	0.58	-0.07	0.63
Autobiographical context				
Personal importance	0.55	< 0.001*	−0.04	0.79
Link with other personal events	0.12	0.43	−0.05	0.76
Personal Plausibility	0.32	0.03	−0.03	0.83
Identity motives				
– Self-esteem	0.29	0.05	−0.07	0.63
– Distinctiveness	0.35	0.02	0.28	0.06
– Continuity	0.17	0.25	−0.12	0.44
– Belonging	0.16	0.29	−0.04	0.78
– Efficacy	0.28	0.06	−0.002	0.99
– Meaning	0.39	0.008*	−0.07	0.64
Psychological need satisfaction				
– Autonomy	0.13	0.38	0.03	0.87
– Competence	0.04	0.80	−0.05	0.72
– Relatedness	0.04	0.77	−0.08	0.62
Emotional characteristics				
Emotional valence				
– Anticipatory	0.53	< 0.001*	−0.08	0.61
– Anticipated	0.34	0.21	−0.12	0.43
Emotional intensity				
– Anticipatory	0.37	0.01*	0.13	0.39
– Anticipated	0.29	0.05	0.03	0.82
Rehearsal	0.32	0.03	−0.07	0.64
Easiness of imagining	0.49	0.001*	0.28	0.06
Subjective temporal distance	−0.2	0.19	−0.17	0.26

* Indicates differences that remained significant after applying a correction for multiple comparisons using the Benjamini-Hochberg procedure (Benjamini & Hochberg, 1995).

motives (for self-esteem, distinctiveness, belonging, efficacy, and meaning) to a greater extent than future events associated with non-self-concordant goals.[3] This connection with autobiographical knowledge may contribute to the personal ownership of imagined events (i.e., the appropriation of the content of experience to one's self; Klein, 2015), such that the represented content is subjectively perceived as referring to something happening in one's personal future (D'Argembeau, 2016). The sense of realness of imagined events may in turn increase motivation and guide actions to attain desired future states and avoid undesired ones, thereby contributing to the pragmatic aspects of prospection (Baumeister et al., 2016). In particular, goal self-concordance may increase the subjective value of imagined events, which may foster self-control and ultimately promote goal achievement (Berkman, Livingston, & Kahn, 2017).

While goal self-concordance enhanced the feeling of pre-experiencing the future, it had little impact on the level of detail of imagined scenarios: future events associated with self-concordant and non-self-concordant goals included similar amounts of internal and external details. On the other hand, the subjective vividness of mental representations was higher for self-concordant events. Importantly, however, the influence of goal condition on cognitive feelings remained significant when controlling for differences in vividness. These findings indicate that the sense of realness of imagined events and the richness of mental representations are

[3] Interestingly, however, the personal plausibility of imagined events (i.e., the judgment that an event has the potential to occur to the self; Scoboria et al., 2004) did not differ between the self-concordant and non-self-concordant goal conditions, with both types of future events being judged as plausible. This finding supports the view that, although personal plausibility is typically an important determinant of belief in occurrence, the estimation that an event has the potential to occur to the self (personal plausibility) and the subjective feeling that this event will actually happen in the future (belief in occurrence) are not entirely superimposable and can be dissociated under some circumstances (Ernst & D'Argembeau, 2017).

dissociable dimensions that can be differently influenced by experimental manipulations.[4] More generally, these results are consistent with the idea that scene or scenario construction (Cheng, Werning, & Suddendorf, 2016; Hassabis & Maguire, 2009) is a necessary but insufficient component of episodic future thinking; imagined events further have to be integrated with autobiographical knowledge, which contextualizes mental simulations in the individual's personal life (Conway, Justice, & D'Argembeau, in press; D'Argembeau, 2015).

Interestingly, our manipulation of goal self-concordance influenced the emotional qualities of episodic future thoughts: future thoughts derived from self-concordant goals were more positive and emotionally intense than future thoughts derived from non-self-concordant goals. This modulation of affective states associated with mental simulations of the future may have important implications for goal pursuit (Boyer, 2008; D'Argembeau & Van der Linden, 2007; Miloyan & Suddendorf, 2015). Emotions signal goal-relevant information (Ellsworth & Scherer, 2003) and guide decisions towards desired outcomes and away from undesired ones (Bechara & Damasio, 2005). Thus, the experience of more intense and positive emotions when imagining self-concordant future events may serve to guide and energize behavior in pursuing desired goal states. In the present study, goal self-concordance influenced both anticipated and anticipatory emotions, but the emotional intensity and positivity of self-concordant thoughts was higher for anticipated than anticipatory emotions. This finding dovetails with the conclusion that the affective features of self-concordant future thoughts may serve to motivate and guide goal pursuit, insofar as anticipated emotions may impact behavior and judgment to a greater extent than anticipatory emotions (DeWall, Baumeister, Chester, & Bushman, 2016). Although the present study does not speak directly to this issue, we note that these anticipated emotions may not necessarily be accurate (in the sense that they may not correspond to the emotional responses that would actually be experienced in the future). Indeed, people tend to display systematic biases in predicting their affective states, and notably often overestimate the emotional impact of future events (Gilbert & Wilson, 2007). While such biases can sometimes have negative consequences (e.g., leading to poor decisions), they may confer motivational benefits (Levine, Lench, Karnaze, & Carlson, 2018; Miloyan & Suddendorf, 2015).

A number of other features of episodic future thoughts were also influenced by goal self-concordance. Consistent with previous studies (Cole & Berntsen, 2016; D'Argembeau & Mathy, 2011; Jeunehomme & D'Argembeau, 2017), we found that future events deriving from self-concordant goals were easier to imagine and had been previously thought/talked about to a greater extent than future events associated with non-self-concordant goals. Furthermore, while the temporal location of imagined events was objectively more distant in the self-concordant condition, subjective temporal distance was similar for the two types of events. Subjectively reducing the temporal distance of future events that are associated with self-concordant goals may enhance goal pursuit motivation, by giving the impression that goal achievement is close (Peetz, Wilson, & Strahan, 2009).

The second aim of this study was to examine psychological need satisfaction within episodic future thoughts. Extending previous research on need satisfaction in autobiographical memories (Milyavskaya, Philippe, & Koestner, 2013; Philippe et al., 2011, 2012), we found that need satisfaction was represented within episodic future thoughts and depended on the self-concordance of imagined events: while future events associated with self-concordant goals fulfilled all three basic psychological needs (autonomy, competence and relatedness), future events deriving from non-self-concordant goals were perceived as thwarting the need for autonomy and competence. This result is consistent with self-determination theory (Ryan & Deci, 2000), which holds that actions pursed for autonomous reasons generally contribute to need satisfaction, whereas those pursued for controlled reasons have a negative impact on need satisfaction. We also note that in this study episodic future thoughts were assessed in isolation of each other, but goal-relevant events may in fact be represented in networks of episodic future thoughts (Demblon & D'Argembeau, 2016, 2017; see Philippe et al., 2012 for a study on the role of memory networks in need satisfaction and well-being).

A final question addressed in this study was whether individual differences in the affective and identity components of future time perspective were related to the representation of self-concordant and non-self-concordant future events. Previous research has shown that future time perspective influences emotion regulation (Barsics et al., 2017) and predicts the intensity of autonoetic experience when imagining future events (Arnold, McDermott, & Szpunar, 2011). Here we found that individual differences in future time perspective were related to multiple qualitative features of episodic future thoughts, but only when imagined events were derived from self-concordant goals. Specifically, the general tendency to think positively about the future was associated with episodic future thoughts that were easier to imagine and that involved higher belief in occurrence, autonoetic experience, personal importance and meaning, and more positive and intense anticipatory emotions. Previous research has established that the motivational force of future time perspective stems from the capacity to anticipate distant events and to ascribe value to future goals (for a recent review see Andre, Van Vianen, Peetsma, & Oort, 2018). Although this issue remains to be investigated in detail, our results suggest that the motivational impact of future time perspective may be particularly important when pursuing self-concordant goals. Future studies should further investigate this issue, by examining for instance the impact of future time perspective on quantitative (i.e., amount of energy, effort, or persistence) and qualitative (i.e., types of engagement) dimensions of goal pursuit (de Bilde, Vansteenkiste, & Lens, 2011; Simons, Vansteenkiste, Lens, & Lacante, 2004).

[4] Our manipulation of goal self-concordance may have influenced other features of episodic future thoughts that were not measured here, such as the familiarity of imagined elements (e.g., people). Previous studies have shown that the familiarity of imagined elements modulates the sensory-perceptual characteristics of episodic future thoughts, which in turn contribute to the sense of pre-experiencing the events (D'Argembeau & Van der Linden, 2012). Thus, it remains possible that the two kinds of events investigated in the present study differed in familiarity, which could in part account for the observed differences in the vividness of episodic future thoughts. However, as noted above, our results showed that the influence of goal condition on cognitive feelings remained significant when controlling for differences in vividness. Thus, it is unlikely that the higher sense of "realness" of self-concordant thoughts can be simply explained by differences in the familiarity of imagined components.

In conclusion, the present study refines our understanding of the role of goal processing in episodic future thought by showing that all personal goals are not equal. Future event representations related to goals that one *wants* to achieve have a privileged status regarding phenomenological dimensions lying at the heart of episodic future thought. Our findings thus provide empirical support to the view that prospection is fundamentally pragmatic and serves to guide actions to bring about desired future states (Baumeister et al., 2016). As such, this study may pave the way for future research aiming to better understand the adaptive function of episodic future thought in goal pursuit. For example, it would be important to investigate whether mental representations of self-concordant events predict the actual happening of envisioned future situations (see Spreng & Levine, 2013, for evidence that most episodic future thoughts refer to events that eventually occur), which could be mediated by motivational factors. Another question that deserves further study is whether goal self-concordance has a similar influence on future event representations that correspond to process simulations (i.e., steps to take toward goal achievement) versus outcome simulations (i.e., goal attainment). This is an important question as previous studies have shown that merely focusing and fantasizing on desired outcomes without considering potential obstacles can have negative consequences for goal attainment (Oettingen & Cachia, 2016; Oettingen & Reininger, 2016). Finally, another critical issue would be to examine whether one can enhance the goal self-concordance of imagined future events, for instance by elaborating on the integration of these events with autobiographical knowledge. This would complete the array of cognitive techniques used to promote goal self-concordance (e.g., reflecting on the intrinsic values, sense of ownership or affective values of goals; Job & Brandstätter, 2009; Lekes, Hope, Gouveia, Koestner, & Philippe, 2012; Sheldon, Kasser, Smith, & Share, 2002). Examining the relative influence of techniques that tap into different levels of representations (e.g., abstracted goals versus specific future event representations) may further our understanding of the complex interactions between motivation, goals, event representations, and the self (Dweck, 2017). Studies along this line may also benefit applied research in domains where goal self-concordance is a major determinant of goal success and well-being, such as education (Gaudreau, 2012; Vasalampi, Salmela-Aro, & Nurmi, 2009), work (Bono & Judge, 2003; Judge, Erez, Bono, & Locke, 2005), and psychotherapeutic interventions (Michalak & Holtforth, 2006; Michalak, Püschel, Joormann, & Schulte, 2006).

Acknowledgements

A. E is a Marie Curie COFUND postdoctoral fellow supported by a research grant from the European Union and the University of Liege, Belgium. A. D is Senior Research Associate of the Fonds de la Recherche Scientifique (F.R.S.-FNRS), Belgium. We thank Nadia Waxin for her help with data collection.

Appendix A. Rating scales used to assess the phenomenological characteristics of episodic future thoughts associated with self-concordant and non-self-concordant goals

Items were administered in French (the English translation of each item is indicated in square brackets).

Belief in occurrence

1. En imaginant cet événement, j'ai le sentiment qu'il va réellement avoir lieu (1 = *pas du tout*, 7 = *très fortement*)

[While imagining this event, I feel that it will actually occur (1 = *not at all*, 7 = *very strongly*)]

Autonoetic experience

2. En imaginant cet événement, j'ai le sentiment de vivre l'événement comme si j'y étais (1 = *pas du tout*, 7 = *très fortement*)

[While imagining this event, I feel that I am experiencing the situation, as if I was there (1 = *not at all*, 7 = *very strongly*)]

3. En imaginant cet événement, j'ai l'impression d'aller dans le futur et de me trouver au moment où cet événement se produira (1 = *pas du tout*, 7 = *très fortement*)

[While imagining this event, I feel that I travel forward in time and that I am right at the moment when this event will happen (1 = *not at all*, 7 = *absolutely*)]

Overall clarity

4. Ma représentation de cet événement est claire/détaillée : (1 = *pas du tout claire*, 7 = *extrêmement claire*)

[My representation of this event is clear/detailed: (1 = *not at all clear*, 7 = *extremely clear*)]

Sensory details

5. Ma représentation de cet événement comporte des détails sensoriels (je peux voir, entendre ou percevoir ce qui va se passer) (1 = *pas du tout*, 7 = *énormément*)

[My representation of this event contains sensory details (I can see, hear or perceive what will happen) (1 = *not at all*, 7 = *a lot*)]

First-person perspective

6. Lorsque j'imagine cet événement, je le vois à travers mes propres yeux : (1 = *pas du tout*, 7 = *complètement*)

[While imagining this event, I see it through my own eyes. (1 = *not at all*, 7 = *completely*)]

Third-person perspective

7. Lorsque j'imagine cet événement, je le vois comme un observateur extérieur : (1 = *pas du tout*, 7 = *complètement*)

[While imagining this event, I see it as if I was an external observer (1 = *not at all*, 7 = *completely*)]

Personal importance

8. Cet événement est un moment important pour moi, par rapport à mes buts, mes valeurs, etc. (1 = *pas du tout important*, 7 = *très important*)

[This event is important to me, in relation to my goals, my values, etc. (1 = *not at all important*, 7 = *very important*)]

Link with other personal events

9. Lorsque j'ai imaginé cet événement, j'ai également pensé à d'autres événements (des évènements que j'ai vécus dans le passé ou d'autres événements que je pourrais vivre dans l'avenir) (1 = *pas du tout*, 7 = *très fortement*)

[As I imagined this event, I also thought about other events (some events that I experienced in the past or other events that I might experience in the future). (1 = not at all, 7 = *very strongly*)]

Personal plausibility

10. Dans quelle mesure est-il plausible que vous, personnellement, serez amené à vivre cet événement ? (1 = *pas du tout plausible*, 7 = *très plausible*)

[How plausible is it that you, personally, would experience this event? (1 = *not at all plausible*, 7 = *extremely plausible*)]

Identity motives

11. Dans quelle mesure cet événement vous donne un sentiment:

- De continuité entre votre vie passée, présente et future ? (1 = *pas du tout*, 7 = *énormément*)
- D'estime de vous-même ? (1 = *pas du tout*, 7 = *énormément*)
- D'être différent(e) des autres personnes ? (1 = *pas du tout*, 7 = *énormément*)
- De donner un sens à votre vie ? (1 = *pas du tout*, 7 = *énormément*)
- De vous sentir efficace et compétent(e) dans ce que vous faites ? (1 = *pas du tout*, 7 = *énormément*)
- De vous sentir proche des autres ? (1 = *pas du tout*, 7 = *énormément*)

[To what extent does this event give you a sense:

- Of continuity between past, present and future in your life? (1 = *not at all*, 7 = *a lot*)
- Of self-esteem? (1 = *not at all*, 7 = *a lot*)
- Of being distinct from other people? (1 = *not at all*, 7 = *a lot*)
- Of meaning in your life? (1 = *not at all*, 7 = *a lot*)
- Of competence and efficacy? (1 = *not at all*, 7 = *a lot*)
- Of feeling close to other people? (1 = *not at all*, 7 = *a lot*)]

Psychological need satisfaction – Autonomy

12. Dans cet événement futur, je me sens libre d'agir et de penser comme je le veux. (−3 = *pas du tout d'accord*, 0 = *ni en accord, ni en désaccord/non applicable*, +3 = *tout à fait d'accord*)

[In this future event, I feel free to do things and to think how I want. (−3 = *strongly disagree*, 0 = *do not agree nor disagree/not applicable*, +3 = *strongly agree*)]

13. Dans cet événement futur, je me sens obligé(e) de faire ou de penser certaines choses. (−3 = *pas du tout d'accord*, 0 = *ni en accord, ni en désaccord/non applicable*, +3 = *tout à fait d'accord*)

[In this future event, I feel obliged to do things or think some things. (−3 = *strongly disagree*, 0 = *do not agree nor disagree/not applicable*, +3 = *strongly agree*)]

Psychological need satisfaction – Competence

14. Dans cet événement futur, je me sens confiant(e) de moi-même. (−3 = *pas du tout d'accord*, 0 = *ni en accord, ni en désaccord/non applicable*, +3 = *tout à fait d'accord*)

[In this future event, I feel self-confident. (−3 = *strongly disagree*, 0 = *do not agree nor disagree/not applicable*, +3 = *strongly agree*)]

15. Dans cet événement futur, je me sens compétent(e) ou à la hauteur. (−3 = *pas du tout d'accord*, 0 = *ni en accord, ni en désaccord/non applicable*, +3 = *tout à fait d'accord*)

[In this future event, I feel skillful or capable. (−3 = *strongly disagree*, 0 = *do not agree nor disagree/not applicable*, +3 = *strongly agree*)]

Psychological need satisfaction – Relatedness

16. Dans cet événement futur, je me sens lié(e) à une ou plusieurs personnes. (−3 = *pas du tout d'accord*, 0 = *ni en accord, ni en désaccord/non applicable*, +3 = *tout à fait d'accord*)

[In this future event, I feel connected to one or more people. (−3 = *strongly disagree*, 0 = *do not agree nor disagree/not applicable*, +3 = *strongly agree*)]

17. Dans cet événement futur, je me sens apprécié(e) ou aimé(e) par une ou plusieurs personnes. (−3 = *pas du tout d'accord*, 0 = *ni en accord, ni en désaccord/non applicable*, +3 = *tout à fait d'accord*)

[In this future event, I feel appreciated or loved by one or more people. (−3 = *strongly disagree*, 0 = *do not agree nor disagree/not applicable*, +3 = *strongly agree*)]

Emotional valence

18. L'émotion ressentie au moment où j'ai imaginé cet événement (c'est-à-dire à l'instant, lorsque vous l'avez l'évoqué) est : (−3 = *très négative*, 0 = *pas d'émotion*, +3 = *très positive*)

[The emotion I feel while imagining this event (that is, right now, when you have evoked it) is: (−3 = *very negative*, 0 = *no emotion*, +3 = *very positive*)]

19. Si cet événement se produisait, j'aurais une émotion (émotion attendue) : (−3 = *très négative*, 0 = *pas d'émotion*, +3 = *très positive*)

[If this event happens, my emotion would be (anticipated emotion): (−3 = *very negative*, 0 = *no emotion*, +3 = *very positive*)]

Emotional intensity

20. L'émotion ressentie au moment où j'ai imaginé cet événement (c'est-à-dire à l'instant, lorsque vous l'avez l'évoqué) est : (1 = *pas du tout intense*, 7 = *très intense*)

[The emotion I feel while imagining this event (that is, right now, when you have evoked it) is: (1 = *not at all intense*, 7 = *very intense*)]

21. Si cet événement se produisait, j'aurais une émotion (émotion attendue): (1 = *pas du tout intense*, 7 = *très intense*)

[If this event happens, my emotion would be (anticipated emotion): (1 = *not at all intense*, 7 = *very intense*)]

Rehearsal

22. Avant de l'évoquer aujourd'hui, j'ai déjà pensé ou parlé de cet événement (1 = *jamais*, 7 = *très souvent*)

[Before evoking it today, I already thought or talked about this event (1 = *never*, 7 = *very often*)]

Easiness of imagining

23. Imaginer cet événement était : (1 = *très difficile*, 7 = *très facile*)

[Imagining this events was: (1 = *very difficult*, 7 = *very easy*)]

Subjective temporal distance

24. Les événements que nous imaginons peuvent nous sembler plus ou moins proches dans le temps (comme s'ils allaient se produire bientôt ou au contraire dans longtemps), indépendamment du moment où ils vont se produire. Quel est votre sentiment subjectif de proximité par rapport à cet événement ? (1 = *très proche*, 7 = *très éloigné*)

[Sometimes events that we imagine feel more or less close in time (as if they will happen soon or, on the contrary, in a long time), regardless of when events will actually happen. How close does the event feel to you? (1 = *very close*, 7 = *very distant*)]

Appendix B. Examples of self-concordant and non-self-concordant goals and associated future events

Self-concordant goals

- Travelling, visiting every continent
  Associated future event: Discovery of Vietnamese cooking during a cooking lesson
- Being able to play Chopin's "Grande Valse Brillante" at the piano
  Associated future event: A meeting with my former piano professor
- Having children
  Associated future event: The appointment with the gynecologist to confirm that I am pregnant
- Becoming a veterinarian in a national park in the Amazon rainforest
  Associated future event: Diving in the Amazon
- Starting running again
  Associated future event: The first time I redo the easiest running route

Non-self-concordant goals

- Staying in touch with my Portuguese family
  Associated future event: Going to D.'s wedding
- Getting a secure job
  Associated future event: The job interview
- Finishing university studies
  Associated future event: The graduation ceremony
- Improving my English skills
  Associated future event: My PhD defense in the United States
- Overcoming my phobia of fire
  Associated future event: The first open fire of the winter

References

Andre, L., van Vianen, A. E., Peetsma, T. T., & Oort, F. J. (2018). Motivational power of future time perspective: Meta-analyses in education, work, and health. *PloS One, 13*(1), e0190492. https://doi.org/10.1371/journal.pone.0190492.

Arnold, K. M., McDermott, K. B., & Szpunar, K. K. (2011). Individual differences in time perspective predict autonoetic experience. *Consciousness and Cognition, 20*(3), 712–719. https://doi.org/10.1016/j.concog.2011.03.006.

Atance, C. M., & O'Neill, D. K. (2001). Episodic future thinking. *Trends in cognitive sciences, 5*(12), 533–539. https://doi.org/10.1016/S1364-6613(00)01804-0.

Barsics, C., Rebetez, M. M. L., Rochat, L., D'Argembeau, A., & Van der Linden, M. (2017). A French version of the balanced time perspective scale: factor structure and relation to cognitive reappraisal. *Canadian Journal of Behavioural Science, 49*(1), 51–57. https://doi.org/10.1037/cbs0000065.

Barsics, C., Van der Linden, M., & D'Argembeau, A. (2016). Frequency, characteristics, and perceived functions of emotional future thinking in daily life. *The Quarterly Journal of Experimental Psychology, 69*(2), 217–233. https://doi.org/10.1080/17470218.2015.1051560.

Baumeister, R. F., Vohs, K. D., & Oettingen, G. (2016). Pragmatic prospection: how and why people think about the future. *Review of General Psychology, 20*(1), 3–16. https://doi.org/10.1037/gpr0000060.

Baumgartner, H., Pieters, R., & Bagozzi, R. P. (2008). Future-oriented emotions: Conceptualization and behavioral effects. *European Journal of Social Psychology, 38*,

685–696. https://doi.org/10.1002/ejsp.467.
Bechara, A., & Damasio, A. R. (2005). The somatic marker hypothesis: A neural theory of economic decision. *Games and Economic Behavior, 52*(2), 336–372. https://doi.org/10.1016/j.geb.2004.06.010.
Benjamini, Y., & Hochberg, Y. (1995). Controlling the false discovery rate: A practical and powerful approach to multiple testing. *Journal of the royal statistical society. Series B (Methodological), 57*, 289–300.
Berkman, E. T., Livingston, J. L., & Kahn, L. E. (2017). Finding the "self" in self-regulation: The identity-value model. *Psychological Inquiry, 28*(2–3), 77–98. https://doi.org/10.1080/1047840X.2017.1323463.
Berntsen, D., & Jacobsen, A. S. (2008). Involuntary (spontaneous) mental time travel into the past and future. *Consciousness and Cognition, 17*(4), 1093–1104. https://doi.org/10.1016/j.concog.2008.03.001.
Bono, J. E., & Judge, T. A. (2003). Self-concordance at work: Toward understanding the motivational effects of transformational leaders. *The Academy of Management, 46*, 554–571.
Bouizegarene, N., & Philippe, F. L. (2016). Episodic memories as building blocks of identity processing styles and life domains satisfaction: Examining need satisfaction and need for cognitive closure in memories. *Memory, 24*(5), 616–628. https://doi.org/10.1080/09658211.2015.1034138.
Boyer, P. (2008). Evolutionary economics of mental time travel? *Trends in cognitive sciences, 12*(6), 219–224. https://doi.org/10.1016/j.tics.2008.03.003.
Bulley, A., Henry, J., & Suddendorf, T. (2016). Prospection and the present moment: The role of episodic foresight in intertemporal choices between immediate and delayed rewards. *Review of General Psychology, 20*(1), 29–47. https://doi.org/10.1037/gpr0000061.
Carraro, N., & Gaudreau, P. (2011). Implementation planning as a pathway between goal motivation and goal progress for academic and physical activity goals. *Journal of Applied Social Psychology, 41*(8), 1835–1856. https://doi.org/10.1111/j.1559-1816.2011.00795.x.
Cheng, S., Werning, M., & Suddendorf, T. (2016). Dissociating memory traces and scenario construction in mental time travel. *Neuroscience & Biobehavioral Reviews, 60*, 82–89. https://doi.org/10.1016/j.neubiorev.2015.11.011.
Cole, S. N., & Berntsen, D. (2016). Do future thoughts reflect personal goals? Current concerns and mental time travel into the past and future. *Quarterly Journal of Experimental Psychology, 69*(2), 273–284. https://doi.org/10.1080/17470218.2015.1044542.
Conway, M. A., Justice, L., & D'Argembeau, A. (2018). The Self-Memory System revisited: past, present, and future. In J. H. Mace (Ed.). *The organization and structure of autobiographical memory*New York: Oxford University Press (in press).
D'Argembeau, A. (2015). Knowledge structures involved in episodic future thinking. In A. Feeney, & V. A. Thompson (Eds.). *Reasoning as memory* (pp. 128–145). Hove, UK: Psychology Press.
D'Argembeau, A. (2016). The role of personal goals in future-oriented mental time travel. In K. Michaelian, S. B. Klein, & K. K. Szpunar (Eds.). *Seeing the Future. Theoretical perspectives on future-oriented mental time travel* (pp. 199–214). New York: Oxford University Press. https://doi.org/10.1093/acprof:oso/9780190241537.003.0010.
D'Argembeau, A., & Demblon, J. (2012). On the representational systems underlying prospection: Evidence from the event-cueing paradigm. *Cognition, 125*(2), 160–167. https://doi.org/10.1016/j.cognition.2012.07.008.
D'Argembeau, A., & Mathy, A. (2011). Tracking the construction of episodic future thoughts. *Journal of Experimental Psychology. General, 140*(2), 258–271. https://doi.org/10.1037/a0022581.
D'Argembeau, A., Renaud, O., & Van Der Linden, M. (2011). Frequency, characteristics and functions of future-oriented thoughts in daily life. *Applied Cognitive Psychology, 25*(1), 96–103. https://doi.org/10.1002/acp.1647.
D'Argembeau, A., & Van der Linden, M. (2004). Phenomenal characteristics associated with projecting oneself back into the past and forward into the future: Influence of valence and temporal distance. *Consciousness and Cognition, 13*(4), 844–858. https://doi.org/10.1016/j.concog.2004.07.007.
D'Argembeau, A., & Van der Linden, M. (2012). Predicting the phenomenology of episodic future thoughts. *Consciousness and Cognition, 21*(3), 1198–1206. https://doi.org/10.1016/j.concog.2012.05.004.
D'Argembeau, A., & Van der Linden, M. (2007). Emotional aspects of mental time travel. *Behavioral and Brain Sciences, 30*(3), 320–321. https://doi.org/10.1017/S0140525X07002051.
de Bilde, J., Vansteenkiste, M., & Lens, W. (2011). Understanding the association between future time perspective and self-regulated learning through the lens of self-determination theory. *Learning and Instruction, 21*(3), 332–344. https://doi.org/10.1016/j.learninstruc.2010.03.002.
de Vito, S., Neroni, M. A., Gamboz, N., Della Sala, S., & Brandimonte, M. A. (2015). Desirable and undesirable future thoughts call for different scene construction processes. *The Quarterly Journal of Experimental Psychology, 68*(1), 75–82. https://doi.org/10.1080/17470218.2014.937448.
Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*(4), 227–268. https://doi.org/10.1207/S15327965PLI1104.
Demblon, J., & D'Argembeau, A. (2014). The organization of prospective thinking: Evidence of event clusters in freely generated future thoughts. *Consciousness and Cognition, 24*, 75–83. https://doi.org/10.1016/j.concog.2014.01.002.
Demblon, J., & D'Argembeau, A. (2016). Networks of prospective thoughts: The organisational role of emotion and its impact on well-being. *Cognition and Emotion, 30*(3), 582–591. https://doi.org/10.1080/02699931.2015.1015967.
Demblon, J., & D'Argembeau, A. (2017). Contribution of past and future self-defining event networks to personal identity. *Memory, 25*(5), 656–665. https://doi.org/10.1080/09658211.2016.1205095.
DeWall, C. N., Baumeister, R. F., Chester, D. S., & Bushman, B. J. (2016). How often does currently felt emotion predict social behavior and judgment? A meta-analytic test of two theories. *Emotion Review, 8*(2), 136–143. https://doi.org/10.1177/1754073915572690.
Dweck, C. S. (2017). From needs to goals and representations: Foundations for a unified theory of motivation, personality, and development. *Psychological Review, 124*(6), 689–719. https://doi.org/10.1037/rev0000082.
Ellsworth, P. C., & Scherer, K. R. (2003). Appraisal processes in emotion. In R. J. Davidson, K. R. Scherer, & H. H. Goldsmith (Eds.). *Handbook of affective sciences* (pp. 572–595). Oxford: Oxford University Press.
Ernst, A., & D'Argembeau, A. (2017). Make it real: Belief in occurrence within episodic future thought. *Memory & Cognition, 45*(6), 1045–1061. https://doi.org/10.3758/s13421-017-0714-3.
Faul, F., Erdfelder, E., Lang, A.-G. G., Buchner, A., & Kiel, C. (2007). G*Power3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavioral Research Methods, 39*(2), 175–191. https://doi.org/10.3758/bf03193146.
Field, A. P., & Wilcox, R. R. (2017). Robust statistical methods: A primer for clinical psychology and experimental psychopathology researchers. *Behaviour Research and Therapy, 98*, 19–38. https://doi.org/10.1016/j.brat.2017.05.013.
Gaudreau, P. (2012). Goal self-concordance moderates the relationship between achievement goals and indicators of academic adjustment. *Learning and Individual Differences, 22*(6), 827–832. https://doi.org/10.1016/j.lindif.2012.06.006.
Gilbert, D. T., & Wilson, T. D. (2007). Prospection: Experiencing the future. *Science, 317*(5843), 1351–1354. https://doi.org/10.1126/science.1144161.
Goldstein, H. (2011). *Multilevel statistical models* (4th ed.). Chichester, UK: Wiley.
Hassabis, D., Kumaran, D., & Maguire, E. A. (2007). Using imagination to understand the neural basis of episodic memory. *Journal of Neuroscience, 27*(52), 14365–14374. https://doi.org/10.1523/jneurosci.4549-07.2007.
Hassabis, D., & Maguire, E. A. (2009). The construction system of the brain. *Philosophical Transactions of the Royal Society of London Series B, Biological Sciences, 364*, 1263–1271. https://doi.org/10.1093/acprof:oso/9780195395518.003.0026.
Higgins, E. T. (1996). Knowledge activation: Accessibility, applicability, and salience. In E. T. Higgins, & A. W. Kruglanski (Eds.). *Social psychology: Handbook of basic principles* (pp. 133–168). New York, NY: Guilford Press.
Hoyle, R. H., & Sherrill, M. R. (2006). Future orientation in the self-system: Possible selves, self-regulation, and behavior. *Journal of personality, 74*(6), 1673–1696. https://doi.org/10.1111/j.1467-6494.2006.00424.x.
Jeunehomme, O., & D'Argembeau, A. (2017). Accessibility and characteristics of memories of the future. *Memory, 25*(5), 666–676. https://doi.org/10.1080/09658211.2016.1205096.

Job, V., & Brandstätter, V. (2009). Get a taste of your goals: Promoting motive-goal congruence through affect-focus goal fantasy. *Journal of Personality, 77*(5), 1527–1559. https://doi.org/10.1111/j.1467-6494.2009.00591.x.
Judge, T. A., Erez, A., Bono, J. E., & Locke, E. A. (2005). Core self-evaluations and job and life satisfaction: The role of self-concordance and goal attainment. *Journal of Applied Psychology, 90*(2), 257–268. https://doi.org/10.1037/0021-9010.90.2.257.
Klein, S. B. (2015). The feeling of personal ownership of one's mental states: A conceptual argument and empirical evidence for an essential, but underappreciated, mechanism of mind. *Psychology of Consciousness: Theory, Research, and Practice, 2*(4), 355–376. https://doi.org/10.1037/cns0000052.
Koestner, R., Otis, N., Powers, T. A., Pelletier, L., & Gagnon, H. (2008). Autonomous motivation, controlled motivation, and goal progress. *Journal of Personality, 76*(5), 1201–1230. https://doi.org/10.1111/j.1467-6494.2008.00519.x.
Lehner, E., & D'Argembeau, A. (2016). The role of personal goals in autonoetic experience when imagining future events. *Consciousness and Cognition, 42*, 267–276. https://doi.org/10.1016/j.concog.2016.04.002.
Lekes, N., Hope, N. H., Gouveia, L., Koestner, R., & Philippe, F. L. (2012). Influencing value priorities and increasing well-being: The effects of reflecting on intrinsic values. *The Journal of Positive Psychology, 7*(3), 249–261. https://doi.org/10.1080/17439760.2012.677468.
Levine, L. J., Lench, H. C., Karnaze, M. M., & Carlson, S. J. (2018). Bias in predicted and remembered emotion. *Current Opinion in Behavioral Sciences, 19*, 73–77. https://doi.org/10.1016/j.cobeha.2017.10.008.
Levine, B., Svoboda, E., Hay, J. F., Winocur, G., & Moscovitch, M. (2002). Aging and autobiographical memory: Dissociating episodic from semantic retrieval. *Psychology and Aging, 17*(4), 677–689. https://doi.org/10.1037/0882-7974.17.4.677.
Markus, H., & Nurius, P. (1986). Possible selves. *American psychologist, 41*, 954–969.
McDermott, K. B., Wooldridge, C. L., Rice, H. J., Berg, J. J., & Szpunar, K. K. (2016). Visual perspective in remembering and episodic future thought. *Quarterly Journal of Experimental Psychology, 69*, 243–253.
Michalak, J., & Holtforth, M. G. (2006). Where do we go from here? The goal perspective in psychotherapy. *Clinical Psychology: Science and Practice, 13*(4), 346–365. https://doi.org/10.1007/978-90-481-2953-9_11.
Michalak, J., Püschel, O., Joormann, J., & Schulte, D. (2006). Implicit motives and explicit goals: Two distinctive modes of motivational functioning and their relations to psychopathology. *Clinical Psychology and Psychotherapy, 13*(2), 81–96. https://doi.org/10.1002/cpp.440.
Miloyan, B., & Suddendorf, T. (2015). Feelings of the future. *Trends in Cognitive Sciences, 19*(4), 196–200. https://doi.org/10.1016/j.tics.2015.01.008.
Milyavskaya, M., Inzlicht, M., Hope, N., & Koestner, R. (2015). Saying "no" to temptation: Want-to motivation improves self-regulation by reducing temptation rather than by increasing self-control. *Journal of Personality and Social Psychology, 109*(4), 677–693. https://doi.org/10.1037/pspp0000045.
Milyavskaya, M., Nadolny, D., & Koestner, R. (2014). Where do self-concordant goals come from? The role of domain-specific psychological need satisfaction. *Personality and Social Psychology Bulletin, 40*(6), 700–711. https://doi.org/10.1177/0146167214524445.
Milyavskaya, M., Philippe, F. L., & Koestner, R. (2013). Psychological need satisfaction across levels of experience: Their organization and contribution to general well-being. *Journal of Research in Personality, 47*(1), 41–51. https://doi.org/10.1016/j.jrp.2012.10.013.
O'Brien, F., & Cousineau, D. (2014). Representing Error bars in within-subject designs in typical software packages. *The Quantitative Methods for Psychology, 10*, 56–67.
Oettingen, G., & Cachia, J. Y. A. (2016). Problems with positive thinking and how to overcome them. In K. D. Vohs, & R. F. Baumeister (Eds.). *Handbook of self-regulation: Research, theory, and applications* (pp. 547–570). Guildford Press.
Oettingen, G., & Reininger, K. M. (2016). The power of prospection: Mental contrasting and behavior change. *Social and Personality Psychology Compass, 10*(11), 591–604. https://doi.org/10.1111/spc3.12271.
Peetz, J., Wilson, A. E., & Strahan, E. J. (2009). So far away: The role of subjective temporal distance to future goals in motivation and behavior. *Social Cognition, 27*, 475–495.
Philippe, F. L., Koestner, R., Beaulieu-Pelletier, G., & Lecours, S. (2011). The role of need satisfaction as a distinct and basic psychological component of auto-biographical memories: A look at well-being. *Journal of Personality, 79*(5), 905–938. https://doi.org/10.1111/j.1467-6494.2010.00710.x.
Philippe, F. L., Koestner, R., Beaulieu-Pelletier, G., Lecours, S., & Lekes, N. (2012). The role of episodic memories in current and future well-being. *Personality and Social Psychology Bulletin, 38*(4), 505–519. https://doi.org/10.1177/0146167211429805.
Philippe, F. L., Koestner, R., & Lekes, N. (2013). On the directive function of episodic memories in people's lives: A look at romantic relationships. *Journal of Personality and Social Psychology, 104*(1), 164–179. https://doi.org/10.1037/a0030384.
Portney, L. G., & Watkins, M. P. (2000). *Foundations of clinical research: Applications to practice.* Prentice Hall.
Rasmussen, A. S., & Berntsen, D. (2013). The reality of the past versus the ideality of the future: Emotional valence and functional differences between past and future mental time travel. *Memory & Cognition, 41*(2), 187–200. https://doi.org/10.3758/s13421-012-0260-y.
Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: classic definitions and new directions. *Contemporary Educational Psychology, 25*, 64–67. https://doi.org/10.1006/ceps.1999.1020.
Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness.* New York: Guilford.
Scoboria, A., Mazzoni, G., Kirsch, I., & Relyea, M. (2004). Plausibility and belief in autobiographical memory. *Applied Cognitive Psychology, 18*(7), 791–807. https://doi.org/10.1002/acp.1062.
Sheldon, K. M. (2014). Becoming oneself. *Personality and Social Psychology Review, 18*(4), 349–365. https://doi.org/10.1177/1088868314538549.
Sheldon, K. M., & Elliot, A. J. (1998). Not all personal goals are personal: comparing autonomous and controlled reasons for goals as predictors of effort and attainment. *Personality and Social Psychology Bulletin, 24*, 546–557. https://doi.org/10.1177/0146167298245010.
Sheldon, K. M., & Elliot, A. J. (1999). Goal striving, need satisfaction, and longitudinal well-being: The self-concordance model. *Journal of Personality & Social Psychology, 76*(3), 482–497. https://doi.org/10.1037/0022-3514.76.3.482.
Sheldon, K. M., Kasser, T., Smith, K., & Share, T. (2002). Personal goals and psychological growth: Testing an intervention to enhance goal attainment and personality integration. *Journal of Personality, 70*(1), 5–31. https://doi.org/10.1111/1467-6494.00176.
Simons, J., Vansteenkiste, M., Lens, W., & Lacante, M. (2004). Placing motivation and future time perspective theory in a temporal perspective. *Educational Psychology Review, 16*(2), 121–139.
Spreng, R. N., & Levine, B. (2013). Doing what we imagine: Completion rates and frequency attributes of imagined future events one year after prospection. *Memory, 21*(4), 458–466. https://doi.org/10.1080/09658211.2012.736524.
Sutin, A. R., & Robins, R. W. (2007). Phenomenology of autobiographical memories: The memory experiences questionnaire. *Memory, 15*(4), 390–411. https://doi.org/10.1080/09658210701256654.
Szpunar, K. K. (2010). Episodic future thought: An emerging concept. *Perspectives on Psychological Science, 5*(2), 142–162. https://doi.org/10.1177/1745691610362350.
Vasalampi, K., Salmela-Aro, K., & Nurmi, J. E. (2009). Adolescents' self-concordance, school engagement, and burnout predict their educational trajectories. *European Psychologist, 14*(4), 332–341. https://doi.org/10.1027/1016-9040.14.4.332.
Vignoles, V. L., Manzi, C., Regalia, C., Jemmolo, S., & Scabini, E. (2008). Identity motives underlying desired and feared possible future selves. *Journal of Personality, 76*(5), 1165–1200. https://doi.org/10.1111/j.1467-6494.2008.00518.x.
Vignoles, V. L., Regalia, C., Manzi, C., Golledge, J., & Scabini, E. (2006). Beyond self-esteem: Influence of multiple motives on identity construction. *Journal of Personality and Social Psychology, 90*(2), 308–333. https://doi.org/10.1037/0022-3514.90.2.308.
Webster, J. D. (2011). A new measure of time perspective: Initial psychometric findings for the balanced time perspective scale (BTPS). *Canadian Journal of Behavioural Science, 43*(2), 111–118. https://doi.org/10.1037/a0022801.