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WHEN THE GOING GETS TOUGH, HOW DO WE PERCEIVE THE FUTURE?

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People struggle to stay motivated to work toward difficult goals. Sometimes the feeling of difficulty signals that the goal is important and worth pursuing; other times, it signals that the goal is impossible and should be abandoned. In this article, we argue that *how* difficulty is experienced depends on how we perceive and experience the *timing* of difficult events. We synthesize research from across the social and behavioral sciences and propose a new, integrated model to explain how components of *time perception* interact with interpretations of experienced difficulty to influence motivation and goal-directed behavior. Although these constructs have been studied separately in previous research, we suggest that these factors are inseparable and that an integrated model will help us to better understand motivation and predict behavior. We conclude with new empirical questions to guide future research and by discussing the implications of this research for both theory and intervention practice.

Keywords: motivation, goal pursuit, time perception, social identity

People often find it difficult to work on things that will primarily benefit them in the future rather than the present. We struggle to save for long-term goals (Munnell, Webb, & Golub-Sass, 2007, 2009), to engage in preventive health behaviors (Sirois, 2004), to spend enough time studying (Oyserman, 2015), and to behave in ways that will sustain our future (Hall, Lewis, & Ellsworth, 2018). One reason for this is that an ever-pressing present makes it difficult to devote sufficient attention toward the future (Bertrand, Mullainathan, & Shafir, 2006; Lewis & Oyserman, 2015). That difficulty will never go away; it is a feature of the modern human mind that evolved to be able to make tradeoffs between the present and the future (D'Argembeau, Xue, Lu, Van der Linden, & Bechara, 2008; Ersner-Hershfield, Garton, Ballard, Samanez-Larkin, & Knutson, 2009). Though difficulty will always be

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with us, how we make sense of it is malleable in ways that affect our likelihood of achieving our goals (Oyserman et al., 2017).

Sometimes the feeling of difficulty signals that a goal is important to us, and that interpretation of difficulty—a "no pain, no gain" mindset—motivates us to work toward that goal (Aelenei, Lewis, & Oyserman, 2017). Other times, we interpret a feeling of difficulty as a signal that pursuing a goal is just not worth our time; the difficulty is interpreted as meaning success is impossible (Smith & Oyserman, 2015). It is not merely the interpretation of difficulty, however, that influences our motivation to invest energy in achieving a goal. Our perceptions of how much time we have in the present, and may or may not have in the future, interact with interpretations of experienced difficulty as functions of the stage of our development in the lifespan, the scarcity of our time, our mental representations of time and the rate at which it passes, as well as the objective amounts of time available and how that varies by our positions in society.

Our goal in this article is to review and synthesize findings in these disparate literatures and outline an integrated model that generates novel predictions about the role of time perception and interpretations of experienced difficulty in motivating goal-directed behavior. We do this for two main reasons. First, these concepts have primarily been studied separately as independent predictors of motivation. Though there has been good reason for that, we argue that to move the field forward and improve our understanding of the joint effects of social cognitive forces on motivation, we must consider how these forces operate in concert, as they very likely influence each other in ways that have not been measured or accounted for in previous research on motivation. Second, including difficulty and time perception together in models of motivation should improve our ability to predict behavior, given that these processes likely unfold jointly in real-world goal pursuit efforts. While both difficulty and time perception are necessary inputs for motivation, neither factor alone offers a sufficient model for either explanation or prediction. To achieve our current goal of synthesizing the literature and developing an integrated model, in the sections that follow we highlight evidence suggesting that these factors may be related in ways that have not previously been considered. We especially focus on research on time perception that has direct implications for difficulty and motivation. We did not conduct a full systematic review of the vast time perception literature, as not all of it is relevant to our current scope: factors relevant to motivation and goal-directed behavior in the face of difficulty.

DIRECT EFFECTS OF DIFFICULTY MINDSETS AND TIME PERCEPTION ON MOTIVATION

Two literatures have emerged over the past several decades of research on motivation. One set of researchers has documented that people's perceptions and interpretations of experiences of difficulty—difficulty mindsets—affect their motivation to pursue difficult goals and their success in achieving those difficult goals they may choose to pursue. At the same time, another set of researchers has documented that

how people perceive and experience time—time perception—affects their motivation to pursue difficult goals and their success in achieving those goals should they pursue them. In this section, we provide an overview of key theories and findings related to these direct effects of each factor on motivation.

DIFFICULTY MINDSETS

People often experience difficulty in pursuing their goals, in part because goals are aspirational and attaining them requires focus and hard work. We can interpret the difficulty we experience with a few different mindsets (Fisher & Oyserman, 2017), and researchers have documented that *which* mindsets are active affects our motivation (Oyserman et al., 2017). One of the theories that has articulated why difficulty mindsets affect motivation and goal pursuit is identity-based motivation theory, a situated cognition theory which outlines how people's situations and identities combine to influence how they interpret and make meaning of things they encounter in life, including experiences of difficulty (see Oyserman et al., 2017). When faced with difficult goals, people who feel that those goals are aligned with who they want to be in the future (Nurra & Oyserman, 2018)—and who understand the steps needed to attain those goals (Oyserman & Lewis, 2017)—are more likely to interpret difficulty as a sign that the goal is *important* (Oyserman et al., 2017). On the other hand, those who do not feel that their future goals are compatible with their present identities may interpret experienced difficulty as a sign that the goal is *impossible* for them to achieve. When difficulty is interpreted as importance, people are more likely to feel motivated to work toward their goals. For example, students prompted to interpret academic difficulty as importance were more likely to indicate that academics were important to their identity than those guided to think about difficulty as impossibility (Aelenei et al., 2017; Smith & Oyserman, 2015). In turn, this mindset of difficulty as a signal of importance can motivate people to engage in the difficult behaviors that are necessary to achieve their goals (Lewis & Earl, 2018; Oyserman et al., 2017; Smith & Oyserman, 2015).

TIME PERCEPTION

How people think about and experience time also influences their motivation. Achieving long-term goals often requires effort in the present that may not pay off until far in the future. When these goals feel distant or abstract, it can be difficult to maintain motivation to work toward them (Trope & Liberman, 2010). On the other hand, when future goals feel near or concrete, people are more likely to feel motivated to do the work necessary to achieve them (Lewis & Oyserman, 2015). Manipulations of time perception that minimize this perceived distance between current and future selves have been shown to positively influence goal-directed behavior (Lewis & Oyserman, 2015). In addition to the distance between the present and future, several other features of time perception can influence motivation,

such as the perceived rate at which time passes (Conti, 2001) and whether people feel like they have enough time to begin with (Mullainathan & Shafir, 2013).

HOW (PERCEIVED) DIFFICULTY AND TIME PERCEPTION INTERACT TO INFLUENCE GOAL PURSUIT

While interpretations of experienced difficulty and time perception directly influence motivation, these processes likely do not function independently. Instead, these constructs are inherently connected, influencing each other and jointly affecting motivation. By incorporating difficulty and time perception into a unified model, we aim to better predict and explain the complex, intersecting factors that jointly affect motivation and ultimately influence people's likelihood of taking actions to meet their goals and improve their well-being (Mogilner, Hershfield, & Aaker, 2018). Further, while difficulty and time perception have both been identified as key predictors of motivation, neither predictor alone is sufficient to explain and predict motivation and goal pursuit.

Consider, for example, a student participating in an identity-based motivation intervention that prompts them to interpret difficulty in school as a sign of its importance (see Smith & Oyserman, 2015, for an example). In interventions like this, students who are prompted to interpret difficulty as importance generally show positive outcomes related to school achievement, such as devoting more time to studying. While these interventions are promising, one thing we have to keep in mind is that social interventions often have heterogeneous effects, and thus we have to consider and study other factors that might moderate their efficacy (IJzerman et al., 2020; Premachandra & Lewis, 2020). We have to ask questions like: what about students who are unable to allocate more time to their schoolwork because they have to work a job after school to support their family? For these students, the effects of these interventions may be dampened because they are experiencing time scarcity and a lack of temporal agency. In other words, while their mindset may change as a result of an intervention, the contextual and structural factors at play can interfere with the effects of this mindset shift on motivation (see Stephens, Markus, & Fryberg, 2012). Without accounting for the time students have available and the ways they perceive that time, this model of motivation is incomplete.

Not only is it important to model both of these factors as they pertain to motivation, but it is also critical to consider how these factors influence each other. The amount of time that people have, and believe they have, to devote toward goals shapes whether the difficulties experienced while pursuing their goals are interpreted as signals of the goal's importance. Due to the stratified nature of society and the unequal distribution of power and resources, there are objective differences in the amount of time that people have to work toward their goals (Mullainathan & Shafir, 2013; Ray, 2019). As in the example of the student working a job after school, people's experiences of *time scarcity* likely affect the extent to which they interpret difficulty as importance to begin with. In the same vein, when difficulty is interpreted as importance, we propose that those interpretations might

change perceptions of time in ways that are meaningful for successful goal pursuit. This is because time is an abstract concept that is difficult for people to intuitively understand (Friedman, 1990), and therefore our perceptions of that concept are highly influenced by situational forces and subjective experiences (Casasanto & Boroditsky, 2008; Landau, 2017; Lewis & Oyserman, 2015). In the case of students undergoing an identity-based motivation intervention, for example, those who interpret difficulty as importance may feel more agency over their time as a possible consequence, which may in turn help to explain the effects of this intervention on motivation.

Given what we have outlined here, the relationship between experienced difficulty and time perception is both bidirectional and nonlinear. As represented in our integrated model, these constructs interact over time and throughout the lifespan to shape motivational processes. Below, we describe how five relevant components of time—lifespan development, time scarcity, temporal agency, temporal speed, and temporal construal—relate to interpretations of difficulty and motivation. Specifically, we describe how each aspect of time perception influences, and is influenced by, the interpretation of difficulty, and how these psychological processes interact cyclically to influence motivation.

LIFESPAN DEVELOPMENT

Imagine that you have always dreamed of becoming an Olympic gymnast. You recognize the immense amount of work it will take and consider whether you can commit to this lofty goal. You have seen the videos of experts, so you have some sense of how difficult achieving that goal might be, even though you might still underestimate the reality (Kardas & O'Brien, 2018). Should you attempt to become the next Simone Biles? Part of the answer depends on whether you are currently 5 or 45 years old.

How old we are and our stage in life may play key roles in determining whether we interpret difficult goals as important or impossible. People adopt different strategies to determine the importance of their goals throughout the lifespan. Whereas younger adults focus on maximizing gains (or *optimization*), older adults focus on minimizing losses (or *compensation*) (Freund, 2006). In fact, the ability to reevaluate goals over time to balance potential gains and losses is a component of "successful aging" (Baltes & Baltes, 1993). Over the course of development, our priorities inevitably shift, and we learn to weigh costs (e.g., time and effort) against potential benefits (e.g., enjoyment, fulfillment, or prestige) to determine how best to use the time we have left. This change in goal focus, we suspect, will influence whether or not difficult goals are categorized as feasible and worth our time.

The process of evaluating goals is based not only on objective calendar ages, but also on socially constructed life stages. For example, a person in their late twenties might evaluate goals differently as a function of internal or external pressure to start planning for a family, and the nature of this pressure will likely depend on the person's gender, race, and socioeconomic status (Maralani, 2013; Mare & Maralani, 2006). Life stages and milestones differ based on cultural contexts and

religions (e.g., bar and bat mitzvah as an entrance into adulthood in Judaism), as well as other demographic factors (Jensen Arnett, 2016; Oyserman, 2017). Different milestones are associated with different responsibilities (e.g., tradition of caring for elders in Chinese culture) and values that shape goal selection (Grove & Lancy, 2015; Maralani, 2013; Zhan & Montgomery, 2003). When people encounter difficult goals, their interpretation of that difficulty will likely depend on whether the goal is feasible and meaningful given their life stage.

TIME SCARCITY

The amount of time we have to devote to goals depends on time in the lifespan, as described above, as well as on our perceptions of how much time we feel we have in the present moment. There are moments when we feel like we have an abundance of time, and other moments when we feel that time is relatively scarce. How much time we feel we have *now* guides not only our decision-making, but also our interpretations of difficulties experienced while making those decisions. When time or resources feel scarce, we shift our attention and priorities toward tasks that are pressing right now and relegate future goals and tasks to a "tomorrow" when we will surely have more time (Mullainathan & Shafir, 2013; Thaler & Benartzi, 2004). This is why we delay saving for retirement (Lewis & Oyserman, 2015; Thaler & Benartzi, 2004), investing in our education (Oyserman, 2013), taking care of our health (Sirois, 2004), and making sacrifices to sustain our collective future (Lorenzoni & Pidgeon, 2006). Other things simply feel more pressing and like better uses of the limited time we have right now, and it feels more rational to make the most of that time than to worry about an uncertain future that may not materialize (McGuire & Kable, 2013). As such, when time feels particularly limited, we may be inclined to put off tasks that are relevant to our future goals, meaning that goal difficulty may not be interpreted as a sign of importance.

Since time scarcity is felt in the present, people may neglect to see that their time may *remain* scarce in the future as well. People tend to expect that they will have more time available in the future to work toward goals than they do now, leading them to overcommit their future selves and underestimate how long it will take to complete tasks (Kahneman, Slovic, Slovic, & Tversky, 1982; Zauberman & Lynch, 2005). This biased expectation may lead people to believe that difficult goals are achievable, since they anticipate having more time to work toward those goals in the future. However, this may create issues down the road when people discover that they actually have less time available to complete their goals than they anticipated.

Time scarcity is not purely subjective, as objective differences in people's situations also affect their experiences of time and its meaning for their ability to achieve their goals (Oyserman & Lewis, 2017). When people are in structural positions that enable them to feel like they have "enough time" to devote to difficult goals, they are more likely to see difficulty as a sign that a goal is important to them (Fisher, O'Donnell, & Oyserman, 2017). On the other hand, those living in poverty and under other systemic conditions of scarcity simply have less time (Mullainathan & Shafir, 2013), making it more likely that they will interpret

experienced difficulty as a sign of impossibility rather than importance. In some cases, time scarcity can be experienced as a feeling of busyness, which can motivate people to prioritize difficult tasks that feel important (Ebrahimi, Rudd, & Patrick, 2017; Kim, Wadhwa, & Chattopadhyay, 2019; Wilcox, Laran, Stephen, & Zubcsek, 2016). However, the motivating effects of busyness are more likely to be felt by people of higher socioeconomic status who have greater control over how they use their time, while those who are more chronically resource-scarce are less able to restructure their time to prioritize important goals when busy (Mullainathan & Shafir, 2013).

TEMPORAL AGENCY

Another component of time that interacts with experienced difficulty is temporal agency, or the amount of control that people have over their time. People who feel a greater sense of temporal agency may be more likely to interpret experienced difficulty as importance. In turn, we also suggest that when difficulty is interpreted as importance, people will perceive changes in the amount of agency they have over their time. In other words, they will feel like they are active "agents" in their mental representations of time and that they have the power to shift their priorities to devote time to goals that feel important.

The time scarcity tradeoffs described above are related to this sense of temporal agency. People who experience time scarcity may also feel that they have less control over their time. For example, women, single parents, and caregivers are more likely to experience time scarcity and a lack of temporal agency because they spend more time doing both paid and unpaid labor (Strazdins, Welsh, Korda, Broom, & Paolucci, 2016). This is one of the reasons these groups also experience poorer health outcomes; constraints on time and money influence their capacity to engage in behaviors like physical activity and healthy eating (Venn & Strazdins, 2017). Along racial and economic lines, racial minority and low-income people are more likely to work in unstable and unpredictable jobs with shifting schedules and hours, making it more difficult to control their earnings, plan their time, and experience choice in their lives (Fenwick & Tausig, 2001; Mills & Blossfeld, 2006; Oyserman & Lewis, 2017).

These group-level differences in control over one's time matter for navigating the difficulties one experiences in life and for perceiving how time passes throughout life itself. We expect that the interpretation of difficulty as importance influences the way that people mentally represent time and how it moves. Because time is an abstract concept that requires metaphors for processing and understanding (Friedman, 1990; Landau, 2017), people often use metaphors of space and distance to think about time (Boroditsky, 2000; Boroditsky & Ramscar, 2002). Distance metaphors are especially useful when thinking about the long-term future—for example, we "approach" goals that feel "far away" in time. When using these time-as-distance metaphors, people typically represent time in one of two ways: People either think of themselves as moving forward through time ("ego-moving")

toward future events or goals or they think of themselves as stationary, with future events hurtling toward them ("time-moving") (Clark, 1973).

When people interpret difficulty as importance, they may be more likely to think of themselves as active agents moving forward through time toward their goals. This is because the importance mindset fosters a sense of agency, as it signifies that difficult goals are achievable and worth one's effort. While agency has not been directly measured as an outcome in experiments examining effects of difficulty mindsets, research on identity-based motivation generally finds that the difficulty-as-importance mindset fosters a willingness to engage in difficult strategies to achieve goals (Oyserman et al., 2017). This willingness is likely built on agency, or a sense of control over one's own ability to execute difficult strategies and pursue difficult goals (Oyserman et al., 2017; Smith & Ellsworth, 1985).

While difficulty-as-importance mindsets have been directly shown to increase motivation, they may also *indirectly* influence motivation by leading people to reconceptualize time in more agentic ways. Preliminary evidence for this possibility comes from research with college students. In one experiment, when students were prompted to think about their experience in education as a journey from a present state to a desired future state, they were more likely to feel motivated and to achieve in school (Landau, Oyserman, Keefer, & Smith, 2014). Journey metaphors are similar in nature to the metaphors that characterize the ego-moving representation of time, with an agent moving forward on a path toward future events. As such, we hypothesize that the interpretation of difficulty as importance may influence motivation by prompting people to think about themselves as moving more actively through time.

TEMPORAL SPEED

Another key component of time perception as it pertains to interpretations of difficulty is temporal speed. Since people experience time subjectively, they may feel that time is passing relatively quickly or slowly at any given point. Research from cognitive psychology supports a link between experiences while working on difficult tasks and perceptions of time's passage. Several studies have found that as tasks become more difficult, people's estimates of how long the task took decrease, implying that time seems to pass more quickly during challenging tasks (Friedman, 1990). One explanation for this is that difficult tasks demand attention, as does tracking the passage of time. Therefore, as task difficulty increases, attention to the passage of time decreases, making this passage feel quicker. While some evidence suggests that this only applies to prospective time judgments (i.e., when people are aware that they will be asked to estimate how much time has passed; see, for example, Zakay, 1993), other work finds that this holds for both prospective and retrospective judgments (Brown, 1985). Since difficulty-as-importance mindsets motivate people to pursue difficult goals or tasks, this may lead them to experience time as moving more quickly when working on those difficult, but important, tasks.

Further, we expect that these changes in the perceived passage of time will influence motivation to engage in difficult tasks. Indeed, research on "flow"—a mental state characterized by total absorption in a task—has documented that when people are working on engaging, albeit difficult, tasks, the feeling of being immersed leads them to feel like time has passed quickly (Csikszentmihalyi, 2014). Flow is an intrinsically rewarding state, as it makes working on difficult goals feel enjoyable. This literature provides a key linkage between difficulty and its conceptions and time perception, while also relating to the feelings of scarcity and agency described above. Those afforded situations that confer agency over their time are more able to be fully absorbed in the tasks they are working on, because they can prioritize the tasks that are important to them. In turn, they are more likely to interpret the difficulties experienced in those flow states as signals that what they are doing is important and to experience time during those tasks as passing more quickly and enjoyably. That experience and interpretation provide the motivation to persist in the face of difficulty (Browman, 2019; Browman, Svoboda, & Destin, 2019; Lewis & Yates, 2019).

TEMPORAL CONSTRUAL

It is easier to prioritize goals that feel important when those goals feel concrete and psychologically close (Hershfield, 2018; Hershfield, Shu, & Benartzi, 2020). We propose that difficulty mindsets might also facilitate that sense of psychological and temporal closeness. As noted before, the domain of time is abstract, but the future can vary in its level of abstraction or concreteness. According to the construal level theory of psychological distance, events that are concrete feel psychologically close, while those that are abstract feel psychologically distant (Trope & Liberman, 2010). With regard to goal concreteness, future goals that feel important are more likely to be concrete than future goals that feel impossible. In addition, as people get closer to achieving their goals, they are more likely to feel motivated to complete them, in part because goals may feel more concrete as we approach them (Kivetz, Urminsky, & Zheng, 2006). Together, this suggests that when difficult goals feel important, they may be more easily construable, making them feel psychologically and temporally closer.

It is not just future goals that may be affected by this possibility, but also future possible identities or selves (Cross & Markus, 1991; Markus & Nurius, 1986). Research on identity-based motivation has documented that difficulty is likely to be interpreted as important when future identities feel close and connected to present identities (Oyserman et al., 2017). This psychological closeness may influence motivation to work toward long-term goals. For example, in an intervention to increase retirement savings, participants were more likely to save for the future after seeing avatars of older versions of themselves (Hershfield et al., 2011). Saving for retirement was still difficult for these participants, but facing the potential consequences of (in) action made that difficulty feel important enough to prompt action now. Thus, when future identities feel more concrete, they feel closer to present identities, increasing motivation to make those identities materialize (Mogilner et al., 2018).

HYPOTHESIZED RELATIONSHIPS BETWEEN DIFFICULTY AND TIME PERCEPTION

In this section, we outlined several hypothesized claims about the bidirectional relationship between difficulty interpretations and time perception. In Table 1, we state these claims directly, detailing the relevant mechanisms and providing examples of how these effects might appear in the real world. Future research should test each of these claims in order to uncover the effects of these factors on one another.

SYNTHESIZED MODEL

The processes we have outlined so far operate in interactive ways that influence people's motivation, behavior, and likelihood of achieving their goals. When difficult goals are interpreted as important and time is perceived in productive ways, people will be more motivated to work toward even challenging goals.

The joint relationship between difficulty and time perception is important for modeling how motivational processes unfold over time. Whether or not people have "enough" time plays a key role in the interpretation of difficulty, and this will necessarily change as people age and their goal priorities shift in response. Further, if the way people interpret difficulty changes perceptions of the passage of time, these changes in perception may help to sustain motivation over the course of a goal. Finally, since the concepts of difficulty interpretation and time perception are inherently connected, modeling these processes together should improve our ability to predict and influence motivation and behavior.

We have synthesized these joint processes in a proposed model of how interpretations of difficulty and time perception influence motivation and goal-directed behavior (see Figure 1). First, we draw readers' attention to the box around "difficulty as importance" and the selected features of time perception. The arrows between these concepts represent the hypothesized bi-directional relationship between interpretations of difficulty and time perception, as outlined throughout this article. As discussed, both of these sets of factors, and the interactions between them, affect motivation and goal-directed behavior. At the left of the model, we include time in lifespan and sociodemographic factors as additional inputs and moderators of the relationships between difficulty and time perception, capturing how social contexts and categories afford different opportunities in life that can influence these relationships. This is especially important when thinking about interventions, as these factors will affect people's likelihood of being able to adopt productive interpretations of difficulty and time perception. Our hope is that this model will be generative for future research on motivation and goal pursuit in a variety of domains of social life.

CONSIDERATIONS FOR FUTURE RESEARCH

Many of the proposed relationships in the model we present are hypothesized based on our review and synthesis of existing literatures on difficulty and time perception. As noted throughout this article, however, future research is needed

TABLE 1. Hypothesized Claims About the Relationships Between Difficulty and Time Perception

Hypothesized claim	Relevant mechanisms	Example
Time in lifespan: Earlier in the lifespan, people will be more likely to interpret difficulty as importance.	Feasibility of goal: Younger people have more time to work toward, and achieve, difficult goals.	Older adults may be less likely than younger people to interpret experienced difficulty during a career change as a sign of importance.
Time scarcity: When people have more time available, they will be more likely to interpret difficulty as importance.	Feasibility of goal: When people have more time available to devote toward goals, those goals will feel more feasible.	Parents who feel pressed for time may be less likely to interpret difficulty as a sign of importance, compared to moments when they feel they have more time available.
Temporal agency: When people have more agency and control over their time, they will be more likely to interpret difficulty as importance.	Ability to exert control over time: People experiencing temporal agency are more able to shift their priorities to focus on pressing goals.	When students have a greater sense of agency over their time, they may be better able to manage their time and more likely to interpret goal difficulty as a sign of importance.
Temporal speed: When people interpret difficult goals as important, they will perceive time as moving more quickly during goal pursuit activities.	Flow during work towards goal: Difficulty-as-importance mindsets make it easier for people to immerse themselves in important tasks.	When athletes interpret difficulty during training as importance, they may be more likely to immerse themselves in training tasks and to perceive time as moving more quickly during those tasks.
Temporal construal: When people interpret difficult goals as important, they will feel "closer" to their goal.	Relevance of goals to identity: Difficulty-as-importance mindsets make goals feel more salient and personally relevant.	When workers interpret experienced difficulty at work as a sign of importance, they may be more likely to feel that their work tasks are relevant to their goals to get promoted, making that goal feel psychologically closer.

to conduct more direct empirical tests of the complex interactions between these factors. In the sections above (and in Table 1), we described our hypotheses about the pathways through which we expect these factors to affect each other. We outlined these pathways and articulated how they map onto components outlined in previous literatures, because describing and engaging in such theory and hypothesis mapping exercises are important first steps for generating more rigorous and robust social scientific theories (Gray, 2017; Scheel, Tiokhin, Isager, & Lakens, 2020). As a starting point, future research should test these direct paths between difficulty and time perception. Beyond these direct paths, we also propose some key considerations to guide future research on how experienced difficulty and time perception jointly predict goal pursuit.

Critically, the nature of the relationship between experienced difficulty and the four remaining components of time perception should be explored in more detail.

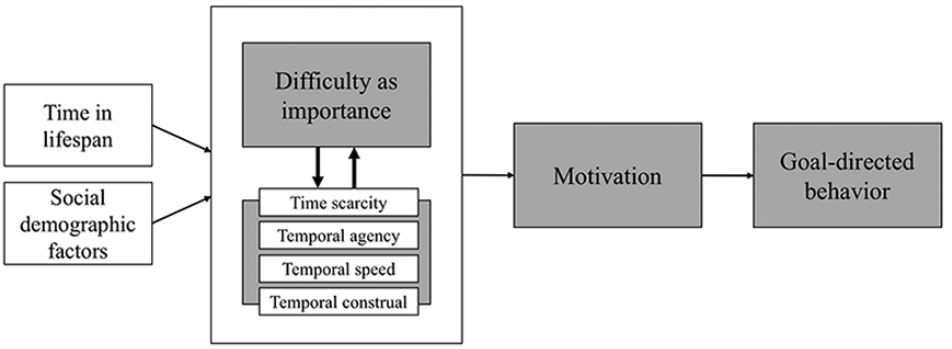

FIGURE 1. Model showing the proposed relationships between the perception of time (in its various forms) and the interpretation of difficulty, and their joint effects on motivation and behavior.

Do all hypothesized effects co-occur (as we expect, given the interconnected nature of these mechanisms), or can some occur without others? For example, might an intervention promoting a "difficulty-as-importance" mindset affect temporal agency, but not temporal speed? Answering these questions will help elucidate the role of time perception in motivation and highlight which features of time perception are most central to promoting motivation and goal-directed behavior.

Future research should also assess whether manipulating one component of this model causally influences motivation via the other components. If so, this may prove useful for understanding and developing interventions aimed at sustaining motivation. For example, researchers aiming to promote future-oriented behaviors—such as saving for retirement and exercising to maintain good health—might test interventions that directly affect interpretations of difficulty, since they may indirectly affect perceptions of time as well. This might also uncover whether perceptions of time mediate or moderate the relationship between interpretations of difficulty and motivation.

To better understand the interactions between difficulty and time perception, it may also be useful to manipulate multiple factors together, for example, in conjoint experiments and other approaches that facilitate understanding of heterogeneity in social phenomena (e.g., Leeper, Hobolt, & Tilley, 2020; Whitsett & Shoda, 2014). As discussed, we suspect that difficulty and time perception interact, such that motivation is highest when people interpret difficulty as importance *and* perceive time in productive ways. In order to fully test this hypothesis, researchers will need to experimentally manipulate both difficulty and time perception at once in order to determine what combination of factors most effectively promotes goal-directed behavior. These complex interactions are important to study as they may bring us closer to being able to make the kinds of inferences that are more in line with what likely unfolds in real-world contexts (see Bronfenbrenner, 1979; Navarro, 2018).

CONCLUSION

For decades, researchers have explored the separate effects of experienced difficulty and time perception on motivation and behavior. In presenting this integrated model, whereby experienced difficulty and time perception influence each other and jointly affect motivation, we hope to bridge the gaps between these disparate literatures. We propose that these motivational processes are indeed not separate at all, and that together, they may help to explain how people develop and maintain motivation in pursuit of their goals. How people think about the amount of time they have available to them—whether in their life overall or in the present moment—plays a key role in how they interpret experiences of difficulty while working toward their goals. In turn, when people interpret difficulty as a sign of importance, their experience of time will change in meaningful ways. These changes in time perception, and their downstream effects on future experiences of difficulty, may produce compounding effects on motivation and explain how goal-directed behavior unfolds over the course of time.

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