When Intrinsic Motivation and Immediate Rewards Overlap

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Synopsis

Kruglanski et al. (2002) proposed that an activity (i.e., a means) is intrinsically motivated when it coincides with its goal (i.e., the reward for pursuing it). Based on this observation, we provide a framework for understanding intrinsic motivation using insights from research on immediate and delayed rewards. We explore the parallels between intrinsic (vs. extrinsic) motivation and immediate (vs. delayed) rewards and present support for three propositions. First, intrinsic (but not extrinsic) rewards are valued more in the present than with a temporal delay. For example, people value learning new things more in their present job than in previous and future jobs. Second, immediate rewards render the experience of an activity as more intrinsic. For example, receiving an immediate (vs. delayed) bonus payment increases the motivation to engage in a task during a free choice phase. Third, by increasing intrinsic motivation, immediate rewards increase persistence. For example, focusing on the positive taste of healthy food increases consumption compared with focusing on the delayed health benefits.

Introduction

Imagine someone intrinsically motivated to exercise; this person runs because she finds running inherently pleasurable. In contrast, the extrinsically motivated runner looks very different. This person is motivated to run not out of enjoyment, but for some external outcome such as losing weight or pleasing a partner. This distinction between intrinsic and extrinsic motivation has been widely studied, and can influence the quality of the experience and performance of these two runners based on their distinct motivations (Heath, 1999; Higgins & Trope, 1990; Kruglanski, 1975; Mischel, Shoda, & Rodriguez, 1989; Ryan & Deci, 2000; Sansone & Harackiewicz, 1996; Wrzesniewski et al., 2014).

As another example, consider someone who exercises to pursue a long-term health goal, and while she runs, listens to music to improve her experience. Although this person does not find running inherently enjoyable, and is therefore not intrinsically motivated to run (i.e., does not receive an internal benefit), at the same time she does receive an immediate reward–the positive experience of listening to music. Intrinsic incentives – in the case of the intrinsically motivated runner, clearly differ from immediate rewards – in the case of the runner who listens to music while exercising, but is it possible that there is overlap in the psychological experience of intrinsic and immediate rewards? We address this possibility in the current chapter.

We start by providing an overview of research on intrinsic motivation, which has identified two separate incentives people can receive from goal pursuit. That is, people can receive intrinsic incentives, which are part of the experience of pursuing an activity and differ from extrinsic incentives, which are the outcomes of pursuit. We then address research on reward timing, specifically work on self-control, which documented a preference for immediate rewards that materialize sooner in time over delayed rewards that materialize later. Whereas intrinsic motivation and immediate rewards comprise separate areas of research and have typically been studied in isolation from one another, we suggest some degree of overlap exists between the psychology of both phenomenon (intrinsic-immediate vs. extrinsic-delayed). We explore recent research addressing this idea, and document novel insights of this overlap for understanding 1. People's valuation of intrinsic incentives (which is greater in the present than with a delay), 2. People's experience of immediate rewards (which render activities more intrinsically motivating), and 3. Implications of immediate rewards for increasing persistence in long-term goals, by increasing intrinsic motivation.

Intrinsic Motivation

An action is intrinsically motivating to the extent that it is internally derived as opposed to externally derived (e.g., Fishbach & Choi, 2012; Heath, 1999; Lepper, Greene & Nisbett, 1973; Sansone & Harackiewicz, 1996). For example, intrinsic motives include "learning new things" or satisfaction when "feeling good about oneself" and extrinsic motives are external to the task such as receiving pay or having job security (Heath, 1999). Some research identified certain contents that tend to be intrinsically motivating. Thus, research on self-determination theory offered a content-based definition of intrinsic motivation, which posits that an intrinsically motivated action serves at least one of three end goals: autonomy, competence, and relatedness. In contrast, extrinsic actions serve more extrinsic ends and are pursued for tangible rewards or to avoid punishment (Ryan & Deci, 2000). This fruitful perspective inspired a large proportion of the research on intrinsic motivation, however is limited in the sense that certain contents cannot be considered intrinsically motivating.

In contrast, Shah and Kruglanski (2000) offered a structure-perspective on intrinsic motivation that does not assume specific goal contents, and thus, for example, both hobbies and paid work can be similarly intrinsically (or extrinsically) motivating. Specifically, under the

means-end fusion perspective, intrinsic motivation occurs when the activity (means) engaged in and the outcome (goal) the activity provides are closely associated such that there is a sense of inseparability between the two (Kruglanski et al., 2013). Thus pursuit, rather than attainment, is what is rewarding. The greater the fusion between an activity and its outcome, the greater the intrinsic motivation to engage in that activity. This structural approach to intrinsic motivation suggests that increasing the association between an activity and an important end goal will have beneficial outcomes for intrinsic motivation, by allowing the activity to cognitively fuse with the goal such that the means become "an end in itself" (Shah & Kruglanski, 2000). For example, to enhance one's intrinsic motivation to jog to get in shape, a person can (1) lessen the association between other activities and getting in shape (e.g., playing tennis) and (2) lessen the association between jogging and other goals (e.g., pleasing a romantic partner). In this way, the association between jogging and getting in shape becomes stronger, increasing one's intrinsic motivation to jog.

In general, these two theories of intrinsic motivation—based on content (Ryan & Deci, 2000) versus structure (Kruglanski et al., 2013; Shah & Kruglanski, 2002)—both distinguish intrinsic incentives as engaged in for their own sake from extrinsic incentives, which are means to an end. Further, these two theories of motivation share in the assumption that extrinsic incentives can undermine intrinsic interest in activity pursuit, although they differ with regards to the underlying process.

Specifically, work on intrinsic motivation has identified the role extrinsic incentives have in undermining motivation. Extrinsic incentives can undermine intrinsic motivation by (1) diluting the association between the activity and its intrinsic value such that the means no longer feel as effective in obtaining a particular goal (Kruglanski et al., 2002), (2) leading to inferences about activity enjoyment based on the presence of extrinsic incentives (Kruglanski et al., 1972; Lepper & Greene, 1978; Lepper et al., 1973), or (3) exerting external control over people's behavior, undermining satisfaction from autonomy and exploration (Deci & Ryan, 1985; Ryan & Deci, 2000). In addition to reducing enjoyment, providing extrinsic incentives has been found to reduce the likelihood of future activity engagement (Deci, Koestner, & Ryan, 1999; Kruglanski et al., 1972; Kruglanski et al., 1975). For example, after being offered an extrinsic incentive for coloring, children who were given the chance to color again without this incentive were less interested in coloring (Lepper et al., 1973). This undermining effect happens even when the

extrinsic incentive stays intact; for example, young children were less likely to eat foods that were presented as instrumental for extrinsic goals (e.g., making them healthier, or better at reading and math; Maimaran & Fishbach, 2014).

We note that although cases of purely extrinsically motivated activities (e.g., going to the dentist) and purely intrinsically motivated activities (e.g., eating a delicious cake) do exist, it is more often the case that activities offer both intrinsic and extrinsic incentives to some degree (Etkin, 2016; Fishbach & Choi, 2012). For example, when riding a bike one can receive intrinsic incentives (enjoyable experience) as well as extrinsic incentives (improved health), and reading can be entertaining (intrinsic), while also offering educational benefits (extrinsic).

Having outlined research on intrinsic motivation, differentiating between intrinsic and extrinsic incentives, we next address work on self-control and intertemporal choice that examines tradeoffs between receiving immediate versus delayed rewards.

Self-Control Conflicts: Trading off Immediate and Delayed Rewards

Research on self-control and intertemporal choice present people with decisions that involve trading off costs and benefits over time. These lines of research distinguish between long-term (delayed) outcomes and short-term (immediate) outcomes. Whereas immediate rewards materialize during pursuit of an activity and arrive sooner, delayed rewards materialize later in time and are an outcome of pursuit (Ainslie & Haslam, 1992; Hoch & Loewenstein, 1991; Kivetz & Simonson, 2002; Mischel et al., 1989; Thaler, 1981; Trope & Fishbach, 2000).

In particular, research on intertemporal choice assumes the value of an outcome is discounted or diminished over time, and documents people's willingness to forgo somewhat larger future rewards in order to receive smaller rewards in the present (e.g., Ainslie & Haslam, 1992; Mischel et al., 1989). This work further documented that people are temporally inconsistent (often referred to as hyperbolic discounting, declining impatience, or present bias) such that their discount rates decline as the length of time to the outcome increases (e.g., Thaler, 1981). Time inconsistent preferences can produce preference reversals as the time to both the more immediate and more delayed outcomes diminishes (Ainslie, 1975). For example, a person who prefers $10 today over $12 in a week may also prefer $12 in 53 weeks over $10 in 52 weeks (Thaler, 1981; Urminsky & Zauberman, 2014).

Thus although delayed rewards may be preferred from a distance, the valuation of immediate rewards increases as the opportunity to receive these rewards becomes available (Ainslie, 2001; Rachlin, 2000). And although people are generally able to balance their present and futures benefits, at times they can become extremely impatience such that they overvalue present relative to future outcomes (Dai & Fishbach, 2013; Hoch & Loewenstein, 1991). Work on discounting typically finds that the more immediately available the reward is, the greater the desire for receiving it is. This distinction has been analyzed for a number of self-control conflicts, for example, while the option of studying can overall dominate activity choice, on the night of the party, for a short and critical period, the option to party is significantly more attractive, potentially even more so than the option to study (Fishbach & Converse, 2010).

Although self-control dilemmas pose a conflict between collecting immediate and delayed rewards, with priorities set in advance such that a person prefers to forgo the immediate, short-term reward to receive the delayed, long-term reward (Fishbach & Converse, 2010; Mischel, Cantor, & Feldman, 1996), we note it is often the case that activities pursued for their long-term rewards also offer immediate rewards during pursuit, to some extent. For example, studying at the library provides delayed rewards, such as an improved exam grade, and can also provide immediate rewards to the extent that the material is interesting, and while people often work out for delayed health reasons, it is also true that exercising can provide immediate rewards (e.g., improved mood while exercising). This is similar to our earlier point that intrinsic and extrinsic incentives also often co-occur during activity pursuit. In the next section, we further discuss recent research on commonalities between immediate rewards and intrinsic incentives.

Association Between Intrinsic Incentives and Immediate Rewards

In examining the commonalities between research on intrinsic motivation and reward timing, we focus on intrinsic incentives and immediate rewards, and contrast these with extrinsic incentives and delayed rewards. Our analysis suggests that insofar as intrinsic incentives are defined as part of the experience of activity pursuit, and extrinsic incentives are defined as external outcomes that are delivered after pursuit (i.e., the structural definition; Kruglanski et al., 2002), motivation and self-control concepts overlap: intrinsic incentives are immediate and extrinsic incentives are delayed (Woolley & Fishbach, 2015). Further, since intrinsic incentives

are inherent in activity engagement and typically arrive more immediately, they may be associated with immediate delivery even in the case when they are not more immediate.

Before continuing, we note this overlap is not complete; for one, immediate rewards include both rewards that are internal to the activity and rewards that are external to the activity. For example, a person can dine to enjoy the taste of the food (internal benefit), or dine purely for the social benefit of celebrating with friends over a meal (external benefit, e.g., a vegetarian at a steak house, where the food is not an intrinsic benefit). Both rewards, the taste of good food and socializing with friends, occur immediately during the eating activity, yet the former is internal and the latter is external to it. In addition, delayed rewards include both rewards that are internal and external to the activity. For example, a person can eat spicy food to develop an acquired taste, in which the benefit is inherent in eating, but arrives later after repeated exposure, or a person can eat healthy food to procure future weight-loss benefits. Whereas both eating activities lead to delayed outcomes and are not immediately gratifying, their rewards are internal or external to the food consumption. We do not suggest that these concepts—intrinsic and immediate—should be combined, rather, we suggest that intrinsic incentives and immediate rewards are often closely associated and experienced similarly.

To provide evidence for the association between intrinsic incentives and immediate delivery, we asked participants in one study to indicate when they believed intrinsic and extrinsic benefits of exercising would be delivered, either immediately while exercising or at a delay after exercising. Specifically, participants rated when they believed intrinsic incentives (e.g., enjoying, having fun) and extrinsic incentives (e.g., keeping in shape, improving health as a result of working out) would be delivered. As predicted, participants expected intrinsic incentives for exercising to arrive more immediately than extrinsic incentives (Woolley & Fishbach, 2015). Similar results were found using work-related incentives. Here participants rated common intrinsic workplace incentives (i.e., learning new things, developing skills and abilities, accomplishing something worthwhile, and doing something that makes you feel good about yourself) along with common extrinsic workplace incentives (i.e., receiving a paycheck, fringe benefits, having job security, and receiving praise from a supervisor; from Heath, 1999). Intrinsic-work incentives were rated as arriving more immediately than extrinsic-work incentives, further documenting the association between intrinsic incentives and immediacy.

Taking the perspective that intrinsic incentives are associated with immediate rewards leads to a number of implications in terms of what people value and how to motivate persistence that we address in the remainder of the chapter. First, we outline research on the valuation of intrinsic incentives, demonstrating that people care more about intrinsic incentives when they arrive more immediately. That is, because intrinsic incentives are associated with immediacy, people value these incentives more when they are available, inside pursuit, than from a distance outside pursuit. We next discuss how immediate rewards serve to increase intrinsic motivation, showing the earlier delivery of rewards renders the experience of an activity more intrinsic. Therefore, one way to increase intrinsic motivation in an activity is to provide rewards that have a more immediate arrival. Lastly, we address implications of focusing on or adding in immediate rewards to activity pursuit for increasing persistence in long-term goals. Specifically, we demonstrate that by focusing on immediate rewards, which are valuable to people during pursuit, people are able to persist longer in activities that they care about pursuing.

Proposition 1: Intrinsic incentives are valued more when they are immediate

By taking a perspective that intrinsic motivation and immediate rewards share some commonalties, our research has been able to generate predictions for what people care about and how to motivate persistence. We predicted and found that people value intrinsic incentives more during pursuit, when these incentives are delivered, than either before or after pursuit, when these incentives are not immediately experienced (Woolley & Fishbach, 2015). Because intrinsic incentives come from pursuing, rather than completing, an activity, and are rewarding immediately during activity pursuit, these intrinsic incentives are more attractive inside pursuit.

This proposition is also consistent with research showing that only when people are in a "hot state" do they appreciate the strength and influence of that state ("empathy gap," Loewenstein, 2000; Van Boven, Loewenstein, Welch, & Dunning, 2012). For example, only adults actively experiencing social pain fully appreciate the pain of emotional bullying for middle school children. Intrinsic incentives tend to be experiential, and therefore, undervaluing the strength of the experience when in a cold state outside pursuit could lead to an undervaluation of intrinsic incentives at a distance (outside pursuit).

In one study demonstrating the shift in importance of intrinsic incentives, gym-goers indicated how important intrinsic and extrinsic incentives were to them in deciding how long to

currently work out (present pursuit) or in deciding how long to work out in the future (outside pursuit; Woolley & Fishbach, 2015). The items mapping onto intrinsic incentives included, for example, "having an enjoyable workout" and "having a workout that feels fun" whereas the items mapping onto extrinsic incentives included for example "keeping in shape" and "improving health as a result of working out." Gym-goers indicated that intrinsic incentives mattered more to them for their present workout than for a future workout, whereas extrinsic incentives were similarly valuable for present and future workouts (see Figure 1). This suggests that having an enjoyable workout is important when deciding how much to exercise in the moment, but people do not value enjoyment nearly as much when deciding how long to persist working out in the future. Further, this shift in valuation seems to be unique to intrinsic incentives; extrinsic incentives were not valued differently for present and future pursuits.

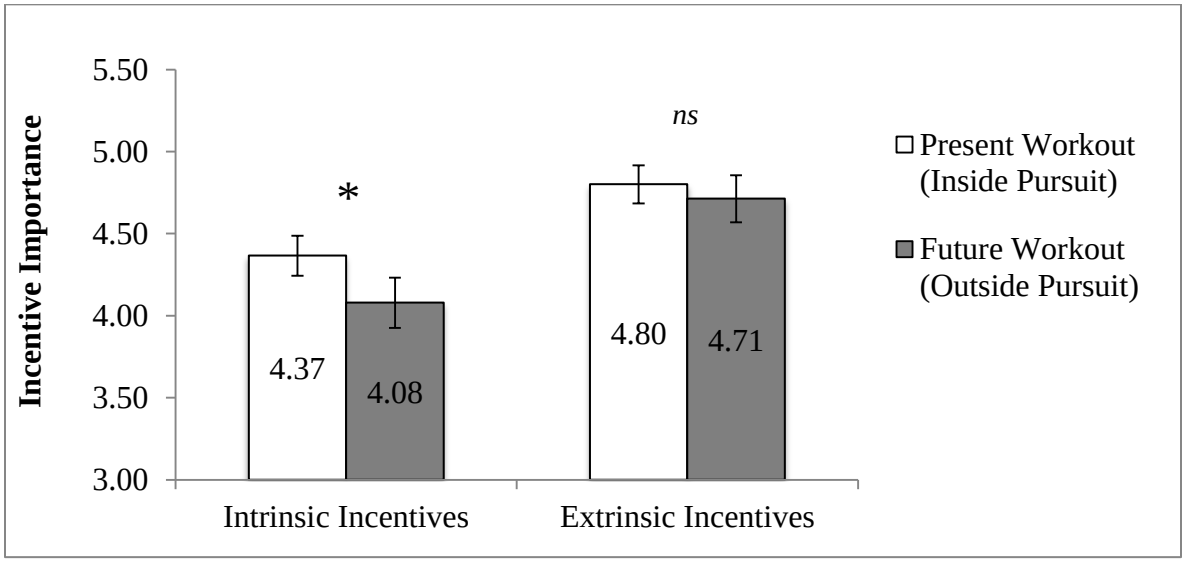

Figure 1. Intrinsic incentives are rated as more important inside pursuit of a present workout than outside pursuit of a future workout, whereas extrinsic incentives do not differ in importance for present and future pursuits (lines in bars represent ± one *SE*; Woolley & Fishbach, 2015).

Not only does the value placed on intrinsic incentives diminish over temporal distance (inside vs. outside pursuit), but it also diminishes over social distance (self vs. other). That is, people have the tendency to believe that they are more motivated by intrinsic incentives than are others (Heath, 1999). Whereas people are aware that intrinsic incentives matter for them, they underestimate the extent to which these incentives matter for others. For example, people feel

that “learning new things” or “developing skills at work” are motivating factors for themselves, but they predict that this is less true for others. This finding may shed some light on why people believe others who pursue immediate desires (e.g., those who smoke or are overweight) lack willpower and self-control (Allon, 1982; Freeman, Shmueli, & Muraven, 2013; Puhl & Latner, 2007). That is, people may not realize the strength of intrinsic, immediate motives (in this case, temptation) for others, and just how hard it is to overcome them.

These effects on the valuation of intrinsic incentives have implications for how much people persist in activities in the moment versus anticipate persisting when they are reflecting on an upcoming activity. Specifically, intrinsic incentives may increase persistence in activities more than people realize at a distance when they are outside pursuit. Because people outside the activity are less aware that intrinsic incentives are important during pursuit, they fail to predict the influence of intrinsic incentives on their future task persistence. In one study demonstrating this, we examined the role of intrinsic incentives in pursuers’ (inside pursuit) ability to follow through and persist in a task, compared with predictors’ (outside pursuit) expectations for their own future persistence. Participants in this study were assigned to work on either a fun joke reading task or a boring computer manual reading task (high vs. low intrinsic incentives). The task further offered $0.10 or $0.05 bonus per trial (high versus low extrinsic incentives). For pursuers inside pursuit, the presence of intrinsic incentives was the only factor driving their task persistence: they persisted longer when reading jokes than reading sections of a computer manual. However, predictors were blind to this and did not anticipate the role intrinsic incentives would play in shaping their persistence. Instead, predictors only expected extrinsic incentives to influence persistence: they expected to persist longer in the task that paid more (Woolley & Fishbach, 2015; Figure 2).

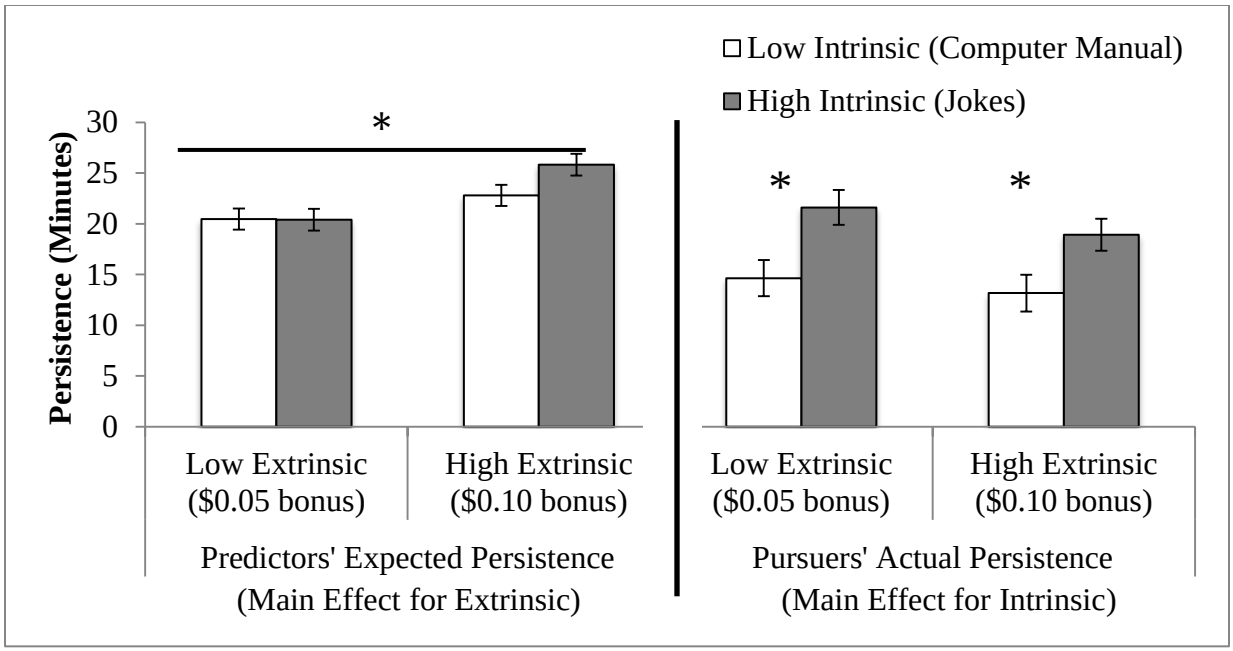

Figure 2. Predictors outside of a task reported their persistence (minutes completed) would only be influenced by extrinsic incentives (main effect for extrinsic), while pursuers' actual persistence was only influenced by intrinsic incentives (main effect for intrinsic; lines in bars represent ± one *SE*; Woolley & Fishbach, 2015).

We next move to examine the role reward timing plays in influencing intrinsic motivation. We argue that the greater the temporal association is between an activity and its reward, the more the activity is perceived as intrinsically motivating. That is, immediate rewards can increase intrinsic motivation compared to delayed rewards.

Proposition 2: Reward timing increases intrinsic motivation

Not only do people value intrinsic rewards more when these are immediately available (e.g., inside perspective) than when they are at a distance (e.g., outside perspective), but they also perceive activities that offer immediate (vs. delayed) rewards as more intrinsically motivating.

According to Kruglanski's theory of means-end fusion outlined earlier, intrinsic motivation is derived from means that are closely associated with their end goals, and it is this sense of inseparability that makes the motivation intrinsic. This theory would predict that activities closely fused with goals are (1) perceived as more instrumental to goal attainment, (2) perceived as more intrinsically motivated, and (3) exhibit properties of the ends they serve. This

content free theorization of intrinsic motivation creates a broader definition whereby activities need not be tied to specific goals (i.e., autonomy, competence, relatedness; Ryan & Deci, 2000). It thus suggests activities pursued for specific goals can be seen as intrinsic to the extent that there is a greater overlap between the specific activity and the goal it serves. For example, a person who bikes only to get in shape would be more intrinsically motivated (one means for one goal) than a person who bikes and runs in order to get in shape (two means for one goal).

In support of this, one study demonstrated that although typically seen as an extrinsic incentive, the presence of money can actually increase intrinsic motivation when the monetary reward is closely associated with the activity (Kruglanski et al., 1975). In this study, half of participants played a coin-toss game that is typically played for real money, and as such, receiving money is closely associated with the game. The other half of participants played a game with wooden blocks, an activity typically not associated with payment, where money was viewed as an extrinsic reward. The experimenters manipulated whether participants received money for the activity (coin-toss vs. block task) or not. In the coin-toss game, when money was intrinsic to the task, participants who received payment were more intrinsically motivated than those who did not receive payment. The opposite was true when money was extrinsic to the task; in this case, receiving money (vs. not) reduced intrinsic motivation. This study suggests that whenever money is closely associated with a task, its presence enhances intrinsic motivation as it provides a salient intrinsic cause for task performance.

On the basis of Kruglanski's theorizing that a close association between the activity and the end goal fosters intrinsic motivation, our research offers an approach for increasing intrinsic motivation. Specifically, we find that decreasing the temporal distance between a reward and an activity can lead the activity to be perceived as more intrinsically motivating. That is, because an earlier delivery of the reward strengthens the association between the activity and its reward, intrinsic motivation for the activity increases.

Our research finds that indeed a reward arriving more immediately increases intrinsic motivation to pursue an activity. In one study (Woolley & Fishbach, 2016a), we had participants work on an experiment for a fixed payment. After starting the study, some participants learned of a bonus payment that was tied to reading an excerpt of a book. A third of participants learned this bonus would pay out immediately after they finished the reading task, while another third learned the bonus would be paid to them a month after completing the reading task. A final third

of participants did not receive a bonus (no-reward control group). To assess intrinsic motivation, we had participants rate their experience as intrinsic (e.g., enjoyable, interesting), and also presented a free choice between continuing the reading task and switching to a new task. Other research suggested the hallmark of intrinsic motivation is choosing the task during free choice when no external incentives are offered (Deci, 1971; Deci et al., 1999). We find that participants who expected to receive their bonus immediately were more intrinsically motivated to work on their task, indicating that the reading task was more enjoyable and interesting than those receiving a delayed bonus or no bonus (Figure 3). Further, those who had previously received an immediate bonus for reading the book excerpt were more likely to choose to continue reading the excerpt during the free choice phase than those who previously received a delayed bonus (63.3% versus 44.4%) or no bonus (50.8%).

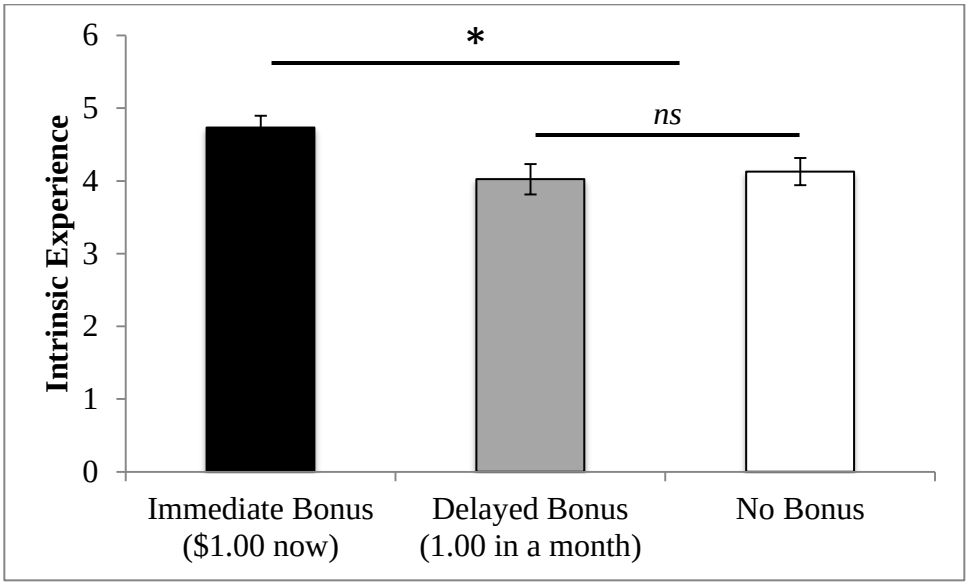

Figure 3. Expecting to receive an immediate bonus increased intrinsic interest in reading a book excerpt (e.g., how enjoyable, how interesting) compared with those expecting a delayed or no bonus (lines in bars represent ± one *SE*; Woolley & Fishbach, 2016a).

This study may seem inconsistent at first with research on the Overjustification Hypothesis (Lepper & Greene, 1978), which found that adding a reward to the pursuit of an

intrinsic activity undermines (i.e., crowds out) intrinsic motivation to pursue that activity. However, a crowding out effect emerges whenever researchers introduce a reward for an activity that is otherwise not rewarded, and the key comparison is between the rewarded and non-rewarded treatments. In contrast, our research compares engagement in an activity that is typically rewarded and indeed, everyone is getting paid (although those in the control condition did not receive a bonus). Our key comparison is between those who received the bonus sooner versus later or versus no-bonus payment.

Notably, it is still possible that our results are inconsistent with the overjustification hypothesis, to the extent that this hypothesis predicts larger rewards crowd out motivation more. Recall that research on intertemporal choice demonstrated a greater valuation of immediate (vs. delayed) rewards in the present. This could suggest that adding immediate and therefore, psychologically larger, rewards to activity pursuit will crowd out intrinsic motivation more. In contrast, we find that by decreasing the temporal distance between the reward and the activity, we increase intrinsic motivation, which suggests that the effect introduced by immediacy on activity-reward association strength is likely larger than the effect of immediacy on increased subjective reward magnitude.

In another study, participants received a reward (a chocolate truffle) either at the start of an experimental task (immediate condition) or only after they completed the task (delayed condition). Importantly, in both conditions participants were not allowed to eat the candy until after the study. As a measure of intrinsic motivation, participants then indicated how enjoyable the task was to work on. Those who received the reward immediately at the start of the task rated the experimental task as more enjoyable compared with those who received a delayed reward at the end of the experimental task.

These results are consistent with research on the Dilution Effect, which finds that as the association strength between an activity and its goal is decreased through the addition of multiple goals, intrinsic motivation is reduced (Orehek et al., 2012; Zhang, Fishbach, & Kruglanski, 2007). Rather than manipulate the activity-goal association through the number of goals received as an outcome of activity pursuit, we manipulate this association through the timing of reward delivery. In this way, we demonstrate that delivering a reward earlier in time increases intrinsic motivation for an activity; both the rated enjoyment and actual interest in pursuing a task in the future (i.e., free choice measure) increased when a reward was more immediate. In the next

section, we move on to implications of this increase in intrinsic motivation for facilitating persistence in long-term goals

Proposition 3: Harnessing immediate rewards and intrinsic motivation to increase persistence in long-term goals

Perceiving an activity that offers an immediate reward as more intrinsically motivating has implications for increasing engagement. Accordingly, we next explore whether immediate rewards increase engagement in an activity, even for activities primarily motivated by delayed rewards or extrinsic incentives.

Immediate rewards increase long-term goal persistence

Can focusing attention on immediate rewards be beneficial in facilitating persistence in goals that serve long-term delayed rewards? On the one hand, people may perceive that short-term and long-term goals are in conflict, for example that healthy food is less tasty and tasty food is unhealthy (e.g., Raghunathan, Naylor, & Hoyer, 2006), and therefore emphasizing immediate rewards will make the activity appear less instrumental in the long-run. On the other hand, the pursuit of long-term goals does not always come at the expense of short-term interests (e.g., enjoying the taste of healthy food). Thus whenever people are intrinsically motivated to pursue activities that are associated with long-term goals, such as health or professional success, they come to receive both immediate and delayed rewards from the same action. Under such circumstances, people can increase their motivation by attending to immediate and intrinsic rewards of the action.

Some support for the notion that immediate rewards can facilitate long-term goal pursuit comes from previous research outlined above demonstrating the importance of the experience when inside activity pursuit (Woolley & Fishbach, 2015). During pursuit, the experience of the activity is salient and immediate, and immediate/intrinsic rewards are more valuable during pursuit than in advance. This suggests factoring in experience into option choice could facilitate persistence in an activity. More relevant for self-control behavior, to increase persistence in a long-term goal (e.g., exercising for health), a person could choose from a set of behaviors the one that is most enjoyable—immediately and intrinsically motivating—in order to increase engagement and persistence.

We first tested whether immediate and intrinsic rewards are more strongly associated with increased persistence in long-term goals compared with delayed and extrinsic rewards

(Woolley & Fishbach, 2016b). We predicted that although activities such as studying and exercising first and foremost serve positive delayed outcomes, immediate rewards are more strongly associated with persistence in these long-term goals than are delayed rewards. We approached students studying in a library and measured how important their study materials were (delayed-extrinsic rewards), how enjoyable their study materials were (immediate-intrinsic rewards), and the total number of hours spent working on their materials that day. As predicted, immediate rewards more strongly predicted hours spent studying than delayed rewards. In another study, we approached gym-goers before they started using cardio machines at a gym. We recorded their valuation of delayed/extrinsic rewards (how important it was that their exercise was useful at keeping them in shape), their valuation of immediate/intrinsic rewards (how important it was that their exercise was enjoyable), and the number of minutes spent exercising. As predicted, the valuation of immediate rewards was a stronger predictor of minutes spent exercising than the valuation of delayed rewards. Having confirmed immediate rewards are associated with increased persistence in long-term goals (studying and exercising), we next moved to manipulating focus to immediate or delayed rewards inherent in long-term goals.

To test whether choosing based on immediate and intrinsic interests facilitates long-term goal pursuit, in one study we had participants choose between eating organic and non-organic carrots (Woolley & Fishbach, 2016c). We first confirmed that carrot consumption is mainly driven by health concerns for our population. We then manipulated participants' focus on immediate-intrinsic rewards ("Please choose the carrots you think are the tastiest and that you will enjoy eating the most. Since you'll be eating the carrots today, it's important you choose one that you like and find enjoyable to eat"), delayed-extrinsic rewards ("Please choose the carrots you think are the healthiest and that you will benefit the most from eating. Since you'll be eating the carrots today, it's important you choose one that is healthy and nutritious to eat."), or no rewards ("Please choose the carrots you think are more orange"). Participants made their selection and sampled the carrots, after which we recorded the amount of grams they consumed. In this choice set, the majority of people select the organic option–however they do so for different reasons: those in the immediate-rewards focus condition select organic carrots because they are tastier, whereas those in the delayed-rewards focus condition select organic carrots because they are healthier. We found that those choosing for immediate-rewards ate more of their selected carrots than those choosing for delayed-rewards, and more than the no rewards-

focus control condition (Figure 4). This study suggests that focusing on immediate rewards increases consumption of a healthy food more than a neutral (control) and a delayed-rewards focus, even though participants report primarily eating carrots for delayed health rewards.

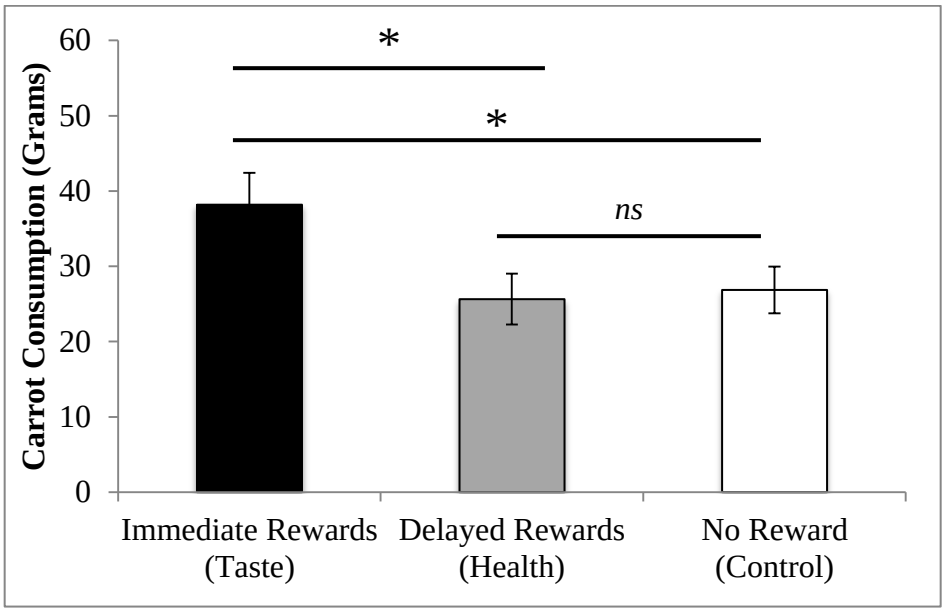

Figure 4. Choosing based on immediate rewards increases consumption of carrots more than choosing based on delayed rewards or no rewards (lines in bars represent ± one *SE*; Woolley & Fishbach, 2016c).

Other work supports the idea that focusing on immediate, experiential rewards boosts activity engagement during pursuit compared with focusing on delayed rewards (Fishbach & Choi, 2012). For activities offering both immediate and delayed rewards, focusing on the delayed reward may increase initiation, yet decrease persistence. In one study, pursuers who focused on the experience of folding origami (immediate reward) were more interested in continuing to engage in the activity than those focusing on their goals while creating origami (delayed reward). Focusing on the experience of pursuing the origami activity (immediate reward) increased pursuers' motivation to continue working on the activity compared with focusing on the activity's instrumentality (delayed reward).

These results showing a focus on immediate rewards can boost persistence in long-term goals have implications for our understanding of self-control failures. When people fail to persist in certain long-term goals such as healthy eating or exercise behaviors, this may be because they

do not perceive the activity as providing immediate benefits. For example, someone who stops an exercise program that is not enjoyable for her may be quitting because she believes the activity does not offer her the benefits that are important to her in the moment—immediate rewards. Future research can examine this possibility and also explore whether immediate rewards can help increase persistence in long-term goals by bypassing the need for self-control.

Adding immediate rewards that are extrinsic to the pursuit of long-term goals

The aforementioned research found that focusing on immediate-intrinsic rewards and thinking about the experience during activity pursuit helped facilitate continued activity engagement. Specifically, this work demonstrated that focusing on immediate rewards that are intrinsic to pursuing the activity helped to facilitate persistence. However, our theory also predicts that adding immediate rewards into activity pursuit increases goal persistence, even when these rewards are external to the activity. Although not inherent in activity pursuit, adding in external immediate rewards can increase persistence by boosting the positive experience of pursuit.

In line with this analysis, in one study high school students working on an in-class assignment were either allowed to add immediate rewards to the pursuit of their school work (immediate-rewards condition) or not (control condition). Students in the immediate rewards condition were given the opportunity to use fun colored pens, eat snacks, and listen to music while they worked. In a pilot test, we confirmed that students agreed adding these immediate rewards would make school work more fun. We find that students who received this combination of immediate rewards attempted to complete a greater percent of their assignment than those in the control condition. Although these immediate rewards could be considered distracting, such that participants focus on the music and food rather than their work, this was not the case.

We were further interested in whether immediate rewards predict increased persistence in comparison with delayed rewards. We measured students' experience of immediate rewards while working on their assignment (e.g., "was working on this assignment fun?") as well as their experience of delayed rewards (e.g., "was working on this assignment important for understanding the materials?"). Presumably, students do their homework for long-term benefits (i.e., because it is important; not fun). However, we find students who reported experiencing more immediate-intrinsic rewards while working on their assignment attempted more math

problems, with no effect of delayed-extrinsic rewards on persistence. Overall, our findings suggest adding immediate rewards can help high-school students work more on an assignment, without causing distraction.

In an effort to assist people facing self-control conflicts, other work has documented how adding rewards can influence motivation to engage in certain health behaviors. This research has found strong, positive short-term effects of financial incentives for inducing behavior change such as weight loss (John et al., 2011; Volpp et al., 2008), smoking cessation (Volpp et al., 2009), increased exercise (Acland & Levy, 2013; Charness & Gneezy, 2009), and adherence to medication (Volpp et al., 2008). One remaining question is what happens when these immediate rewards are removed? Research on intrinsic motivation could suggest the rewards, which are external to pursuit, crowd out intrinsic motivation such that removing the reward than removes interest in pursuing the incentivized activity (Deci & Ryan, 1985; Lepper & Greene, 1978). However, most studies do not find long-term negative effects of temporary incentives; in the absence of a reward, pursuit of the incentivized behavior can return to baseline (John et al., 2011; Volpp et al., 2006), with other research finding a positive impact of temporary incentives on behavior (Charness & Gneezy, 2009; Goswami & Urminsky, 2016; Volpp et al., 2009 for positive spillover effects).

One possible strategy to increase the impact of financial incentives (and a possible area for developing interventions) is to connect the activity and reward more closely in time, rather than provide the reward with a delay after engaging in the activity. Through a closer temporal association, our research predicts that the reward could increase people's intrinsic motivation to engage in the behavior. A good example of this comes from evidence showing that bundling "should" behaviors that produce a delayed reward (e.g., exercising) with immediately gratifying "want" behaviors (e.g., listening to a popular novel) increases pursuit of the delayed behavior (Milkman, Minson, & Volpp, 2015). We note however that this intervention changes the actual experience of goal pursuit, not the perceived experience, and we would not expect continued persistence in the long-term goal absent the immediate reward.

Conclusions

We offer novel insights into work on both intrinsic motivation and research on immediate and delayed rewards. Whereas these theories have typically been studied in isolation from one

another, we identify some commonalities between the two. Thus because intrinsic incentives are inherent in activity pursuit, they often arrive immediately and are associated with an immediate delivery.

In exploring the parallels between intrinsic incentives and immediate rewards (and between extrinsic incentives and delayed rewards), we came to three propositions. First, with regard to valuation of intrinsic incentives, we demonstrated that people care more about intrinsic incentives in the present than in the past or future. For example, people care more about learning new things for their present job than past and future jobs. Second, we demonstrated that immediate rewards increase intrinsic motivation because the reward (goal) becomes strongly associated with the activity (means). We specifically showed that an earlier delivery of a reward renders the experience of an activity more intrinsic. Receiving an earlier (vs. delayed) bonus, for example, increases intrinsic motivation to pursue a work task even after the bonus reward was removed. Third, we demonstrated that immediate rewards increase persistence in long-term (extrinsic) goals by increasing intrinsic motivation.

As a final note, we mention that we have no doubt that there are times when intrinsic incentives and immediate rewards are less likely to overlap, and recognize the distinct definitions and large bodies of literature on each of these motivational factors. However, we suggest an important, yet overlooked area of research on intrinsic motivation and reward timing–that the characteristics associated with each may have more in common than previously identified, and demonstrate the implications of this for fostering motivation.

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