

The structure of intrinsic motivation

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Abstract

Intrinsic motivation is key for persistence at work. When they are intrinsically motivated, people experience work activities as an end in itself, such that the activity and its goal collide. The result is increased interest and enjoyment of work activities. In this article, we review the current state of knowledge on intrinsic motivation, including studies within organizational, cognitive, and social psychology. We distinguish our structural perspective, which defines intrinsic motivation by the overlap between means and ends (e.g., the means-ends fusion model) from content-based approaches to study intrinsic motivation. We specifically discuss three questions: (a) what is intrinsic motivation and why does it matter, (b) how can individuals and organizations increase intrinsic motivation, and (c) what biases and misconceptions employees and managers hold about intrinsic motivation.

Keywords: Intrinsic motivation, means-end fusion, persistence, goal pursuit, work

Introduction

Should managers worry that handing out bonuses to successful mentors will reduce their motivation to mentor new team members? Should teachers fear that giving kids a gold star for reading will make them less motivated to read? When addressing these and similar questions, behavioral scientists and practitioners alike worry about the effect of changing the incentive system on intrinsic motivation (or, IM). Possibly, bonuses decrease employees' motivation to engage in specific tasks, and gold stars undermine children's interest in learning. These effects, if they exist, would be particularly worrisome if the positive impact of bonuses or stars is weaker than their negative impact in reducing IM, or if these rewards only have a short lived impact, so they are an unreliable substitute in the long run.

To address such questions, we review recent research and theoretical development in the study of IM. We first explain what IM *is* and why it matters (Part I). We distinguish between a structural approach to study IM (Kruglanski et al. 2018; Shah & Kruglanski 2000; Szumowska & Kruglanski 2020; Woolley & Fishbach 2018a) and content-based approaches (Howard et al. 2017; Ryan & Deci 2000). Whereas scholars generally agree about the definition of IM as *pursuing an activity as its own end* (Csikszentmihalyi 2014; Deci 1975; Deci & Ryan 1985; Kruglanski 1975; Kruglanski et al. 2018; Vallerand 2007), the two approaches differ in what they believe causes IM. Specifically, while some of the early work on IM referred to contents that are intrinsically motivating, recent research argued that IM results from the relationship between an activity and a goal. According to the structural perspective, when the activity collides with its own goal—the goal and the means are mentally fused—IM results. In this review, we focus on this, more recent perspective and in particular, on the means-ends fusion (MEF) model. We identify the antecedents of perceiving a fusion between an activity and its goal, and the resulting manifestations; that is, what it means to be intrinsically motivated.

In Part II, we then discuss the consequences of IM for activity engagement and offer implementable strategies for individuals and organizations to increase IM. Finally, in Part III, we discuss barriers preventing people from fully utilizing the power of IM, and remedies for overcoming these barriers. We summarize our main propositions and the empirical findings on IM in Table 1.

Part I: What is intrinsic motivation and why should we care

The extent to which people are intrinsically motivated predicts persistence and performance in the workplace, academics, health behaviors and more (Cerasoli et al. 2014; Grant & Berry 2011; Judge et al. 2001; Ng et al. 2012; Papaioannou et al. 2006; Vallerand 2007; van Egmond et al. 2017). The reason IM is a critical predictor of engagement across these domains is rooted in the definition of intrinsically motivated action as rewarding in itself. The individual cannot separate pursuing the activity from receiving its benefits. They may even find it strange to answer what they are getting out of pursuing a particular task because the main purpose for engaging in the task is simply to be able to do it. In the person's mind, there is a perceptual fusion between the intrinsic activity and its purpose; these two are one.

By the structure-based model of IM, this perceptual fusion is what causes IM. The content of the activity and the goal that it serves do not matter. In contrast, by the content-based model of IM, there are specific activities that are more likely to serve as their own end (e.g., exploration and mastery). To illustrate the tension between the structure- and content-based models of IM, consider an employee who signs up for a lengthy, difficult training program in order to qualify for a promotion. Or, consider a person getting their vaccination before a vacation to a foreign country. The first person pursues a growth goal while the second person is driven by curiosity. Both goal contents—growth and curiosity—are often associated with IM and indeed, pursuing growth and discovery is often intrinsically motivated (Vallerand et al. 1986). Except not in these examples. The individuals pursuing training or getting vaccinated do not perceive their actions as an end in itself, which is the critical feature of intrinsically motivated activities. Consider, in contrast, an employee who feels energized by an upcoming bonus. Pursuing wealth is not typically associated with IM and indeed, often people feel extrinsically (rather than intrinsically) motivated to make money. Yet, this employee is immersed in pursuing the bonus and likely experiences their actions as an end in itself.

The means-end fusion (MEF) model

In recent years, we have developed and tested empirically the Means-Ends Fusion model (see Figure 1; Kruglanski et al. 2018; Woolley & Fishbach 2017a). The model's key tenet is that IM emerges from a perceptual fusion between an activity and the goal it serves. These are inseparable parts of the same entity, thus forming a unified Gestalt (Campbell 1958; Wertheimer 1938). A stroll in the park, a delicious meal, or sex with a romantic partner, are all examples of

activities that are strongly associated with their goals. It will seem strange to ask why someone would take a stroll, eat a delicious meal or have sex, because the answer is that they want to do it. The activity and its purpose collide. The person who is asked why they pursue these activities would not know how to answer the question, as there is no ulterior motive. They would say that they take a stroll in order to take a stroll, which is hardly a satisfying explanation.

Two clarifications are in place. First, the status of the activity is often a matter of subjective perception (Higgins & Trope 1990). While the activities listed above are often seen as their own end, there are circumstances under which they will be perceived as a means and thus, distinct from their end. A walk through the park can be part of one's commute to work, in which case a walker monitors her pace carefully to make it to work on time without getting too sweaty. A dinner can be part of a job interview or an obligation to host a misogynistic relative. And sex can be a carefully timed activity for the couple who tries to conceive.

On the other hand, activity contents that are typically seen as low on IM can be, under certain circumstances, high on such motivation. Take gambling. The pursuit of wealth is sometimes considered the hallmark of extrinsic motivation, as the person is said to be driven by external rewards that are only tangentially associated with the activity. Yet for the gambler, pursuing wealth is exciting. The wealth goal is intrinsic to the activity of pulling a lever or rolling the dice, hence people are intrinsically motivated to gamble. Take also pain treatment. At the point when patients go on pain medication, they clearly separate the immediate impact of taking the medication and the long-term goal of relieving the pain. Yet, opioid addiction occurs when the person can no longer separate the medicine from feeling well; these two become fused.

The second clarification is that activities vary by their degree of fusion with their goal, and hence intrinsicity. The stronger the association between the activity and its end goal, the more the activity is experienced as intrinsically motivated. The act of achieving a goal is intrinsically motivated by definition. The activity and the goal converge in that moment; they are completely fused and there is no ulterior purpose for pursuing the activity. Yet most activities lie on a continuum from weakly to strongly intrinsically motivated.

Take employment. An employee who is immersed in her tasks, wishing she could stay for a bit longer by the end of a work day or enthusiastically bringing her work home, is more intrinsically motivated than the employee who cannot wait for the clock to hit 5pm. Yet, even the former employee is not solely intrinsically motivated – she works in part to receive a paycheck,

and her monthly salary is clearly separated in her mind from the report she enthusiastically prepares at the moment. For activities such as going to work or exercising, there are usually multiple motives for engagement. The question is how separable an activity is from any goal it achieves in a given person's mind.

The assumption that intrinsicity lies on a continuum from more to less intrinsic allows researchers to move beyond the notion that IM is a pure state; one in which behavior is completely self-determined and serves no ulterior motive (e.g., Ryan & Deci 2000). Further, such a continuum implies we can consider the extent to which work activities—despite being at least partially driven by external rewards—are simultaneously intrinsically motivated. For example, employment is more intrinsically motivated to the extent that a person experiences achievement, social connection, or challenge while (as opposed to, as a result of) doing the work.

Interestingly, there is some early research on IM that adopted a structure-based perspective (Amabile 1993; Brief & Aldag 1977; Heath 1999). For example, Wong and Csikszentmihaly (1991) distinguished IM, defined as the rewards of ongoing experience, from work orientation, defined as an investment in long-term goals (i.e., fulfilling one's career expectations). However, most of the research on the structure-based perspective is more recent. For example, using a computational approach, Melnikoff and colleagues (2021) found that the strength of the association between a means (clicking in a tile game) and achieving an end (receiving a bonus), increased IM, defined by how immersive, engaging, and engrossing participants found the game.

Measuring intrinsic motivation

The different theoretical approaches seem to agree on how to measure IM. When people are intrinsically motivated, the experience of goal attainment transfers to pursuing the goal (Custers & Aarts 2005; Fishbach et al. 2004). The person can feel excited, relieved or elated, depending on the goal at hand. Accordingly, a common approach to assessing IM involves asking people about their experience and feelings while doing the activity. If they report interest, curiosity, enjoyment, and other positive feelings, we assume that they are intrinsically motivated (Amabile et al. 1994; Gagné et al. 2010; Grant 2008; Vallerand et al. 1992). And when the person engaging in a task states the purpose as experiencing goal-related positive feelings (e.g., they find it relaxing), we can infer that they are intrinsically motivated (Csikszentmihályi 1990).

Beyond feelings, when people categorize pursuing an activity as more like “fun” than “work,” or as more like reaching (vs. pursuing) a goal, we can infer that they are intrinsically motivated to pursue the activity.

Other, more behavioral measures of IM capture people’s eagerness to stay on task and reluctance to quit. The “free choice paradigm” involves measuring whether people continue the activity during overtime. In this paradigm, research participants are offered to continue their task after the experimental session is officially over and they are invited to quit. The question is whether they will hang around a bit longer, trying to finish what they have started or maybe engage in the experimental task a bit more. If they stay on task after completing their duties, as when employees hang out in the office a few minutes (or hours) after they can go home, they are said to be intrinsically motivated. The free choice paradigm originated in Lepper, Greene, and Nisbett’s (1973) studies on the over-justification effect (more on this later). Recall that in their famous experiment (Lepper et al. 1973), children’s motivation was inferred by the amount of time they spent drawing after there were no longer rewards for doing so. More recently, we similarly assessed IM by whether participants wanted to complete an experimental task, including finishing reading a story or finding the last difference in a “find the differences” exercise, after the experiment was over and participants were already paid (Woolley & Fishbach 2018a). In these studies too, prolonging engagement signaled IM.

How intrinsic motivation arises

According to the structure-based understanding of IM, IM arises from the relationship between an activity and its end (and is not limited to specific activity contents that are more likely to be experienced as their own end). Thus, any variable that strengthens the association between the activity and the end goal will result in stronger IM. For example, when a goal is achieved sooner, as in exercise that feels energizing in the moment (vs. that only eventually boosts energy), people are more intrinsically motivated to exercise. Here, we review several antecedents of IM.

A. Unique activity-goal association: Promoting justification and avoiding over-justification

A more unique activity-goal association will result in more IM for pursuing this activity. That is, if only one activity achieves a goal and only that specific goal is achieved by the activity, there will be a strong activity-goal connection and therefore greater IM. For example, if an

author writes in order to express herself and she only feels like she is truly expressing herself through writing, she will be strongly intrinsically motivated to write (and because writing is difficult to dissociate from self-expression, it is unlikely that other goals will be uniquely associated with writing).

Take the over-justification study we alluded to earlier. Recall that in Lepper et al.'s (1973) study, children were drawing for the sake of expressing themselves. They continued to draw once an experimenter offered them a "Good Player Award" with a big gold star and bright red ribbon. However, the provision of this award changed the purpose of drawing in their minds. As a result, they were much less likely to draw when they had previously received the award and did not expect another one to arrive. Adding a goal (an award) diluted the association between the activity (drawing) and the original goal (self-expression), so that children no longer enjoyed drawing as before (for dilution, see also Zhang et al. 2007).

Other studies documented parallel effects when two similar goals undermined each other. So, when Higgins et al. (1995) offered children a booklet that combined reading and coloring, the children were highly engaged. But when the researchers removed the opportunity to express oneself through coloring, the children were less interested in "just" reading. Alternatively, when they instead removed the reading portion, the children were similarly less interested in "just" coloring. Adding a goal and then removing it, as in rewarding an employee with more independence at work, until a new boss takes it away, reduces IM.

Adding goals also dilutes the association between the activity and the original goal *while* the additional goals are still in place. For example, telling three-to-five year-old children that carrots or crackers deliver benefits beyond good taste (e.g., help them to read or count) reduced consumption of these foods (Maimaran & Fishbach 2014). A similar effect was observed with college students, who were less interested in eating healthy cafeteria foods when the health benefits were emphasized (Turnwald et al. 2019). Labeling food as "Healthy Choice Turnips" instead of "Herb 'n' Honey Balsamic Glazed Turnips" reduced consumption by almost 30 percent. When people think of food as tasty (the original goal for eating), they are more intrinsically motivated to eat than when they think of food as providing additional benefits.

Having too many reasons for conducting work can similarly be detrimental, to the extent that some reasons or goals shift attention away from the original reason for doing the work. For example, West Point cadets who held both an internal desire to develop themselves personally

and an instrumental aim to get a better job, had lower motivation overall. As a result, these individuals had a lower likelihood of graduating and becoming commissioned officers than cadets who held only an internal goal (Wrzesniewski et al. 2014).

However, while having too many goals results in over-justification, having too few goals can mean under-justification. The activity does not seem worth it. Accordingly, adding goals often increases motivation, especially if these goals do not change the meaning of the original reason to perform the activity. For example, paid fire-fighters who held both prosocial motivation to work (i.e., wanting to help others through their work) and IM to work (i.e., working because they enjoy it) signed up for more overtime hours than those who were only high in prosocial motivation or only high in IM (Grant 2008). Similarly, paid fundraisers made more calls during a 1-week period, and raised more donations, when they held both prosocial motivation and IM to work (Grant 2008).

Moreover, while the presence of a unique association often results in stronger IM, such a unique association comes with a cost. When people prefer activities that serve fewer goals they might miss out on “multifinal” activities, that is, activities that achieve multiple goals. For example, walking to work provides health, environmental and financial benefits, but people might intuitively prefer to separate the goals they achieve from their behavior, instead choosing to drive to work and walk on the treadmill after work. Walking to work feels less intrinsic, as the presence of other benefits dilutes the cognitive association between walking and exercising. Yet, walking to work is more efficient—it achieves several benefits simultaneously.

B. Repeated activity-goal pairing

Repeated pairing of an activity and a goal increases the association between these two and thereby, IM. For example, if a person frequently feels she expresses herself when she engages in a work task, she learns to associate the task with self-expression and hence, feels intrinsically motivated to do it.

In this regard, research on operant conditioning discovered that when people, and other animals, learn that a behavior leads to a reward through repeated coupling, the frequency of the behavior increases (Staddon & Cerutti 2003). But interestingly, not only does the behavior change, the experience while performing the behavior also changes. The excitement of receiving the reward transfers to the behavior that led to it. So, for example, a pigeon pecking for a food reward becomes visibly excited about the food that is coming while pecking, and pecks at a

much higher rate (Green & Rachlin 1975). The pigeon seems to value pecking as an end in itself. Humans, too, learn to experience the positive benefits of working while engaging in a work task, or they learn to feel less stress and experience greater energy (the benefits of exercising) while they are still at the gym.

The finding that rewards can increase IM may appear inconsistent with the over-justification effect. Yet, when rewards provide sufficient justification (e.g., as in a paid job) they do not undermine motivation and might even increase IM if the person is excited about pursuing the reward. Indeed, failing to pay people who expect a reward can undermine IM in a task (Staw et al. 1980). In this case, rewards prevent under-justification. However, if the reward is one too many—the person is already motivated and does not expect this reward, it might undermine IM.

Consistent with the notion that rewards often increase, rather than decrease IM, one study found that the effect of incentives on reducing motivation, when it exists, is short-lived (Goswami & Urminsky 2017). Initially, participants interpreted the introduction of bonuses as a sign to relax their efforts. These individuals concluded that they worked enough and deserved a break. But after briefly reducing their effort, engagement quickly returned. Once participants incorporated the bonus as part of the task, they were more excited about that task and hence, more engaged.

Another study found that promising bonuses can lead workers to infer that a future task will be less pleasant, but while they expect to be less motivated in advance, they will not necessarily experience lower motivation while later pursuing the task (Woolley & Fishbach, working paper). So, when we told online workers that for the next task we will increase their payment, they expected to enjoy the task less than if they were not offered a bonus (otherwise, why are we increasing the payment?). But when we measured their experience, we found that against their expectations, those offered a bonus enjoyed the task more. The bonus suggested to people that the next task must not be intrinsically motivating. Yet when working on the task they experienced receiving a bonus as exciting, and they associated this feeling of excitement with the task.

Rewarding employees rarely decreases IM because rewards are expected at work. However, rewarding an unfamiliar task may be harmful because people are unsure about their task goal and do not necessarily expect an external reward (Vallacher et al. 1989). For example, rewards can decrease IM among children, for whom many tasks are new and rarely provide

external rewards (Lepper et al. 1973). Rewards may also be harmful in the presence of social norms that go against them (Kruglanski et al. 1975; Staw et al. 1980). So, when people know providing help is *not* about receiving rewards, receiving something in return for help instigates ambiguity about the reason one engages in the behavior. In this way, rewarding charitable actions made it less clear to people that they were trying to support the charity (Newman & Shen 2012). Similarly, the framing of a task can interact with the provision of incentives to reduce task interest. Offering a small incentive for a task described as “a favor” undermined intrinsic interest, but no such effect was observed when the task was presented as “additional work” or when the incentives were larger (Hossain & Li 2014).

C. Fit between the activity and the goal

The similarity or fit between the activity and its goal also matters. It is easier to perceive a close connection between an activity and a goal when the two are similar. Take the completion of a professional development course. It is easier to link this activity with an improvement goal. If the person feels they are improving, they are intrinsically motivated to learn. But professional development is hard to associate with relaxation. If the person expects learning to be relaxing (e.g., because it was advertised as such), they will find it hard to associate the activity with the goal and end up perceiving learning as something that stands in the way of relaxing during a professional development session. Learning is a poor fit for relaxation. And while bonuses fit certain professional achievement, they might not fit relational or prosocial goals. Which is why providing a bonus for mentoring a new colleague may reduce IM.

Research on regulatory fit identified that rewarding approach goals with rewards and avoidance goals with removal of negative outcomes increases motivation by creating the experience of fit (Higgins 2005). Accordingly, employees might be intrinsically motivated to learn a new task in order to get to excel (so they already experience learning as exciting), as well as be intrinsically motivated to avoid making mistakes in order to pass a review with no negative comments (so they already experience relief while working).

Beyond fit, the mere similarity between the rewards and the activity reinforce IM. For example, participants in one study were motivated to receive CDs as a reward for evaluating songs and receive DVDs as a reward for evaluating movies (Kivetz 2005).

D. Proximity of the activity and the goal

To create a strong association between an activity and its goal, it is best to shorten the time between the two. Early goal attainment makes it easier to associate the goal with the activity. And when the goal is achieved simultaneously with pursuing the activity, IM is especially strong. It is the reason pursuing an activity that is immediately rewarding (e.g., figuring out the answer to a riddle) feels more intrinsically motivating than pursuing an activity that is rewarding with some delay (e.g., studying for a degree in two years).

We discovered the reward-timing effect in a study that directed people to consider the benefits they receive *while* pursuing an activity versus as a *result* of pursuing it (Woolley & Fishbach 2018a). When participants considered the benefits they achieve while watching the news on a late-night show (e.g., learning new information in the moment), they were more intrinsically motivated to watch the show than when they considered the future benefits they achieve by watching this same show (e.g., learning information to discuss at a later time).

Bonuses and monetary rewards similarly increase IM when they are temporally close to completing the work (as long as the person pursues a paid job, so that the reward does not change the meaning of the activity). Participants in our studies found it specifically more enjoyable to do work when we paid them immediately than after a few weeks. For example, a paid research participant reading a book excerpt who expected to receive an immediate payment enjoyed reading the excerpt more, and found it more interesting to read than a participant reading the same excerpt, but who expected to receive a bonus in a month (Woolley & Fishbach 2018a). This affected their choice, leading people to choose to continue reading the book excerpt when given free time. So while paying someone for a job she did not expect to get paid for can undermine IM (Deci et al. 1999; Harackiewicz 1979; Lepper et al. 1973), delivering expected payment for paid work sooner will have the opposite effect; it increases IM.

Overall, there are several sources of activity-goal fusion, which result in IM. In turn, there are several consequences or manifestations of IM (see Figure 1). These manifestations are captured in the measures of IM (discussed earlier) and they largely fall into two categories: (a) increased engagement, including perceiving the activity as highly instrumental for the goal and (b) positive experience while engaging with the activity, as positive affect from the goal transfers to the activity itself.

Comparing structural to content-based models of IM

We have been discussing a structural perspective of IM (as in the MEF model). The emphasis is on the relationship between the activity and the goal that it serves. So, for example, working for a bonus is more intrinsically motivating when the bonus is delivered sooner than later. Another structural model—often used in economics—suggests that IM characterizes pursuit of activities in the absence of external benefits. These external benefits are usually economic incentives (e.g., pay, Frey & Jegen 2001; Romaniuc 2017; Scitovsky 1976) but can also be social pressure (e.g., external control, Kreps 1997). So for example, a person is intrinsically motivated when electing to undergo an unpleasant dental exam but extrinsically motivated when following their boss’s directions at work. The reason? The medical procedure was self-directed while the work assignment was required by a boss.

Equating IM with lack of external control provides a simple, easy to use definition, which further corresponds to many everyday uses of this term (i.e., people often say they are “intrinsically motivated” to refer to the absence of social pressure). The downside, however, is that external controls are often hard to identify and are not limited to monetary rewards and punishments, or the explicit presence of social controls. Social influence, in particular, goes beyond obedience to an authority figure. People are subject to conformity pressure, role models, and incorporate others into their own sense of self (Cialdini & Goldstein 2004; Nolan et al. 2008), all of which make it hard to identify at which point one’s behavior is controlled versus autonomous. So for example, most people undergo routine medical treatment (e.g., mammogram or colonoscopy) because they were directly advised to do so, and pursue certain careers because they were subtly pushed in that direction by a parent or mentor. While technically, they were not forced, these individuals were socially influenced. Their motivation was not independent of what others wanted them to do.

Further, equating IM with lack of external control might not predict the two main outcomes of IM: positive experience and engagement during overtime (the free choice paradigm). Clearly, many people are intrinsically motivated to do their job; they enjoy it and freely choose to work after hours, even though they have a boss.

Other models of IM refer to the content of the activities that tend to be intrinsically motivating. While these models do not contradict the structure-based models—as some activities’ contents tend to be associated more strongly with their goals—the theoretical approach

is different, as are the recommendations for how to increase IM. We next review two content-based models.

A. Intrinsic motivation vs. internal motivators

Ryan and Deci (2000) described IM as “the inherent tendency to seek out novelty and challenges, to extend and exercise one’s capacities, to explore, and to learn... [representing] natural inclination toward assimilation, mastery, spontaneous interest, and exploration” (p. 70). This is a content-specific perspective of IM. It refers to IM as achieving specific internal goals (e.g., striving for affiliation, growth, community) and differentiates these from those that are external (e.g., striving for status and financial outcomes, Greco & Kraimer 2020; Vansteenkiste et al. 2006). According to Deci and Ryan, these activity contents are more likely to be experienced as an end in itself; hence, to be intrinsically motivated (they write “a specific type of autonomous motivation... [that] refers to activities for which the motivation lies in the behavior itself”; Deci et al. 2017, p. 21)

Whereas self-determination theory (SDT; Ryan & Deci 2000) identifies contents that tend to be more intrinsically motivated, a main focus of the theory is distinguishing between internal and internalized motives (for a review of this theory in the context of work organizations, see Deci et al. 2017). SDT proposes that internal motives are basic and innate. Other motives are acquired through internalization. Specifically, this theory proposes three psychological needs people are born with: autonomy, competence, and relatedness. In contrast, the pursuit of power, status and money is something that people learn through socialization; these motives are internalized (Deci & Ryan 1985). So, for example, some students who enter business and law are driven by external or internalized motives, such as associated prestige (Azizzadeh et al. 2003; Schleef 2000) and social status (Granfield 1992); others enter their chosen profession for reasons considered more innate (e.g., a desire to help others and improve society; Greco & Kraimer 2020). And in the employment context, according to job characteristic theory, some jobs satisfy internal or innate motives, such as autonomy and skill variety, while others satisfy more external and acquired motives (Oldham 1976).

The distinction between the origins of motives was sometimes taken to imply that pursuing internal motives *is* intrinsic and pursuing internalized motives *is* extrinsic. Popular textbooks in psychology, for example, often equate IM with the pursuit of autonomy and extrinsic motivation with the pursuit of wealth. But while distinguishing between innate and

acquired motives is a central question to motivation theory, this content-based analysis is primarily focused on delineating differences between goal contents (i.e., internal vs. internalized) and documenting the process by which people acquire and identify with external motives. It has less to do with what it means to be intrinsically motivated.

Moreover, while SDT plots internal and internalized motives on opposite ends of a continuum, increasing evidence suggests that intrinsic and extrinsic motivations are independent, each with unique antecedents and outcomes (Amabile 1993; Amabile et al. 1994; Grant et al. 2011). Thus, for example, people can be motivated by both intrinsic and extrinsic motives, as when freelance workers experience both economic benefits from contract work, as well as experience IM for their job (Rockmann & Ballinger 2017).

Further, while certain rewards (e.g., paying people for pursuing their hobby) can undermine one's sense of autonomy and hence lower IM, this is not limited to external rewards undermining internal motives. It is also possible for internal motives to undermine each other as suggested earlier (Higgins et al. 1995). For example, people will be less intrinsically motivated to participate in a company softball game that used to be an opportunity to both socially connect with colleagues and to relax if it no longer seems relaxing. Similarly, it is possible for external motives to undermine each other (i.e., through dilution; Zhang et al. 2007), such as when a company wellness program framed as a way to help employees lower their blood pressure is perceived as less likely to help them build muscle. Overall, then, while pursuing innate goals such as autonomy tends to be intrinsically motivated (i.e., these are correlated), it is neither a necessary nor sufficient condition for experiencing IM.

B. Curiosity and exploration

Satisfying curiosity is possibly the goal most frequently mentioned as intrinsically motivated. The reason is somewhat incidental. Back in the mid-20th century, researchers discovered that animals will explore their environment simply because they are curious, without any external rewards for doing so (Berlyne 1960; Harlow et al. 1965; White 1959; Yerkes & Yerkes 1929). The conclusion was that satisfying curiosity by means of exploration of the environment can be intrinsically motivated—it can be its own end. In the years that followed, that conclusion was generalized to imply something it never meant to imply. While the original research found that exploration and curiosity can be intrinsically motivated, it was taken to mean

that IM *is* curiosity and exploration. In other words, it was concluded that IM has content: it involves exploration only driven by the pursuit of curiosity.

Yet while exploring the world is often intrinsically motivated, not all exploration is intrinsically motivated and not all intrinsically motivated activities involve exploration (Harrison & Dossinger 2017; Reiss 2004). So, for example, taking a red-eye flight might not feel like an intrinsically motivated activity even if the purpose is to explore the world. Relatedly, spending time with a close friend is likely intrinsically motivated, even if no new information is exchanged and hence, the meeting does not satisfy curiosity. Further, IM and curiosity are unique predictors of engagement (Hagtvedt et al. 2019).

In conclusion, prior research that categorized goals based on their content found that activities that serve innate goals (e.g., social connection, competence and autonomy) are at times more intrinsically driven than activities that serve acquired goals (i.e., receiving rewards or avoiding punishment). However, this does not mean that IM only exists for goals that have a specific content. Rather, IM arises as a function of the relationship between activities and their goals. This insight has implications for how to increase IM, as we next discuss.

Part II: How individuals and organizations can increase intrinsic motivation

It is clear why individuals and organizations seek out strategies to increase IM: IM is a main predictor of activity engagement and success, at the workplace and beyond (Boivie et al. 2012; Cerasoli et al. 2014; Ng et al. 2012; Pascoe et al. 2018; Segal 2012; Tang et al. 2020; van Egmond et al. 2017). IM provides psychological benefits; it leads to positive experience, which in turn improves performance across a variety of tasks.

In a study that tested the predictive power of IM, we asked people to rate their intrinsic and extrinsic motivation to adhere to their New Year's resolutions. People provided these ratings in January. Two months later, we found that people's pursuit of their resolutions was positively predicted by IM, but that the path from extrinsic motivation to adherence did not reach significance. Specifically, how much people enjoyed pursuing their resolutions in the moment predicted adherence, whereas the importance of the resolution in the long run did not (Woolley & Fishbach 2017b). So, for example, finding features of pursuing work as more interesting and enjoyable predicted successful pursuit of career-related resolutions two months later; however, finding work more important or useful did not predict success. Although people set resolutions

because they are extrinsically motivated to pursue them, it is the extent to which these resolutions are intrinsically motivating that predicts persistence.

We observed a similar effect when we measured the time students spent in the library: time spent studying was only predicted by how interesting students found their study materials, not by the importance of the work. Despite going to the campus library to complete their academic requirements rather than feeling interested, only interest predicted persistence. When we measured the time gym goers spent exercising at the gym, it was similarly only predicted by liking of the activity (e.g., enjoying running); not how important it seemed. And when we assessed consumption of vegetables, it was only predicted by healthy food's taste; not its perceived health. Overall, across these domains, people persisted in goal-directed activities mainly as a function of how immediately pleasurable the experience was, while the strength of the external goals that they wished to satisfy had less impact.

At work, IM is often what sets high performers apart from low performers. Indeed, greater IM to engage in a work task led people to persist longer (and once again, extrinsic motivation did not have a similar impact; Woolley & Fishbach 2015). Further, IM increases effort expenditure. People who were intrinsically motivated to do math selected more effortful math problems and ended up working harder than those who liked math less (Milyavskaya et al. 2018).

We can thus increase persistence and help people achieve their goals by increasing IM. To increase IM, and the resulting positive impact on engagement, we can start with strengthening the association between the activity and its goal. There are several strategies that can achieve this. Here, we discuss three.

A. Factoring intrinsic motivation into choice

One strategy to increase IM and hence, persistence, involves factoring IM and specifically, the positive experience while pursuing the activity, into choice. So, for example, people who identify and choose workout activities that they enjoy will work out more often than those who dislike their workout routine (Segar 2015).

In one study, we instructed some gym-goers to select a weight-lifting exercise that they most enjoyed and others to select a weight-lifting exercise that they believed was the most effective (Woolley & Fishbach 2016). We found that those selecting an exercise they enjoyed completed around 50% more repetitions of their workout than those who selected an exercise

they believed to be most effective. This group persisted longer, even though they chose similarly difficult workouts as the other group.

Although factoring IM into choice can increase persistence, people do not seem to be aware of this benefit. In one study, some participants had to choose between a more intrinsically rewarding task (evaluate photos of cute animals for \$0.30 per minute) or a more extrinsically rewarding task (count the number of letters in a series of words for \$0.40 per minute). Other participants were randomly assigned to one of these two tasks. Whereas approximately half of the choosers selected the extrinsic, high paying task, those who were assigned the intrinsic (low paying task) persisted longer and completed more trials of the task. As a result, those assigned to the intrinsic task earned more money (Woolley & Fishbach, working paper). Thus, intrinsic incentives increase persistence, which may in turn increase the amount of pay people collect, although people may not realize this.

B. Bringing in immediate benefits

Another strategy for increasing IM and hence, persistence, involves adding immediate incentives to pursuit of the activity. While adding incentives comes with the risk of dilution (e.g., a workout that is both healthy and fun might seem less of each), to the extent that the incentive is strongly associated with the activity (e.g., it is more immediate), it could make people experience the activity as its own end. Pursuers might focus less on what they achieve in the long run, as a result of pursuing the activity, and more about what they achieve immediately, while pursuing the activity. The meaning of the activity has changed.

In one study that tested this strategy, we introduced snacks and colored pens to a high-school math class to test the impact of these incentives on persistence in math. The teacher also played popular music for students to listen to while they were working on their assignment. We found that these students worked longer, attempting to solve more math problems than students in a traditional classroom environment absent these incentives. When studying math was rewarding in the moment, students' engagement increased (Woolley & Fishbach 2016).

Research on 'temptation bundling' strategy documented a similar effect at the gym (Milkman et al. 2014). When people bundle something they ought to do (i.e., exercise) with something they want to do (i.e., listen to an addictive audiobook), they engage more in the ought activity. This strategy is particularly effective when the activity and the outcome are closely associated, that is, whenever people can only achieve the "want" while engaging in the "ought."

So, when gym goers followed a regimen by which they were only allowed to listen to addictive audiobooks while exercising, they exercised more. In another study, merely providing gym-goers with a free audiobook, without telling them to only listen to it while exercising, increased exercise behavior. It suggests people intuit that they should use immediate rewards as a technique to build exercise habits (Kirgios et al. 2020). Notably, introducing incentives for exercising can increase exercise behavior even after these incentives are removed, potentially by increasing IM to exercise (Acland & Levy 2015).

For those who lack IM at work, one way to boost motivation is to associate work with supporting one's family, which is an immediate incentive. Employees at a coupon processing company who were low on IM, processed more coupons when they possessed high motivation to support their family. In contrast, those high on IM had a high level of work output independent of their level of family motivation (Menges et al. 2017).

C. Attentional focus on immediate benefits or positive experience

A third strategy to increase IM involves no actual change to the plan of action, but rather, changing what people focus on while pursuing a goal. When people focus on the immediate benefits inherent in pursuing activities (e.g., positive experience), they feel more intrinsically motivated and are able to persist longer.

We found evidence for this strategy in a study in which people faced a choice between two bags of baby carrots they could consume. Unbeknown to participants, the bags were identical. Yet, participants consumed almost 50% more of the carrots when we asked them to choose and eat the carrots that looked tastier (taste focus), compared with when we asked another group of people to choose and eat from the bag that looked healthier (health focus), or when we asked people to choose and eat from the bag that looked more orange (no focus control group; Woolley & Fishbach 2016). Simply directing people to attend to the positive experience (i.e., good taste) of consuming carrots increased health food consumption. But notably, this strategy only works on activities that offer immediate benefits. When, in another study, we invited people to focus on the positive taste of plain spinach leaves, most people did not find them tasty and did not eat more than a control group that did not get these instructions (see also Laran & Janiszewski 2011).

In another study, Fishbach and Choi (2012) examined how a focus on the experience (vs. outcome) affects behavior. They found that people spent more time exercising on a treadmill

when focusing on the experience of working out compared with the goals they could achieve by working out. Similarly, focusing on the experience of practicing yoga increased people's interest in doing yoga compared with focusing on the long-term goals people achieve by practicing yoga. Beyond focusing on the experience (vs. outcome) of goal pursuit, focusing on experiential (vs. material) attributes of goal related products is also intrinsically motivating (Lim and Woolley, working paper). Spouses who thought about the experience of wearing their wedding ring (vs. what their wedding ring looks like) sought out more advice for strengthening their marriage. Their focus on experiential attributes increased their IM.

A related strategy involves bringing awareness to the immediate subjective experience through mindfulness training. In one study, people were more successful at changing unhealthy eating habits and reinforcing healthy eating habits when they engaged in mindfulness training (Ludwig et al. 2020). By attending to the affective states that resulted from their eating behavior, they came to realize that they often feel better while they eat healthily; that eating certain foods made them feel good in the moment. This strategy, which helps people realize such behaviors are intrinsically motivated, was more effective for those who were intrinsically motivated in the first place; they were driven by their own desire to be fit or for enjoyment of healthy food, rather than by others' expectations of them to lose weight. This suggests a cycle by which those who are intrinsically motivated are more likely to benefit from increasing attention to IM.

On the other hand, drawing attention to the outcome (vs. experience) of an activity can risk making it less intrinsically motivated. So, for example, framing the same task as "work" (vs. "play") decreased people's persistence on that task (Glynn 1994). In another study, attending (vs. not attending) to the output of an activity, such as by counting the number of steps walked or the number of pages colored, made participants feel that their task was required work and less enjoyable (Etkin 2016). To increase IM, it is therefore best to shift focus away from the output and to the experience. Moreover, focusing on the process matters not only for work, but also for getting the most out of breaks from work. During a break, employees who mindfully shifted their attention from work to focus on relaxation and enjoyment maximized the restorative value of breaks and restored IM (Chong et al. 2020).

Focusing on personal nostalgia is another method to boost IM and thus, work effort, without changing the task itself. Such a strategy evokes memories of self-expression that foster IM (Baldwin et al. 2015; Baldwin & Landau 2014; Cheung et al. 2013; Stephan et al. 2015). In

one study, practicing nostalgic reflections over a five day period increased IM as well as work effort. Specifically, employees who brought to mind a past event that made them feel nostalgic – a sentimental longing for the past – were more motivated than employees who brought to mind an ordinary past event. This effect was stronger among those in a challenging work environment (e.g., those treated poorly by supervisors; van Dijke et al. 2019).

For those working with others, another way to boost IM is to focus on a sense of togetherness that work tasks create. Even when working independently, those who experienced joint engagement, feeling that their team pursues common tasks or objectives, experienced more IM than those who felt that they were working in parallel to others (Carr & Walton 2014).

While this section highlighted strategies for increasing IM, notably, IM is often missing from many work activities and yet employees do not resign. People perform their jobs, even if they do not like it. They do not need IM to do a job; only to do it well. While fear of unemployment might keep many employees sufficiently motivated to show up to work, IM helps them thrive and excel at their jobs.

Part III: Biases, misconceptions, and remaining questions

Despite the pivotal role IM plays in promoting engagement, there are several persistent biases and misconceptions people hold about this motivation, which could prevent them from fully harnessing it for persistence in the various goals they set for themselves and others. For example, people underestimate the importance of IM for others (Heath 1999; Woolley & Fishbach 2018b) as well as for their future selves (Woolley & Fishbach 2015). People often report that others do not care about interest and doing something exciting at work as much as they themselves do. People also report that having strong IM at work is important for their current job more than for a future job they might have. As a result, people underestimate the importance of expressing IM in job interviews and in job selection.

Awareness of these and other biases helps people set goals that they and others can follow through on. Accordingly, here we explore these biases and offer interventions to unbias people, with the goal of improving goal adherence as well as relationships in the workplace.

A. Others care less about intrinsic motivation

The better-than-average phenomenon is robust (Kruger & Dunning 1999). People evaluate themselves more favorably than their average peer on most desirable characteristics. In the workplace, this effect prevails (Dunning et al. 2004). In a study of two high-tech companies,

32% of the engineers in one company and 42% in the other rated their own performance in the top 5% of all engineers (Zenger 1992). And while the better-than-average effect is not limited to workplace situations (even prisoners believed they were more prosocial than the average person who is not in prison; Sedikides et al. 2014), lack of feedback in the workplace (Ashford 1989) is a major contributor to an unrealistic rosy view of oneself. Indeed, the correlation between how people expect to perform at work and how they actually perform tends to be very low (Stajkovic & Luthans 1998).

When it comes to their motivations, people may similarly believe that their goals are more pressing to them than how their average colleague feels about goals. For example, most employees believe getting a raise, a promotion and even perk benefits are important to them but less so for their average peer (Heath 1999). That is, they wrongly assume that they care to receive these benefits more than others.

Beyond general motivation, people specifically perceive that they care about intrinsic goals and feeling intrinsically motivated much more than others. Indeed, the tendency for almost everyone to see themselves above average is more pronounced for IM, as people fail to realize others care about it just like they do (Heath 1999; Schroeder & Epley 2020). This stronger above-average bias occurs in part because others' internal states are less accessible than one's own (Kruger & Gilovich 2004) and IM is less observable. While people can see that others care to be extrinsically motivated, it is harder to perceive others' desire to be intrinsically motivated.

In the workplace, this failure to see that IM is important for others means that people rate themselves as caring only somewhat more than others about pay, job security, and other extrinsic motivators, but as caring much more than others about learning something new, doing something that makes them feel good about themselves, and other intrinsic motivators (Heath 1999; Woolley & Fishbach 2018b). So, while employees recognize that their office peers care about pay and job security, they fail to realize that others also care about learning something new or feeling good about the job they are pursuing. Such thinking may be particularly true of work contexts, which are dominated by a calculative and strategic thinking mindset (Belmi & Schroeder 2021); that is, people may neglect IM as they often adopt a cost/benefit analysis at work and focus on economic outcomes.

Not realizing that others care to be intrinsically motivated—that they want to do something that serves its own end—can stand in the way of one's relationships with family,

friends, and colleagues. For example, in the professional setting, when employers underestimate employees' IM, while employees underestimate employers' IM, the interaction across the organizational hierarchy suffers. Illustrative of this, in one study we found that job candidates underemphasize IM in job interviews. The reason: although candidates realized that they care about IM, they underestimated how much recruiters care for, and therefore were impressed by, expressions of IM (Woolley & Fishbach 2018b).

In another study, MBA students evaluated two different job pitches they could make when looking for a job: one emphasized IM (e.g., "I value having a positive experience at work... and I care less about how useful this work is for my long-term goals") while the other emphasized extrinsic motivation (e.g., "The position would be a great place for me to advance my career... and having fun at work is not very important to me"). Their goal was to choose the pitch that the majority of another group of MBAs, who assumed the role of recruiters, would find more attractive. If they guessed correctly, they would stand a chance to win \$100. Armed with the incentive to make the most persuasive pitch—the one recruiters preferred—the majority of the candidates chose the extrinsic pitch. But they made the wrong guess, as the majority of the recruiters said they would be more impressed by the intrinsic pitch (Woolley & Fishbach 2018b).

In other research, job candidates' expressions of IM in cover letters and interviews positively predicted selection likelihood, whereas expressing extrinsic motivation negatively predicted selection (Derfler-Rozin & Pitesa 2020). The reason for the negative impact of expressing extrinsic motivation is that mentioning it (e.g., mentioning interest in the job due to the salary it provided) leads to the impression that the candidate has lower IM. Expressing extrinsic motivation may therefore be at a disadvantage in hiring.

To overcome this intrinsic bias, people need to put themselves in others' shoes and actively ask what their priorities would be if they were the one's hiring someone. In a study that tested the effectiveness of this perspective-taking exercise (Woolley & Fishbach 2018b), we once again asked participants to assume the role of a job candidate and presented an intrinsic and an extrinsic pitch. Job candidates again underestimated the persuasive power of intrinsic incentives, choosing an intrinsic pitch less often than was preferred by recruiters. But when another group of participants was assigned to a perspective-taking exercise—they needed to consider who they would want to hire if they were the recruiter—the job candidates switched to choosing the intrinsic pitch at a similar rate as recruiters. Taking the other side's perspective can

help overcome the perception that others do not care about IM and can help to present oneself in a more favorable light.

B. The future self will care less about intrinsic motivation

The psychological distance between the self and others makes it less likely that people recognize that others care to be intrinsically motivated. By a similar psychological process, the distance between one's present and future self results in people failing to predict their own future IM.

Take people's job as a prime example. While most people realize that doing something moderately interesting with colleagues they at least somewhat like is critical to getting them to do their job—that pay and perks are not enough—people often fail to predict these priorities when applying to a future job. The result is that when applying for a future job, people may give lower priority to intrinsic motivators, like their personal interest and learning experience, and instead choose a job solely based on economic benefits such as pay.

In a study that explored the tendency to make the wrong work choice—the choice one will regret—we invited participants to choose between two paid tasks: an 'intrinsic task' that required listening to the song "Hey Jude" by The Beatles in return for a small payment and an 'extrinsic task' that required listening to a loud alarm clock going off in return for a payment that was about 10% higher (Woolley & Fishbach 2015). The majority of the participants chose to listen to the loud alarm clock. They wanted to maximize their earnings in the experiment. But those who chose to listen to the high-paying noise were also more likely to regret their decision than those who chose to listen to the lower-paying song. While our participants predicted they would care more about money than sound, they ultimately cared more about sound than money and regretted their choice. They mispredicted their priorities.

Beyond regret, people fail to follow through on tasks that lack IM. In another experiment, research participants predicted they would persist longer on a task that paid more regardless of whether it was a fun task of reading and evaluating jokes or a boring task of reading and being tested on a computer manual. Yet the pay had no influence on their actual persistence. Rather, they persisted longer on the fun task than the boring one (Woolley & Fishbach 2015).

The 'empathy gap' (Van Boven et al. 2000) refers to the tendency to underestimate the strength of an experience that a person is not currently having in making predictions for their own and others' experience. When people are cold, it is hard to imagine how hot they would feel

on a tropical vacation and so they forgo packing sunscreen and a sunhat. The intrinsic bias refers to the tendency for people to underestimate the strength of their own personal motivation, even when they experience it in the present. So, they underestimate how critical IM is for persistence.

Overall, IM should play a central part in goal setting. People should plan a path to a goal that is exciting and immediately gratifying. When they incorporate IM into goal setting, they are more likely to follow through.

C. Downside of intrinsic motivation

IM is largely considered a positive attribute in the workplace, and for good reason: it improves performance, creativity, job satisfaction, and organizational citizenship behaviors, among others. Yet, when people feel high levels of interest in only a part of their work, but not all aspects of their work, they may prioritize the interesting parts at the expense of completing other necessary, but less interesting tasks.

In a field study of salespeople whose job involved completing six main tasks, high IM was beneficial to performing the task employees found most intrinsically motivating. However, increased performance in intrinsically motivated tasks harmed performance in tasks workers were less interested in. Indeed, interest in one task made other tasks seem boring by comparison, decreasing performance as a result (Shin & Grant 2019). To make the most out of IM, managers should try to ensure the most intrinsically motivating tasks are also the most important for employees to complete. Or they can add immediate benefits to less interesting parts of the job to make those tasks more appealing.

Another potential downside is that people who feel high levels of interest in their work may themselves feel obligated to work longer hours, or may be exploited by managers, who may assume that employees who love their job want to do more of it. In a qualitative study of zookeepers, those who identified strongly with their job and found meaning and significance in their work felt it was their duty to sacrifice pay, personal time, and comfort for their work (Bunderson & Thompson 2009). This left them open to exploitation by management since they were working more from a sense of duty than for external benefits such as pay or time off.

Indeed, in another study, people thought it was more legitimate to take advantage of an intrinsically motivated employee who loved his work than an extrinsically motivated employee who saw his work as a means to an end (Kim et al. 2019). So they were more inclined to ask the intrinsically (vs. extrinsically) motivated employee to leave early from a Sunday at the park with

his family to meet a client without extra compensation, or to clean the office bathroom when the cleaning staff was on strike. Thus, whereas IM is beneficial at the workplace, the potential downside is that it can lead managers to legitimize less than ideal worker treatment.

D. Cultural boundaries

The effects of IM vary by culture. Not only do cultures influence lay beliefs about IM, they also affect the relationship between IM and important outcomes, such as job satisfaction.

One study of managers and employees from six countries in North America, Asia, and Latin America examined how managers' lay beliefs about employees' motivation varies across culture (DeVoe & Iyengar 2004). Whereas American managers expected employees to be more extrinsically (vs. intrinsically) motivated, the opposite was true of Latin American managers, who perceived employees as more intrinsically (vs. extrinsically) motivated. In between these two, Asian managers expected employees to hold similar levels of intrinsic and extrinsic motivation, potentially reflecting a more holistic perception of motivation. Importantly, employees themselves exhibited a similar pattern of self-ratings regardless of region: employees rated themselves as more intrinsically motivated than extrinsically motivated.

Cultural differences also moderate the effect of providing free choice on experiencing IM. People from individualist, Western cultures perceive choice and personal agency as central to their self-concept, whereas agency is of less importance in collectivist cultures (Markus & Kitayama 1991). For this reason, the beneficial effects of choice on IM among American or European participants do not often replicate in more collectivist cultures. For example, Anglo American children spent more time on an anagram when they could choose which anagram to complete, compared with if their mother or an experimenter chose for them. In contrast, Asian American children spent more time on an anagram that their mother chose for them, compared with the personal choice or experimenter choice conditions (Iyengar & Lepper 1999). Whereas personal choice was critical for IM among Anglo Americans, Asian Americans were more intrinsically motivated when choices were made by trusted authority figures.

While beliefs about IM and its relation to free choice may vary by culture, the consequences of IM are more stable. IM fosters positive outcomes, such as increased well-being, across various regions that cover different cultural norms (e.g., Chirkov et al. 2003; Ryan et al. 1999; Schmuck et al. 2000). We suspect that IM is further a key for increasing engagement regardless of cultural background.

E. Remaining questions

The structure-based perspective on IM that we have outlined offers several promising areas for future research. First, more research is needed to better understand when a justification becomes an over-justification, and undermines IM. As we acknowledged earlier, the distinction between justification and over-justification in pursuit of goals is a fine one, but has important consequences for motivating action. Clearly, to initiate any activity there should be sufficient justification. Ideally, a person should not choose a profession that does not meet her financial, intellectual and emotional needs to some extent. But too many justifications can backfire, in particular when the person is already motivated by the existing rewards for pursuing the activity. An enhanced understanding of this is needed to further develop interventions to increase IM.

Second, while previous research found that immediacy in goal *attainment* increases IM, future research can consider whether immediate feedback on goal *progress* also increases IM. For ongoing goals, such as maintaining one's health or professional standing, progress feedback may indeed increase IM. This question might be particularly relevant for activities that cause immediate discomfort, but offer long-term benefits. While negative experiences often undermine motivation, presumably they can provide immediate progress feedback and thus increase IM. For example, sweating is unpleasant but can signal a successful workout and hence, increase motivation. Previous research found that reappraisal of negative experiences as signaling progress mitigates the negative effect on motivation (Jamieson, Nock, & Mendes, 2012; Troy et al., 2010). People can even reinterpret discomfort as a positive experience (e.g., excitement, Brooks 2014) or shift their beliefs about the meaning of the negative experience as helping, rather than hurting (Crum, Salovey, and Achor 2013; Jamieson et al. 2018). Either way, a negative experience can boost IM when it signals progress. In this way, experiencing discomfort during a workout, or feeling awkward during an improvisation class, could both increase IM and engagement (for initial evidence, see, Woolley & Fishbach working paper). Future research will need to test whether reappraisal of immediate negative experiences increases motivation because the person can experience goal progress.

On the other hand, negative immediate experience can also undermine IM. The discomfort that is inherent to pleasurable activities (i.e., temptations) can potentially be harnessed to reduce IM. In this case, the discomfort does not carry a positive (progress) signal and, because it is immediate, it can undermine IM. Possibly, the greater the temporal contiguity

between an activity and its *negative* consequences, the less tempting the activity will be. To this end, future research could test, for example, whether thinking about how a brownie will cause bloating today (vs. tomorrow) could better undermine the anticipated enjoyment of eating the brownie (for initial evidence, see Stillman and Woolley working paper).

Finally, our analysis offers implications for reducing biases about IM that remain to be empirically tested. For example, to reduce the bias in predicting the importance of IM in one's own future, people could try to imagine themselves pursuing the activity in the moment. Alternatively, they could make decisions for the future when they are in a similar state in the present. So, for example, employees seeking a professional change may evaluate their options while at work (when IM, or lack of it, is salient) rather than over a vacation or the weekend. Future research can examine whether such strategies that involve perspective-taking help people make choices for the future that are more in line with what they are intrinsically motivated to do.

Conclusion

Organizational scholars, economists, social psychologists, developmental psychologists, and cognitive psychologists, among others, have been interested in IM for decades. In the workplace, beyond increasing performance and persistence, IM has a number of important consequences for workers, including increased creativity (Grant & Berry 2011; Knippenberg & Hirst 2020; Liu et al. 2016), engagement in organizational citizenship behaviors (Gagné & Deci 2005; Penner et al. 1997), and beneficial outcomes outside of work (e.g., for family life; Ilies et al. 2017).

Our review of IM taught us that equating it with the absence of rewards is a mistake. The two hallmark measures of IM: engagement during free choice and self-reported positive experience, both tend to increase with rewards. That is, rewarding a task makes people both want to do it more (even during unpaid periods) and report enjoying it more. On the other hand, there is limited evidence that rewards decrease IM. Rewards provide *another* justification but rarely an “over” justification to perform an activity.

Accordingly, we encourage organizational scholars to adhere to the view of IM as resulting from the strong association between the activity and its goal (i.e., means-end fusion), and to theorize about and study the antecedents and consequences of such fusion. We call for separating the study of IM from the study of innate motives—although innate motives are often intrinsically motivating—and from the study of incentives—although incentives can influence

IM. We further call for recognizing the antecedents and consequences of IM, while keeping in mind common misconceptions that stand in the way of motivating others as well as oneself.

Figure 1: The MEF theoretical model. Light gray shapes indicate antecedents of means-end fusion; dark gray shapes indicate consequences of means-end fusion.

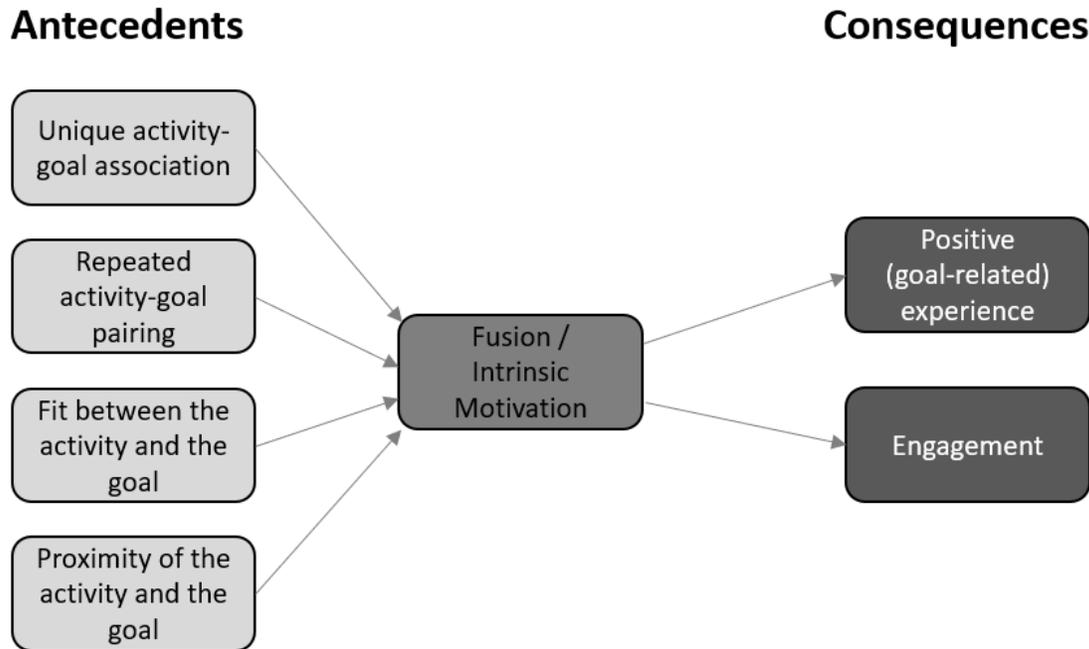


Table 1. Summary of empirical propositions and definitions.

	Phenomenon	Definition
Causes of IM	Unique activity-goal association	If an activity achieves fewer goals, and those goals are mainly only achieved by this activity, IM increases
	Repeated activity-goal pairing	If an activity frequently achieves a goal, IM increases
	Fit between the activity and the goal	When the goal and the activity are similar, IM increases
	Proximity of the activity and the goal	An activity that achieves a goal earlier increases IM
	Phenomenon	Definition
Increasing IM and Persistence	Factoring intrinsic motivation into choice	Choosing an activity for the immediate benefits it provides increases IM
	Bringing in immediate benefits	Adding immediate benefits to an activity lacking them increases IM
	Attentional focus on immediate benefits	Thinking about the immediate benefits inherent to an activity increases IM
	Phenomenon	Definition
Biases and Misconceptions	Falsely believing others care less about IM	People think others care less about IM than they themselves do.
	Falsely believing the future self will care less about IM	People think that their future self will care less about IM than their current self
	Taking advantage of IM employees	People believe it is more ethical to take advantage of intrinsically motivated employees
	Cultural boundaries	Cultural differences moderate managers' expectations and causes of IM

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