

Chapter 9

The Psychology of Getting Paid: An Integrated Perspective

Arlen C. Moller and Edward L. Deci

Abstract This chapter provides a synthesis of empirical literature on the psychology of getting paid using self-determination theory as a framework for organization and interpretation. Using this theoretical framework, we posit that the affective, motivational, and behavioral consequences of getting paid are mediated by the often oppositional experiences of psychological need satisfaction and thwarting; in particular, with respect to the basic human needs for competence and autonomy. The importance of considering contextual and trait-level moderators of need satisfaction and thwarting is stressed. We conclude with a discussion of pressing questions for advancing basic theory and practice in applied settings, including education, health care, and economic policy.

Introduction

The psychology of getting paid is a topic rich with contextual moderators and associated outcomes, including affective, motivational, and behavioral. In an effort to present a relatively thorough exploration of this topic, we offer an integrative review of theoretical perspectives and associated empirical research. Self-determination theory (SDT) provides the primary framework for the discussion, but we have also incorporated complementary principles from terror management theory, operant and contingency management theories, and the literatures on mindfulness, behavioral economics, and other research traditions.

A.C. Moller (✉)
Department of Psychology, Illinois Institute of Technology,
3105 South Dearborn, Chicago, IL 60616, USA
e-mail: amoller@iit.edu

E.L. Deci
Department of Clinical and Social Sciences in Psychology, University of Rochester,
429 Meliora Hall, Box 270266, Rochester, NY 14627, USA
e-mail: edward.deci@rochester.edu

The review begins with a brief discussion of the motivation for paying other people, as we argue that interpersonal motives for paying others are central to informing the psychology of those being paid. Next, we discuss the affective experience of being paid, followed by a discussion of downstream motivational and behavioral consequences of pay, over both the short and long term. After presenting this general framework for understanding the affective, motivational, and behavioral concomitants and consequences associated with getting paid, we explore some of the important contextual moderators that have been empirically tested or postulated. In the final section of the chapter, we identify and discuss a number of underexplored issues related to the psychology of being paid, including pressing questions for advancing both basic theory and practice in the contexts of education, health care, and economic policy.

Why Do People Pay Other People?

In order to address this question, it is important to recognize that payments are fundamentally interpersonal. They are financial transactions that are always made between people, or organizations made up and controlled by people; they are not, for example, transactions made with machines, animals, or any other agents. Furthermore, in most financial transactions, payers pay payees in order to bend the payees' will in some manner—to control or persuade them—to behave in a way that they might otherwise not. This dynamic of interpersonal control may be subtle or overt in nature, and may take a variety of forms. For example, managers pay employees to work, consumers pay merchants to acquire goods or services, and some parents pay their children to do household chores or earn good grades in school. Some educational programs pay students to demonstrate achievement, and increasingly, some health-related programs pay patients to make healthier choices. In each of these exchanges, the transaction involves the payer exerting his or her preference and the payee choosing either to behave in line with the payer's preference in exchange for the payment, or to forego the payment. If the payee's initial preference were to behave in line with the payer's preference, there would typically be no need for the payment. Consistent with this premise is the idea that, in most cases, the motivation for paying another person is purely rational—a cold calculation of the cost of payment minus the benefits of controlling the payee's behavior. The payer may hope for the benefits to outweigh the costs, whereas the payee more likely hopes for the opposite; however, research has shown that optimal outcomes typically follow from the costs and benefits being balanced (e.g., Adams, 1965).

As psychologists and economists increasingly recognize, people and markets frequently behave irrationally, often emotionally, and at times based on motives operating outside of conscious awareness (e.g., Kahneman & Tversky, 1996). As such, the motivation for paying another person often includes motives that are emotional, irrational, or less than transparent. For example, terror management theorists (TMT) have posited that individuals sometimes use monetary payments in order to feel

superior to other people (Solomon, Greenberg, & Pyszczynski, 2004). This motive for paying others is considered a largely unconscious strategy for suppressing existential anxiety. The premise, based on TMT, is that those who have the power to bend the wills of others may feel, on an unconscious level, “superhuman,” and further, that feeling superhuman serves the purpose of making them feel less vulnerable to death—it therefore being a form of death-denying illusion. “The *almighty* dollar” is a common English expression that reinforces this notion by comparing the power of money (“dollar”) to the power of God (“almighty”). In short, although the overt act of paying someone is nearly always conscious (e.g., to whom, and how much), aspects of the underlying motivation for paying may often be unconscious, and controlling.

This is all to say that interpersonal control—that is, the attempt to control another person—is a central motive or reason for why people pay others. This can be manifest in ways that are subtle or overt and conscious or unconscious, which is important to our model for predicting individuals’ psychological responses to getting paid.

How Does It Feel to Get Paid?

Predicting how individuals will respond to getting paid is a complicated matter. The only straightforward answer is: *it depends*. Many factors are likely to influence or moderate the psychological experience of being paid, and we’ll explore them later in the chapter. First, however, we present a general model for understanding how it feels to get paid. Specifically, SDT and a sub-theory of it, referred to as cognitive evaluation theory, provide our basic framework for understanding how various factors are likely to influence people’s responses to being paid.

Basic Psychological Needs

According to SDT there are at least two important psychological experiences that are central to understanding how it feels to get paid, each related to the satisfaction of basic psychological needs (Deci & Ryan, 1985, 2000, 2012). Basic psychological needs are defined within SDT as psychological experiences that promote growth and are essential for people to achieve and maintain optimal mental and physical health. These needs are considered basic in the sense that they are posited to be inherent in human nature and thus universally relevant in all cultures (e.g., Chirkov, Ryan, Kim, & Kaplan, 2003), all stages of the human life course, (Grolnick, Deci, & Ryan, 1997; Vallerand, O’Connor, & Hamel, 1995), and all levels of socioeconomic status (e.g., Williams et al., 2006). Importantly, in terms of affective experiences, psychological need satisfaction is consistently associated with positive emotions and mood (e.g., interest and enjoyment), whereas psychological need thwarting is related to negative affect (e.g., anxiety, tension, and anger).

These phenomena have been demonstrated empirically both at a particular time (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000), and over the long term (Deci & Ryan, 2011; Niemiec, Ryan, & Deci, 2009). The two basic needs that are most relevant to the psychology of getting paid are the needs for *competence* and *autonomy*.

The Need for Competence

The concept of a psychological need for competence is derived from White's (1959) related concept of effectance: the propensity to have an effect on the environment and attain valued outcomes within it (Deci & Moller, 2005). This need for competence is met when people feel successful, but more specifically when they feel that they have successfully met a challenge and thus extended their ability or skills in some valued context. In some circumstances, getting paid may contribute to making people feel competent. For example, when a struggling author receives an advance on his or her first book from a respected publisher, this payment may represent a strong psychological validation. To the extent that the payment is interpreted as conveying mastery as a writer, the author's need for competence would be satisfied, and he or she would likely experience elevated positive affect related to that experience. In general, we find that averaging across contextual factors, getting paid for performing a task well tends to support the psychological need for competence, and that this aspect of getting paid contributes to inducing more positive affect (Deci, Koestner, & Ryan, 1999a, 1999b).

The Need for Autonomy

The concept of a psychological need for autonomy refers to the human desire to behave in ways that are concordant with one's integrated sense of self (de Charms, 1968; Deci & Ryan, 2000; Ryan & Connell, 1989). This need is satisfied when people fully endorse their actions, either because they have selected or chosen for themselves or because another person who is trusted has selected for them. The act of choosing for oneself from various options is often used as an operational definition or procedure for inducing autonomous feelings; however, in many instances individuals feel pressured or obligated to choose particular options, and in those cases they feel very little autonomy. Thus, the fact of having options to choose from may induce the experience of volition and choice, but does not necessarily do so (Moller, Deci, & Ryan, 2006).

When it comes to the issue of pay, in many circumstances, getting paid can subtly or overtly thwart people's psychological need for autonomy. To the degree that getting paid feels coercive or controlling — as when people depend on the payments, or payments lead them to behave in some way that is inconsistent with their values — this experience would thwart autonomy, and thus be associated with negative affect.

Even in those cases when people are getting paid to perform a behavior that is objectively consistent with their values, if that person feels pressured by the payer, this circumstance is likely still to thwart the need for autonomy and result in some form of conscious or unconscious negative affect (Ryan, Mims, & Koestner, 1983).

Although payments do not necessarily lead people to experience interpersonal pressure, self-determination theorists have argued that many payment exchanges do involve the recipients feeling pressured or controlled (e.g., Deci et al., 1999a, 1999b). Furthermore, although the experience of interpersonal pressure when receiving a payment is at times quite subtle, the experience of control is frequently quite overt. Illustrating this point, the term “wage slavery” refers to a circumstance wherein people’s survival depends on receiving payments from their employers, thereby making the employees entirely dependent. Rhetorically, it conveys the lack of autonomy experienced by individuals paid under these circumstances. Noted oral historian Studs Terkel (1974) captured this sentiment of heavy oppression experienced by many wage earners at different income levels (including parking attendants, waitresses, firemen, and business executives) as such: “This book being about work is, by its very nature, about violence—to the spirit as well as to the body. It is about ulcers as well as accidents ... about nervous breakdowns as well as kicking the dog around. It is above all ... about daily humiliations (p. xiii).”

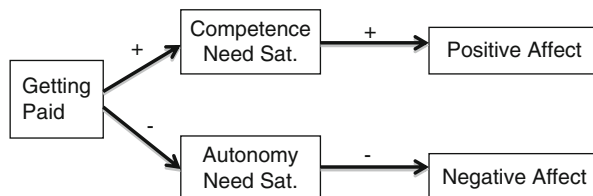
Furthermore, feeling controlled by payments is not restricted to those at the lowest rungs of the workforce. The term “golden handcuffs” is an English idiom attributed to John Steinbeck (1958) that conveys how even those who are paid very well can sometimes feel constrained by those payments. The premise is that once employees have become accustomed to high salaries, they may feel psychologically trapped by an unwillingness to make the sacrifices associated with earning less—that is, they feel as though they can’t afford to leave.

Although these descriptions of working-for-pay do not characterize every worker’s experience and may not resonate with all readers’ experiences, it may nevertheless be instructive for readers to consider more extreme cases of experiencing payments as oppressive, as well as those experiences that are subtler in nature. Many people dislike their jobs to varying extents and would likely choose to spend their time otherwise if they did not need the pay.

Even in those cases when people are given money that is explicitly framed as a gift, rather than a payment (e.g., a father paying for a daughter’s wedding, or a grandmother telling her grandchildren they have been written into her will), in many of those cases, the recipients of the monetary gifts (or promised gifts) will nevertheless experience them as having “strings attached.” In such cases, the recipients may accept the money but feel subtly controlled.

SDT posits that as a result of repeatedly having their need for autonomy thwarted in the context of getting paid to do something they’d rather not do, people begin implicitly associating payments with feeling controlled. As a result, averaging across contextual factors, getting paid tends to thwart the psychological need for autonomy, especially when there is a clear contingency between the payment and a particular behavior (Deci et al., 1999a, 1999b), and this aspect of getting paid contributes to inducing negative affect.

Fig. 9.1 A general model relating payments to need satisfaction and thwarting, and to the experience of positive and negative affect



Opposing Processes: Need Satisfaction and Thwarting

To summarize, SDT posits that the psychological experience of being paid tends, on average, to have opposite effects with regard to satisfying basic needs for competence and autonomy. As a result of these opposing processes, the affective experience of being paid is often characterized by some degree of affective ambivalence (see Fig. 9.1).

How Does Getting Paid Influence Motivation and Behavior?

Types and Subtypes of Human Motivation and Self-Regulation

The concept of basic psychological needs described above is also relevant to understanding how getting paid influences motivation and behavior. A second central feature of SDT, in addition to the concept of basic psychological needs, stresses the importance of differentiating types of motivation and self-regulation based on psychological experience. Specifically, SDT categorizes types and subtypes of motivation and self-regulation along a continuum of experience ranging from feeling autonomous to feeling controlled, and predicts that different outcomes will be associated with the different types of motivation.

Autonomous forms of motivation are characterized within SDT by feeling a sense of freedom from extrinsic pressure, of willingness and choice, and of fully endorsing one's behavior. SDT posits that the energy fueling autonomous motivation is derived from the satisfaction of basic psychological needs (described above), including needs for autonomy, competence, and relatedness. First, when these psychological needs are met concurrently with performing a particular behavior that one experiences as interesting and enjoyable, the person will be evidencing a subtype of autonomous motivation (or self-regulation) referred to as *intrinsic motivation* (or intrinsic self-regulation). Children's play and adults' leisure activities are examples of intrinsically motivated behaviors. Second, when these basic needs are met by internalizing the regulation of a behavior that is important but not interesting, two other subtypes of autonomous motivation (or self-regulation), referred to as identified and integrated extrinsic motivation (i.e., self-regulation), are being manifest.

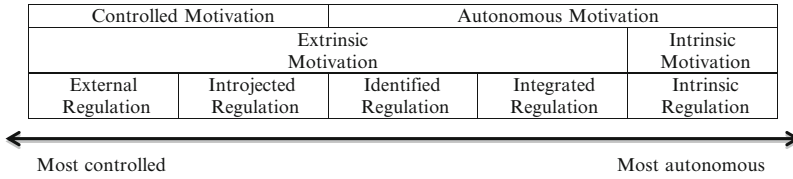


Fig. 9.2 Superordinate and subordinate categories of motivation and regulation as defined by self-determination theory (SDT)

Identified regulation involves doing an activity because one has come to personally value its importance, and integrated motivation involves doing it because it has become an integrated aspect of who one is. Within SDT, autonomous motivation is a superordinate category of human motivation that includes these three subcategories, and this superordinate category is fundamentally distinguishable from a second superordinate category of motivation referred to as controlled motivation.

SDT categorizes controlled forms of motivation by people feeling coerced, pressured, or seduced in some way, either overtly by tangible rewards or punishments (referred to as external regulation), or more subtly, by emotional pressures from others or themselves (referred to as introjected regulation). Examples of the latter are behaving to avoid guilt or to prove one’s self-worth. In both these cases of controlled motivation, whether behavior is regulated by external contingencies and standards or by introjected contingencies and standards, the reward or punishment is separable from the activity itself. As such, all forms of controlled motivation are also properly classified as types of extrinsic motivation.

A chart outlining the various categories and subcategories of motivation and self-regulation defined by SDT is provided in Fig. 9.2. This discussion of different categories and subcategories is important, as we will next articulate how getting paid influences different types of human motivation and self-regulation

The Influence of Getting Paid on Different Types of Human Motivation

A general model for relating payments to different types of human motivation appears in Fig. 9.3. Broadly, autonomous motivation is supported by psychological need satisfaction, and reduced when psychological needs are thwarted. Payments tend to set off two opposing need-satisfaction processes — supporting competence, but thwarting autonomy. The model recognizes that controlled motivation is supported by payments and that this relation is mediated by the thwarting of autonomy that often follows from the payments. Figure 9.3 thus illustrates the model for understanding how payments relate to different types of human motivation and regulation.

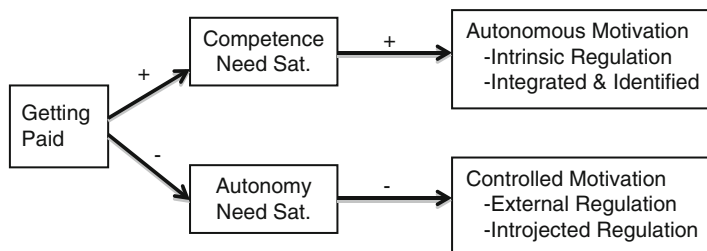


Fig. 9.3 A general model relating payments to different types of human motivation and regulation. *Note.* Although there are only negative paths leading to controlled motivation in this figure, the double negative paths linking getting paid to controlled motivation (via autonomy need satisfaction) imply that the direct path between getting paid and controlled motivation is expected to be positive (and would often be strongly so), as long as payments continue

The Undermining Effect: When Payments Decrease Intrinsic Motivation

As suggested above, introducing payments generally increases controlled motivation and decreases autonomous motivation. This inverse relationship between autonomous and controlled forms of motivation is theoretically applicable to all forms of controlled (external and introjected) and autonomous (identified, integrated, and intrinsic) motivation, but it has been demonstrated empirically most extensively in the context of extrinsic rewards (e.g., payments) increasing external regulation at the expense of undermining intrinsic regulation—a phenomenon often referred to as “the undermining effect.”

Empirical research on the undermining effect in humans has a 43-year history in psychology. Deci (1971) published the first studies demonstrating that introducing an extrinsic reward (viz., money) could undermine or reduce intrinsic motivation for a target activity. This general finding was replicated in the following years, using not only money but also other material and symbolic extrinsic rewards (Deci, 1972a, 1972b; Kruglanski, Friedman, & Zeevi, 1971; Lepper, Greene, & Nisbett, 1973). Years later, Deci et al. (1999a, 1999b) conducted a meta-analysis of 128 studies testing the influence of extrinsic rewards—including (but not limited to) payments—on subsequent intrinsic motivation. Intrinsic motivation was assessed either with free-choice behavior when there were no rewards operative or with self-reports of interest and enjoyment.

Figure 9.4 provides an illustration of the general undermining effect (Deci et al., 1999a, 1999b), using an adaptation of a response rate curve common to operant analyses (e.g., Skinner, 1969). A typical undermining effect study design includes: (1) a baseline assessments before rewards are introduced, (2) a phase during which extrinsic rewards are made available to one group but not another, and (3) a follow-up assessment phase during which rewards are no longer operative. The general pattern

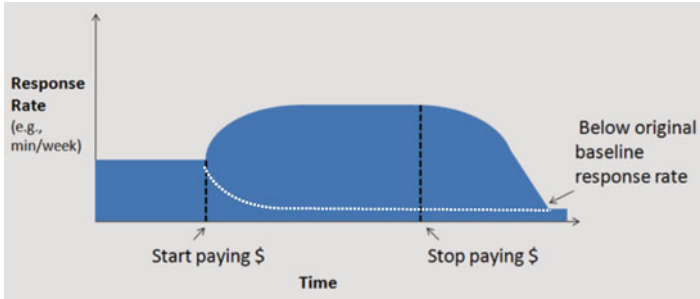


Fig. 9.4 Hypothesized timing of an expanded model of undermining. *Note.* The dotted white line represents the hypothesized trajectory of autonomous motivation; specifically, within an experiment using a three-stage design (viz., pre-payment, during-payment, and post-payment). Although response rate (reflecting a mixture of both autonomous and controlled forms of motivation) does not drop until after payments have ended, research suggests that autonomous motivation begins to decay during the payment period (before payments have ended)

observed in the meta-analysis was that, after extrinsic rewards were introduced, *total* motivation would increase, as reflected by an increase in response rate in phase 2, although while that was occurring so too was the amount of intrinsic motivation decreasing, as can be seen in Fig. 9.4. Then, following the cessation of rewards, intrinsic motivation would have fallen below baseline, as reflected in the very low response rate in phase 3. This phenomenon is somewhat consistent with hundreds of studies within the operant tradition, most with nonhumans (Skinner, 1969), which maintains that, following the removal of reinforcers (i.e., extrinsic rewards), behavior declines, although in operant theory the decline is only to baseline. The undermining phenomenon, however, has actually shown that with humans the post-reward behavior (i.e., intrinsic motivation) is *below* baseline, as was generally found in the Deci et al. (1999a, 1999b) meta-analysis.

Additional studies replicating the undermining effect have been published in the decade and a half since Deci et al.'s (1999a, 1999b) meta-analysis. Many of these studies explored the undermining effect in new contexts and with previously unrepresented populations. One especially noteworthy study by Murayama, Matsumoto, Izuma, and Matsumoto (2010) replicated the general undermining effect and assessed neural activity, thus adding another method for operationalizing or measuring intrinsic motivation (or more generally, autonomous motivation). Specifically, in their study, a monetary reward undermined intrinsic motivation as assessed by free-choice behavior, and was related to decreased activity in the striatum and pre-frontal areas. The authors concluded that the undermining effect is mediated by the corticobasal ganglia valuation system, which manages the integration of extrinsic reward value and intrinsic task value. In the current volume, McCabe (Chap. 5) puts these findings into greater context, exploring in more depth the neural correlates of expecting and earning money.

The Undermining Effect Extended: Might Payments Affect Identified Regulation?

Whereas more than a hundred experiments have investigated the influence of financial incentives (and other tangible rewards) on intrinsic motivation for activities pre-selected for having high levels of interest and enjoyment at baseline (e.g., puzzles, sports, and games), only a few studies have investigated the issue of undermining when the target activity was dull, boring, or uninteresting at baseline. The Deci et al. (1999a, 1999b) meta-analysis on undermining found null effects in the relatively few studies where participants were given rewards for uninteresting (“dull-boring”) activities, presumably because the participants did not have much intrinsic motivation to be undermined (Lammers & Badia, 2005). However, an important line of research extending the literature on the undermining effect was recently conducted by Moller and colleagues (Moller, Buscemi, McFadden, Hedeker, & Spring, 2013; Moller, McFadden, Hedeker, & Spring, 2012a, 2012b). This work explored the influence of financial incentives on both baseline, and *potential* increases in, autonomous motivation. Specifically, it examined whether monetary rewards might inhibit internalization and thus potential increases in identified and intrinsic regulation of uninteresting activities.

In a series of papers using data from a large healthy-lifestyle intervention trial, all participants reported low levels of liking a set of diet and physical activity behaviors that were targeted for change using performance-contingent payments (i.e., payments that required effective performance on the target activities). First, the investigators examined the self-reported importance of the performance-contingent payments, referring to this as “financial motivation.” They found that it was related to autonomous motivation in two complementary ways. First, financial motivation was inversely related to free-choice behavior during an unpaid follow-up phase, meaning that the more the participants valued the financial incentives the less autonomous (i.e., identified and intrinsic) motivation they displayed for the targeted behaviors. Second, financial motivation suppressed an otherwise adaptive pattern of changes in self-reported liking for healthy and unhealthy behaviors. Specifically, whereas those low in financial motivation, while they were being paid, grew to like fruits, vegetables, and physical activity more (and foods high in saturated fat less), this adaptive change was suppressed among those high in financial motivation. Collectively, these studies support an expanded model of undermining, wherein financial incentives (and other tangible rewards) may be expected to undermine baseline autonomous motivation, in general (i.e., both intrinsic motivation and identified regulation), as well as potential increases in autonomous motivation under circumstances that might otherwise support such increases.

This expanded model of undermining is consistent with an important principle from SDT, the principle that people have a natural tendency toward *internalization*, a tendency that allows them to gradually become more autonomously motivated in the absence of external disruption (Deci, Eghrari, Patrick, & Leone, 1994), particularly if they are experiencing basic psychological needs support. People’s inherent activity is manifest as intrinsic motivation to do interesting activities, but if the

activities are not interesting people have to internalize the motivation to persist at those behaviors. In some cases, payments (and other extrinsic rewards) may be useful tools for initiating engagement in a behavior that is boring at baseline, but the important question is whether that engagement will persist after the payments are removed. That is, will the regulation of the behaviors be internalized, which requires need support. If the payments are experienced as controlling, internalization is unlikely to occur.

The Undermining of Autonomous Motivation Over Time

It is also worth noting that, being done in the laboratory, the typical experiments on undermining last less than an hour. One of the few research contexts in which autonomous motivation has been assessed during an extended period of “payment” involves the provision of athletic scholarships to college athletes. This context represents a form of quasi-experiment, as athletic scholarships are typically offered to only a fraction of the athletes on any given team, and only to those athletes who are achieving the highest level of performance. To the extent that people tend to enjoy activities more when they excel at them, one might expect those with athletic scholarships to be more intrinsically motivated than non-scholarship athletes. Yet studies have found that students with athletic scholarships enjoy playing sports less than their non-scholarship teammates (Medic, Mack, Wilson, & Starks, 2007; Ryan, 1977). Vallerand (2007) explained that “unfortunately, scholarship recipients may come to feel that they play more to justify the scholarship they have received than for the pleasure of the game” (p. 69). It is important to note however, that there have been some mixed results, so this issue has not been fully resolved.

Moderating the Psychological Experience of Getting Paid

Factors that moderate the psychological experience of getting paid fall into three major categories: (1) factors related to the payment itself, (2) person-level factors (e.g., characteristics of the payee), and (3) factors related to the interpersonal context (e.g., the relationship between payer and payee).

Factors Related to the Payment Itself

Payments can be offered in many different ways. For example, the intrinsic motivation literature has focused on the contingency between behavior and rewards and whether the rewards were expected, salient, and contingent while the person was doing the target behavior. The Deci et al.’s (1999a, 1999b) meta-analysis showed that these factors did moderate the undermining effect.

Expected and salient. Deci et al. (1999a, 1999b) posited that if a reward is not expected while doing the target activity, the reward is not likely to undermine intrinsic motivation for that activity because the person has not had an experience of doing the activity to get the reward. The results of their analysis supported this prediction, as undermining was nonsignificant across studies that offered unexpected rewards. In a similar vein it was found that if the rewards were not salient while participants were doing the target activity, the rewards tended not to be undermining (Ross, 1975). In other words, people need to be experiencing the link between the behavior and rewards while they are working on the task in order for the rewards to undermine intrinsic motivation for the task.

Contingency. Contingency refers to what people have to do or what standard they have to meet in order to get a tangible reward such as a monetary payment. These can be task noncontingent, which means getting paid regardless of whether one does the target activity; engagement contingent, which refers to having to actually do the target activity in order to get paid; completion contingent, which involves having to finish the task (e.g., to solve a puzzle) to receive the payment; and performance contingent, which refers to getting a reward for reaching some standard of quality. Similar to unexpected rewards, task-noncontingent rewards typically do not result in a significant change in intrinsic motivation; in both cases, there is little opportunity for a participant to feel controlled or pressured, thus, undermining was not predicted. On the other hand, both engagement-contingent and completion-contingent rewards resulted in undermining with the highest average effect sizes in the Deci et al. meta analysis (free-choice behavior, $k=55$, $d=-0.40$, and $k=19$, $d=-0.44$, respectively; self-reported interest, $k=35$, $d=-0.15$, and $k=13$, $d=-0.17$, respectively). Performance-contingent rewards, however, yielded smaller effects, a medium effect size in terms of free-choice behavior ($k=32$, $d=-0.28$), and a null effect in terms of self-reported interest ($k=29$, $d=-0.01$). The more nuanced, mixed effects associated with performance-contingent rewards were predicted and are consistent with the model we have been discussing.

This model suggests that getting paid (or receiving any extrinsic reward) has the potential to set off two opposing need-satisfaction processes. On the one hand, it can support feeling competent; on the other hand it can thwart feeling autonomous. Engagement-contingent and completion-contingent rewards tell payees little about their competence; as such the only active process with regard to need satisfaction is whether the reward thwarts autonomy. By contrast, in the case of performance-contingent rewards, being rewarded does convey (to varying degrees) information about competence. Performance-contingent rewards that strongly convey information about competence might be accompanied by meaningful data related to surpassing past performance or the performance of others (e.g., breaking a personal record). In this case, the probable negative influence of autonomy need thwarting is potentially offset to some extent by the positive influence of competence need satisfaction. However, it is important to keep in mind that the meta-analysis showed that – across multiple studies – performance-contingent rewards did undermine intrinsic motivation, although not as much as engagement-contingent or completion-contingent rewards.

Person-Level Factors

A number of person-level characteristics or factors may moderate one's psychological reaction to getting paid, including the personality, age, and gender of the payee.

Motivational causality orientations. One personality characteristic that has been hypothesized and shown to moderate the undermining effect of rewards on intrinsic motivation is motivational causality orientations, which refers to personality-level orientations toward one's inner interests and values (i.e., autonomous orientation) versus toward external cues and demands (i.e., controlled orientation). Hagger and Chatzisarantis's (2011) had participants who had completed the measure of causality orientations work on interesting puzzles, in either a monetary-reward or no-reward condition. An interaction between reward condition and causality orientation revealed that intrinsic motivation was significantly undermined for control-oriented participants, but not for autonomy-oriented individuals. As such, the authors concluded that the autonomy orientation may buffer people from the undermining effects of rewards.

Gender. A number of studies have found that men, or perhaps those high in masculinity, tend to have a more controlling and less autonomous causality orientation (e.g., Vansteenkiste, Sierens, Soenens, Luyckx, & Lens, 2009). Consistent with this observation, and the arguments related to motivational causality orientations outlined directly above, Moller et al. (2012a, 2012b) found that the relation between financial motivation and autonomous motivation (the latter operationalized by free-choice behavior during a follow-up period) was moderated by gender. In this case, the undermining effect was stronger among men. Future studies need to test whether the moderating effect of gender can be attributed fully or partially to causality orientations.

Age. One limitation to analyzing for age as a moderator of the undermining effect concerns the fact that most studies on undermining have been conducted with either young children or college students, with few studies including a range in age greater than 4–5 years. Still, the meta-analysis on undermining conducted by Deci et al. (1999a, 1999b) suggested that tangible rewards tended to be more detrimental for children than for college students, although they were significantly undermining for both. Still, more research on moderation by age is needed.

Factors Related to the Interpersonal Context

A number of factors related to interpersonal context have been hypothesized and shown to moderate the undermining effect of rewards on intrinsic motivation, including the interpersonal context created by the payer.

Ryan et al. (1983) published a seminal paper focused on interpersonal context as a moderator of the relation between performance-contingent rewards and intrinsic motivation. Recall that performance-contingent rewards are those that are most capable of simultaneously supporting competence, while also thwarting autonomy;

thus, they are optimal for testing the moderating reward effects by other factors. In Ryan et al.'s (1983) study, interpersonal context was manipulated by delivering verbal instructions and feedback in ways that were either controlling (thwarting autonomy) or informational (supporting autonomy and competence). For example, participants in the controlling conditions were told that they "should try as hard as possible because I expect you to perform up to standards on these puzzles," and feedback statements included the word "should" (e.g., "you did very well on this, just as you should"). When describing the performance-contingent rewards, those in the informational condition were told, "We have received some extra money from a grant, so we will be able to pay those who do well at this activity. You will receive a \$3 reward at the end of today's session if you do well on the puzzles." By contrast, those in the controlling condition were told, "We have received some extra money from a grant, so we will be able to pay subjects who do as well as they should. You will receive a \$3 reward at the end of today's session if you perform up to our standards." All participants worked for 6 min on hidden-figures puzzles that had been shown to have a high level of intrinsic interest. Subsequently, intrinsic motivation was assessed, and the results provided compelling evidence for the power of the interpersonal context. Those participants who received controlling instructions and feedback along with their payments had significantly lower intrinsic motivation than a neutral no-reward comparison group, whereas, the rewarded participants who received the informational (autonomy-supportive) instruction and feedback reported higher intrinsic motivation than the neutral no-reward comparison group. These findings demonstrate how the interpersonal context, and the phrasing of payment instructions that can influence the interpersonal context, may moderate reward effects on intrinsic motivation.

Ryan et al. (1983) experimentally induced informational and controlling interpersonal contexts by modifying the language used in the experimental manipulations; however, it should also be easy to see how an established relationship between a given payer and payee could also color the interpersonal context of payments in parallel ways. For example, payees may be more likely to interpret a payment as controlling when the payer is chronically demanding, pressuring, and critical. By contrast, payees may be more likely to interpret a payment as informational when the payer is trusted based on a history of supporting the payees' autonomy. Although this hypothesis has not been directly tested, Saccone and Israel (1978) reported supportive evidence in weight-loss treatment by contrasting payments provided by an experimenter versus significant other.

Additional, Underexplored Factors That May Moderate

Electronic payments and "coupling." An easily observed societal trend is toward fewer payment transactions involving physical currency, and more payments being made electronically using credit cards or computers. A number of studies have suggested that people experience less psychological pain when making a payment electronically relative to cash (Prelec & Simester, 2001). Prelec and Loewenstein

(1998) used the concept of “coupling”—the degree to which a consumption experience and payment are cognitively linked or associated—to help explain why electronic payments hurt more or less. Essentially, tighter coupling hurts more, looser coupling hurts less. They argued that many factors related to payments influence coupling with the experience of consumption, including the timing of payments (prepayments and multiple payments loosen coupling) and the nature of payments (symbolic forms of payment like casino tokens and electronic payments also loosen coupling). Given that looser coupling between payment and consumption reduces the psychological pain of paying, it seems reasonable to hypothesize that looser coupling between payment and payer may reduce the psychological experience of feeling controlled, and thus attenuate the likelihood of undermining. Indeed, having rewards be unexpected, nonsalient, or task-noncontingent all loosen the coupling and have all been found not to undermine intrinsic motivation. On the other hand, a complimentary hypothesis is that looser coupling between payment and payer may also reduce the degree to which some payments convey information, and thus support competence. For example, in cases where the payer is recognized for content-expertise, tighter coupling with a performance-contingent payment may convey more information (e.g., handing over a large ceremonial check in-person vs. sending a direct deposit electronically). Future studies in this area are needed.

The Psychology of Aspiring to Maximize How Much You Are Paid

All else being equal, most individuals would choose to be paid more rather than less for the work they do. Individuals differ, however, in the degree to which maximizing wealth is a dominant aspiration or goal in their lives. A line of research led by Kasser, Ryan, and colleagues has explored both the psychological antecedents and consequences of such aspirations. Research on this topic has consistently indicated that pursuing financial success as a central life aspiration is negatively associated with adjustment and well-being (Kasser & Ryan, 1993, 1996; Williams, Cox, Hedberg, & Deci, 2000), a pattern that has been replicated in various countries (e.g., Ryan et al., 1999). One might assume that financial aspirations are deleterious to well-being only when individuals fail to meet them; however, as demonstrated by Niemiec et al. (2009), achieving financial aspirations may represent a relatively empty victory in terms of psychological health and well-being. They observed a negative relation between attaining extrinsic aspirations (viz., financial success, fame, and image) and changes in psychological health, and this relation was mediated by changes in satisfaction of basic psychological needs. In other words, aspiring to maximize how much you're paid appears to be a poor strategy for being deeply satisfied, even when you succeed.

Consistent with these adverse consequences outlined above, some of the antecedents of making financial success a central life aspiration involve growing up in environments that are relatively impoverished, emotionally and materially. For example, Kasser, Ryan, Zax, and Sameroff's (1995) investigation into this question

revealed that teenagers who rated the importance of financial success higher than other values had grown up in disadvantaged socioeconomic circumstances and had mothers who were less warm and nurturing and who strongly valued their teens' financial success.

Mindfulness and financial aspirations. Numerous studies have demonstrated the psychological and physical benefits of being mindful, and mindfulness has been shown to promote greater satisfaction of the psychological need for autonomy (Brown, Ryan, & Creswell, 2007). A recent study by Brown, Kasser, Ryan, Linley, and Orzech (2009) tested the relation between mindfulness and financial aspirations. Brown et al. found that mindfulness was associated with smaller financial-desire discrepancies (the gap between current and desired income), which helped to explain a positive association between mindfulness and subjective well-being. Follow-up studies demonstrated that this effect was independent of individuals' financial status or changes therein. Those high in mindfulness seem to be more satisfied with their financial status, regardless of how much money they have or how much they get paid.

Career choices. In regard to pay, it may also be instructive to consider the motivation underlining career choices that fail to maximize the size or stability of potential earnings. People in many academics careers have passed over jobs in the private sector requiring comparable degrees even though those jobs have much larger financial compensation. Interestingly, research suggests that a desire for autonomy (e.g., intellectual freedom) is a dominant motivation. Sylvia and Hutchison's (1985) found that "teacher motivation is based in the freedom to try new ideas, achievement of appropriate responsibility levels, and intrinsic work elements" and concluded that "schemes such as merit pay were predicted to be counterproductive in service organizations which employ professionally trained people" (p. 841). Relatedly, Feldman and Bolino's (2000) analysis of career motivation among self-employed individuals revealed that a desire for autonomy was their most frequently endorsed motivation (46 %). Consistent with these findings, Rauch and Frese's (2007) meta-analysis on self-employed business owners indicated that need for autonomy was a personality characteristic significantly correlated with entrepreneurial behavior. In sum, it seems that when professionally trained individuals choose not to maximize their pay, concerns related to autonomy often undergird this decision.

Pressing Underexplored Issues Related to the Psychology of Getting Paid

Pressing Issues for Advancing Basic Theory

Unconscious processes related to getting paid. Although the expectation and the receipt of payments are nearly always conscious, features related to the accompanying psychological experiences and the resulting outcomes of getting paid may often

be unconscious. We note that research in the SDT tradition has supported the assertion that subliminal primes can trigger autonomous or controlled motivation (Friedman, Deci, Elliot, Moller, & Aarts, 2010) and motivational orientations (Levesque & Pelletier, 2003; Radel, Sarrazin, Legrain, & Gobancé, 2009), and has shown predictive utility of implicit measures of motivational orientations (Keatley, Clarke, & Hagger, 2012). Further, a set of pressing questions for future research concerns the degree to which implicit attitudes toward money and toward payers (e.g., a boss or employer) may moderate the degree to which payments feel implicitly controlling and thus undermine intrinsic motivation. In this volume, Capa and Custers (Chap. 8) explore in greater depth issues related to the conscious and unconscious processing of money.

Pressing Issues for Translational Research

Applications in education. Despite evidence against them, the use of payments as a tool for motivating student performance has been implemented in a number of settings and has been hotly debated in recent decades (Deci, Koestner, & Ryan, 2001; Reeve, 2006). Different programs have been used, some that provide incentives to schools, some to teachers, and some to students. The various programs have provided tangible rewards, including payments, to promote achievement outcomes at nearly every level of education, from preschool classrooms to graduate lecture halls, in the USA and abroad.

From our perspective, classrooms are an especially important applied context for considering the psychology of getting paid, and the potentially inimical long-term consequences of using payments, given the array of important learning-related outcomes that are positively associated with autonomous motivation, including deeper processing, greater creativity, and more persistence when faced with setbacks (see e.g., Ryan & Deci, 2009). Nevertheless, calls for implementing programs to pay students for learning outcomes are persistent (e.g., Guttenplan, 2011; Ripley, 2010). This is despite evidence from school-based field experiments in over 200 urban schools across three US cities that revealed no significant (“zero”) benefit in each city (Fryer, 2011). Furthermore, a National Research Council review of research on varied programs, prompted by federal and state legislation, which involved incentives and high-stakes accountability in education, has concluded that, when the studied “test-based incentive programs...[were] evaluated using relevant low-stakes tests...the overall effects on achievement tend to be small and are effectively zero for a number of programs” (Hout et al., 2011, p. S-3).

At least two pressing issues on this topic warrant more attention. The first concerns a basic motivation theory question outlined above; that is, the issue of undermining motivation for activities that are boring at baseline. Educators championing the use of financial incentives have argued that in some classrooms, students’ intrinsic motivation for learning is so low at baseline that the substantial literature on rewards undermining intrinsic motivation does not apply. Putting aside the issues

related to why some students' intrinsic motivation for learning has become so severely impoverished, we agree that it is important to address the open issue of whether rewards such as payments may do additional harm to the motivation of these students. Happily, this question presents an opportunity for researchers to collect data that could simultaneously advance basic motivation theory and applied-translational practice. A second pressing issue concerns measuring outcomes not only in the short term, but also months, if not years, after the period of incentivizing has ended. Few studies have done this, but only such studies can reveal whether incentives have promoted autonomous motivation that will persist or have had negative effects that may take time after the students have left the incentive programs to be observed.

Applications in behavioral health and medicine. Among the biggest challenges facing health care professionals in developed parts of the world are behavioral challenges. That is, patients struggle to carry out (or avoid) many behaviors understood to be key determinants of health and wellness, including those related to smoking, drug and alcohol abuse, diet, exercise, and general adherence to prescribed drug and physical therapies. As such, one strategy that has received a great deal of consideration in this context involves paying patients to be healthier (Volpp, Pauly, Loewenstein, & Bangsberg, 2009). US employers, in particular, have rushed to incorporate financial incentives into their employee wellness programs, and popular commercial websites facilitate these transactions (e.g., stikk.com). Guided by principles from operant (Skinner, 1969) and contingency management (Petry, 2000) theories, researchers have achieved some success using financial incentives to motivate healthy changes in treatments for alcohol, tobacco, and cocaine abuse (see meta-analysis by Lussier, Heil, Mongeon, Badger, & Higgins, 2006). However, contingency management strategies have so far proven relatively less effective at achieving sustainable changes in other health behaviors, such as improving diet, increasing physical activity, and weight management (see meta-analyses conducted by Burns et al., 2012; Paul-Ebhohimhen & Avenell, 2007). Further, although participants typically respond well while payment contingencies are in place (initiation), those studies that follow participants during an unpaid follow-up period typically find poor maintenance of healthy changes. Indeed, as already discussed, Moller and colleagues (2012a; 2012b; 2013) demonstrated in the context of a healthy diet and activity intervention that the importance placed on financial incentives for making health behavior changes was negatively related to behavioral and weight maintenance, as well as changes in liking healthy behaviors. A recent commentary by Hagger et al. (2013) summarizes related concerns about using financial incentives to motivate health behavior, and the need for more work in this area.

Applications for economic policy. One important way that economies differ from country to country concerns the degree to which policies permit or inhibit the accumulation of personal wealth. In terms of economic policy, one key instrument that policymakers use to regulate accumulation of wealth (e.g., take home pay) and reduce income inequality involves taxation. Progressive tax policies has been an ongoing and hotly debated topic, and interestingly, many of the arguments, both for and against, concern the psychology of getting paid.

Opponents of progressive taxation maintain that progressive taxes inhibit the motivation of high-level achievers to continue achieving once they reach the top tax bracket or rate. Empirical evidence in support of this argument is scant; thus, more research testing the hypothesis is called for. Based on the differentiated model of human motivation outlined in this chapter, we suggest that future studies consider the possibility that different tax policies may influence different forms of human motivation differentially. Specifically, we hypothesize that a more progressive tax code (inhibiting the accumulation of personal wealth) may inhibit controlled forms of motivation, while maintaining or enhancing autonomous forms of motivation. This hypothesis deserves empirical attention.

A 2011 study by Oishi, Schimmack, and Diener (2011) approached this issue using data on tax codes and subjective well-being from 54 countries. The study concluded that more progressive taxation was associated with higher nation-level subjective well-being, an association that was mediated by citizens' satisfaction with public goods, such as education and public transportation. However, the study found no relation between the amount of government spending and citizens' well-being, so the effects of progressive taxation on well-being are not a function of the government spending on programs that would benefit these citizens. These results thus suggest that progressive taxation may influence the psychological climate of communities in ways that are more intangible than tangible. Our hypothesis is that greater disparities in wealth foster more frequent and salient experiences of control, coercion, and alienation. This finding is consistent with prior cross-cultural research relating autonomous motivation to subjective well-being, and with our view that more progressive taxation is consistent with supporting autonomous, as opposed to controlled, forms of motivation. Follow-up lines of research might investigate whether progressive taxation is also predictive of other downstream outcomes that have been associated with autonomous forms of motivation, such as creative output (Amabile, 1996), nonviolence (Moller & Deci, 2010), and environmental sustainability (Lavergne, Sharp, Pelletier, & Holtby, 2010; Sheldon, Nichols, & Kasser, 2011).

In this volume, Nelms and Maurer's chapter, exploring money across time, economies, and societies provides a complimentary overview of issues related to this topic.

Conclusion

In summary, the goal of this chapter was to outline a basic framework for integrating a wide variety of findings concerning the psychology of getting paid. Our general framework for organizing these concepts concerns the potential for payments to set off two opposing psychological processes, each related to basic psychological need satisfaction—satisfaction of the need for competence, and thwarting of the need for autonomy. In other words, getting paid tends to simultaneously make individuals feel rewarded in terms of feeling competent, and yet punished in terms of feeling controlled or coerced. Of course, different contexts will exacerbate and inhibit one or both of these competing processes to varying degrees—making one process

more dominant than the other and thereby determining individuals' affective, motivational, and behavioral responses. The complexity of identifying those moderating features of a particular payment context, and understanding how they will simultaneously influence psychological need satisfaction and thwarting, makes this a challenging and rich topic for empirical inquiry.

In conclusion, there is no question that financial payments represent powerful tools for motivating human behavior, nor is the ubiquity of payment transactions in modern society questionable or likely to wane in the foreseeable future. Nevertheless, we have presented strong evidence that, often, getting paid can include emotional ambivalence, and unanticipated suboptimal motivational consequences. If we can understand more fully the psychology of getting paid, then we can use payments more effectively, by using them more informationally. The framework outlined in this chapter may help guide that process, as well as guiding some of the forthcoming research in this area, to be conducted by psychologists of different orientations and by researchers from complimentary disciplines, toward advancing both theory and practice.

References

- Adams, J. S. (1965). Inequity in social exchange. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 2, pp. 267–299). New York: Academic.
- Amabile, T. M. (1996). *Creativity in context*. Boulder, CO: Westview Press.
- Brown, K. W., Kasser, T., Ryan, R. M., Linley, P. A., & Orzech, K. (2009). When what one has is enough: Mindfulness, financial desire discrepancy, and subjective well-being. *Journal of Research in Personality, 43*, 727–736.
- Brown, K. W., Ryan, R. M., & Creswell, J. D. (2007). Mindfulness: Theoretical foundations and evidence for its salutary effects. *Psychological Inquiry, 18*, 211–237.
- Burns, R. J., Donovan, A. S., Ackermann, R. T., Finch, E. A., Rothman, A. J., & Jeffery, R. W. (2012). A theoretically grounded systematic review of material incentives for weight loss: Implications for interventions. *Annals of Behavioral Medicine, 44*, 375–388.
- Chirkov, V. I., Ryan, R. M., Kim, Y., & Kaplan, U. (2003). Differentiating autonomy from individualism and independence: A self-determination theory perspective on internalization of cultural orientations and well-being. *Journal of Personality and Social Psychology, 84*, 97–110.
- de Charms, R. (1968). *Personal causation*. New York: Academic.
- Deci, E. L. (1971). Effects of externally mediated rewards on intrinsic motivation. *Journal of Personality and Social Psychology, 18*, 105–115.
- Deci, E. L. (1972a). Effects of contingent and non-contingent rewards and controls on intrinsic motivation. *Organizational Behavioral and Human Performance, 8*, 217–229.
- Deci, E. L. (1972b). Intrinsic motivation, extrinsic reinforcement, and inequity. *Journal of Personality and Social Psychology, 22*, 11–120.
- Deci, E. L., Eghrari, H., Patrick, B. C., & Leone, D. (1994). Facilitating internalization: The self-determination theory perspective. *Journal of Personality, 62*, 119–142.
- Deci, E. L., Koestner, R., & Ryan, R. M. (1999a). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological Bulletin, 125*, 627–668.
- Deci, E. L., Koestner, R., & Ryan, R. M. (1999b). The undermining effect is a reality after all: Extrinsic rewards, task interest, and self-determination. *Psychological Bulletin, 125*, 692–700.

- Deci, E. L., Koestner, R., & Ryan, R. M. (2001). Extrinsic rewards and intrinsic motivation in education: Reconsidered once again. *Review of Educational Research, 71*, 1–27.
- Deci, E. L., & Moller, A. C. (2005). The concept of competence: A starting place for understanding intrinsic motivation and self-determined extrinsic motivation (pp. 579-597). In A. Elliot & C. Dweck (Eds.), *Handbook of competence motivation*. New York: Plenum Press.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*, 227–268.
- Deci, E. L., & Ryan, R. M. (2011). Levels of analysis, regnant causes of behavior, and well-being: The role of psychological needs. *Psychological Inquiry, 22*, 17–22.
- Deci, E. L., & Ryan, R. M. (2012). Self-determination theory. In P. A. M. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social psychology* (Vol. 1, pp. 416–437). Thousand Oaks, CA: Sage.
- Feldman, D. C., & Bolino, M. C. (2000). Career patterns of the self-employed: Career motivations and career outcomes. *Journal of Small Business Management, 38*, 53–67.
- Friedman, R., Deci, E. L., Elliot, A. J., Moller, A. C., & Aarts, H. (2010). Priming motivational orientations with observations of others' behaviors. *Motivation and Emotion, 34*, 34–38.
- Fryer, R. G. (2011). Financial incentives and student achievement: Evidence from randomized trials. *The Quarterly Journal of Economics, 126*, 1755–1798.
- Grolnick, W. S., Deci, E. L., & Ryan, R. M. (1997). Internalization within the family: The self-determination theory perspective. In J. E. Grusec & L. Kuczynski (Eds.), *Parenting and children's internalization of values: A handbook of contemporary theory* (pp. 135–161). New York: Wiley.
- Guttenplan, D. D. (2011, November 20). Motivating students with cash-for-grades incentive. *The New York Times*. Retrieved from <http://www.nytimes.com>
- Hagger, M. S., & Chatzisarantis, N. L. D. (2011). Causality orientations moderate the undermining effect of rewards on intrinsic motivation. *Journal of Experimental Social Psychology, 47*, 485–489.
- Hagger, M. S., Keatley, D. A., Chan, D. C. K., Chatzisarantis, N. L. D., Dimmock, J. A., Jackson, B., et al. (2013). The goose is (half) cooked: A consideration of the mechanisms and interpersonal context is needed to elucidate the effects of personal financial incentives on health behavior. *International Journal of Behavioral Medicine*. doi:10.1007/s12529-013-9317-y.
- Hout, M., & Elliott, S. W. (Eds., for the Committee on Incentives and Test-Based Accountability in Public Education, National Research Council). (2011). *Incentives and test-based accountability in education*. Washington, DC: National Academies Press.
- Kahneman, D., & Tversky, A. (1996). On the reality of cognitive illusions. *Psychological Review, 103*, 582–591.
- Kasser, T., & Ryan, R. M. (1993). A dark side of the American dream: Correlates of financial success as a central life aspiration. *Journal of Personality and Social Psychology, 65*, 410–422.
- Kasser, T., & Ryan, R. M. (1996). Further examining the American dream: Differential correlates of intrinsic and extrinsic goals. *Personality and Social Psychology Bulletin, 22*, 280–287.
- Kasser, T., Ryan, R. M., Zax, M., & Sameroff, A. J. (1995). The relations of maternal and social environments to late adolescents' materialistic and prosocial values. *Developmental Psychology, 31*, 907–914.
- Keatley, D., Clarke, D. D., & Hagger, M. S. (2012). Investigating the predictive validity of implicit and explicit measures of motivation on condom use, physical activity, and healthy eating. *Psychology & Health, 27*, 550–569.
- Kruglanski, A. W., Friedman, I., & Zeevi, G. (1971). The effects of extrinsic incentive on some qualitative aspects of task performance. *Journal of Personality, 39*, 606–617.
- Lammers, W. J., & Badia, P. (2005). *Fundamental of behavioral research*. Belmont, CA: Thomson and Wadsworth.
- Lavergne, K. J., Sharp, E. C., Pelletier, L. G., & Holtby, A. (2010). The role of perceived government style in the facilitation of self-determined and non self-determined pro-environmental behavior. *Journal of Environmental Psychology, 30*, 169–177.

- Lepper, M. R., Greene, D., & Nisbett, R. E. (1973). Undermining children's intrinsic interest with extrinsic rewards: A test of the "overjustification" hypothesis. *Journal of Personality and Social Psychology*, 28, 129–137.
- Levesque, C. S., & Pelletier, L. G. (2003). On the investigation of primed and chronic autonomous and heteronomous motivational orientations. *Personality and Social Psychology Bulletin*, 29, 1570–1584.
- Lussier, J. P., Heil, S. H., Mongeon, J. A., Badger, G. J., & Higgins, S. T. (2006). A meta-analysis of voucher-based reinforcement therapy for substance use disorders. *Addiction*, 101, 192–203.
- Medic, N., Mack, D. E., Wilson, P. M., & Starkes, J. L. (2007). The effects of athletic scholarships on motivation in sport. *Journal of Sport Behavior*, 30, 292–306.
- Moller, A. C., Buscemi, J., McFadden, H. G., Hedeker, D., & Spring, B. (2013). *Financial motivation undermines potential enjoyment in an intensive diet & activity intervention*. Unpublished manuscript, currently under review.
- Moller, A. C., & Deci, E. L. (2010). Interpersonal control, dehumanization, and violence: A self-determination theory perspective. *Group Processes & Intergroup Relations*, 13, 41–53.
- Moller, A. C., Deci, E. L., & Ryan, R. M. (2006). Choice & ego-depletion: A self-determination theory perspective. *Personality and Social Psychology Bulletin*, 32, 1024–1036.
- Moller, A. C., McFadden, H. G., Hedeker, D., & Spring, B. (2012a). Financial motivation undermines maintenance in an intensive diet and activity intervention. *Journal of Obesity*, 2012, 1–8.
- Moller, A. C., McFadden, H. G., Hedeker, D., & Spring, B. (2012b). Fitness motivation vs. financial motivation: Adaptive and maladaptive changes in preference for healthy and unhealthy behaviors during a multiple behavior change intervention. *Annals of Behavioral Medicine*, 43, s150.
- Murayama, K., Matsumoto, M., Izuma, K., & Matsumoto, K. (2010). Neural basis of the undermining effect of monetary reward on intrinsic motivation. *PNAS Early Edition*, 107, 1–9.
- Niemiec, C. P., Ryan, R. M., & Deci, E. L. (2009). The path taken: Consequences of attaining intrinsic and extrinsic aspirations in post-college life. *Journal of Research in Personality*, 43, 291–306.
- Oishi, S., Schimmack, U., & Diener, E. (2011). Progressive taxation and the subjective well-being of nations. *Psychological Science*, 23, 86–92.
- Paul-Ebhohimhen, V., & Avenell, A. (2007). Systematic review of the use of financial incentives in treatments of obesity and overweight. *Obesity Reviews*, 9, 355–367.
- Petry, N. M. (2000). A comprehensive guide to the application of contingency management procedures in clinical settings. *Drug and Alcohol Dependence*, 58, 9–25.
- Prelec, D., & Loewenstein, G. (1998). The red and the black: Mental accounting of savings and debt. *Marketing Science*, 17, 4–28.
- Prelec, D., & Simester, D. (2001). Always leave home without it. *Marketing Letters*, 12, 5–12.
- Radel, R., Sarrazin, P., Legrain, P., & Gobancé, L. (2009). Subliminal priming of motivational orientation in educational settings: Effect on academic performance moderated by mindfulness. *Journal of Research in Personality*, 43, 695–698.
- Rauch, A., & Frese, M. (2007). A meta-analysis on the relationship between business owners' personality traits, business creation, and success. *European Journal of Work and Organizational Psychology*, 16, 352–385.
- Reeve, J. (2006). Extrinsic rewards and inner motivation. In C. M. Evertson & C. S. Weinstein (Eds.), *Handbook of classroom management: Research, practice, and contemporary issues* (pp. 645–664). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- Reis, H. T., Sheldon, K. M., Gable, S. L., Roscoe, J., & Ryan, R. M. (2000). Daily well-being: The role of autonomy, competence, and relatedness. *Personality and Social Psychology Bulletin*, 26, 419–435.
- Ripley, A. (2010, April 8). Should Kids be bribed to do well in school? *Time*. Retrieved from <http://www.time.com>
- Ross, M. (1975). Salience of reward and intrinsic motivation. *Journal of Personality and Social Psychology*, 32, 245–254.
- Ryan, E. D. (1977). Attribution, intrinsic motivation, and athletics. In L.I. Gedvilas & M. E. Kneer (Eds.), *Proceedings of the National Association for Physical Education of College Men*

- National Conference Association for Physical Education of College Women National Conference*. Chicago: University of Illinois at Chicago.
- Ryan, R. M., Chirkov, V. I., Little, T. D., Sheldon, K. M., Timoshina, E., & Deci, E. L. (1999). The American dream in Russia: Extrinsic aspirations and well-being in two cultures. *Personality and Social Psychology Bulletin*, *25*, 1509–1524.
- Ryan, R. M., & Connell, J. P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. *Journal of Personality and Social Psychology*, *57*, 749–761.
- Ryan, R. M., & Deci, E. L. (2009). Promoting self-determined school engagement: Motivation, learning, and well-being. In K. R. Wentzel & A. Wigfield (Eds.), *Handbook on motivation at school* (pp. 171–196). New York: Routledge.
- Ryan, R. M., Mims, V., & Koestner, R. (1983). Relation of reward contingency and interpersonal context to intrinsic motivation: A review and test using cognitive evaluation theory. *Journal of Personality and Social Psychology*, *45*, 736–750.
- Saccone, A. C., & Israel, A. J. (1978). Effects of experimenter versus significant other-controlled reinforcement and choice of target behavior on weight loss. *Behavior Therapy*, *9*, 271–278.
- Sheldon, K. M., Nichols, C. P., & Kasser, T. (2011). Americans recommend smaller ecological footprints when reminded of intrinsic American values of self-expression, family, and generosity. *Ecopsychology*, *3*, 97–104.
- Skinner, B. F. (1969). *Contingencies of reinforcement*. New York: Appleton.
- Solomon, S., Greenberg, J. L., & Pyszczynski, T. A. (2004). Lethal consumption: Death-denying materialism. In T. Kasser & A. D. Kanner (Eds.), *Psychology and consumer culture: The struggle for a good life in a materialistic world* (pp. 127–146). Washington, D. C.: American Psychological Association.
- Steinbeck, J. (1958, November 23). The golden handcuff. *San Francisco Examiner*, Pictorial Living, p. 2.
- Sylvia, R. D., & Hutchison, T. (1985). What makes Ms. Johnson teach? A study of teacher motivation. *Human Relations*, *38*, 841–856.
- Terkel, S. (1974). *Working: People talk about what they do all day and how they feel about what they do*. New York: Pantheon/Random House.
- Vallerand, R. J. (2007). Intrinsic and extrinsic motivation in sport and physical activity: A review and a look at the future. In G. Tenenbaum & E. Eklund (Eds.), *Handbook of sport psychology* (3rd ed., pp. 59–83). New York: John Wiley.
- Vallerand, R. J., O'Connor, B. P., & Hamel, M. (1995). Motivation in later life: Theory and assessment. *International Journal of Aging and Human Development*, *41*, 221–238.
- Vansteenkiste, M., Sierens, E., Soenens, B., Luyckx, K., & Lens, W. (2009). Motivational profiles from a self-determination perspective: The quality of motivation matters. *Journal of Educational Psychology*, *101*, 671–688.
- Volpp, K. G., Pauly, M. V., Loewenstein, G., & Bangsberg, D. (2009). P4P4P: An agenda for research on pay-for-performance for patients. *Health Affairs*, *28*, 206–214.
- White, R. W. (1959). Motivation reconsidered: The concept of competence. *Psychological Review*, *66*, 297–333.
- Williams, G. C., Cox, E. M., Hedberg, V., & Deci, E. L. (2000). Extrinsic life goals and health risk behaviors in adolescents. *Journal of Applied Social Psychology*, *30*, 1756–1771.
- Williams, G. C., McGregor, H. A., Sharp, D., Levesque, C., Kouides, R. W., Ryan, R. M., et al. (2006). Testing a self-determination theory intervention for motivating tobacco cessation: Supporting autonomy and competence in a clinical trial. *Health Psychology*, *25*, 91–101.