

Pay, Intrinsic Motivation, Extrinsic Motivation, Performance, and Creativity in the Workplace: Revisiting Long-Held Beliefs

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Abstract

The role of compensation or extrinsic rewards, including pay for performance (PFP), has received relatively little attention in the organizational behavior/psychology literature on work motivation. What attention it has received has often taken the form of raising cautions about the potential harmful effects of PFP on (intrinsic) work motivation, as well as on creativity. We critically assess the theory and evidence that have provided the basis for such arguments and conclude that support for such claims (in workplace settings) is lacking. We seek to provide a more accurate view of how extrinsic rewards such as PFP operate in the workplace and how they influence workplace motivation, creativity, and performance. We document how social determination theory and creativity theory have recently undergone major changes that better recognize the potential positive influence of extrinsic rewards such as PFP. Finally, we identify areas in need of further research.

INTRODUCTION

In their article for Volume 56 of the *Annual Review of Psychology*, Rynes et al. (2005, p. 572) observed that “given the importance of pay and performance to employers and employees as well as the potential for well-designed PFP¹ [pay for performance] systems to improve performance, one would think that research examining PFP would be plentiful in psychology. However, this has not been the case, particularly in recent years.” It does not appear that this situation has changed since then. For example, Gupta & Shaw (2014, p. 1) stated that “when we look across the topics that have been the focus of attention in HRM [human resource management] and organizational behavior research, we find thousands of studies on employee selection, performance appraisal, and turnover. . . By contrast, research on employee compensation is sporadic and sparse.”

As another example, the *Handbook of Psychology: Industrial and Organizational Psychology*, published in 2013, consisted of 26 chapters, none of which focused on compensation. A chapter on motivation (Schmidt et al. 2013), a topic that could include compensation, focused primarily on psychological mechanisms and individual differences as determinants of motivation. Compensation was not discussed. Major topics (indicated by first-level chapter headings) included overview of goals and goal processes; expectancies, self-efficacy, and related concepts; affect; individual differences related to the self and personality; temporal dynamics; and multiple goals and decision making (see also Latham & Pinder 2005).

Compensation is a major policy lever that organizations use to motivate employee attraction, performance, and retention (e.g., Lawler 1971, 1981), and private sector organizations in competitive markets routinely use pay for performance (PFP), with individual performance typically playing a key role, especially as one moves to higher-level jobs levels (Gerhart & Fang 2013, Gerhart et al. 2009, Shaw 2014). Organizations currently regarded as highly creative/innovative and successful, such as Google and Facebook, and that rely heavily on human capital (e.g., consulting firms, in addition to technology companies) also give a central role to pay and are among the highest-paying companies (e.g., Robinson 2014, Truong 2014). High pay often allows such companies to have not only rigorous selection standards, but also rigorous performance standards that employees must meet to ensure continued employment, advancement, and high pay. Thus, the study of motivation in the workplace seems to lead to the study of compensation and PFP.

PFP is such an interesting and important topic because “when ‘it works,’ it seems capable of producing spectacularly good results and when it does not work, it can likewise produce spectacularly bad results” (Gerhart et al. 2009, p. 253). PFP has been described as a high-risk, high-return strategy (Gerhart & Fang 2013, Gerhart et al. 1996), and many scholars (e.g., Kerr 1975, Kohn 1993, Lawler 1971, Milgrom & Roberts 1992, Pfeffer 1998, Roy 1952, Sanders & Hambrick 2007) have made important contributions by documenting what can go wrong when using PFP, including excessive risk taking, excessive competition within the firm, focusing too little on performance measures (e.g., quality, customer service, long-term performance) not explicitly included in the PFP plan, and focusing too much on (including gaming or manipulating) performance

¹We use the terms “pay” and “compensation” interchangeably. Pay for performance (PFP) refers to any pay program in which pay depends on performance. Performance can be measured using results (e.g., physical output, productivity, profit) and behaviors (e.g., typical performance appraisal dimensions), and it can be measured at the individual and aggregate (e.g., organization) levels. (We provide examples of PFP in the section Performance, below.) However, when we use the term “PFP” here, we assume that individual performance plays a significant role in determining pay. In other literatures we discuss, terms such as performance-contingent pay are similar but are often used to describe individual PFP in which performance is a results-based measure. The term “extrinsic rewards” is also used in other literatures. It is typically used in a way similar to how the term “performance-contingent pay” is used.

measures (e.g., sales, stock returns) that are included in the plan. However, as noted, PFP is very widely used. Also, both theory and research suggest that PFP, whatever its risks and however challenging its successful design and execution, is central to organizational effectiveness (e.g., Gerhart et al. 2009).

In the best case, work on pay (especially PFP) and motivation (including psychological mechanisms and individual differences) would be integrated so that researchers could better understand both literatures. Gerhart & Milkovich (1992) suggested that such research was needed to draw credible causal inferences regarding observed relationships between compensation/PFP policies and outcomes. Rynes et al. (2005, p. 573) argued that psychological research on pay “has much to contribute,” as a better understanding of the “psychological mechanisms” that drive employee motivation and behavior can help “explain employee reactions to pay plans . . . and also help identify reasons why [PFP] plans do not always work as intended.”

Why haven’t organizational behavior/psychology scholars devoted more attention to these topics? Rynes et al. (2005) speculated that, in addition to the concerns about PFP summarized above, pay had come to be so widely viewed as a negative influence on motivation primarily because of three theories: Maslow’s need hierarchy theory, Herzberg’s motivation-hygiene theory, and Deci & Ryan’s cognitive evaluation theory (CET). We would add a fourth: the early work on creativity (e.g., Amabile 1983a,b; 1996) and its generally negative view of PFP. A theme in the CET and creativity literatures was not only that PFP was often detrimental to intrinsic motivation, but also that even when PFP produced positive effect on motivation, it was on extrinsic motivation, which, importantly, was seen as lower in quality compared with intrinsic motivation in terms of sustainability or ability to generate key positive outcomes such as creativity and well-being.

Thus, perhaps the lack of attention to compensation is not much of a mystery. Both CET and creativity, the literatures that have most sought to understand the role of compensation in motivation, traditionally concluded that it was detrimental. And there has been no shortage of management scholars who have picked up on this theme and worked to communicate it to a broad audience of academics and practitioners, with *Harvard Business Review* being a (highly visible) outlet of choice (e.g., Amabile 1998, Frey & Osterloh 2012, Kohn 1993, Pfeffer 1998). Scholars in other areas (e.g., economics) have also become interested in whether there are undermining effects of extrinsic rewards (e.g., Frey & Jegen 2001, Frey & Oberholzer-Gee 1997, Kreps 1997, Kunz & Pfaff 2002, Prendergast 2008),² and a recent best seller on Amazon (Pink 2009) communicated the undermining message to an even broader audience, including the claim that “pay-for-performance schemes . . . usually don’t work and often do harm” (Pink 2009, p. 9) and that one of the “deadly flaws” of PFP is that it “can extinguish intrinsic motivation” (Pink 2009, p. 57). Thus, the idea that PFP does not work, or is even harmful (e.g., to intrinsic motivation and creativity), has been widely communicated.

But in recent years the view on extrinsic rewards in the CET and creativity literatures has changed dramatically. CET is now described as a “subtheory within” self-determination theory (SDT) (Ryan & Deci 2000, p. 70). SDT, unlike CET, states that some forms of extrinsic motivation (integrated and identified) behave much like intrinsic motivation, which is to say they are more self-determining and autonomous than recognized under CET and thus can be high-quality forms of motivation. SDT labels these forms, together with intrinsic motivation, as autonomous

²The field of economics has used CET logic to develop motivation crowding theories, under which providing monetary incentives may not increase overall motivation (and its behavioral consequences) because the higher extrinsic motivation may diminish (crowd out) the intrinsic motivation. However, the crowding out literature does not, for the most part, focus on workplace motivation, performance, and creativity. Indeed, Frey & Jegen (2001, p. 590) explicitly say that the crowding-out effect specifically occurs “when a previously non-monetary relationship is transformed into an explicitly monetary one.” That is not the focus of our article.

motivation. SDT continues to view other forms of extrinsic motivation (external and introjected) as lower quality and less autonomous and label them as controlled motivation. Parallel to changing views on motivation, views on rewards have also changed to recognize positive aspects, at least in some SDT work: “When rewards are administered in an autonomy-supportive climate, they are less likely to undermine intrinsic motivation and, in some cases, can enhance intrinsic motivation” (Gagné & Deci 2005, p. 354). A recent meta-analysis by Cerasoli et al. (2014) should further support this argument. They found that the intrinsic motivation–performance relationship was positive not only in the absence of extrinsic incentives ($\rho = 0.27$), but also positive—and, inconsistent with CET, larger—when incentives were in place ($\rho = 0.36$).³

We have seen a similar shift in the literature on creativity. An earlier, influential view, consistent with general CET logic, was that “a primarily intrinsic motivation to engage in an activity will enhance creativity, and a primarily extrinsic motivation will undermine it” (Amabile 1983b, p. 366). However, years later, in their article for Volume 61 of the *Annual Review of Psychology*, Hennessey & Amabile (2010) explicitly recognize that extrinsic rewards can have positive consequences for creativity, as do Zhou & Hoever (2014) in their recent article on creativity in Volume 1 of this journal.⁴

Some of this change in thinking may be due in part to seeing that both intrinsic and extrinsic rewards seem to play a major role at “creative” companies (e.g., Google, Facebook). To us, the increased recognition that extrinsic rewards such as PFP do not necessarily have negative effects on motivation and creativity, and in fact can have positive effects, may be an opportunity to provide a much needed impetus for greater attention in future research to the linkages between compensation, motivation, performance, and creativity. As one of the few theories that does focus on the link between PFP and motivation and its underlying psychological mechanisms, CET and its successor, SDT, could play a major role in this research.

Therefore, we take a close look at the role of PFP in the CET, SDT, and creativity literatures. We connect and identify their common themes, which tend to be mostly separate. We begin by understanding why these theories, particularly CET, took such a negative view of the role of compensation in motivation. We would also like to understand the strengths and limitations of these theories, especially SDT, to assess their potential value in moving forward in a helpful way the literature on compensation, motivation, creativity, and performance. To do so, we focus on what CET (and SDT) research to date can and cannot tell us about PFP, motivation, performance, and creativity (in the workplace). We identify future research needs, including the need to focus more on explaining workplace behaviors (performance, creativity); incorporate the role of choice (between jobs and between multiple goals within jobs); and more systematically address the construct validity of motivation measures, especially as it relates to changes in the conceptualization of motivation from CET, intrinsic versus extrinsic, to SDT, autonomous (intrinsic motivation plus integrated and identified extrinsic motivation) versus controlled (introjected and externally regulated extrinsic motivation), and its propositions regarding how different types of motivation

³The study by Cerasoli et al. (2014) is much different from the meta-analysis by Deci et al. (1999). Only 6 of 183 effect sizes in Cerasoli et al. (2014) are from experiments in which intrinsic motivation was manipulated. The remaining 177 effect sizes are from what they term correlational designs. In contrast, Deci et al. (1999, p. 635) used only experiments and excluded field studies (i.e., those with a correlational design). Thus, whereas Deci et al. summarized experiments in which subjects working under incentives versus not working under incentives were presumed to be equivalent across studies owing to random assignment, Cerasoli et al. compared primarily nonequivalent subjects, those who work under incentives versus those who do not, from different studies.

⁴Although not our main focus here, we believe it is useful to point out that recent reviews of the creativity literature have also become more cautious regarding the long-held view that intrinsic motivation has consistent positive effects on creativity (Grant & Berry 2011, Zhou & Hoever 2014).

differ in their quality and thus their consequences. We begin by briefly describing of CET and SDT logic and research.

COGNITIVE EVALUATION THEORY

Describing their thinking as being influenced by the work of Heider (1958) and deCharms (1968), Ryan, Deci, and colleagues have, in CET and later in the SDT program of research, sought to understand the role of personal causation, autonomy, and self-determination in work motivation (Ryan & Deci 2006). CET categorizes motivation as internal or external: “The most basic distinction is between intrinsic motivation, which refers to doing something because it is inherently interesting or enjoyable, and extrinsic motivation, which refers to doing something because it leads to a separable outcome” (Ryan & Deci 2000, p. 70). The authors further see intrinsic motivation as “inherent”: “From the time of birth” and “in their healthiest states, [children] are active, inquisitive, curious, and playful, even in the absence of specific rewards (e.g. Harter 1978).”

This inherent intrinsic motivation can be put at risk by the environment. Ryan & Deci argue that “the maintenance and enhancement of this inherent propensity requires supportive conditions, as it can be fairly readily disrupted by various nonsupportive conditions” (2000, p. 70). Indeed, they go so far as to say that “our theory of intrinsic motivation does not concern what causes intrinsic motivation. . . rather, it examines the conditions that elicit and sustain, versus subdue and diminish, this innate propensity” (Ryan & Deci 2000, p. 70).⁵ Compensation is one such condition.

Under CET, performance-contingent extrinsic rewards may influence intrinsic motivation via controlling and informational aspects (Ryan et al. 1983). If the task must be performed “in some particular way, at some particular time, or in some particular place. . . to receive the reward, the reward tends to be experienced as controlling” (Ryan et al. 1983, p. 738). If so, self-determination, and thus intrinsic motivation, will be undermined. In contrast, the informational aspect of performance-contingent extrinsic rewards is seen as having the potential for either a negative or positive influence on experienced competence and thus intrinsic motivation. In fact, a positive informational effect seems to be the more typical expectation (Arnold 1985, Eisenberger et al. 1999b, Fisher 1978, Gagné & Deci 2005). Therefore, the overall effect of performance-contingent extrinsic rewards on intrinsic motivation depends on whether the informational, competence-enhancing effect is positive and strong enough to dominate the expected, negative controlling effect.

The original CET paradigm used in studies that empirically examined the effect of performance-contingent rewards on intrinsic motivation can be seen in Deci’s early work. For example, Deci (1971) randomly assigned 24 introductory psychology students to one of two groups where they participated in three 13-minute sessions. They worked on a puzzle and each student was asked to reproduce four puzzle configurations based on drawings. Experimental group subjects were told at the beginning of the second session that they would be paid according to how many puzzles they completed. (They were not paid in the first or third session.) Subjects from the control group were never paid. The experimenter left the room for eight minutes “in the middle of each session” and told the subjects, “You may do whatever you like while I am gone.” According to Deci, during this free-choice period, subjects could “read magazines, work on the

⁵See also the over-justification effect (Lepper et al. 1973), based on attribution theory, which suggests that people who receive extrinsic rewards for performing an interesting activity attribute the cause of their behavior to the extrinsic reward, thus discounting their interest in the activity as the cause of their behavior.

puzzle, stare around the room, and so on.” The measure of intrinsic motivation was “the amount of time during the 8-minute free choice situation which they spent working on the puzzle” (1971, p. 109).

Table 1 is reproduced from Deci (1971, table 1). Deci’s focused mainly on the fact that the mean number of seconds spent on the puzzles during the free-choice period increased from Time 1 to Time 3 for the control group but decreased for the experimental group. Deci’s interpretation is that paying the experimental group subjects during the Time 2 13-min session undermined their subsequent intrinsic motivation.

Several reviews over the years have examined the body of evidence produced under this paradigm (Deci et al. 1999, Deci & Ryan 1985, Eisenberger & Cameron 1996, Rummel & Feinberg 1988, Tang & Hall 1995, Wiersma 1992). We focus here on the most recent and comprehensive review, the meta-analysis by Deci et al. (1999), which, as summarized by Ryan & Deci (2000, p. 70), “confirmed...that all expected tangible rewards made contingent on task performance do reliably undermine intrinsic motivation.”

Deci et al.’s (1999) meta-analysis examined as outcomes two measures of intrinsic motivation: free-choice behavior (as in the Deci 1971 study described above) and self-reported interest (interest/enjoyment). Deci et al. summarized results from 128 studies and found consistent evidence of an undermining effect of contingent rewards on intrinsic motivation. In the case of performance-contingent rewards, $d = -0.28$ (95% confidence interval of -0.38 to -0.18) for the free-choice measure of intrinsic motivation and $d = -0.01$ (95% confidence interval of -0.10 to $+0.08$) for the self-reported interest measure of intrinsic motivation. Although the importance of an effect size depends on the context, Cohen’s benchmarks for the effect size are sometimes used: $d > 0.20$ is small; $d > 0.50$ is medium; and $d > 0.80$ is large. As such, $d = -0.28$ for the free-choice measure of intrinsic motivation is a small effect size. Recall also that the effect size for self-reported interest/enjoyment was essentially zero.

Applying CET to the Workplace

Although not everyone agrees with the findings in Deci et al.’s (1999) meta-analysis (e.g., Eisenberger et al. 1999a), to simplify and streamline our discussion, we take their findings as a starting point. This allows us to focus on the applicability of CET (and SDT) to the workplace.

One major limitation of Deci et al.’s (1999) study (and general CET and later SDT paradigms) becomes immediately apparent upon examining a standard definition of work motivation: “a set of energetic forces that originate both within as well as beyond an individual’s being, to initiate work-related behavior, and to determine its form, direction, intensity, and duration” (Pinder 1998, p. 11). No “work-related behavior” was included in the Deci et al. meta-analysis. The only behavior examined was what people did in their free time. “The difference between measuring task behavior during a free-time session as opposed to measuring task performance during the experimental session is important” (Wiersma 1992, p. 104). Similarly, Bartol & Locke (2000, p. 108) argued that “what people do during the time they are not being paid is of no central importance” in

Table 1 Mean number of seconds spent working on the puzzle during the eight-minute free choice sessions (Deci 1971)

	Time 1	Time 2	Time 3
Experimental ($n = 12$)	248	314	199
Control ($n = 12$)	214	206	242

work settings. So, what does CET research (and other research) tell us about the effect of PFP not just on intrinsic motivation alone but on key work-related behaviors such as performance and creativity?

PERFORMANCE

Intrinsic Motivation \neq Performance

Studying the effect of PFP only on intrinsic motivation is not sufficient, given that performance is typically of great interest and in turn is likely a function of both intrinsic and extrinsic motivation (Cerasoli et al. 2014, Fang 1997, Gerhart & Milkovich 1992, Ledford et al. 2013, Locke & Latham 1990). Perhaps the sole focus on intrinsic motivation in CET stemmed from the focus of the CET, SDT, and creativity literatures on the quality of motivation (with intrinsic seen as higher quality).

In Deci (1971), performance could have been measured, for example, by the time (less time would indicate better performance) to solve the puzzles during the actual 13-min on-task experimental sessions. Better yet, the number of puzzles solved during on-task time could have been measured. Neither types of data were reported. However, Deci makes an interesting observation of his results in table 1 of his study: “As one would expect, when the external rewards were introduced to the experimental people during Time 2, their motivation increased.” Indeed, the experimental group spent 26% more time on the puzzles during the free-choice period in the middle of Time 2 than they did in the middle of Time 1. As such, Deci seems to acknowledge that performance-contingent rewards, although reducing intrinsic motivation, may have actually increased total motivation and thus, by implication, possibly performance. However, performance has not typically been an outcome variable of interest in the CET (and SDT) research program. The Deci et al. (1999) meta-analysis included no results on performance.

Hamner & Foster (1975, p. 402, quoted in Wiersma 1992) observed that “whereas Deci examined the performance vigilance after the contingent reward time period was over (i.e., during a ‘free’ period), both expectancy theory and reinforcement theory models predict performance during the reward period itself.” Deci et al. (1999, pp. 631) do not seem to disagree, stating that “seldom has it been suggested that performance while the reward contingency is in effect represents a measure of intrinsic motivation.” Likewise, Deci et al. (2001, p. 7) state that in their 1999 meta-analysis, they “included only studies that assess intrinsic motivation after the rewards had been clearly terminated, because while the reward is in effect participants’ behavior reflects a mix of intrinsic and extrinsic motivation.” Deci et al. (1999, p. 657) state that “there is no lack of agreement between our viewpoint and that of the operant and neo-operant theorists about the power of rewards to control behavior. . . indeed, CET specifically proposes that it is because people are controlled by rewards that they become less intrinsically motivated. Any lack of agreement concerns the unintended consequences of rewards being used to control behavior.” Thus, extrinsic motivation seems to have been viewed almost as a nuisance factor in studying intrinsic motivation. Of course, in the workplace, what employees do while “the reward contingency is in effect” (i.e., behaviors such as performance and creativity) is of great interest to most organizations.

Given the lack of attention in the CET literature to performance as an outcome, implications regarding the performance consequences of PFP in the workplace based on CET (e.g., Kohn 1993, Pfeffer 1998, Pink 2009) must be viewed with great caution. Wiersma (1992, table 2) provides a compelling look at the difference between focusing only on intrinsic motivation (the free-time measure) and looking at performance as an outcome of both intrinsic and extrinsic incentives. In 17 studies using a combined sample size of 865 subjects, he found a negative (i.e., detrimental)

effect ($d = -0.50$) of extrinsic rewards on intrinsic motivation (free-choice behavior), consistent with CET.

However, Wiersma also found 11 studies ($N = 729$) that examined the influence of extrinsic rewards on performance. The effect was positive ($d = +0.34$). As such, either the positive effects of extrinsic rewards on performance via higher extrinsic motivation dominated the negative effects via intrinsic motivation or the free-time measure of intrinsic motivation was simply not relevant to performance (which is what happens during work time, not free time). We also computed the sample size weighted d for the subset of five studies ($N = 300$) from Wiersma (1992, table 2) that reported both intrinsic motivation and performance effect sizes. The effect on intrinsic motivation was negative, $d = -0.71$; whereas the effect on performance was positive, $d = +0.49$.

Finally, other research has examined the effect of PFP on performance and has done so in both laboratory and workplace settings (for reviews, see Gerhart & Rynes 2003, Gerhart et al. 2009). For example, a meta-analysis by Jenkins et al. (1998), based on 41 studies and 2,773 employees, found that financial incentives positively related to quantity of performance (mean $r = +0.32$, which converts to $d = +0.68$).⁶ The effect size $d = 0.68$ is much (2.4 times) larger in absolute magnitude than the effect size of performance-contingent rewards on (free-choice measures of) intrinsic motivation reported by Deci et al. (1999). Jenkins et al. also reported that the mean effect size based on field/workplace settings ($r = 0.46$, $d = 1.04$) was roughly twice as large as the mean effect size based on laboratory studies ($r = 0.23$, $d = 0.47$). They also used type of task as a moderator. The effect size for tasks with more intrinsic interest ($r = 0.33$, $d = 0.72$) was nearly identical to the effect size for less interesting tasks ($r = 0.34$, $d = 0.72$), which appears to conflict with the traditional CET/SDT view that extrinsic rewards are best used for boring tasks.

Performance and PFP: Definition Matters

In addition to the need to study not only intrinsic motivation but also extrinsic motivation and performance, it is important to consider how different definitions and types of performance and PFP may influence findings and conclusions. PFP is defined to include any plan where pay depends on performance, with the specific PFP plan being a function of two performance measurement decisions (Gerhart et al. 2009): degree of emphasis on results or behaviors and degree of emphasis on individual or aggregate (i.e., group, unit, or organization) level of analysis. Thus, for example, merit pay uses behaviors at the individual level, whereas an individual incentive or sales commission uses results at the individual level. Profit-sharing and stock plans use results at the aggregate level of analysis.

Meta-analytic evidence (Bommer et al. 1995) indicates that $r = 0.317$ between results-based and behavior-based performance measures at the individual level (see also Heneman 1986). We also know that the shape and variance of individual-level performance distributions can be different, depending on whether results or behaviors are used (Beck et al. 2014, O'Boyle & Aguinis 2012). Thus, the generally positive effects of PFP, which are based primarily on studies of results-based, individual-level performance measures, could be weaker or stronger if different performance measures (e.g., behavior based and/or aggregate level) were used. Clearly, the field has moved toward a greater focus on performance (e.g., profits, productivity, shareholder return) measured at the supra-individual/aggregate level and in terms of results (e.g., Arthur 1994, Becker & Gerhart 1996, Gerhart & Milkovich 1990, Kim & Ployhart 2014, Ployhart et al. 2011). Theory

⁶There was no negative effect of incentives on quality of performance ($r = 0.08$, $d = 0.16$, n.s.). Thus, extrinsic rewards were associated with higher quantity with no cost to quality.

and research on motivation will likely have a greater impact on practice to the degree it likewise complements a focus on individual-level motivation and performance behaviors, with an emphasis on performance in terms of results and an aggregate level of analysis.

CREATIVITY

Another important work behavior is creativity. To the degree that organizations must increasingly compete on the basis of knowledge and innovation, employee creativity may become more important in formulating and executing strategies and achieving competitive advantage. In her influential work on creativity, Amabile (1983b, p. 366; see also Amabile 1996, p. 15) stated that “a primarily intrinsic motivation to engage in an activity will enhance creativity, and a primarily extrinsic motivation will undermine it.” Further, Hennessey & Amabile (1998, p. 675) wrote that Amabile (1996, p. 15) similarly stated in her influential book that a “general principle” is that “intrinsic motivation is conducive to creativity, but extrinsic motivation is detrimental.” In their commentary on Eisenberger & Cameron (1996) in *American Psychologist*, Hennessey & Amabile (1998, p. 675) acknowledged that there were “very specific situations under which [extrinsic] reward can have either no impact or even a positive impact on intrinsic motivation and creativity,” but they closed by saying “working for [extrinsic] reward. . . can be damaging to both intrinsic motivation and creativity.”

Thirty years later these arguments continue to have influence. Forgeard & Mecklenburg (2013, p. 255), citing work by Amabile (1996), state that “an extensive body of literature” shows that “the main motivator of creative behavior is. . . intrinsic interest and enjoyment. . . that intrinsic motivation enhances creativity, and extrinsic motivation can harm creativity insofar as it decreases intrinsic motivation.” In the management literature, Amabile’s work also influenced thinking. For example, Pfeffer (1998, p. 116) claimed that “extrinsic rewards diminish intrinsic motivation” and “large extrinsic rewards can actually decrease performance in tasks that require creativity and innovation” (see also Hunter et al. 2012).

Yet, this negative view of the role of extrinsic motivation in creativity has begun to be revisited by Amabile herself, as well as by other creativity scholars. For example, in their article for the *Annual Review of Psychology*, Hennessey & Amabile (2010, p. 581) state that

When investigations of. . . extrinsic constraints began about 30 years ago. . . High levels of extrinsic motivation were thought to preclude high levels of intrinsic motivation; as extrinsic motivators and constraints were imposed, intrinsic motivation (and creativity) would necessarily decrease. Now. . . hundreds of investigations later, most researchers. . . have come to appreciate the many complexities of both motivational orientation and extrinsic motivators, particularly expected reward. . . Rewards can actually enhance intrinsic motivation and creativity when they confirm competence, provide useful information in a supportive way, or enable people to do something that they were already intrinsically motivated to do. These boosting effects are most likely when initial levels of intrinsic motivation are already strong (Amabile 1993).

Hennessey & Amabile make three key points: Extrinsic rewards do not necessarily undermine creativity and may actually enhance it, their positive effects are most likely when intrinsic motivation is already high, and a positive effect of PFP may come via positive effects on perceived competence.

Let’s begin with the potential positive effects of reward. Even in early work on extrinsic motivation and creativity, one could sense an unease with categorically saying that PFP was detrimental to creativity. For example, while continuing to view extrinsic rewards as generally detrimental to creativity, Hennessey & Amabile (1998, p. 675) acknowledged that “when working adults feel that incentive systems signal the value of their contribution, their motivation and

creativity of performance can be enhanced. . .,” a view that seems consistent with the eventual recognition by SDT that PFP, if instrumental for achieving personal goals, could positively influence creativity. Similarly, although Amabile (1998, p. 84) argued that “because monetary rewards make people feel as if they are controlled, such a tactic probably won’t work,” she nevertheless acknowledged, “at the same time, not providing sufficient recognition and rewards for creativity can spawn negative feelings within an organization. People can feel used, or at least under-appreciated, for their creative efforts. And it is rare to find the energy and passion of intrinsic motivation coupled with resentment.” (This point seems to say that employees generally feel inequitably treated if extrinsic rewards do not correspond to their performance, and inequity will negatively influence motivation and creativity. In other words, it seems the argument is that employees generally prefer PFP. We later provide evidence to support this idea.) Shalley & Gilson (2004, p. 42) also noted that “if creativity is positively evaluated but never rewarded, it may be that the employee is given a mixed message and thus may or may not decide to continue trying to be creative.” George (2008, p. 445) observed that “there might be very real sources of extrinsic motivation in organizations” and that these sources “are not clearly and necessarily negative influences on creativity.” (We observe that these arguments seem to treat extrinsic rewards as something that can get in the way of creativity if not managed correctly. It is not clear whether extrinsic rewards are seen as able to motivate creativity. This view seems similar in some ways to Herzberg’s (1968) motivation-hygiene theory logic.)

Hennessey & Amabile’s (2010) second point goes further and says that extrinsic rewards may have a positive effect on creativity and, even more noteworthy, that such a positive effect is actually more (not less) likely when intrinsic motivation is already high. This idea seems to be at odds with not only CET but also the broader SDT, both of which focus on how environmental factors such as extrinsic rewards can thwart intrinsic motivation (Ryan & Deci 2000). Latham (2007, p. 107; see also Locke & Latham 1990) has argued that “it seems unlikely that the needs for self-determination and competence can be wellsprings of human motivation and, at the same time, be so fragile that their effects are negated by the most common of life’s exigencies,” as sometimes seems to be the case under CET and SDT.⁷ Hennessey & Amabile (2010) seem to agree that intrinsic motivation (and its expected consequences such as creativity) is not so fragile and not so easily subdued and diminished as argued by Ryan & Deci (2000). In fact, Hennessey & Amabile argue that when intrinsic motivation is already strong, wise use of PFP can strengthen it and creativity. SDT acknowledges that PFP can have a positive effect (if internalized in the form of either integrated regulation or identified regulation—see below), but again continues to emphasize that PFP can also put intrinsic motivation and creativity at great risk if it leads to less positive forms of extrinsic motivation (external regulation or introjected regulation—see below).

Hennessey & Amabile’s third point reminds us to not forget about the other pathway (in addition to autonomy) to intrinsic motivation under CET: the potentially positive competence-enhancing informational aspect. Learned industriousness (Eisenberger 1992) “focuses on the informational aspects of rewards. . . that [guide] goal-directed behavior and, thus, increase creative performance” (Byron & Khazanchi 2012, p. 809). In addition, Kanfer (1990) and later Gagné & Deci (2005) have recognized that performance-contingent rewards can have a positive influence on autonomy.

What does the evidence say about the effect of using creativity-contingent rewards? A recent meta-analysis by Byron & Khazanchi (2012) found that in 34 experimental studies, the use of

⁷It seems likely that the fragility of intrinsic motivation under CET and SDT reflects the fact that much of the empirical research has been on the intrinsic motivation of children. Deci et al. (1999) observed that children seem more sensitive than adults (college students) to the controlling aspect of contingent rewards. Likewise, in our subsequent discussion of the effect of choice on intrinsic motivation, we also see that choice is positively related to intrinsic motivation more strongly among children than among adults.

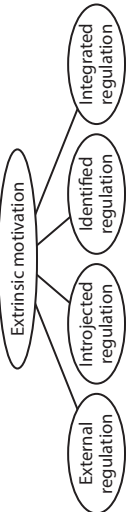
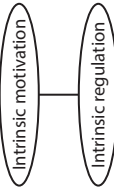
extrinsic incentives contingent on creative performance resulted in a sizeable positive (not negative) effect on creative performance ($g = 0.62$). In eight nonexperimental studies, the effect size for contingent extrinsic rewards was again positive but much smaller ($g = 0.07$). (This major difference in effect size between experimental and nonexperimental studies serves to reinforce the need for caution when assessing how laboratory observations will generalize to work organizations.)

Before one concludes that extrinsic incentives have a strong positive effect on creativity in work organizations, one must look more closely at the creativity measures used in the laboratory (and field) studies. As an example, Eisenberger & Rhoades (2001, p. 732) assessed creativity in their experimental studies by asking 5th and 6th grade students and college students to write titles for stories such as the popcorn story. The story titles were then coded and scored on a creativity scale. The popcorn story asks subjects to imagine that they are “tiny golden kernel[s] of popcorn lying in the bottom of a frying pan. . .snuggled up close to each other” and how they go from feeling “cramped, uncomfortable, steaming hot, sweating, dizzy” to “suddenly, you, the popcorn kernel, feel yourself exploding, bursting.”

Although it is interesting to know that in writing titles for the popcorn story creativity is higher under creativity-contingent rewards, this finding may not be sufficient evidence to recommend to organizations that they can enhance creativity (and innovation) by using PFP in this way. What about research outside the laboratory? As noted, the nonexperimental studies yielded much smaller, positive effect sizes for PFP on creativity. Here too an examination of the measures is useful. It appears that the typical way to measure creativity is to use a supervisory rating. For example, in Eisenberger & Aselage (2009), supervisors were asked to rate each employee on items, including “This employee generates creative ideas” and “This employee takes a creative approach to solving problems.” Evidence of discriminant validity of the creativity rating from an ordinary supervisory rating of performance is not provided. Yet in our experience a rating of creativity or innovation behavior collected from supervisors correlated highly ($r = 0.65$, corrected $r = 0.72$) with a rating of overall performance collected from supervisors (Fang 1997, tables 4–9). Thus, it would be helpful to see better evidence from the jobs being studied that (a) employees have the latitude to display different levels of creativity and do, and (b) supervisors can assess creativity with sufficient independence from other aspects of performance.

Another issue with the typical nonexperimental study of creativity included in the Byron & Khazanchi meta-analysis is the level of analysis. All the studies appear to have been conducted at the individual level of analysis and to have used employee perceptions of PFP. Yet there is no reason to expect that employees working in the same job in the same unit or company work under different PFP systems. Thus, such designs would appear incapable of telling us whether different organization-level or unit-level PFP policies hinder or enhance creative behavior in organizations. What is needed is a multilevel design that includes both variance between employees within organizations and variance between organizations in PFP and other factors thought to influence creativity. However, the validity concerns about supervisory performance ratings do not disappear when aggregated to the organization level because although the temptation is to use such average creativity ratings to capture between-organization differences, we know that ratings vary between organizations for reasons other than true performance or creativity differences. None of the studies included in the Byron & Khazanchi (2012) meta-analysis appears to study innovation, which in an organization setting is quite different and arguably more complex and is of more applied interest than creativity, especially as typically measured in research to date (Baer 2012, Montag et al. 2012). Creativity can be defined as “the development of novel, potentially useful ideas,” whereas innovation occurs only when those ideas “are successfully implemented at the organization or unit level” (Shalley et al. 2004, p. 934).

Table 2 Types of motivation and their degree of self-determination

Behavior	Non-self-determined					Self-determined
Motivation						
Regulatory styles						
Perceived locus of causality	Impersonal	External	Somewhat external	Somewhat internal	Internal	Internal
Relevant regulatory processes	Nonintentional, nonvaluing, incompetence, lack of control	Compliance, external rewards and punishments	Self-control, ego-involvement, internal rewards and punishments	Personal importance, conscious valuing	Congruence, awareness, synthesis with self	Interest, enjoyment, inherent satisfaction

Source: Ryan & Deci 2000.

Given these definitions, one can see that in organizations there is much more to innovation than just the first step (Shalley et al. 2004) of creativity. There is little organization-level research on how (nonexecutive) pay strategy affects employee innovation behavior and outcomes. The employee attributes, work design, and pay policies needed to foster innovation may be different, at least in part, from those that foster creativity.

SELF-DETERMINATION THEORY

Extrinsic Motivation Is No Longer Always Bad

Under self-determination theory (SDT), extrinsic rewards and motivation, in sharp contrast to CET, are not always bad: “When rewards are administered in an autonomy-supportive climate, they are less likely to undermine intrinsic motivation and, in some cases, *can enhance intrinsic motivation*” (Gagné & Deci 2005, p. 354; emphasis added). As we have seen, there has also been a similar major and parallel change in how the creativity literature views the role of rewards.

Instead of focusing on intrinsic motivation versus extrinsic motivation and their different consequences for experienced autonomy/control, SDT now, as **Table 2** shows, focuses primarily on the distinction between autonomous (self-determined) and controlled (non-self-determined) motivation. “An important aspect of SDT is the proposition that extrinsic motivation can vary in the degree to which it is autonomous versus controlled” (Gagné & Deci 2005, p. 334). **Table 2** also shows how the various forms of motivation are arrayed in this respect. Controlled extrinsic motivation (external regulation and introjected regulation) corresponds to the more traditional, negative view of extrinsic motivation under CET and occurs when an activity is not inherently interesting (i.e., is not intrinsically motivating) and thus requires an external reward contingency.⁸

SDT, however, recognizes that “other types of extrinsic motivation result when a behavioral regulation and the value associated with it have been internalized” (Gagné & Deci 2005, p. 334). Internalization takes place when “external regulation of behavior is transformed into an internal regulation and thus no longer requires the presence of an external contingency” to motivate the behavior, and the result is that “people identify with the value of a behavior for their own self-selected goals,” which leads to people experiencing “greater freedom and volition because the behavior is more congruent with their personal goals and identities” (Gagné & Deci 2005, p. 334). In other words, this form of extrinsic motivation “is characterized not by the person being *interested* in the activity for its own sake, but rather because the activity is perceived as being *instrumentally important* for personal goals” (Gagné & Deci 2005, p. 335; emphasis in original). When this identification is integrated “with other aspects of oneself,” it becomes more fully internalized and “truly autonomous or volitional” (Gagné & Deci 2005, p. 335) and is called integrated regulation. The next most-internalized form of extrinsic motivation is identified regulation.

To make these motivation constructs more concrete, **Table 3** shows how they have actually been measured.⁹ In Gagné et al. (2010), for example, an identified regulation (autonomous

⁸Introjected regulation is more autonomous than externally regulated extrinsic motivation and “has been taken in by the person but has not been accepted as his or her own” (Gagné & Deci 2005, p. 334). Here, behavior is regulated or motivated by internal sources: ego protection, guilt, and so forth.

⁹Ryan & Connell (1989, p. 750) gave the following definitions. “External reasons were those where behavior is explained by reference to external authority, fear of punishment, or rule compliance. Introjected reasons were framed in terms of internal, esteem-based pressures to act, such as avoidance of guilt and shame or concerns about self- and other-approval. Identifications were captured by reasons involving acting from one’s own values or goals, and typically took the form of ‘I want.’ Finally, and where applicable, we included intrinsic reasons for action where the behavior is done simply for its inherent enjoyment or for fun.”

Table 3 Content (sample items) from measures of extrinsic and intrinsic motivation^a

Study	Setting	Controlled or extrinsic motivation item content	Autonomous or intrinsic motivation content
Krishnamurthy et al. (2014)	Workplace	Extrinsic motivation	Intrinsic motivation
		Working on an open-source project increases my opportunities for a better job.	Writing open-source software programs is fun.
Boiché & Stephan (2014)	College students	Extrinsic motivation	Intrinsic motivation
		<u>Introjected regulation</u> To prove to myself that I am capable of completing my college degree	<u>Intrinsic motivation</u> Because I experience pleasure and satisfaction while learning new things.
		<u>External regulation</u> Because with only a high-school degree I would not find a high-paying job later on.	<u>Identified regulation</u> Because I think that a college education will help me better prepare for the career I have chosen.
Moran et al. (2012)	Workplace	Controlled motivation	Autonomous motivation
		<u>External motivation</u> Because my boss wants me to do it.	<u>Intrinsic motivation</u> Because the work is fun.
		<u>Introjected motivation</u> Because I would feel guilty if I did not do well.	<u>Integrated motivation</u> Because my work is a big part of who I am.
			<u>Identified motivation</u> Because I believe the work is valuable.
Grant et al. (2011), study 1 [adapted from Ryan & Connell (1989) scale]	Workplace	Controlled motivation	Autonomous motivation
		So my parents and mentors won't get mad at me. Because that's what I'm supposed to do. Because I don't want others to be mad at me.	Because I enjoy the process. Because it's fun. Because I enjoy doing it.
Grant et al. (2011), study 2 [adapted from Ryan & Connell (1989) scale]	Workplace	Controlled motivation	Autonomous motivation
		Because I need to earn money. Because I need to pay bills. Because I need the income.	Because it's fun. Because I enjoy it.
Gagné et al. (2010)	Workplace	Controlled motivation	Autonomous motivation
		<u>External regulation</u> Because this job affords me a certain standard of living.	<u>Intrinsic motivation</u> Because I enjoy this work very much.
		<u>Introjected regulation</u> Because my work is my life and I don't want to fail.	<u>Identified regulation</u> Because this job fulfills my career plans.

(Continued)

Table 3 (Continued)

Study	Setting	Controlled or extrinsic motivation item content	Autonomous or intrinsic motivation content
Tremblay et al. (2009)	Workplace	Work self-determination = low	Work self-determination = high
		<u>External regulation</u> For the income it provides me.	<u>Intrinsic motivation</u> For the satisfaction I experience when I am successful at doing difficult tasks.
		<u>Introjected regulation</u> Because I want to be very good at this work, otherwise I would be very disappointed.	<u>Integrated regulation</u> Because it has become a fundamental part of who I am.
		<u>Amotivation</u> I don't know why, we are provided with unrealistic working conditions.	<u>Identified regulation</u> Because it is the type of work I have chosen to attain certain important objectives.
Vansteenkiste et al. (2009)	High school and college students	Controlled motivation	Autonomous motivation
		<u>External regulation</u> Because that's something others (parents, friends, etc.) force me to do.	<u>Intrinsic motivation</u> Because I enjoy doing it.
		<u>Introjected regulation</u> Because I would feel ashamed if I didn't study.	<u>Identified regulation</u> Because I want to learn new things.
Lepper et al. (2005)	School	Extrinsic motivation	Intrinsic motivation
		<u>Easy work</u> I like to learn just what I have to in school.	<u>Challenge</u> I like difficult schoolwork because I find it more interesting.
		<u>Pleasing teacher</u> I read things because the teacher wants me to.	<u>Curiosity</u> I read things because I am interested in the subject.
		<u>Dependence on teacher</u> If I get stuck on a problem I ask the teacher for help.	<u>Independent mastery</u> I like to do my schoolwork without help.
Sheldon & Kasser (1995)	College students	Controlled motivation	Autonomous motivation
		Each participant generates 10 goal strivings and then rated them "as to how much they pursued them for each of four reasons":	
		<u>External motivation</u> Because somebody else wants you to or because you'll get something from somebody if you do.	<u>Intrinsic motivation</u> Purely because of the fun and enjoyment.
		<u>Introjected motivation</u> Because you would feel ashamed, guilty, or anxious if you didn't strive for this.	<u>Identified motivation</u> Because you really believe it is an important goal to have—you endorse it freely and wholeheartedly.

(Continued)

Table 3 (Continued)

Study	Setting	Controlled or extrinsic motivation item content	Autonomous or intrinsic motivation content
Sheldon & Kasser (1995)	College students	Extrinsic motivation coherence	Intrinsic motivation coherence
		Each participant “then rated each striving as to how much it helped take them toward possible futures in six culturally endorsed value domains:”	
		Financial success: having a job that pays very well and having a lot of nice possessions Fame and recognition: being known and admired by many people Physical appearance: looking good and being attractive to others	Self-acceptance and personal growth: being happy and having a meaningful life Intimacy and friendship: having many close and caring relationships with others Societal contribution: working to help make the world a better place
Amabile et al. (1994)	Workplace and college students	Extrinsic motivation	Intrinsic motivation
		I am strongly motivated by the [grades] [money] I can earn.	I enjoy trying to solve complex problems.
Ryan & Connell (1989)	School	External perceived locus of causality (controlled) ^b	Internal perceived locus of causality (autonomous) ^b
		<u>External</u> Because I'll get in trouble if I don't.	<u>Intrinsic</u> Because it's fun.
		<u>Introjected</u> Because I'll feel ashamed of myself if I don't.	<u>Identification</u> Because I want to learn new things.
Harter (1981)	School	Extrinsic motivation	Intrinsic motivation ^c
		Preference for ^d :	
		Easy work Pleasing teacher/getting grades Dependence on teacher Reliance on teacher's judgment External criteria	Challenge Curiosity/interest Independent mastery Independent judgment Internal criteria

^aUnless otherwise noted, a single item is a sample item. Underlined words/phrases are labels of subdimensions. “School” means respondents were students in elementary school or middle school. Where factor loadings are reported, the sample item is the item having the largest factor loading on that dimension.

^bRyan & Connell (1989) did not use the construct labels of “controlled” and “autonomous.” We added them to the table because such labels are used in later research using this item content.

^cGiven its influence on later scales, we include all items in Harter's scale.

^dAccording to Harter (1981, p. 302): “The child is first asked to decide which kind of kid is most like him or her and then asked whether this is only sort of true or really true for him or her.” As such, the scale has a forced-choice aspect.

extrinsic motivation) sample item is being motivated “because this job fulfills my career plans.” In contrast, an external regulation (controlled extrinsic motivation) sample item is being motivated “because this job affords me a certain standard of living.” Other researchers have used controlled/extrinsic motivation items that are more negative. For example, Grant et al. (2011) used items such as “So my parents and mentors won't get mad at me” and “Because that's what I'm supposed to do.” Other examples of items used to measure external regulation extrinsic

motivation that focus on negative aspects are “Because that’s something others (e.g., parents, friends, etc.) force me to do” (Vansteenkiste et al. 2009) and “Because I’ll get in trouble if I don’t” (Ryan & Connell 1989). It seems likely that when more negative aspects are the focus of controlled/extrinsic motivation items, support for quality of motivation hypotheses will, not surprisingly, be stronger.

In essence, it appears that SDT now says that performance-contingent pay does not undermine intrinsic motivation if pay is “instrumentally important for other goals” and if goals are not perceived by individuals as forced on them. For years, CET and those who sought to apply it to the workplace have consistently warned against the use of performance-contingent pay and sometimes still do.¹⁰ Now, after many years, there is recognition among some SDT scholars that pay might be helpful to employees for achieving their personal goals and thus pay (including PFP) is not necessarily a negative. Well. . . yes. That is consistent with other work on motivation. For example, Lawler (1971, figure 2-1) explicitly identifies the instrumentality of pay for achieving a wide range of needs, and he stated that “a given amount of pay derives its importance from its perceived associations with the six types of needs mentioned by Maslow [1954]” (1971, p. 26) and that “the evidence rather clearly suggests that pay can be instrumental for the satisfaction of a variety of needs” (1971, p. 33).

In any case, we commend SDT scholars for recognizing the need to make fundamental conceptual changes and moving the theory in a direction that makes it more realistic and useful in the workplace. Work by Gagné and colleagues (Gagné & Deci 2005, Gagné & Forest 2008) has been especially helpful in this regard. Why did SDT diverge from CET’s almost uniformly negative view of performance-contingent extrinsic rewards? Gagné & Deci (2005, p. 356) acknowledge that “many. . . found [CET] of limited use with respect to promoting performance and satisfaction in work organizations.”¹¹ They believe that SDT “provides a fuller and more useful approach” for understanding motivation in workplace settings. The SDT acknowledgment (at least as described in Gagné & Deci 2005) that rewards, depending on how administered, may actually have a net positive effect on autonomous motivation (at a minimum, via their effect on integrated and/or identified regulation forms of extrinsic motivation) is consistent with arguments made earlier by others (see Fang & Gerhart 2012) regarding the potential for positive effects on intrinsic motivation (using CET logic rather than SDT logic). For example, Kanfer argued that “the controlling features of evaluative contingencies are likely to be less salient due to widespread beliefs about the appropriateness of such evaluations in the workplace” (1990, p. 89; see also Staw 1976). In this vein, research at the individual level (Eisenberger & Aselage 2009, Eisenberger et al. 1999b, Fang & Gerhart 2000, 2012) has found that employees who perceive stronger PFP perceive more, not less, autonomy and intrinsic motivation. Research at the organization level further demonstrates that organizations with stronger PFP systems have employees with higher levels of perceived autonomy (DeVaro & Kurtulus 2010, Fang & Gerhart 2012). In other words, in the workplace PFP and autonomy tend to go hand in hand. SDT now seems to recognize this fact.

An important step in the evolution of thinking regarding the controlling aspects of rewards in the workplace under SDT can be found in Deci et al. (1999) and Fang & Gerhart (2012). Deci et al. concluded that extrinsic rewards “are more detrimental for children than for college students” and that “this set of findings has never been predicted before. . . so we can only speculate about what might be occurring” (1999, p. 656). They also suggest that “college students have greater cognitive capacity for separating the informational and controlling aspects of rewards and are also more

¹⁰See Footnote 12, which contains recent quotes from SDT scholars (e.g., Deci & Ryan 2013) who seem to continue to take a negative view of extrinsic rewards, much like that found under CET.

¹¹Among those raising concerns over the years are Bartol & Locke (2000), Eisenberger & Cameron (1996), Gerhart & Milkovich (1992), Latham (2007), Locke & Latham (1990, 2009), Pinder (1998), and Wiersma (1992).

accustomed to operating with performance goal orientations, so they may be more ready to interpret rewards as indicators of their effective performance than as controllers of their behavior” (Deci et al. 1999, p. 656).

In addition, CET perhaps gave too little weight to the positive effects of performance-contingent rewards on competence information (Fang & Gerhart 2012). Early on, Harackiewicz et al. (1984) argued that performance-contingent rewards provide a tangible symbol of achievement (a cue value) that can intensify the affective significance and importance of accomplishment, making competency information more salient. Other work also suggested that employee perceptions mattered; that employees might not always distinguish between intrinsic and extrinsic aspects of motivation as sharply as envisioned in CET (Brief & Aldag 1977, Dyer & Parker 1975); and that some aspects could be, as later termed in SDT, autonomous. For example, respondents often saw both intrinsic and extrinsic aspects of outcomes, such as achievement, recognition, prestige, and advancement, consistent perhaps with SDT’s newfound forms of extrinsic motivation (identified and regulated forms) that are instrumental for achieving goals (Dyer & Parker 1975).

Eisenberger & Cameron (1996) proposed the learned industriousness theory, which, consistent with arguments summarized above (see also Bandura 1985), sees monetary rewards as potentially competence enhancing. They also argue that “when a previously unavailable reward is made contingent on performance, the reward may be experienced as providing increased freedom of choice” (1996, p. 1,161).

We believe that the revised view of extrinsic rewards found in SDT is much more consistent with the view that many employees have: They wish to succeed in their jobs and their careers for both intrinsic and extrinsic reasons and these may not be distinct in their minds. Many of the extrinsic reasons are positive: They wish to have economic security and the freedom that comes with it, which allows them to choose how they spend their time, as well as the financial wherewithal to help others, whether it be to provide a comfortable and secure life for their family or to engage in philanthropy. As SDT emphasizes, people respond positively to autonomy, and choice and financial success may help make these outcomes more possible. As noted above, empirical evidence also indicates that autonomy and PFP covary in the workplace.

Quality of Motivation

So where does this leave us? The intrinsic-extrinsic dichotomy is less prominent under SDT than under CET. Now, under SDT, some extrinsic motivations are similar enough to intrinsic motivation to be combined into a single category, autonomous motivation. The (negative) remnants of the older CET view of extrinsic motivation are now integrated into the controlled motivation category. As noted, Gagné & Deci (2005) argue that a key difference between SDT and most other motivation theories is its focus on quality (not just quantity) of motivation. Specifically, explaining how SDT (e.g., Ryan & Deci 2000) is different from other work motivation theories such as goal setting (e.g., Locke & Latham 1990), Gagné & Deci, relying on work by Sheldon & Elliot (1999) and Sheldon et al. (2004), state that “no attention is given to the fact that different goal contents and different types of regulation of goal pursuits lead to different qualities of performance” (2005, p. 341). Ryan & Deci (2000, p. 69) argue that the more autonomous the motivation, the higher its quality and the more authentic it is, which means that people “have more interest, excitement, and confidence, which in turn *is manifest . . . as enhanced performance, persistence, and creativity*” (emphasis added).

Similarly, Gagné & Deci (2005, p. 341) contend that goal-setting theory does “not differentiate the concept of performance in order to examine differences between the types of goals and

regulations that predict algorithmic versus heuristic performance.” In contrast, SDT proposes that autonomous motivation and intrinsic goals are better predictors of effective performance on heuristic tasks (Vansteenkiste et al. 2009). Quality of motivation not only has different consequences, it requires different strategies to enhance (or at least not subdue and diminish): “Strategies focused on optimizing the psychological need satisfactions associated with active engagement of various tasks within specific performance settings thus offer important alternatives to the use of rewards and other social controls to motivate behavior” (Deci et al. 1999, p. 659).

The idea that intrinsic motivation is of higher quality compared with extrinsic motivation is also found in the creativity literature. (Creativity would presumably be viewed under SDT as a form of heuristic rather than algorithmic performance.) In the words of Amabile (1998, p. 78), “*Not all motivation is created equal* (emphasis added). An inner passion to solve the problem at hand leads to solutions far more creative than do external rewards such as money. This component [is] called *intrinsic motivation*” (emphasis in original).

Challenges for SDT

To increase its relevance in understanding and influencing motivation and creativity in the workplace, we suggest that SDT theory and research must address the following challenges.

Address construct validity issues and quality of motivation. Returning to Table 3, we can further examine the content of key measures of extrinsic motivation and intrinsic motivation over the years, as well as the content of later measures, which typically focus on autonomous and controlled motivation. Consider the important early measure of intrinsic motivation and extrinsic motivation developed by Harter (1981). That measure had two significant attributes that influenced the path of research. First, it used a forced-choice format. Respondents (students) had to choose whether they were intrinsically or extrinsically motivated. One result was a tendency to view intrinsic motivation and extrinsic motivation as opposites and not as complementary or able to occur simultaneously (Lepper et al. 2005). Second, the definition of extrinsic motivation implied by the actual items used in the measure makes clear that it is either an overly narrow construct definition or a deficient measure because the measure focuses only on the negative aspects of extrinsic motivation. As can be seen in Table 3, the items in Harter’s measure classify as extrinsically motivated those students who prefer easy work and who are dependent on the teacher for direction. As can also be seen from Table 3, Ryan & Connell’s (1989) measure also included only negative aspects of extrinsic motivation. Clearly, extrinsic motivation in terms of “freedom of choice” (Eisenberger & Cameron 1996, p. 364) and the later logic of SDT, that certain types of extrinsic motivation can be internalized and instrumental in achieving valued goals, was not incorporated.

Not surprisingly, when extrinsic motivation is defined and measured in terms of only negative aspects (e.g., coercion, guilt, shame, avoiding trouble, preference for taking the easy path rather than learning), that part of motivation will indeed prove itself to be of lower quality (in the sense that higher levels predict more negative outcomes) compared with more positive aspects of motivation. As now recognized by some SDT scholars, extrinsic rewards can be negative and controlling, but clearly (some) extrinsic rewards can also be positive and autonomy enhancing.

What happens when extrinsic rewards are not defined or measured as entirely negative? Krishnamurthy et al. (2014) studied open-source software programmers, who perhaps tend not to be thought of as extrinsically motivated. Extrinsic motivation items included “Working on an open source project increases my opportunities for a better job.” Under SDT, such items would be referred to as identified or integrated regulation and would be considered a form of (extrinsic) autonomous motivation. This aspect of extrinsic motivation had a sizeable positive correlation

with intrinsic motivation (corrected $r = 0.52$), suggesting that open-source software programmers can be dually motivated (Amabile et al. 1994), making an undermining effect of extrinsic motivation less likely. It is also consistent with the evidence we reviewed above, that employees often do not see intrinsic and extrinsic aspects of rewards as being distinct.

In fact, the evidence suggests that the positive (more autonomous) aspects of extrinsic motivation may not be empirically distinct from intrinsic motivation. On the basis of four recent studies, **Table 4** summarizes the corrected correlations between intrinsic motivation and the multiple forms of extrinsic motivation now recognized under SDT. We see that intrinsic motivation is distinct from external regulation extrinsic motivation. (In the case of introjected extrinsic motivation, it depends on the measure/study.) But intrinsic motivation correlates strongly (between 0.69 and 0.75) with integrated extrinsic motivation and (between 0.64 and 0.80) with identified extrinsic motivation. As such, there is not much evidence of discriminant validity. [One might be tempted to argue that these motivation dimensions are distinct because the corrected correlation is less than 1.0. However, even correlations (uncorrected or corrected) between different measures of the same construct (i.e., convergent validity) are rarely if ever 1.0.] Of course, SDT now combines intrinsic motivation with these two forms of extrinsic motivation. So in that sense SDT is correct when it combines them into a single construct called autonomous motivation.

Yet under SDT integrated extrinsic motivation is supposed to be more autonomous than identified extrinsic motivation, and both of these are specified as less autonomous than intrinsic motivation. On the basis of this initial evidence, these hypothesized differences are not evident yet. Again, introjected regulation too does not act as expected under SDT. Thus, the remaining quality of motivation logic under SDT, which Gagné & Deci (2005) emphasize as something unique to SDT, may not be empirically supported.

Additional evidence regarding (the lack of) discriminant validity surfaces when intrinsic motivation and the more autonomous forms of extrinsic motivation (integrated and identified) are compared in terms of their correlations with outcome variables for evidence of the differential prediction/quality of motivation hypothesis. As **Table 5** shows, the patterns of correlations look strikingly similar. On the plus side, such similarity again suggests that the SDT reconceptualization of motivation (in which some aspects of extrinsic motivation combine with intrinsic motivation to form autonomous motivation) is more consistent with how employees perceive intrinsic and extrinsic motivation (i.e., often occurring together). Less positive is that we can now clearly see that the CET focus for so many years on extrinsic motivation as an almost exclusively negative, poor

Table 4 Corrected correlations between intrinsic motivation and four types of extrinsic motivation workplace settings^a

	Tremblay et al. (2009)	Gagné et al. (2010)	Moran et al. (2012)	Boiché & Stephan (2014)
Extrinsic motivation type	Correlation of intrinsic motivation with:			
Integrated extrinsic motivation	0.69	–	0.75	–
Identified extrinsic motivation	0.70	0.80	0.64	0.77
Introjected extrinsic motivation	0.63	0.43	0.33	0.68
Externally regulated extrinsic motivation	0.11	0.13	0.13	–0.18

^aFor Tremblay et al. and Moran et al., we used their reported coefficient alphas to correct for attenuation in both variables. In the case of the Gagné et al. study, we use the reported correlation between latent variables as the corrected correlation. For Boiché & Stephan (2014), exact coefficient alphas were not reported, only they ranged from 0.69 to 0.85 for the motivation scales. Thus, we assumed an alpha of 0.77 for all variables in their study.

Table 5 Correlations of SDT motivation types with external variables

Autonomous motivation			Controlled motivation		
Intrinsic motivation		Extrinsic motivation			
		Integrated regulation	Identified regulation	Introjected regulation	External regulation
Tremblay et al. (2009)					
Job satisfaction	0.46	0.45	0.40	0.34	0.02
Organization commitment	0.41	0.37	0.32	0.32	0.13
Turnover intention	−0.47	−0.36	−0.35	−0.26	−0.03
Work strain	−0.06	−0.12	−0.08	−0.01	0.10
Gagné et al. (2010)					
Job satisfaction	0.58	−	0.53	0.27	0.13
Affective organizational commitment	0.59	−	0.64	0.38	−0.18
Turnover intention	−0.26	−	−0.27	−0.12	−0.03
Well-being	0.54	−	0.43	0.14	−0.09
Psychological distress	−0.48	−	−0.34	−0.06	0.20
Need for autonomy	0.55	−	0.60	0.36	0.17
Need for competence	0.25	−	0.27	0.08	0.09
Need for relatedness	0.51	−	0.52	0.07	0.01

quality for motivation was largely a result of defining and measuring extrinsic motivation in overly narrow (negative) terms.

Further, although SDT now combines integrated extrinsic motivation and identified extrinsic motivation with intrinsic motivation to form autonomous motivation, SDT nevertheless still seems to distinguish between the quality of extrinsic and intrinsic motivation in some cases.¹² For example, Gagné & Deci (2005, p. 348, proposition 1) state that “autonomous extrinsic motivation

¹²When reading the SDT literature, one can still at times discern CET’s negative view of extrinsic rewards, which continue to be seen as a major potential threat to intrinsic motivation. For example, Benita et al. (2014, p. 260) stated that “substantial research has shown that events such as the use of rewards, deadlines, threats, surveillance, and pressuring language tend to be experienced as controlling and thus to undermine autonomous regulation resulting in poorer performance and greater ill being (Ryan & Deci 2000).” Note the other things “rewards” are grouped with. See also Deci & Ryan (2013) for a number of statements indicating continued unease with monetary rewards.

will be more effective in predicting persistence on uninteresting but effort-driven tasks, whereas intrinsic motivation will be more effective in predicting persistence on interesting tasks.” (Presumably, the latter are more important and impactful.) They further note, “Exactly how intrinsic motivation versus well-internalized extrinsic motivation [i.e., integrated and identified regulation] will be differentially predictive in the workplace is still to be determined, but it is an important issue. . . .” (2005, p. 348). On the basis of the evidence we have examined (see **Tables 4 and 5**), there does not (at least thus far) appear to be support for this remaining quality of motivation (differential prediction) proposed under SDT.

A second construct validity issue is social desirability. Lepper et al. (2005) reported that in a school setting intrinsic motivation scale correlated 0.42 with a measure of social desirability, whereas their extrinsic motivation scale (composed of mostly externally regulated and/or introjected aspects, see **Table 3**) correlated -0.24 with social desirability, a very large difference (0.66) in magnitude. That intrinsic motivation appears to be more socially desirable than extrinsic motivation may be consistent with work on reward preferences, in which the importance of monetary rewards is thought to be understated (relative to higher-order rewards such as interesting and challenging work) when respondents are asked directly, perhaps owing to social desirability (see Rynes et al. 2004 for a review).¹³

If quality of motivation matters: how to facilitate internalizing extrinsic motivation. If the evidence were to support the SDT hypothesis that internalized extrinsic motivation is higher quality, future research would then need to better understand the degree to which and how extrinsic motivation can be internalized. Sheldon et al. (2003), as well as Bloom & Colbert (2011), provide an overview of how compensation and other human resource practices might be designed to facilitate internalization. To the degree that employees already (without any intervention) naturally perceive intrinsic, integrated extrinsic, and identified extrinsic motivations as occurring in combination, such intervention would be less important (see our discussion above). Nevertheless, that much extrinsic motivation appears to be internalized could alternatively reflect ongoing management practices in organizations to support such internalization, and it is possible that, at least for some organizations and some jobs, there would be a significant return on investment from enhancing such programs.

Incorporate person characteristics. Lepper et al. (2005) reported that intrinsic motivation correlated positively with grade point averages and achievement test scores ($r = 0.34$, $r = 0.27$, respectively), whereas extrinsic motivation correlated negatively with both ($r = -0.23$, $r = -0.32$, respectively). The differences in correlations (0.57 and 0.59, respectively) are large. Thus, a person’s motivation profile may not be independent of their ability. The role of ability is rarely if ever discussed in the CET and SDT literatures. Ability may be a source of omitted variable bias in field settings (or in small-sample-size experiments in which randomization may not result in equivalent groups) if higher-ability persons have more complex, interesting jobs and are also more intrinsically motivated. Those with higher ability may also make their jobs broader in scope (Morgeson et al. 2005), which may again influence intrinsic motivation. The broader issue is that CET or SDT does not give much attention to the P part of the $B = f(P, E)$ equation. Motivation,

¹³Even when asked directly, employees tend to identify extrinsic rewards as very important. For example, based on roughly 600 employees surveyed annually from 2004 through 2013 by the Society for Human Resource Management (SHRM), the 3 (out of 19) job attributes most often rated as “very important” over the 10-year period were, in order, job security (60%), benefits (59%), and compensation/pay (59%), all extrinsic rewards (SHRM 2014).

both its level and causes, may vary by person (e.g., Barrick et al. 2013). Although Amabile et al. (1994), for instance, developed the Work Preference Inventory, which can be used to measure individual differences in intrinsic motivation and extrinsic motivation orientations, it has been little used in CET and SDT.

Incorporate the role of choice: goal choice and ASA/sorting. Work motivation can be defined in terms of choices (Vroom 1964). Although CET and SDT are in a sense about the importance of choice (i.e., autonomy), upon closer inspection, the treatment of choice is narrow in conceptual terms and almost nonexistent in empirical terms. On the conceptual side, CET and SDT seem to focus primarily on the current job and how much autonomy the person has within that job. But, as discussed below, there is much more to choice in the workplace. On the empirical side, the only choice receiving much attention in CET seems to have been the choice of what to do during free time (nonwork time).

Goal choice. Goals play a major role in motivating and directing behavior (Locke & Latham 2002) and in self-regulation (Bandura 1997, Lord et al. 2010). In the typical CET laboratory experiment, the goal is given. In the workplace, by contrast, employees must often choose which goal(s) to prioritize. Limited cognitive resources likewise require prioritization and choice (Kanfer & Ackerman 1989). Employers generally wish to motivate particular goal choices. The equal compensation principle states that “if an employee’s allocation of time or attention between two different activities cannot be monitored by the employer, then either the marginal rates of return to the employee must be equal, or the activity with the lower marginal rate of return receives no time or attention” (Milgrom & Roberts 1992, p. 228; see also the “multitasking” literature, Prendergast 1999). Similarly, in psychology, Lawler earlier observed that “if an employee is not evaluated in terms of an activity, he will not be motivated to perform it” (1971, p. 171; see Gerhart & Rynes 2003 for a review). In the creativity literature, a similar concern is that organizations may ask employees to be (more) creative, but if they continue to reward other, more traditional behaviors and not creativity, they may not see much creativity: “If creativity is a role expectation, it should be rewarded appropriately” (Shalley et al. 2004, p. 40).

Schmidt & DeShon (2007) document that goal–performance discrepancy is an important factor influencing which goal receives attention and priority. However, they also found that once an incentive is introduced for achieving one goal, but not the other goal, the goal–performance discrepancy becomes less important and the incentive becomes the major influence on goal choice. Similarly, one study (Wright et al. 1993) observed in a laboratory setting that introducing a monetary incentive plan increased effort toward the goals covered in the plan but decreased effort toward other goals (e.g., prosocial helping behaviors) (see also related work by Bergeron et al. 2013).

Sorting/ASA. Employees (and employers) also make job choices. The standard CET paradigm randomly assigns subjects to performance-contingent pay conditions or to control groups, ensuring that, on average, subjects’ PFP preferences are independent of (i.e., not matched, mismatched, to) their assigned pay condition. In contrast, assignment of employees to work organizations (and their PFP systems) is not random (Fang & Gerhart 2012). Sorting (Lazear 2000, Gerhart & Rynes 2003) and attraction-selection-attrition (ASA; Schneider 1987) models describe the nonrandom (systematic) nature of the matching process. To the degree such matching takes place, “there is less probability of a mismatch between worker preferences for [performance-contingent pay] and the actual [pay] system that covers them” (Fang & Gerhart 2012, p. 1,181). If indeed mismatches are less likely in the workplace (than in the laboratory) owing to ASA/sorting

processes, then a detrimental effect of PFP on intrinsic motivation in the workplace would also be less likely. Those who experience a loss of intrinsic motivation under PFP would presumably gravitate to jobs and organizations with PFP policies that better fit their preferences.

For matching to unfold, there must be sufficient employee movement. So how much employee movement is there? According to data from the U.S. Bureau of Labor Statistics (Table 6), a lot, at least in the United States. On the basis of three different snapshots, annual quit rates range from 19% to 29% and total separations range from 42% to 53% per year. These data apply only to external movement. There is also substantial internal movement in many organizations as employees change jobs (e.g., promotions, lateral moves) or as the content of their job evolves.

Is this movement nonrandom and consistent with the operation of ASA/sorting processes? If so, we should see significant variance in employee attributes between organizations relative to within organizations. Schneider et al. (1998) found that 24% of the variance in employee personality (using the four Myers–Briggs type indicator personality variables) occurred between organizations. Fang & Gerhart (2012) focused specifically on motivation-related traits (extrinsic motivation orientation, intrinsic motivation, and internal work locus of control) and found that 19% of the variance occurred between organizations. Further, Fang & Gerhart reported that extrinsic motivation orientation and internal work locus of control were higher in organizations that used PFP.

What about matching based on employee performance? Laboratory evidence suggests that high performers are much more likely to choose PFP over fixed pay (Cadsby et al. 2007, Dohmen & Falk 2011). In addition, field work shows that high-performing employees are more likely than low-performing employees to quit when the pay–performance link is weak (Lazear 2000, Nyberg 2010, Salamin & Hom 2005, Trevor et al. 1997). Thus, an organization with weak PFP would be expected to disproportionately lose its high performers, keep its lower performers, and replace departing high performers with more low performers. Lazear (2000), for example, observed that employee productivity increased by 44% after a company introduced an incentive plan. However, when he looked only at the subsample of employees who were there both before and after the incentive plan was implemented, their average productivity had increased by 22%, thus accounting for only one-half of the total 44% increase. What explained the other one-half? Less productive workers were more likely than more productive workers to leave after the incentive plan was implemented. Even more important, those hired after the incentive plan was put in place were more productive. Lazear referred to the increase in productivity that occurred among employees there before and after the change as an incentive effect and to the increase due to the change in the workforce (Gerhart & Milkovich 1992) as a sorting effect (Gerhart & Rynes 2003).

Table 6 Annual employee movement rates (%) and unemployment rate (%), U.S. labor market^a

Year	Total separations	Quits	Layoffs/discharges	Other separations	Hires	Unemployment rate
2013	42.2	22.8	16.4	3.0	44.3	7.4
2010	40.5	19.2	18.4	2.9	41.7	9.6
2005	50.7	29.0	18.8	3.0	52.7	5.1

^aSource: Job Openings and Labor Turnover Survey (JOLTS), U.S. Bureau of Labor Statistics. The JOLTS survey design is a stratified random sample of 16,000 nonfarm business and government establishments. The sample is stratified by ownership, region, industry sector, and establishment size class. The establishments are drawn from a universe of over 9.1 million establishments compiled by the Quarterly Census of Employment and Wages (QCEW) program, which includes all employers subject to state unemployment insurance laws and federal agencies subject to the Unemployment Compensation for Federal Employees program.

[Note that the meta-analyses by Deci et al. (1999) and Jenkins et al. (1998) discussed above capture only incentive effects, not sorting effects.]

Eisenberger & Cameron (1996, p. 364) argued almost 20 years ago that “when a previously unavailable reward is made contingent on performance, the reward may be experienced as providing increased freedom of choice.” Further insight into the role of choice comes from a meta-analysis by Patall et al. (2008). Consistent with CET/SDT, they found greater choice resulted in higher autonomy and intrinsic motivation. Of particular interest, they also found that “reward has no impact on the effectiveness [in enhancing intrinsic motivation] of having been given choice. This finding suggests that as long as individuals have some control over the reward, it is not perceived as controlling, and the positive effect of choice on motivation remains” (Patall et al. 2008, pp. 295–96). Also of great interest was their finding that the positive effect of choice on intrinsic motivation was much larger (more than twice as large) for adults ($d = 0.55$) than for children ($d = 0.25$). This finding indicates that perceived causality perceptions of adults may be less fragile and less environment dependent than those of children, consistent with Deci et al.’s (1999, p. 656) suggestion that “college students have greater cognitive capacity [than children] for separating the informational and controlling aspects of rewards and are also more accustomed to operating with performance goal orientations, so they may be more ready to interpret rewards as indicators of their effective performance than as controllers of their behavior.” To the degree that is true, PFP may be experienced as more of an opportunity and more autonomy-enhancing than controlling.

Incorporate equity considerations. We also know that most employees have a strong sense of equity, which has a number of implications. First, employee satisfaction is highly sensitive to social comparisons, which are typically measured with an item such as (Williams et al. 2006) “Compared with those working in similar jobs in other organizations [or another basis of comparison], your pay is much worse, somewhat worse,” and so forth, with a high score representing a positive comparison (i.e., much better). In fact, the correlation with pay satisfaction is 0.56 for internal (same organization) social comparisons and 0.57 for external (different organization) social comparisons.

Second, although such a question does not address how an individual chooses the comparison standard, we do know that employees view performance as the most important factor that should determine pay among those in similar jobs. In studies that ask respondents what criteria should be used or what they would use to allocate rewards, holding the job constant, the consistent finding is that employee performance emerges as most important (Dyer et al. 1976, Fossum & Fitch 1985, Giacobbe-Miller et al. 2003, Sherer et al. 1987, Zhou & Martocchio 2001). In addition, the Williams et al. (2006) meta-analysis also reports that employee pay satisfaction is strongly and positively related to employees’ perception of the degree to which their organization uses PFP ($r = 0.31$).

The above evidence, which demonstrates the primary role of performance in determining whether employees see pay as equitable, would seem to indicate the need to use PFP to achieve perceived equity. Given the sorting evidence we have seen, the use of PFP would appear to be even more important for perceptions of equity among high-performing employees. Therefore, although CET’s focus was on the detrimental effect of PFP on intrinsic motivation, the literatures we have just examined suggest, in contrast, that not using PFP might cause the most serious problems in terms of motivation, including intrinsic motivation. Similarly, Amabile (1998, p. 84) argued that “it is rare to find the energy and passion of intrinsic motivation coupled with resentment.” Finally, recent evidence suggests that for many occupations performance distributions have a positive skew (e.g., power-law form), meaning that a small number of employees may create a disproportionate

amount of value through very high performance (Aguinis & O’Boyle 2014) and thus equitable pay may require corresponding large pay differentials.

FUTURE RESEARCH

On the basis of our review, we have identified several areas in need of future research (Table 7). First, a fundamental premise of both the creativity and (especially) SDT literatures is that different types of motivation (intrinsic versus extrinsic, autonomous versus controlled) differ in their quality (i.e., they have differential predictive power with respect to key work outcomes). However, empirical support for this (central) premise is currently lacking and is an area for future research. If support continues to be lacking, it will be necessary to determine whether this is due to theoretical shortcomings (e.g., different types of motivation are actually equivalent/fungible) or to empirical limitations (e.g., the need to reformulate measures to better match construct definitions, the need to choose different organization or occupation settings where quality of motivation differences are most likely to be of consequence). Without support for the quality of motivation logic, the value and uniqueness of SDT would be seriously undermined. To the degree that quality of motivation logic is supported, a related research need would be to examine the extent to which (and how) organizations can influence how successfully extrinsic motivation can be internalized.

Second, echoing earlier calls (e.g., Gerhart & Milkovich 1992, Rynes et al. 2005), we hope to see more integration of the compensation/PFP and motivation/psychological processes literatures. Most organizations use PFP and give a major role to individual performance (Gerhart & Fang 2013). However, PFP can take many forms. Our impression is that the CET/SDT and, to a lesser extent, the creativity literatures often envision incentives/PFP in terms of piece-rate plans in which employees often perform simple, narrow, well-defined, repetitive tasks to receive closely linked rewards. Yet in work organizations PFP takes many forms and piece rates are one of the least used forms. The more common forms of PFP are by far annual merit pay/bonus and promotion programs in which performance is often (formally) evaluated only once per year. Compensation payouts and promotion decisions tied to these performance evaluations are typically on a similar

Table 7 Suggested areas for future research

Areas for future research
Determine the quality of motivation. Do different types of motivation (extrinsic, intrinsic; autonomous, controlled) differentially predict effectiveness outcomes (e.g., performance, creativity)?
Integrate the motivation and compensation/PFP literatures. How much do different PFP program design characteristics (e.g., frequency of evaluation/reward, intensity of performance monitoring/measurement), as well as the definition of performance (e.g., results versus behaviors, individual versus unit/organization level of analysis), influence employee motivation, perceived autonomy, perceived competence, performance, and creativity?
Consider the nature of the job. To what degree does the influence of PFP on effectiveness outcomes depend on how intrinsically motivating a job is?
Examine the role of choice. How does PFP influence goal choice (e.g., among tasks that vary in intrinsic interest)? What is the role of PFP and ASA/sorting in matching people to jobs, and to what degree does that reduce the likelihood of ongoing mismatches (and their consequences) between employee motivation preferences and the rewards attached to their jobs?
Explain the role of context. How important are contextual factors (e.g., country differences in national culture and other factors) in influencing how people perceive and react to different aspects of motivation?

timeline. As such, the magnitude of the relationship between individual pay and individual performance often becomes clear only over the course of multiple years as higher performers, on average, experience greater pay growth (e.g., Trevor et al. 1997). Indeed, rather than pay and performance being so strongly linked that employees feel controlled, the more likely scenario in most organizations and occupations is that employees question whether pay and performance are related at all (e.g., Milkovich et al. 2014). Thus, the idea that PFP typically exerts a controlling influence is open to question. For many organizations, the bigger issue is to strengthen the PFP link and communicate its existence to employees. In any case, one avenue of research, consistent with SDT logic, would be to determine how PFP plans can be designed to maximize motivation (incentive and sorting) effects, which would include studying which plans are most conducive to perceived autonomy and competence. The concept of reward salience (Cerasoli et al. 2014) may be of use here. At a general level, we can extend our earlier classification of PFP plans to include not only emphasis on results versus behaviors and individual versus aggregate level of analysis, but also emphasis on short-term versus long-term performance measures, as well as process dimensions such as participation and communication. Future research might assess the degree to which these different PFP design characteristics influence different motivation outcomes (e.g., as defined under SDT), as well as performance, creativity, and other key outcomes.

Third, SDT continues to hypothesize (Cerasoli et al. 2014, Gagné & Deci 2005, Ryan & Deci 2000) that PFP is good for boring, routine tasks, but still potentially risky or at least superfluous/irrelevant for interesting and complex creative work. This opinion seems to flow from the SDT argument (and earlier creativity literature) regarding quality of motivation. However, as noted, Jenkins et al. (1998) found no difference in the effects of incentives on performance as a function of how intrinsically motivating a task is. The workplace studies available to Jenkins et al. were limited in that few at best included jobs high in intrinsic interest. Perhaps different samples should be studied also. In addition, Hennessey & Amabile (2010, p. 581) have proposed a competing hypothesis, which states that the “boosting effects [of PFP] are most likely when initial levels of intrinsic motivation are already strong.” Future research that examines whether PFP is irrelevant or detracts from intrinsic motivation and performance in intrinsically motivating jobs or whether it boosts the positive effects of intrinsic motivation would be valuable.

Fourth, future research on the role of PFP in creativity is needed. In addition to the issues discussed above, we encourage more work on innovation rather than on creativity alone. In this vein, more work on creativity and innovation should move beyond individual-level analysis and beyond sole reliance on aggregated supervisory ratings of creativity. How PFP, motivation, and other psychological mechanisms contribute to tangible measures of innovation at the group and organization levels requires further exploration. Fifth, we advocate for greater recognition of the role of ASA/sorting, goal choice, and equity in studying PFP, motivation, creativity, and performance in the workplace.

Finally, country differences are always a potentially important contextual factor in human resources, including compensation and motivation, which can reflect differences in national culture, economic systems, regulation, and other institutions (e.g., labor union strength) (Milkovich et al. 2014). Thus far, most research on country differences in compensation, PFP, and motivation has focused on national culture. Our own work (Gerhart 2008; Gerhart & Fang 2005; Milkovich et al. 2014, chapter 16; Rabl et al. 2011) indicates that, although there are national culture-based differences, the similarities are often as (or more) noteworthy. Thus, we encourage future work in this area (as in all areas) to focus on effect size magnitude (in addition to statistical significance) to fully grasp the nature of differences and similarities.

CONCLUSION

Traditionally, the CET, SDT, and creativity literatures viewed extrinsic rewards as detrimental to performance and creativity and similarly viewed extrinsic motivation as being of lower quality compared with intrinsic motivation. We have analyzed how and why the negative view of extrinsic incentives and PFP has shifted. We have also examined how SDT has evolved from CET and its attempt to recast some types of extrinsic motivation as autonomous but still of lower quality compared with intrinsic motivation. Future research on quality of motivation and other important areas will help elucidate how PFP and extrinsic rewards influence performance, creativity, and the role that motivation and other psychological mechanisms play in this process.

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