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

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In their Annual Review paper, Rynes, Gerhart, and Parks (2005, p. 572) observed that “Given the importance of pay and performance to employers and employees as well as the potential for well-designed [pay for performance] PFP¹ 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 and Shaw (2014, p. 1) stated that “When we look across the topics that have been the focus of attention in [human resource management] HRM 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” (Gupta & Shaw, 2014, p. 1).

As another example, in the Handbook of Psychology: Industrial and Organizational Psychology, published in 2013, there were 26 chapters. None were on compensation. There was a chapter in the Handbook on motivation (Schmidt, Beck, & Gillespie, 2013), a topic that could include compensation. However, the chapter, like the study of motivation in psychology generally, focused primarily on psychological mechanisms and individual differences as determinants of motivation. Compensation was not discussed. Major topics (as indicated by major chapter headings) were: Overview of goals and goal processes; expectancies, self-efficacy, and related concepts; affect; individual differences related to the self and personality; temporal dynamics; multiple goals and decision making. (See also Latham & Pinder, 2005.)

It is clear that compensation is a major policy lever that organizations use to motivate employee attraction, performance, and retention (e.g., Lawler, 1971, 1981) and that 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 job levels (Gerhart & Fang, 2014; Gerhart, Rynes, & Fulmer, 2009; Shaw, 2014). Organizations that are currently regarded as highly creative/innovative and successful, such as Google, Facebook and/or that rely heavily on human capital (e.g., consulting firms, in addition to technology companies) also give a central role to pay, being 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/PFP.

What makes PFP such an interesting and important topic is that “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, 2014; Gerhart, Trevor, & Graham, 1996) and many scholars have made important contributions by documenting what can go wrong in using PFP (e.g., Kerr, 1975; Kohn, 1993; Lawler, 1971; Milgrom & Roberts, 1992; Pfeffer, 1998; Roy, 1952; Sanders & Hambrick, 2007), 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 and/or gaming/manipulating performance measures (e.g., sales, stock returns) that are included in the plan. However, as noted, PFP is very widely used. Also, theory and research both 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 to better understand both literatures. Gerhart and 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, it was because pay had come to be so widely viewed as a negative influence on motivation, primarily due to three theories: Maslow's need hierarchy theory, Herzberg's motivation-hygiene theory, and Deci and Ryan's cognitive evaluation theory (CET). We would add a fourth: the early work on creativity (e.g., Amabile, 1983, 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 being of lower “quality” motivation than intrinsic motivation in terms of sustainability and/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. CET and creativity, the literatures that have most sought to understand the role of compensation in motivation both 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 the undermining effects of extrinsic rewards (e.g., Frey & Oberholzer-Gee, 1997; Frey & Jegen, 2001; Kreps, 1997; Kuntz & 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” and that one of the “deadly flaws” of PFP is that it “can extinguish intrinsic motivation.”. 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, there appear to have been major changes in how extrinsic rewards are viewed in the CET and creativity literatures. CET is now described (Ryan & Deci, p. 70) as a “subtheory within” self-determination theory (SDT). Importantly, SDT, unlike CET, says that some types of extrinsic (integrated and identified) motivation 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. Together with intrinsic motivation, these are labeled as autonomous motivation under SDT. Other forms of extrinsic motivation (external and introjected) continue to be viewed as lower quality and less autonomous and are labeled as controlled motivation in SDT. In 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, p. 354). A recent meta-analysis by Cerasoli et al. (2014) should provide further support for this argument. They found that the intrinsic motivation-performance relationship was positive not only in the absence of extrinsic incentives ($\rho = .27$), but also positive (and, inconsistent with CET), larger when incentives were in place ($\rho = .36$).³

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

Perhaps some of this change in thinking is 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 and 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 common themes in the CET/SDT and creativity literatures, which tend to be mostly separate. We would like to 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, in moving the literature on compensation, motivation, creativity, and performance forward in a helpful way. 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 differ in their quality and thus, their consequences.

We begin by briefly describing of CET and SDT logic and research.

Cognitive Evaluation Theory (CET)

Describing their thinking as being influenced by the work of Heider (1958) and deCharms (1968), Ryan, Deci, and colleagues have, in cognitive evaluation theory (CET) and later in self-determination theory (SDT), 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. 55). They further see intrinsic motivation as “inherent”: “from the time of birth” and children “in their healthiest states, are active, inquisitive, curious, and playful, even in the absence of specific rewards (e.g. Harter, 1978).”

Importantly, this inherent intrinsic motivation can be put at risk by the environment. They argue that “the maintenance and enhancement of this inherent propensity requires supportive conditions, as it can be fairly readily disrupted by various nonsupportive conditions.” 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, Rhoades, & Cameron, 1999; 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 3 sessions of 13 minute each. They worked on a puzzle and were each 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 based on how many puzzles they completed. (They were not paid in the first or third session.) In the control group, subjects 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 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 spent working on the puzzle."

We re-produce Table 1 from Deci (1971) in our **Exhibit 1**. Deci's main focus was on the fact that the mean number of seconds spent on the puzzles during the free-choice period increased from Session 1 to Session 3 for the control group, but decreased for the experimental group. Deci's interpretation is that paying the experimental group during the Session 2 thirteen minute session undermined their subsequent intrinsic motivation.

Several reviews over the years have examined the body of evidence produced under this paradigm (Deci, Koestner, & Ryan, 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 Deci et al. (1999) meta-analysis, which, as summarized

by Ryan and 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, $d = -.28$ (95 % confidence interval of $-.38$ to $-.18$) for the free-choice measure of intrinsic motivation and $d = -.01$ (95 % confidence interval of $-.10$ to $+.08$) 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: $d > .20$ “small”; $d > .50$ “medium”; $d > .80$ “large”. As such, $d = -.28$ 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 of the Deci et al. (1999) meta-analysis (e.g., Eisenberger, Pierce, & Cameron, 1999), to simplify and streamline our discussion, we take the Deci et al. findings as a starting point. That allows us to focus on the applicability of CET (and SDT) to the workplace.

One major limitation of the Deci et al 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 and 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, Locke and Bartol (2000, p. 108) argued that “what people do during the time they are not being paid is of no central importance” in 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 like performance and creativity?

Performance

Intrinsic Motivation ≠ Performance. Studying only the effect on intrinsic motivation of PFP is not sufficient, given that performance is typically of great interest and it, in turn, is likely a function of both intrinsic and extrinsic motivation (Cerasoli, Nicklin, & Ford, 2014; Fang, 1997; Gerhart & Milkovich, 1992; Ledford, Gerhart, & Fang, 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 being seen as higher quality).

In Deci (1971), performance could, for example, have been measured by the time (less time would indicate better performance) to solve the puzzles during the actual 13 minute 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 on his results in Table 1: “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, while reducing intrinsic motivation, may have actually increased total motivation and thus, by implication, possibly performance.

Importantly, 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 and 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, Koestner, & Ryan (1999) 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, Koestner, & Ryan (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 to performance as an outcome in the CET literature, 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) versus also looking at performance as an outcome of extrinsic incentives. In 17 studies using a combined sample size of 865 subjects, he found a negative (i.e., detrimental) effect ($d = -.50$) 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 ($d = +.34$). 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 is 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 5 studies ($N = 300$) from Wiersma's Table 2 that reported both intrinsic motivation and performance effect sizes. The intrinsic motivation $d = -.71$ whereas the performance $d = +.49$.

Finally, it is important to note that 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 and Gerhart et al., 2009.). For example, a meta-analysis by Jenkins, Mitra, Gupta, and Shaw (1998) found, based on 41 studies and 2,773 employees, that financial incentives positively related to quantity of performance (mean $r = +.32$, which converts to $d = +.68$).⁶ The $d = .68$ is much (2.4 times) larger in absolute magnitude than the effect size

reported by Deci et al. (1999) of performance-contingent rewards on (free-choice measures of) intrinsic motivation. Jenkins et al. also reported that the mean effect size in the field/workplace settings ($r = .46$, $d = 1.04$) was roughly twice as large as the mean effect size based on laboratory studies ($r = .23$, $d = .47$). They also used type of task as a moderator. The effect size for tasks having more intrinsic interest ($r = .33$, $d = .72$) was nearly identical to the effect size in less interesting tasks ($r = .34$, $d = .72$), 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 also consider how different definitions/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 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, Johnson, Rich, & Podsakoff, Mackenzie, 1995) indicates that $r = .317$ 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 quite different, depending on whether results or behaviors are used (Beck, Beatty, & Sackett, in press; O'Boyle, & Aguinis, , 2012). Thus, it possible that the generally positive effects of PFP, which are based primarily on results-based,

individual level performance measures, could be weaker or stronger if behavior-based and/or aggregate level performance measures were to be 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, Van Iddekinge, & MacKenzie, 2011). Theory 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/or at the aggregate level.

Creativity

Another important work behavior is creativity. To the degree that organizations must increasingly compete based on knowledge and innovation, employee creativity may become more important in formulating and executing strategies and achieving competitive advantage. In her seminal work on creativity, Amabile (1983, 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. Hennessey and Amabile (1998, p. 675) further stated that In her influential 1996 book, Amabile (p. 15) similarly stated that a “general principle” is that “Intrinsic motivation is conducive to creativity, but extrinsic motivation is detrimental.” In a commentary in the *American Psychologist* in 1998 on Eisenberger and Cameron (1996), Hennessey and 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 their commentary 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 and Mecklenburg (p. 255), citing work by Amabile, 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, Cushenberry, & Friederich, 2012).

Yet, this negative view of the role of extrinsic motivation in creativity has begun to be re-visited by Amabile herself, as well as by other creativity scholars. For example, in their Annual Review chapter, Hennessey and 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 and 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, Hennessey and Amabile (1998, p. 675), while continuing to view extrinsic rewards as generally detrimental to creativity, 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" (p. 84). (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 will later provide evidence to support this idea.) Shalley and 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 “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 motivation-hygiene theory logic.)

Hennessey and 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, which both focus on how environmental factors like extrinsic rewards can “thwart” intrinsic motivation (Ryan & Deci, 2000). Latham (2007, p. 107; see also Locke & Latham, 1990) have 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 and Amabile’s (2010) seem to agree that intrinsic motivation (and its expected consequences such as creativity) are not so “fragile” and not so easily subdued and diminished as argued by Ryan and Deci (2000). In fact, they 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).

Third, Hennessey and Amabile remind us that it is important 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, as we will see, Kanfer (1990) and later Gagné and 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 contingent (on creativity) rewards? A recent meta-analysis by Byron and Khazanchi (2012) found that in 34 experimental studies, the use of contingent (on creative performance) extrinsic incentives resulted in a sizeable positive (not negative) effect on creative performance (Hedges $g = .62$). In eight experimental studies, the effect size for contingent extrinsic rewards was again positive, but much smaller (Hedges $g = .07$). (This major difference in effect size between experimental and non-experimental studies serves to reinforce the need for caution in assessing how what is observed in the laboratory 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 studies (and field studies). As an example, Eisenberger and Rhoades (2001) 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/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 creativity in writing titles for the popcorn story is higher under creativity contingent rewards, it is 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 of the lab? As noted, the nonexperimental studies yield 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, Eisenberger and 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/innovation behavior collected from supervisors correlated highly ($r = .65$, corrected $r = .72$) with overall performance rating collected from supervisors (Fang, 1997, Table 4-9). Thus, it would be helpful to see better evidence that (a) in the jobs being studied, employees have the latitude to display different levels of creativity and do, and (b) that 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 and Khazanchi meta-analysis is the level of analysis. All the studies appear to have been conducted at the individual level of analysis and use 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 to be 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 variance both between employees within organizations and variance between organizations in PFP and other factors thought to influence creativity. However, the validity concerns with supervisory performance ratings do not disappear when aggregated to the organization level because while 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. We also note that none of the studies included in the Byron and Khazanchi (2012) meta-analysis appear to study innovation, which, in an organization setting, is quite different and arguably more complex and of more applied interest than creativity, especially as typically measured in research to date (Baer, 2012; Montag, Maertz, & Baer, 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, Zhou, & Oldham, 2004).

Given these definitions, one can see that there is much more to innovation in organizations than just the “first step” (Shalley et al.) of creativity. There is little organization-level research on how (non-executive) 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 (SDT)

Extrinsic Motivation is No Longer Always Bad

Under self-determination theory (SDT), extrinsic rewards and motivation are, in sharp contrast to CET, 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 thinking regarding the role of rewards in the creativity literature.

Instead of focusing on intrinsic motivation versus extrinsic motivation and their different consequences for experienced autonomy/control, SDT now, as **Exhibit 2** shows, primarily focuses 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). **Exhibit 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” (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” (p. 334) 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.” 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, p. 335). When this identification is integrated “with other aspects of oneself,” it becomes more fully internalized and “truly autonomous or volitional” and is called integrated regulation. The next most internalized form of extrinsic motivation is identified regulation.

To make these motivation constructs more concrete, **Exhibit 3** shows how they have actually been measured.⁹ In Gagné et al. (2010), for example, a sample identified regulation (autonomous extrinsic motivation) item is being motivated “Because this job fulfills my career plans.” In contrast, a sample external regulation (controlled extrinsic motivation) item is “Because this job affords me a certain standard of living.” Others 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 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). As we can see, the

degree of support for quality of motivation hypotheses will depend importantly on how the different types of motivation are defined and measured (i.e., how positively or negatively).

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.” 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, it appears that 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)’s Figure 2-1 explicitly identifies the instrumentality of pay for achieving a wide range of needs and he stated (p. 26) that “a given amount of pay derives its importance from its perceived associations with the six types of needs mentioned by Maslow [1954]” and that “The evidence rather clearly suggests that pay can be instrumental for the satisfaction of a variety of needs” (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 ([Gagné & Deci, 2005](#); Gagné & Forest, 2008) has been especially helpful in this regard. Why did SDT change from CET’s almost uniformly negative view of performance-contingent extrinsic rewards? Gagné and 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) that, under SDT, 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 review) regarding the potential for positive effects on intrinsic motivation (using CET logic rather than SDT logic). For example, Kanfer (1990) 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" (p. 89). (See also Staw, 1977.) In this vein, research at the individual level (Eisenberger and Aselage 2009; Eisenberger, Rhoades, & Cameron, 1999; Fang & Gerhart, 2000) 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 having a stronger PFP systems also have employees with higher levels of perceived autonomy (DeVaro and 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 the Deci et al. (1999) meta-analysis and review. (See Fang & Gerhart, 2012.) They concluded that extrinsic rewards "are more detrimental for children than for college students" (p. 656) and that "This set of findings has never been predicted before . . . so we can only speculate about what might be occurring". Deci et al. (1999, p. 656) suggest that "college students have greater cognitive capacity 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."

In addition, the positive effects of performance-contingent rewards on competence information were perhaps given too little weight in CET (Fang & Gerhart, 2012). Early on, Harackiewicz, Manderlink and Sansone (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 and that employees might not always distinguish as sharply between intrinsic and extrinsic aspects of motivation as envisioned in CET (Brief & Aldag, 1977; Dyer & Parker, 1975) and that some aspects could be, as later termed in SDT, autonomous. Dyer and Parker, for example, respondents often saw both intrinsic and extrinsic aspects of outcomes such as achievement, recognition, prestige, and advancement, consistent perhaps with SDT's new-found forms of extrinsic motivation (identified and regulated forms) that are instrumental for achieving goals.

Eisenberger and Cameron (1996) proposed learned industriousness theory, which, consistent with arguments summarized above (see also Bandura, 1986), sees monetary rewards as potentially competence-enhancing. Importantly, 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"* (p. 1161).

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 very positive: they wish to have economic security and the freedom that comes with it that allows them to choose how they spend their time, as

well as financial wherewithal to help others, whether it be to provide a comfortable and secure life for their family and/or having the time and/or economic wherewithal to give to philanthropy. As SDT emphasizes, people respond positively to autonomy and choice and financial success may help make these outcomes more possible. As previously noted, empirical evidence also indicates that autonomy and PFP covary in the workplace.

Quality of Motivation

So, where does this leave us? Under SDT, the intrinsic-extrinsic dichotomy is less prominent 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 combined into the controlled motivation category. As noted, Gagné and 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, in explaining how SDT (e.g., Ryan & Deci, 1996, p. 37; Ryan & Deci, 2000) is different from other work motivation theories such as goal-setting (e.g., Locke & Latham, 1990), Gagné & Deci (2005), relying on work by Sheldon and Elliot (1999) and Sheldon, Ryan, Deci, and Kasser (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” (p. 341). Ryan and 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 and Deci (2005) 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., 2004). Not only does quality of motivation have 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 than extrinsic motivation is also found in the creativity literature. (Creativity would presumably be viewed as a form of heuristic rather than algorithmic performance under SDT.) 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

Address Construct Validity Issues and Quality of Motivation. Returning to **Exhibit 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 (cite). One result was a tendency to view intrinsic motivation and extrinsic motivation as opposites and not as complementary/able to occur simultaneously (Lepper et al., 2005). Second, the definition of extrinsic motivation implied by the actual items used in the measure make 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 **Exhibit 3**, the items in Harter's measure classifies as extrinsically motivated those students who prefer easy work and who are dependent on the teacher for direction. As can also be seen from **Exhibit 3**, Ryan and Connell's (1989) measure also included only negative aspects of extrinsic motivation. Clearly, extrinsic motivation in terms of "freedom of choice" (Eisenberger and 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 (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) than more positive aspects of motivation. As now recognized by some SDT scholars, extrinsic rewards can be negative and/or controlling, but clearly (some) extrinsic rewards can also be positive and autonomy-enhancing.

What happens when extrinsic rewards are not defined/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 $r = .52$), suggesting that open source software programmers can be dually motivated (Amabile et al., 1994), making an undermining effect of extrinsic motivation less likely. It also consistent with our earlier discussion that employees tend to perceive intrinsic and many aspects of extrinsic motivation together.

In fact, the evidence suggests that the positive (more autonomous) aspects of extrinsic motivation may not be empirically distinct from intrinsic motivation. **Exhibit 4** summarizes the corrected correlations between intrinsic motivation and the multiple forms of extrinsic motivation now recognized under SDT based on four recent studies. We do 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 .69 and .75, with integrated extrinsic motivation and between .64 and .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 has it right 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 being less autonomous than intrinsic motivation. Based on this initial evidence, these hypothesized differences are not evident as of yet. Again, introjected regulation too does not “act” as would be expected under SDT. Thus, the remaining quality of motivation logic under SDT, which Gagné and Deci (2005) emphasize as something unique to SDT, may not be empirically supported.

Additional evidence regarding (the lack of) discriminant validity comes when one compares intrinsic motivation and the more autonomous forms of extrinsic motivation (integrated and identified) in terms of their correlations with outcome variables for evidence of the differential prediction/quality of motivation hypothesis. As **Exhibit 5** shows, the patterns of correlations, in actuality, look strikingly similar. On the plus side, such similarity again suggests that the SDT re-conceptualization of motivation (where 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., as 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 quality form of motivation was largely a result of defining and measuring extrinsic motivation in overly narrow (negative) terms.

Further, as noted, although SDT now combines integrated extrinsic motivation and identified extrinsic motivation with intrinsic motivation to form autonomous motivation, SDT still, nevertheless, seems to wish to distinguish between the quality of extrinsic and intrinsic motivation in some cases.¹² For example, Gagné and Deci’s (2005) Proposition 1 states that: “Autonomous extrinsic motivation 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 note further that “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 issues...” Based on the evidence we have examined (see **Exhibits 4 and 5**), there does not (at least thus far) appear to be support for this remaining quality of motivation (differential prediction) proposition under SDT.

A second construct validity issue is social desirability. Lepper et al. (2005), in a school setting, reported that intrinsic motivation scale correlated .42 with a measure of social desirability, whereas their extrinsic motivation scale (composed of mostly externally regulated and/or introjected aspects, see **Exhibit 3**) correlated -.24 with social desirability, a very large difference (.66) in magnitude. That intrinsic motivation appears to be more socially desirable than extrinsic motivation may be consistent with work on reward preferences, where the importance of monetary rewards to respondents is thought to be understated (relative to “higher order” rewards such as interesting and challenging work) when they are asked directly, perhaps due 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, Turban, Brown, Barrick, and Judge (2003), as well as by Bloom and Colbert (2011) provide an overview of how compensation and other HR 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 earlier discussion.) Nevertheless, the fact 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 there would be a significant return on investment from enhancing such programs, at least for some organizations and some jobs.

Incorporate Person Characteristics. Lepper et al. (2005) reported that intrinsic motivation correlated positively with grade point average and achievement test score ($r = .34$, $r = .27$, respectively), while extrinsic motivation correlated negatively with both ($r = -.23$, $r = -.32$, respectively). The differences in correlations (.57 and .59) 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/SDT literatures. Ability may be a source of omitted variable bias in field settings (or in small sample size experiments where randomization may not result in equivalent groups) if higher ability persons work in more complex, interesting jobs and are also more intrinsically motivated. Those with higher ability may also make their jobs broader in scope (Morgeson, Delaney-Klinger, & Hemingway), which may again influence intrinsic motivation. The broader issue is that CET/SDT does not give much attention to the P part of the $B = (P,E)$ equation. Motivation, its level and causes, may vary by person (e.g., Barrick, Mount, & Li, 2013). Although Amabile, Hill, Hennessey, and Tighe (1994), for instance, developed the Work Preference Inventory, which can be used to measure individual differences in intrinsic motivation and extrinsic motivation orientation, it has been little used in CET/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, all about the importance of choice (i.e., autonomy), upon closer inspection, the treatment of choice is narrow in conceptual terms and almost non-existent in empirical terms. On the conceptual side, CET/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. Empirically, the only choice receiving much attention in CET seems to have been the choice of what to do during free time (non-work time).

Goal Choice. Goals play a major role in motivating and directing behavior (Locke & Latham, 2002) and/or in self-regulation (Bandura, 1997; Lord, Diefendorff, Schmidt, & Hall, 2010). In the typical CET laboratory experiment, the goal is given. In the workplace, by contrast, employees must often choose which goal or goals 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 (Milgrom & Roberts, 1992, p. 228; see also the “multitasking” literature, Prendergast, 1999) 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.” Similarly, in psychology, Lawler (1971) earlier observed that “If an employee is not evaluated in terms of an activity, he will not be motivated to perform it” (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 and DeShon (2007) document that goal-performance discrepancy is an important factor influencing which goal receives attention/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, George, Farnsworth, & McMahan, 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 (e.g., prosocial helping behaviors) goals. (See also related work by Bergeron, Shipp, Rosen, and Furst, 2013).

Sorting/Attraction-Selection-Attrition/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, mis-matched, 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). If indeed mis-matches are less likely in the workplace (than in the laboratory) due to ASA/sorting processes, then a detrimental effect of PFP on intrinsic motivation would also be less likely observed in the workplace. Those who experience

a loss of intrinsic motivation under PFP would presumably gravitate to jobs/organizations having PFP policies that are a better fit with their preferences.

For matching to unfold, there must be sufficient employee movement. So, how much employee movement is there? Based on data from the U.S. Bureau of Labor Statistics (BLS) (**Exhibit 6**), a lot. Using three different snapshots, annual quit rates range from 19 to 29 percent and total separations range from 42 to 53 percent 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 percent of the variance in employee personality (using the four Myers–Briggs type indicator personality variables) occurred between (could be explained by) organizations. Fang and Gerhart (2012) focusing specifically on motivation-related traits (extrinsic motivation orientation, intrinsic motivation, and internal work locus of control), found that 19 percent of the variance occurred between organizations. Further, Fang and 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, Song, & Tapon, 2007; Dohmen & Falk, 2011). In addition, field work shows that high performing employees are more likely than others to quit when the pay-performance link is weak (Lazear, 2000; Nyberg, 2010; Salamin and 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 after the introduction of an incentive plan at a company, employee productivity increased by 44%. 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 the increase due to the change in the workforce (Gerhart & Milkovich, 1992) as a sorting effect (Gerhart & Rynes, 2003). (Note that the Deci et al. (1999) and Jenkins et al. meta-analyses discussed earlier capture incentive effects, not sorting effects.)

As we saw earlier, Eisenberger and 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, Cooper, and Robinson (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” (pp. 295-296). 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 ($d = .55$) compared to children ($d = .25$). This finding suggests 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, 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. That has a number of implications. First, employee satisfaction is highly sensitive to social comparisons, which are typically measured with a question 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 .56 for internal (same organization) social comparisons and .57 for external (different organization).

Second, although such a question does not address how an individual chooses the comparison standard, we do know that performance is viewed by employees 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 that 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; Giaccobe-Miller et al., 2003; Sherer et al., 1987; Zhou & Martocchio, 2003). In addition, the Williams et al. 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 ($r = .31$).

The above evidence, which demonstrates the primary role of performance in determining whether employees see pay as equitable, would seem to point to 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, in contrast, suggest that not using PFP may be what causes the most serious problems when it comes to motivation, including intrinsic motivation. Similarly, as we saw earlier, 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 performance distributions for many occupations 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

Based on our review, we have identified several areas where we think future research would be most helpful. 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, our reading is that 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 if that is because of theoretical shortcomings (e.g., different types of motivation are actually equivalent/fungible) or because of empirical limitations (e.g., the need to re-formulate measures to better match construct definitions, the need to choose different organization and 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 degree to which (and how) organizations can influence the degree to which 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 literature, often envision incentives/PFP in terms of piece rate plans where employees often perform simple, narrow, well-defined, repetitive tasks to receive closely linked rewards. Yet, PFP in work organizations takes many forms and piece rates are one of the least used forms. By far, the more common forms of PFP are annual merit pay and promotion programs where performance is often (formally) evaluated only once per year. Compensation payouts and promotion decisions tied to these performance evaluations are typically on a similar 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 situation 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 seems to continue to hypothesize (Cerasoli et al., 2014; Gagné & Deci, 2005; Ryan & Deci, 2000) that PFP is a good idea for boring, routine tasks, but still potentially risky or at least superfluous/irrelevant for interesting, complex, creative work. This argument seems to flow from the SDT (and earlier creativity literature) argument regarding quality of motivation. However, as noted, Jenkins et al. (1993) found no difference in the effects of incentives on performance as a function of how intrinsically motivating the task was. The studies available to

Jenkins et al. were somewhat limited in terms of being done in the workplace and using jobs high in intrinsic interest. Perhaps different samples should be studied also. In addition, Hennessey and Amabile (2010, p. 581) have proposed a competing hypotheses, 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/detracts from intrinsic motivation and performance in intrinsically motivating jobs versus “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 would like to see more work on innovation, rather than on creativity alone. Related to that, we would like to see more work on creativity/innovation move beyond the individual level of analysis and beyond sole reliance on aggregated supervisory ratings of creativity. We need work on how PFP, motivation, and other psychological mechanisms contribute to tangible measures of innovation at the group/organization levels. Fifth, as we have noted, we would like to see 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 (Milkovich et al., 2014) national culture, economic systems, regulation, and other institutions (e.g., labor union strength). Thus far, most research on country differences in compensation, PFP, and motivation has focused on national culture. Our own work (Gerhart & Fang, 2005; Gerhart, 2008; Milkovich et al., 2014, Chapter 16; Rabl et al., 2011) indicates that, while 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 than intrinsic motivation. We have provided an analysis of how and why the negative view of extrinsic incentives/PFP has shifted. We have also examined how SDT has evolved from CET and its attempt to re-cast some types of extrinsic motivation as autonomous, but still as of lower quality than intrinsic motivation. We have talked about the need for future research on this quality of motivation topic and in other important areas, which we feel will provide a better understanding of how PFP/extrinsic rewards influence performance, creativity, and the role that motivation and other psychological processes play in this process.

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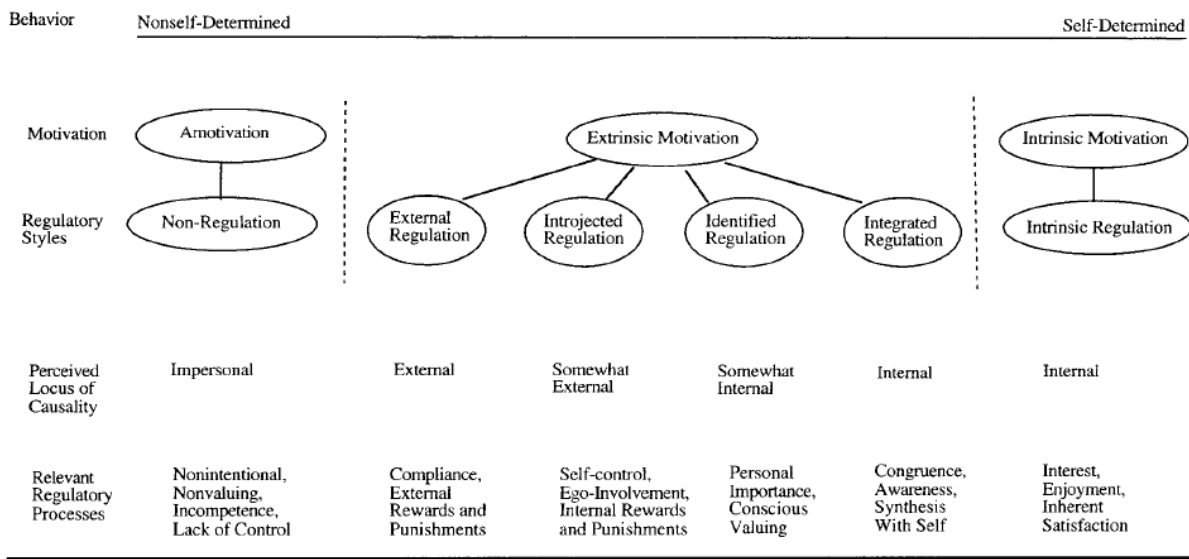
Exhibit 1. Mean Number of Seconds Spent Working on the Puzzle During the Eight-Minute Free Choice Sessions (Deci, 1971)

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

Exhibit 2. Types of Motivation and their Degree of Self-Determination

Figure 1

The Self-Determination Continuum Showing Types of Motivation With Their Regulatory Styles, Loci of Causality, and Corresponding Processes



Source: Ryan RM, Deci EL. 2000. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *Am. Psychol.* 55(1): 68-78

Exhibit 3. Content (sample items) from Measures of Extrinsic and Intrinsic Motivation			
Study	Setting	Controlled or Extrinsic Motivation Item Content	Autonomous or Intrinsic Motivation Content
Krishnamurthy et al. (2014)	Workplace	Extrinsic Motivation Working on an open source project increases my opportunities for a better job.	Intrinsic Motivation Writing open source software programs is fun.
Boiche´ & Stephan (2014)	College Students	Extrinsic Motivation <u>Introjected Regulation</u> To prove to myself that I am capable of completing my college degree <u>External Regulation</u> Because with only a high-school degree I would not find a high-paying job later on.	Autonomous Motivation <u>Intrinsic Motivation</u> Because I experience pleasure and satisfaction while learning new things. <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 <u>External Motivation</u> Because my boss wants me to do it. <u>Introjected Motivation</u> Because I would feel guilty if I did not do well.	Autonomous Motivation <u>Intrinsic Motivation</u> Because the work is fun. <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 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.	Autonomous Motivation Because I enjoy the process. Because it’s fun. Because I enjoy doing it.
Grant et al. (2011), Study 2	Workplace	Controlled Motivation	Autonomous Motivation

[adapted from Ryan & Connell, 1989 scale]		<p>Because I need to earn money.</p> <p>Because I need to pay bills.</p> <p>Because I need the income.</p>	<p>Because it's fun.</p> <p>Because I enjoy it.</p>
Gagné et al. (2010)	Workplace	<p>Controlled Motivation</p> <p><u>External Regulation</u> Because this job affords me a certain standard of living.</p> <p><u>Introjected Regulation</u> Because my work is my life and I don't want to fail.</p>	<p>Autonomous Motivation</p> <p><u>Intrinsic Motivation</u> Because I enjoy this work very much.</p> <p><u>Identified Regulation</u> Because this job fulfills my career plans.</p>
Tremblay et al. (2009)	Workplace	<p>Work Self-Determination = low</p> <p><u>External Regulation</u> For the income it provides me.</p> <p><u>Introjected Regulation</u> Because I want to be very good at this work, otherwise I would be very disappointed.</p> <p><u>Amotivation</u> I don't know why, we are provided with unrealistic working conditions</p>	<p>Work Self-Determination = high</p> <p><u>Intrinsic Motivation</u> For the satisfaction I experience when I am successful at doing difficult tasks.</p> <p><u>Integrated Regulation</u> Because it has become a fundamental part of who I am.</p> <p><u>Identified Regulation</u> Because it is the type of work I have chosen to attain certain important objectives.</p>
Vansteenkiste et al (2009)	High School and College Students	<p>Controlled Motivation</p> <p><u>External Regulation</u> Because that's something others (parents, friends, etc.) force me to do.</p> <p><u>Introjected Regulation</u> Because I would feel ashamed if I didn't study.</p>	<p>Autonomous Motivation</p> <p><u>Intrinsic Motivation</u> Because I enjoy doing it.</p> <p><u>Identified Regulation</u> Because I want to learn new things</p>
Lepper et al. (2005)	School	<p>Extrinsic Motivation</p> <p><u>Easy Work</u> I like to learn just what I have to in school.</p> <p><u>Pleasing teacher</u> I read things because the teacher wants me to.</p>	<p>Intrinsic Motivation</p> <p><u>Challenge</u> I like difficult schoolwork because I find it more interesting.</p> <p><u>Curiosity</u> I read things because I am interested in the subject.</p>

		<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</u> Because somebody else wants you to or because you’ll get something from somebody if you do. <u>Introjected</u> Because you would feel ashamed, guilty, or anxious if you didn’t strive for this. Each participant then rated each striving “as to how much it helped take them toward possible futures in six culturally endorsed value domains”:	<u>Intrinsic</u> Purely because of the fun and enjoyment <u>Identified</u> Because you really believe it is an important goal to have—you endorse it freely and wholeheartedly.
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, Hill, Hennessey, & Tighe (1994)	Workplace and College Students	Extrinsic Motivation I am strongly motivated by the [grades] [money] I can earn.	Intrinsic Motivation I enjoy trying to solve complex problems.
Ryan & Connell (1989)	School	External Perceived Locus of Causality (Controlled)^a <u>External</u> Because I'll get in trouble if I don't. <u>Introjected</u> Because I'll feel ashamed of myself if I don't.	Internal Perceived Locus of Causality (Autonomous)^a <u>Intrinsic</u> Because it's fun. <u>Identification</u> Because I want to learn new things.
Harter (1981)	School	Extrinsic Motivation	Intrinsic Motivation^b
		Preference for^c:	
		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
<p>Note: Unless otherwise noted, a single item is a sample item. Underlined words are labels of sub-dimensions. "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.</p> <p>^aRyan and 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.</p> <p>^bGiven its influence on later scales, we include all items in Harter's scale.</p> <p>^cAccording 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.</p>			

Exhibit 4. Corrected Correlations between Intrinsic Motivation and Four Types of Extrinsic Motivation, Workplace Settings				
	Tremblay et al. (2009)	Gagné et al. (2010)	Moran et al. (2012)	Boiché and Stephan (2014)
Extrinsic Motivation Type	Correlation of Intrinsic Motivation with:			
Integrated Extrinsic Motivation	.69		.75	
Identified Extrinsic Motivation	.70	.80	.64	.77
Introjected Extrinsic Motivation	.63	.43	.33	.68
Externally Regulated Extrinsic Motivation	.11	.13	.13	-.18
<p>Note: For 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 and Stephan (2014), exact coefficient alphas were not reported, only they ranged from .69 to .85 for the motivation scales. Thus, we assumed an alpha of .77 for all variables in their study.</p>				

Exhibit 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
<u>Tremblay et al. (2009):</u>					
Job Satisfaction	.46	.45	.40	.34	.02
Organization Commitment	.41	.37	.32	.32	.13
Turnover Intention	-.47	-.36	-.35	-.26	-.03
Work Strain	-.06	-.12	-.08	-.01	.10
<u>Gagné et al. (2010):</u>					
Job Satisfaction	.58	α	.53	.27	.13
Affective organizational commitment	.59		.64	.38	-.18
Turnover Intention	-.26		-.27	-.12	-.03
Well-being	.54		.43	.14	-.09
Psychological Distress	-.48		-.34	-.06	.20
Need for autonomy	.55		.60	.36	.17
Need for competence	.25		.27	.08	.09
Need for relatedness	.51		.52	.07	.01

Exhibit 6. Annual Employee Movement Rates (%), U.S. Labor Market						
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

Source: Job Openings and Labor Turnover Survey, 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.

Exhibit 7. Suggested Future Research Directions

1. Quality of Motivation. Do Different types of motivation (extrinsic, intrinsic; autonomous, controlled) differentially predict effectiveness outcomes (e.g., performance, creativity)?
2. Integrate the motivation and compensation/PFP literatures. Determine the degree to which different PFP program design characteristics (e.g., frequency of evaluation/reward, intensity of performance monitoring/measurement), as well as 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.
3. Assess the degree to which the influence of PFP on effectiveness outcomes depends on how intrinsically motivating the job is.
4. 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, attraction-selection-attrition/sorting in matching people to jobs and to what degree does that reduce the likelihood of ongoing mis-matches (and their consequences) between employee motivation preferences and the rewards attached to their jobs?
5. Be aware of the influence of national differences in context.

Notes

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

² CET logic has been used in economics 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, it is very important to note that the crowding out literature does not, for the most part, focus on workplace motivation, performance, and creativity. Indeed, Frey and Jergen (2001, p. 590) very 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.

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

⁴ Although 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).

⁵ See also the over-justification effect (Lepper, Greene, & Nisbett, 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.

⁶ There was no negative effect of incentives on quality of performance ($r = .08$, $d = .16$, n.s.), Thus, extrinsic rewards were associated with higher quantity with no cost to quality.

⁷ It 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 will also see that choice is more strongly positively related to intrinsic motivation among children than among adults.

⁸ Introjected 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/motivated by internal sources: ego protection, guilt, and so forth.

⁹ Ryan and 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.”

¹⁰See our earlier footnote containing recent quotes from SDT scholars (e.g., Deci & Ryan, 2013), which 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 and Locke, 2000; Eisenberger & Cameron, 1996; Gerhart & Milkovich, 1992; Latham & Locke, 1990; Latham, 2007; Locke & Latham, 2009; Pinder, 1998; Wiersma, 1992.

¹² One can still, at times, in reading the SDT literature, see CET’s negative view of extrinsic rewards, which continue to be seen as a major potential threat to intrinsic motivation. For example, Benita, Roth, and Deci (p. 260) in 2014 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 and Ryan (2013) for a number of statements indicating continued unease with monetary rewards.

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).