The effects of intrinsic and extrinsic sources of motivation on well-being depend on time of day: The moderating effects of workday accumulation

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ABSTRACT

Using self-determination theory and research on temporal aspects of work (e.g., time of day), this study investigates dynamic effects of task-specific motivation on well-being throughout the workday. We argue that the effects of task-specific intrinsic and extrinsic motivations on well-being outcomes (psychological vitality, job satisfaction) depend on the time of day in which the task is encountered, referred to here as workday accumulation. Our results showed that time of day interacted with intrinsic sources of motivation to predict job satisfaction, such that the relation was strong and positive early in the day and weak and positive later in the day. Time of day did not moderate the relationship of intrinsic task motivation with vitality, which was consistently positive throughout the day. The effects of extrinsic reasons for task pursuit on satisfaction and vitality were moderated by time of day, with extrinsic motivation having positive effects early in the day, but negative effects later in the day.

In today’s dynamic workplace, job demands, work expectations, and the reasons for pursuing tasks can change from one moment to the next. Consistent with this idea, theorists (e.g., Gagné & Deci, 2005) have argued that the motivation for pursuing activities can fluctuate in terms of how much they are perceived as originating from the self and one’s desires (i.e., intrinsic) and as originating from outside the self in the form of external demands (i.e., extrinsic; Sheldon & Elliot, 1999). Such variability in the reasons for pursuing activities has implications for subjective well-being, energy levels, and mood (Sheldon, Ryan, & Reis, 1996). For instance, research has shown that momentary, event-level intrinsic motivation is positively related to momentary well-being and vitality, whereas momentary extrinsic motivation is negatively related to these outcomes (e.g., Reis et al., 2000; Sheldon et al., 1996).

Research from a variety of disciplines suggests that subjective well-being and reactions to different sources of motivation are likely to systematically change throughout the working day (Egloff, Tausch, Kohlmann, & Krohne, 1995; Hanson, Godaert, Maas, & Meijman, 2001). For instance, Thayer (1987) found that individuals were more energetic and less tense in the morning compared to the mid to late afternoon. Further, some findings show that the amount of time employees have been at work for a given shift can shape reactions to work demands (Grech, Neal, Yeo, Humphreys, & Smith, 2009). Building on these ideas, we developed and tested theory arguing that the amount of time employees have been at work on a given day—referred to here as workday...
accumulation—can alter the effects of event-level extrinsic motivation and intrinsic motivation on momentary levels of psychological vitality and job satisfaction. We conceptualize workday accumulation as the amount of time someone has been at work and operationalized it as the time of day. The idea behind this concept is that, as the day accumulates, employees may have fewer resources available to them to perform their work, which results in the need to exert more effort and self-control late in the day compared to early in the day (Broadbent, 1979; Van der Linden, Frese, & Meijman, 2003). We propose that this change can alter the effects of task-specific motivation on well-being. Our focus on workday accumulation is motivated by calls to investigate time from a psychological perspective and incorporate it as a substantive variable in organizational research (e.g., Ancona, Okhuysen, & Perlow, 2001).

We theorized that the relationship of intrinsic reasons for task pursuit with employee well-being will be positive throughout the day, but it will be stronger early in the day when employees may be relatively fresh and become weaker as the day progresses, more demands have accumulated, and more resources have been expended. In contrast, we theorized that the relationship of extrinsic reasons for task pursuit with well-being outcomes will be positive early in the day when individuals are beginning work, but become negative late in the day after many demands have been encountered and resources expended. These ideas build on the debate about whether extrinsic motivation is beneficial or harmful (e.g., Deci, Koestner, & Ryan, 1999; Eisenberger, Pierce, & Cameron, 1999) by specifying a conditional variable (time in the workday) that allows for both effects to coexist (i.e., positive effect earlier, negative effect later). In the following sections, we develop our theoretical arguments and empirically test these ideas using data collected via experience sampling methodology (ESM).

1. Intrinsic and extrinsic reasons for task pursuit

Self-determination theory (SDT; Deci & Ryan, 2000) emphasizes the role of autonomy over one’s actions as an influence on effort, happiness, and subjective well-being. SDT proposes a continuum in which intrinsic and extrinsic motivations exist at opposite ends, though theorists acknowledge that both sources of motivation may simultaneously occur and influence behavior and well-being (Deci & Ryan, 2000). Intrinsic sources of motivation involve performing a task because it is interesting or enjoyable. High intrinsic motivation has been linked to higher achievement (Deci & Ryan, 2000), satisfaction (Judge, Bono, Erez, & Locke, 2005) and well-being (Vansteenkiste et al., 2007). Extrinsic sources of motivation derive from external pressure (i.e., actual/perceived punishments, rewards, or obligations) and have been associated with lower performance (Deci & Ryan, 2000), well-being (Sheldon & Elliot, 1999), and job satisfaction (Vansteenkiste et al., 2007). ESM research has found that intrinsic task-specific motivation is linked to flow experiences (Conti, 2001), self-esteem, and persistence (Hektner & Csikszentmihalyi, 1996). Conversely, extrinsic reasons for task pursuit have been linked to lower psychological vitality and need satisfaction (Ryan & Deci, 2008).

Although SDT has garnered substantial support in the literature (see Deci et al., 1999, for a meta-analytic review) and has been increasingly examined in organizational contexts (see Gagné & Deci, 2005, for a review), the theory is not without its critics (e.g., Carver & Scheier, 2000). A particularly contentious issue pertains to whether extrinsic pressures to perform are always harmful (e.g., Eisenberger, Pierce, et al., 1999; Eisenberger, Rhoades, & Cameron, 1999). Eisenberger, Pierce, et al. (1999) and Eisenberger, Rhoades, et al. (1999) posit that extrinsic sources of motivation (e.g., pay for performance systems) can yield positive well-being outcomes because rewards signal to employees that they are competent and valued by the company. In support of this argument, Eisenberger and colleagues found that pay for performance systems increased task enjoyment, positive mood, and job performance. Eisenberger, Pierce, et al. (1999) and Eisenberger, Rhoades, et al. (1999) argued that employees perceived that the organization valued their competence and was concerned for their well-being and effectiveness, which enhanced how they felt about the job. As such, we contend that a key question for SDT remains: when and under what conditions will extrinsic sources of task motivation have positive versus negative effects on employee well-being? Further, we believe it is important to examine whether intrinsic motivation is equally beneficial across situations.

In organizational contexts (compared to social or leisure contexts), extrinsic demands to perform tasks are an integral and expected part of the exchange relationships employees have with organizations; that is, the majority of workers expect to do tasks at the request of others and to receive extrinsic rewards (i.e., a paycheck) for time spent working (Gagné & Deci, 2005). With this exchange relationship making extrinsic task demands quite common and expected, it is possible that pursuing tasks for extrinsic reasons may produce positive results for employees, such as feelings of satisfaction for a job well-done. Indeed, monetary and other extrinsic reinforcers (e.g., praise) can communicate to employees that the organization views them as competent and values their contributions (i.e., Eisenberger, Pierce, et al., 1999; Eisenberger, Rhoades, et al., 1999), which can enhance employee well-being. Nonetheless, the vast majority of SDT research (Ryan & Deci, 2000; Ryan & Frederick, 1997) suggests that employees are more energized and happier when they are pursuing a task for intrinsic reasons compared to extrinsic reasons. As explained below, we suggest that both views of the effects of extrinsic motivation may be correct and that a key determinant of which effect will be observed in a situation may be when during the workday employees encounter an extrinsic pressure to perform.

2. Time of day, task motivation, and momentary well-being

Researchers have called for studies focusing on the substantive role of time in shaping organizational processes (e.g., Ancona et al., 2001). Thus far, very few studies have looked at within-day patterns or the effects of time of day on employee outcomes. Laboratory-based experimental research has shown that the exertion of effort over the course of time leads to fatigue (Broadbent, 1979), worsened mood, and a decreased ability to exert the control needed to complete challenging or difficult tasks (Van der Linden et al., 2003). Correlational research in naturalistic contexts has observed parallel findings, showing that individuals experience a decline in