

UC Davis

UC Davis Previously Published Works

Title

Improving Human Sustainability at Work by Focusing on Cognitive Load of Task Performance

Permalink

<https://escholarship.org/uc/item/51r526dd>

Journal

Journal of Management, 52(5)

ISSN

0149-2063

Authors

Stajkovic, Kayla S

Stajkovic, Alexander D

Publication Date

2026-05-01

DOI

10.1177/01492063251334560

Copyright Information

This work is made available under the terms of a Creative Commons Attribution-NonCommercial-NoDerivatives License, available at

<https://creativecommons.org/licenses/by-nc-nd/4.0/>

Peer reviewed



Improving Human Sustainability at Work by Focusing on Cognitive Load of Task Performance

Kayla S. Stajkovic 

University of California

Alexander D. Stajkovic 

University of Wisconsin

Mounting information processing demands in contemporary organizations spotlight the need to better understand how to maintain and improve performance without increasing cognitive load. Research in organizational behavior suggests that primed goals provide performance benefits similar to assigned goals but with little cost to attention. Yet, some research in social psychology suggests that any form of goal use, including primed goals, usurps attention. To reconcile these viewpoints, we examined the relationships among assigned and primed goals, performance, and demands on attention (measured as cognitive load) in three experiments. Experiment 1 (n = 233) showed that when a primed goal is aligned with an assigned goal, performance improved without increasing cognitive load. In contrast, Experiment 2 (n = 515) demonstrated that when a primed goal is misaligned with an assigned goal, performance worsened and cognitive load increased. Study 3, a quasi-field experiment with 315 working professionals, added internal and external validities to the prior experiments. We also examined task novelty and complexity as boundary conditions. For novel tasks (Experiments 1 and 2), when perceptions of task complexity increased, the positive effect of an aligned primed goal diminished. However, for a well-practiced task (Experiment 3), increased task complexity did not diminish the positive effect of aligned goals.

Keywords: goal setting; motivation; cognition/cognitive processes; experimental methods

Corresponding author: Kayla S. Stajkovic, PhD, University of California, Davis, Graduate School of Management, One Shields Avenue, Davis, CA 95616, USA.

E-mail: kstajkovic@ucdavis.edu

Growing competition, mounting job demands, and increasingly amorphous roles in organizations are elevating employee cognitive load to historically unparalleled levels (Blustein, 2019; Korunka & Kubicek, 2017). Cognitive load represents “information processing (attention) demands” (Block, Hancock, & Zakay, 2010: 330), and cognitive overload occurs when attentional processing capacity is exceeded by information processing demands (Norman & Bobrow, 1975). Attention is irreplaceable because it materializes consciousness, but it is also limited (Miller, 1956) and easily depleted (Kahneman, 1973). Drained attention attenuates performance and leads to burnout (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Ganster, 2005; Iskander, 2019). The demands of an always-on global workplace spotlight the need for organizations to better understand how to improve performance without taxing employees’ attention. To illustrate, according to a *Forbes* article, “. . . cognitive load could be the most important employee experience metric in the next 10 years,” and companies that reduce employees’ cognitive load “. . . could reap the business benefits that will define the winners and losers of this new digitally transformed workplace” (Freed, 2020: 1).

For these reasons, scholars and managers have been searching for new ways to mitigate escalating cognitive (over)load without sacrificing performance (Stajkovic & Sergent, 2019). A relatively unique approach to this dilemma has been to concurrently assign and prime goals (Latham, Brcic, & Steinhauer, 2017). Primed goals are subtle cues, such as words or pictures, that activate a goal without awareness, influencing behavior without requiring conscious thought from individuals (Custers & Aarts, 2010). Research shows that primed goals can boost performance outcomes—for example, increasing the amount of fundraising (Shantz & Latham, 2009), improving quality of customer service (Stajkovic, Latham, Sergent, & Peterson, 2019), and enhancing creativity (Stajkovic, Locke, & Blair, 2006), all presumably without taxing attention (Custers & Aarts, 2010). However, evidence for attention-free operation of primed goals is mixed. Some research shows that primed goals can guide behavior without attentional assistance (Fishbach, Friedman, & Kruglanski, 2003; van Merriënboer & Sweller, 2005), but other studies suggest that they do consume attention (Chen & Latham, 2014; Marien, Custers, Hassin, & Aarts, 2012).

Our research focuses on examining how the simultaneous pairing of primed and assigned goals influences performance and cognitive load. This focus is relevant in organizational settings because employee behavior is frequently guided by assigned goals (Locke & Latham, 2013), but much less is known about how primed goals might interplay with them (Latham, Stajkovic, & Locke, 2010; Latham et al., 2017). In particular, we examine whether the attentional demands of a primed goal depend on the primed goal’s alignment or misalignment with the concurrently present assigned goal. Goal alignment refers to a content match between goals, such as assigning an achievement goal paired with priming an achievement goal (Stajkovic et al., 2006). Goal misalignment is defined as a concurrent activation of opposing forces of approximately equal strength (Lewin, 1935: 123), such as assigning an accuracy goal paired with priming a speed goal. We examine misalignment when both goals are relevant to performance tasks (e.g., accuracy and speed to typing)—that is, goals are directly tied to performance tasks. We vary the nature of performance tasks in three studies to assess how goal interplay influences creativity, logical reasoning, and a motor task.

Under goal alignment, we expect primed goals to improve performance without increasing cognitive load. This would represent a win-win scenario: Employees would be less cognitively taxed, and organizations would benefit from maintained and, possibly, improved employee job performance. Conversely, we expect that goal misalignment might introduce

conflicting demands. When goals are misaligned, both can be achieved (e.g., accuracy and speed), but striving for one often means sacrificing performance toward the other (Locke, Smith, Erez, Chah, & Schaffer, 1994; Slocum, Cron, & Brown, 2002). Arguably, though, if one goal (e.g., accuracy) is assigned and the other (e.g., speed) is primed and operates without consuming attention, then performance could improve; greater accuracy could be achieved due to the assigned goal, and speed improved from the primed goal. Conversely, if a primed goal competes for attention, then this form of goal misalignment may result in a lose-lose situation—worse performance and higher cognitive load.

In the first experiment, we replicated a finding that a primed goal enhances performance when aligned with an assigned goal (Shantz & Latham, 2009, 2011; Stajkovic et al., 2006) and extended it by examining if the positive primed goal effect unfolds without increasing cognitive load. The primed and assigned goals were both aimed at achievement, and performance was measured on a creativity task. Cognitive load was measured with the *Paas Cognitive Load scale* and behaviorally with reaction time on the *Stroop test*. We found positive effects for both the assigned and the primed goal on performance, and the primed goal did not increase cognitive load. These results offered initial support for a win-win scenario, suggesting primed goals might contribute to human sustainability by mitigating cognitive load without decreasing performance.

In the second experiment, we examined the effects of goal misalignment on performance and cognitive load. In this study, an assigned goal was set for accuracy, and a primed goal was misaligned for speed. We measured performance with a logical reasoning task from the *Law School Admission Test (LSAT)*. The misaligned primed goal caused worse performance and increased cognitive load, showcasing a lose-lose scenario. This finding highlighted how a primed goal can hinder performance and increase cognitive load when misaligned with an assigned goal.

In the first two experiments, participants performed novel tasks. The third experiment strengthened the internal validity and assessed the generalizability of the findings by using a familiar work task—typing. Instead of a Stroop test to behaviorally assess the cognitive load, we used an unexpected-reaction probe task to measure it and found similar results. Across three experiments, we tested task complexity as a boundary condition. On novel tasks (Experiments 1 and 2), performance benefits of an aligned primed goal diminished as task complexity increased. For a well-practiced task (Experiment 3), though, the positive effect of an aligned primed goal on performance did not diminish with task complexity. Taken together, this research extends the literature on goal priming in management by reconciling its differential impact on cognitive load and contributes to practice by demonstrating how performance can improve without taxing attention.

Literature Review and Theory Development

Assigned and Primed Goals

An assigned goal is “a regulatory mechanism for monitoring, evaluating, and adjusting one’s behavior” (Locke & Latham, 2009: 19–20), where assigned denotes the deliberate setting of the goal and attentional processing of it (Latham & Locke, 1991). The effects and operation of assigned goals are well-established (Locke & Latham, 2013), and we turn next to the literature on primed goals.

Because goals are mental representations stored in memory (Latham & Locke, 1991), they can also be subtly activated with environmental cues to affect behavior, a process known as priming (Bargh, 1990; Custers & Aarts, 2010; Locke & Latham, 2004; Stajkovic & Sergent, 2019). That is, as people repeatedly pursue a goal in a similar context, they gradually encode associations among the familiar cue (e.g., library), goal (e.g., being silent), and behavior (e.g., talking quietly) (Aarts & Dijksterhuis, 2003). Over time, these associations become engrained in memory (Bargh, 1992). When a similar environment is encountered, it primes the stored goal, triggering the associated behavior(s) (Bargh, 1990). This unfolds automatically, without requiring attentional guidance (Bargh & Chartrand, 2000; Chen, Latham, Piccolo, & Itzhakov, 2021; Weingarten, Chen, McAdams, Yi, Hepler, & Albarracín, 2016).

Although primed goals have been primarily studied independently, mainly in social psychology, their combined influence on performance with assigned goals has been studied in organizational research (Latham et al., 2010, 2017). For instance, Stajkovic et al. (2006) found synergistic effects of an assigned and a primed goal on performance when both focused on achievement. Shantz and Latham (2009) conducted conceptual field replications with call center employees and found similar effects. Shantz and Latham (2011) likewise concluded that assigned and primed goals work better together than either one alone to boost performance. Organizational research has since discovered that primed goal effects are mediated by self-set goals, goal commitment, and motivation (Ganegoda, Latham, & Folger, 2016; Latham, Hu, & Brcic, 2020; Stajkovic et al., 2019) and moderated by valence, goal difficulty, and feedback (Chen & Latham, 2014; Itzhakov & Latham, 2020; Latham et al., 2017). A meta-analysis found that a primed achievement goal, relative to no prime, improved work-relevant performance outcomes (Chen et al., 2021).¹

Competing Conceptions of Primed Goals and Cognitive Load

Despite growing organizational research on primed goals, little is known about how they operate alongside assigned goals to affect cognitive load. As a result, the nature and extent to which primed goals offer a novel work motivation technique remains incompletely understood. On the one hand, if primed goals operate like assigned goals by consuming attention (Chen & Latham, 2014; Marien et al., 2012), they arguably offer little incremental value to organizations beyond what assigned goals already provide. On the other hand, if primed goals improve performance without attentional assistance (Fishbach et al., 2003; van Merriënboer & Sweller, 2005), then they offer a potentially viable method for maintaining or enhancing performance without increasing cognitive load.

Literature suggesting that primed goals operate relatively attention-free (Gollwitzer, 1999; Webb & Sheeran, 2003) is based on the conception that primed goal pursuits represent “goal seeking for issues that are critically important, . . . and that are now automated, deeply embedded in the fabric of the self . . .” (Carver & Scheier, 1998: 270). Zajonc (1980: 35) similarly argued that ingrained “preferences need no inferences” because behaviors become overlearned to save on attentional processing. Fishbach et al. (2003) manipulated cognitive load and primed goals; if primed goals use attention, then induced cognitive load should undermine their effectiveness. No such effect of cognitive load on primed goals was found, supporting their attention-free operation. The other perspective implies that attention is needed for all goal pursuits (Kruglanski, Shah, Fishbach, Friedman, Chun, & Sleeth-Keppler,

2002), including primed goals (Bargh, Green, & Fitzsimons, 2008; Bijleveld, Custers, & Aarts, 2009; Dijksterhuis & Aarts, 2010). Marien et al. (2012: 412) conducted several experiments and concluded that “. . . unconscious and conscious goals both operate on a platform that usurps mental resources.”

In addition to mixed findings, the often-incompatible study designs further complicate the clarity of existing comparisons. For instance, Fishbach et al. (2003) examined the effects of primed goals on cognitive load independently of assigned goals, while Marien et al. (2012) investigated broader goal dynamics without disentangling their interactions. This lack of conceptual and empirical clarity underscores the need for a more nuanced investigation into how primed and assigned goals jointly influence performance outcomes and cognitive load—a need that our research directly addresses.

Reconciling Competing Theoretical Perspectives

We reconcile these competing theoretical conceptions by applying the principle of least necessary input to cognitive resource allocation (Kukla, 1972). This principle suggests that it is maladaptive to allocate either less or more attention than is needed to a calibrated activity level. Attention is irreplaceable when needed, yet, its processing capacity is limited.² Assigned goals use attention to select, engage, and direct cognitive processes and behaviors relevant to goal pursuit (Locke & Latham, 1990, 2013). In this process, attention represents an underlying system of cognitive operations that selects (perceives and processes), engages (activates), and guides executive control (volitional behavior) (Posner, 1980; Posner & Rothbart, 2007; Postle, 2015).

According to goal theory, difficult goals – compared to do-best goals – allocate more attention to the cognitive processes required for goal attainment (Latham & Locke, 1991; Locke & Latham, 2013). When an assigned difficult goal and a primed goal are aligned toward achieving the same outcome, there is little need for a primed goal to activate additional attentional resources beyond those already engaged by the assigned goal (Bargh & Chartrand, 2000). This is also unlikely because an aligned primed goal operates automatically, relying on preexisting behavioral patterns stored in memory (Custers & Aarts, 2010). For these reasons, content goal alignment enables the primed goal to “piggyback” on the attentional processes activated by the conscious goal. In doing so, it contributes to performance by boosting motivation and commitment (see Ganegoda et al., 2016; Latham et al., 2020; Stajkovic et al., 2006, 2019) without adding cognitive load. In this way, an aligned primed goal can enhance performance while imposing little additional burden on attentional processing, creating a win-win scenario.

Hypothesis 1: When a primed goal is aligned with an assigned goal, compared to no prime goal, it will increase performance without increasing cognitive load.

When a primed goal is misaligned with an assigned goal, the cognitive processes required for each are likely to compete for attention because misaligned goals involve different behavioral demands and strategies. For instance, if a task requires both speed and accuracy, the cognitive processes used to pursue these goals differ, necessitating a trade-off (Schouten & Bekker, 1967). Woodworth (1899) initially showed that at high speeds, correct responses occur at chance levels. Similarly, Wickelgren (1977) demonstrated that as speed is reduced,

accuracy increases. This is because speed goals demand faster, less precise processing, whereas accuracy goals rely on slower, more deliberate processes (Schouten & Bekker, 1967). Taken together, accuracy goals engage cognitive processes aimed at maximizing correctness at the cost of speed, while speed goals emphasize rapid responses, often at the expense of precision (Meyer, Irwin, Osman, & Kounios, 1988).

This divergence is captured in cognitive processes theory (van Maanen, 2016), which suggests that pursuing misaligned goals engages conflicting modes of cognitive processing, thereby straining attentional resources. In organizational research, Beersma, Hollenbeck, Humphrey, Moon, Conlon, and Ilgen (2003: 574) concluded that “. . . most complex tasks require some degree of both speed and accuracy, but there are tradeoffs that make meeting both task requirements difficult.” Pursuing two misaligned goals—though possible—often results in diminished performance, as misalignment overtaxes attention by requiring it to serve both goals simultaneously. If attention were not affected by misalignment and could adequately support both goals, then – taken to an extreme – this scenario could lead to behavioral paralysis. These points are consistent with research on goal conflict, which demonstrates that as more cognitive resources are directed toward one goal, fewer remain for another (Erez, Gopher, & Arazi, 1990). Neuroimaging research also shows increased activation in the prefrontal cortex (which supports executive functioning) during tasks requiring conflict resolution, indicating heightened demand for attention (Mansouri, Koechlin, Rosa, & Buckley, 2017; Pessiglione et al., 2007).

If primed goals operated attention-free and independently of alignment with assigned goals, then an assigned goal for accuracy and a primed goal for speed should lead to a more accurate and faster performance by circumventing the competition for attentional resources (e.g., Sheeran, Webb, & Gollwitzer, 2005). Primed goals can “piggyback” on the attentional processes of the aligned assigned goal because they guide the same pursuit, but this is not the case with misaligned goals as they represent different behaviors (e.g., speed and accuracy). That is, as it would for aligned goals, a misaligned primed goal cannot automatically tap into preestablished behavioral patterns because these are different for a misaligned goal (Marien et al., 2012). Thus, because an assigned goal activates behaviors that are no longer the same as those engaged by the primed goal, we expect additional attention will be needed to resolve the conflicting demands of misaligned goals.

The mental effort required to balance misaligned goals is likely to disrupt the automaticity that primed goals usually provide (Takarada & Nozaki, 2018). In such cases, the primed goal can no longer “ride along” with the attentional resources allocated to the assigned goal. Instead, it competes for those resources, drawing attention away from the processes necessary to achieve the assigned goal. This competition for attention increases cognitive load, as the cognitive system is forced to shift between different processing modes (Meyer et al., 1988), resulting in inefficiencies (Posner, Rothbart, Vizueta, Levy, Thomas, & Clarkin, 2002). Therefore, when goals are misaligned, the ability to maintain performance on either goal declines, reflecting the limited processing capacity of attentional guidance mechanisms (Mansouri et al., 2017; Najmi, Amir, Frosio, & Ayers, 2015). Formally stated:

Hypothesis 2: When a primed goal is misaligned with an assigned goal, compared with no primed goal, it will decrease performance and increase cognitive load.

Task Complexity as a Boundary Condition

We examine task complexity as a boundary condition because it has been shown to attenuate the effects of assigned goals on performance (Wood, Mento, & Locke, 1987). Yet, little is known about whether task complexity moderates the effects of primed goals, and the existing literature is mixed. Chen and Latham (2014), for example, conducted a goal-priming study with a complex task and found that the primed goal effects were not attenuated – suggesting that primed goals may be invariant to task complexity. In contrast, two other studies found that the performance benefits of primed goals were actually enhanced as task complexity increased (Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001; Dijksterhuis, Bos, Nordgren, & Van Baaren, 2006).

One reason for mixed findings is that “little consensus exists . . . concerning the properties that make a task complex” (Campbell, 1988: 40). Task complexity can be assessed from a task-performer relational perspective (March & Simon, 1958; Tversky & Kahneman, 1981). This view considers complexity as a conjoint perceptual property of both the task and the performer, shaped by factors such as expertise and experience (Haerem & Rau, 2007). From this perspective, whether task complexity moderates the effects of primed goals may depend on how the performer perceives the task’s complexity. Given these conceptual ambiguities, we examine task complexity as an exploratory moderator.

Experiment 1

Design, Power Analysis, and Participants

This study was a 2 (primed goal, no primed goal) $\times$ 2 (difficult assigned goal, do-best assigned goal) analysis of variance (ANOVA) factorial design that incorporated aspects from Stajkovic et al. (2006) and Shantz and Latham (2009) studies. We conducted an *a priori* power analysis to determine the sample size using the primed goal effect size ($d = .44$) derived from the meta-analytic finding of the average primed goal effect on performance reported by Chen et al. (2021). Using G*Power statistical power analysis software (Faul, Erdfelder, Lang, & Buchner, 2007), we converted Cohen’s d (Cohen, 1988) to effect size $f = .31$, which is necessary for this analysis. We used F test family for ANOVA with fixed effects, main effects, and interactions, and we set the alpha level to .05, power to 80%, numerator $df = 1$ (for each main effect and interaction), and the number of groups to 4.

This power analysis revealed a minimum sample size of 84 participants. Given the possibility of nonusable responses with online experiments, we opted to increase the recruitment pool. Our vendor, Qualtrics, provided data for 252 participants, 19 of which were eliminated due to gibberish responses. The final sample was 233 participants (72.96% female, $M_{age} = 45.92$, $SD = 15.96$). Their industry experience was diverse, including healthcare, education, administrative, and managerial roles, with an average tenure of 18.92 years ($SD = 14.91$). Specific roles varied, including attorney, teacher, accountant, graduate student, business owner, musician, supervisor, engineer, writer, retail, judge, secretary, nurse, and consultant. Retired individuals comprised 22% of the sample and 9% of participants reported being currently unemployed or disabled.

Experimental Manipulations and Measurement of Variables

Performance task and assigned goal. We used the alternative uses task, which required participants to brainstorm as many uses as possible for a wire coat hanger in 2 minutes. Duplicate responses (e.g., to cut bread or to cut paper) were counted as one use, and non-uses (break it or burn it) were not counted. Performance was measured as the number of legitimate uses listed ($M=4.82$, $SD=2.33$). Following Stajkovic et al. (2006), participants in the difficult group were assigned an achievement goal to list 12 uses; those in the do-best goal group were instructed to do their best; both groups were given 2 minutes to perform the creativity task.

Primed goal. To prime an achievement goal, we used the scrambled sentence task (Bargh & Chartrand, 2000). Participants were presented with sets of five words (e.g., flew, eagle, the, water, around) and instructed to create grammatically correct sentences using four of the words (the eagle flew around). In the primed goal group, 12 out of 20 sentences (following Bargh et al., 2001; Stajkovic et al., 2006, 2019) included a prime word related to achievement. For example, the set of words “mirror, *prevail*, team, will, the” (prime word is italicized here for illustration only) would be unscrambled to form the sentence: “the team will prevail,” and the words “green, *accomplished*, the, he, task” would be unscrambled to form: “he accomplished the task.” This is called supraliminal priming. Participants consciously read the words, but the underlying achievement-goal theme is not overtly evident. Instead, participants’ subconscious detects the achievement pattern, triggering mental processes and behaviors related to achievement without awareness (Bargh, Chen, & Burrows, 1996).³ In the control group, participants also completed a sentence unscrambling task, but the words were neutral. The control sentences were similar in valence (e.g., “a, trees, fly, go, kite” becomes “go fly a kite”), ensuring any effects could be attributed to the goal priming and not to emotional differences between conditions.

Cognitive load. We measured cognitive load in two ways. First, we assessed perceived cognitive load with the *Paas Cognitive Load (PCL)* scale (Paas, Tuovinen, Tabbers, & Van Gerven, 2003; Paas, van Merriënboer, & Adam, 1994). Participants were asked: “In solving this task, I invested . . .,” and they responded on a 9-point anchor from 0 “extremely low mental effort” to 9 “extremely high mental effort” ($M=5.91$, $SD=1.94$). Though some question self-reporting of cognitive load, research has shown that individuals can reliably estimate their attention (Gopher & Braune, 1984; Naismith, Cheung, Ringsted, & Cavalcanti, 2015). Second, we assessed cognitive load behaviorally with the Stroop test (Stroop, 1935). In this test, words are presented in a color that is congruent or incongruent with its meaning (e.g., “blue” is presented in red). Participants indicate if the color is (in)congruent with the meaning of the word. Response time for incongruent trials proxies for cognitive load, as higher load leads to longer response times when words are presented in color incongruent with their meaning ($M=8.44$, $SD=7.5$).

Task complexity. Participants completed a widely used measure of perceived task complexity that is often used in research on cognitive load (see Paas et al., 2003): “In your judgment, how would you rate the ease/complexity of the task?” Participants responded on 9-point Likert anchors from 0 “extremely easy” to 9 “extremely complex” ($M=5.76$, $SD=1.95$).

Table 1
Descriptive Statistics by Condition in Experiment 1

Variable	No Prime–Difficult Goal					Primed Goal–Difficult Goal				
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Performance	69	4.7	2.1	1	10	47	6.17	2.58	2	14
Cognitive load	69	6.29	1.84	1	9	47	6.11	1.67	2	9
Response time	69	8.36	7.58	3.99	66.85	47	8.64	7.67	3.45	55.87
Task complexity	69	6.2	1.81	1	9	47	5.87	1.88	2	9

Variable	No Prime–Do-best Goal					Primed Goal–Do-best Goal				
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Performance	62	4.23	2.21	0	9	55	4.49	2.17	0	9
Cognitive load	62	5.81	2.02	1	9	55	5.38	2.12	1	9
Response time	62	7.87	3.2	3.28	16.13	55	9	10.33	2.96	81.95
Task complexity	62	5.19	2.3	1	9	55	5.76	1.62	2	9

Note. *n* = sample size; *M* = mean; *SD* = standard deviation; *Min* = minimum; *Max* = maximum.

Funnel debriefing. Participants were probed for awareness of the primed goal and its relation to performance. We used the funneled debriefing six-item questionnaire developed by Bargh and Chartrand (2000) (also Chartrand & Bargh, 1996). We applied the Linguistic Inquiry and Word Count (LIWC) software (Pennebaker, 2011; Shantz & Latham, 2009; Tausczik & Pennebaker, 2010) to flag responses with the words *achieve*, *subconscious*, *unconscious*, *priming*, *goal*, *strive*, and *mastery*; in addition, we performed a manual review of all responses; no participants were aware.

Procedure

The experiment was administered via Qualtrics online. Participants were first randomly assigned to primed and assigned goal conditions. The priming task appeared first. To ensure that the priming task did not create differences in cognitive load, we administered the *Paas Cognitive Load (PCL)* scale following this task. We confirmed that there were no differences ($p = .42$). Participants then read the directions for the performance task, which presented them with the assigned goal. After clicking that they understood what their goal was, a new screen appeared with the object along with text entry boxes to enter uses. After 2 minutes, participants were presented with the PCL and task complexity scales. Next, participants completed the Stroop test to measure differences in remaining attention, and then they completed the awareness questions.

Results

Descriptive statistics are reported in Table 1 and bivariate correlations in Table 2. To analyze the data, we used analysis of variance (ANOVA) with a model comparison approach (Judd, McClelland, & Ryan, 2011). The assigned difficult goal was coded as (.5) and the assigned do-best goal as (–.5). The primed achievement goal was coded as (.5) and no primed

Table 2
Experiment 1 Bivariate Correlations

<i>Variable</i>	1	2	3	4	5
1. Primed goal ^a					
2. Assigned goal ^b	-.07				
3. Task performance	.17*	.20***			
4. Cognitive load	-.09	.16*	.00		
5. Response time	.05	.00	-.13*	.11	
6. Task complexity	.73	.16*	-.04	.54***	.02

Note. $N=233$.

^aPrimed goal = .5, no primed goal = -.5.

^bDifficult assigned goal = .5, do-best assigned goal = -.5.

* $p < .05$; *** $p < .001$.

goal condition as (-.5). Following Stajkovic et al. (2006) we included an interaction between primed and assigned goals.

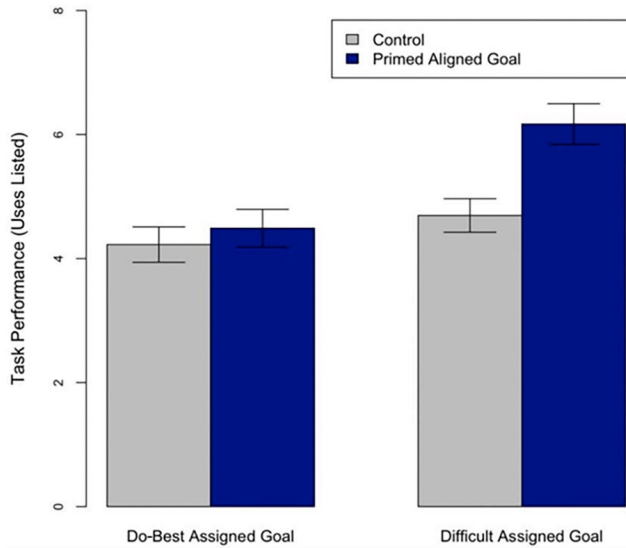
To test H1, we conducted ANOVA with main effects for the assigned goal and primed goal and their interaction. Replicating prior findings on task performance, holding all else constant, an assigned difficult goal compared to an assigned do-best goal enhanced performance by about 1.07 uses listed, $F(1, 229)=13.06$, $p < .001$, $\eta_p^2 = .05$. Likewise, a primed achievement goal compared to no primed goal improved performance by .87 uses, $F(1, 229)=8.56$, $p = .004$, $\eta_p^2 = .04$, and the two goals synergistically interacted, $F(1, 229)=4.14$, $p = .043$, $\eta_p^2 = .04$ (see Figure 1). We also conducted a simple slope analysis to dissect the two-way interaction further.

In particular, when a difficult achievement goal was assigned, an aligned primed goal improved performance, $b=1.47$, $F(1, 229)=12.05$, $p = .001$ (Figure 1, right). When it was paired with a do-best goal (Figure 1, left), though, the effect of the primed goal was not significant ($p = .525$).

Extending prior research by analyzing the interplay of assigned and primed goals on cognitive load, we next found that an assigned difficult goal increased perceived cognitive load, $F(1, 229)=5.61$, $p = .019$, $\eta_p^2 = .01$, suggesting its operation consumes attention. However, neither the primed goal ($p = .234$) nor its interaction with the assigned goal ($p = .637$) significantly impacted perceived cognitive load nor behaviorally assessed cognitive load ($p = .478$; $p = .674$). This supports Hypothesis 1, evidencing that the performance increase from the primed goal occurred without any significant consumption of additional attentional resources.

To examine if the positive primed goal performance effects were moderated by task complexity, we mean-centered perceived task complexity and added it as a moderator of the assigned and primed goal effect. Results are reported in Table 3. The main performance effects and two-way interaction between a primed and assigned goal remained positive and significant. In addition, we observed a negative interaction between task complexity and a primed goal, such that as perceptions of complexity increased, the positive performance effect of a primed goal diminished, $F(1, 226)=7.65$, $p = .006$, $\eta_p^2 = .03$ (see Figure 2). We again conducted a simple slope analysis to probe this interaction further. Results revealed that the primed goal exerted a significantly positive performance effect at both an average

Figure 1
Experiment 1: Interaction of Assigned and Primed Goals on Task Performance



Note. This figure illustrates the two-way interaction between aligned primed and assigned difficult goals related to achievement on performance during a brainstorming task ($n=233$). The control primed goal represents a condition in which no goal was primed ($-.5$) in comparison to a condition in which an achievement goal was primed ($.5$). For the assigned goal condition, participants were either told to “do their best” ($-.5$) or were assigned a difficult goal ($.5$).

Table 3
Experiment 1: Full Model with Perceived Task Complexity Interactions

Predictor	<i>b</i>	<i>SE</i>	<i>df</i>	<i>F</i>	<i>p</i>	η_p^2
Intercept	4.93	0.15	1	1111.2	<.001***	0.83
Primed goal ^a	0.85	0.29	1	8.34	0.004**	0.04
Assigned goal ^b	1.06	0.3	1	12.69	<.001***	0.05
Perceived task complexity ^c	−0.15	0.08	1	3.45	0.065	0.02
Primed goal × assigned goal	1.34	0.59	1	5.11	0.025*	0.02
Primed goal × task complexity	−0.44	0.16	1	7.65	0.006**	0.03
Assigned goal × task complexity	−0.15	0.15	1	0.97	0.326	0.00

Note. Sum of squared errors: 1096.2; $R^2 = .1371$; number of observations = 233.

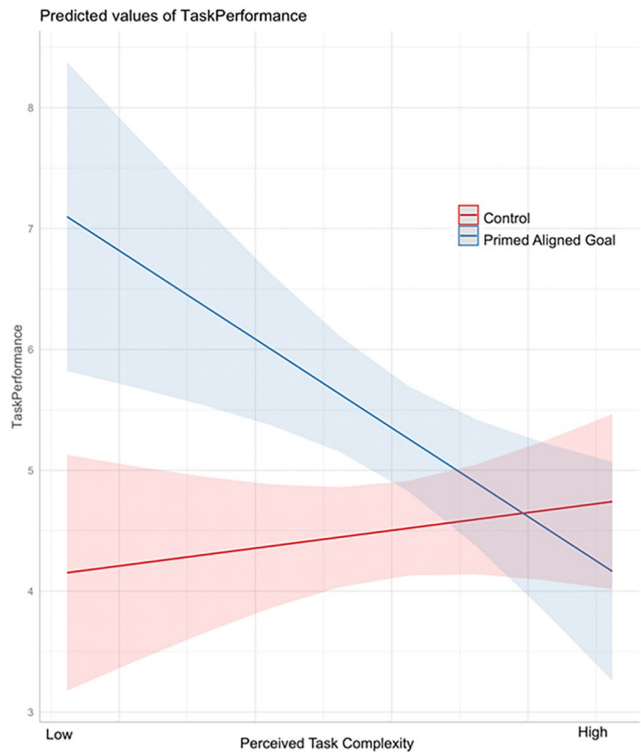
^a0.5 = Primed achievement goal, −0.5 = no primed goal.

^b0.5 = Difficult goal, −0.5 = do-best goal.

^cMean-centered.

*** $p < .001$; ** $p < .01$; * $p < .05$.

Figure 2
Experiment 1: Interaction of Task Complexity and Primed Aligned Goal on Performance



Note. This figure illustrates the two-way interaction between the primed achievement goal and perceived task complexity on performance (brainstorming on creativity task). This figure was generated in *R* using the *ggpredict* function from the *ggeffects* package. Solid lines represent the adjusted predicted values for performance by primed goal condition across the spectrum of task complexity scores, controlling for the assigned goal condition ($n=233$). Shaded areas around the solid lines represent the 95% confidence intervals of the point estimates.

level of task complexity, $b=.17$, $F(1, 229)=7.13$, $p=.008$, and a low level (one standard deviation below the mean), $b=.36$, $F(1, 229)=15.37$, $p<.001$. However, as illustrated in Figure 2, when task complexity was high (one standard deviation above the mean), the primed goal effect was not significant ($p=.810$).

Discussion

We extended prior research by testing the effects of concurrent assigned and primed goals on cognitive load. We demonstrated that when there is an assigned achievement goal, priming an aligned goal improves performance without increasing cognitive load. This suggests that priming goals may be a viable method for organizations to help employees achieve goals without increasing their cognitive burden. Notably, though, we also found that as perceived

task complexity increased, the positive effect of the primed goal diminished—but this was not the case for assigned goals. This suggests that as perceptions of task-complexity increase, automated patterns stored in one's cognitive system may be less useful, perhaps because new behaviors are needed for more complex tasks, but assigning a difficult achievement goal can still be helpful.

Experiment 2

In this experiment, we examined the relationships among an assigned and primed goal, performance, cognitive load, and task complexity under goal misalignment using a task that involved both speed and accuracy. Specifically, we assigned a goal for accuracy and primed a goal to be aligned (accuracy), misaligned (speed), or control (no primed goal). Speed and accuracy are misaligned goals because of their inherent trade-offs (Schouten & Bekker, 1967; Woodworth, 1899). In addition to testing goal misalignment, another distinction of this study is that we manipulated task complexity as simple and complex.

Design and Participants

This experiment was a 3 (misaligned primed goal, aligned primed goal, no primed goal) by 2 (difficult assigned goal, do-best assigned goal) by 2 (simple task, complex task) factorial design. We again used the G*Power statistical power analysis software for power analysis (Faul et al., 2007). The primed goal effect size from the first experiment ($\eta_p^2 = .04$) was converted to an effect size $f = .204$, and using the F tests for ANOVA fixed effects, main effects, and interactions, we set the alpha level to .05, power to 80%, $df = 1$, with 12 experimental cells. This analysis revealed that a total sample size of 191 would suffice. In the prior study, several initial participants were eliminated due to gibberish. Because this experiment was longer, increasing the likelihood of poor-quality responses, we included a manipulation check to probe participants' recall of their assigned goal. Incorrectly answering a goal recall question would indicate a lack of goal acceptance, which precludes goal activation. Qualtrics provided data from 559 participants, and we eliminated 44 who either provided gibberish responses or failed the manipulation check.

Experimental Manipulations and Measurement of Variables

Performance task and assigned goal. We used a logical reasoning task adapted from the *Law School Admission Test (LSAT)* to measure performance. It required participants to recreate a 7-day interview schedule from prompts. Performance was measured with 14 questions assessing the accuracy of the schedule re-creation. Because the accuracy goal was assigned, we measured performance with the percentage of correct responses out of the total attempted ($M = 55.77\%$, $SD = 26.39$). A pilot study indicated that answering 13 questions correctly results in a success rate of 10%. Thus, an assigned goal to answer 13 questions correctly was used for the difficult goal, in comparison to assigning subjects with a do-best goal (Locke & Latham, 1990).

Task complexity. Task complexity was manipulated by altering the ease or complexity of the prompts provided. The purpose of this manipulation was to increase variance in per-

ceived task complexity. All participants were told that their task was to recreate a seven-day interview schedule and determine who received offers. Participants were provided with eight prompts. In the simple task condition, the prompts were straightforward (e.g., “Sara was interviewed on the last day and was not given an offer,” “Tom was interviewed on Day 3 and was given an offer”). In the complex task condition, the prompts were more ambiguous (e.g., “Sara was interviewed after Will was interviewed” and “The person interviewed on day four was not offered a job”). Perceived task complexity was measured on the same 9-point Likert scale as in Experiment 1 ($M=6.89$, $SD=1.99$). The mean rating in the simple condition was 6.48 out of 9 ($SD=2.09$), and in the complex task condition, the mean rating was 7.10 ($SD=1.97$). Analysis of variance confirmed the simple task was perceived as significantly less complex than the complex task condition, $F(1, 509)=35.14$, $p<.001$, confirming successful manipulation of task complexity.

Primed goal. For the misaligned prime goal condition, 12 of the 20 scrambled sentences contained a speed word. For example, this set of words, including “bunnies, get, *speedy*, carpet, away,” would be unscrambled to form the sentence “*speedy* bunnies get away,” and this set of words, “*quick*, make, a, butterfly, turn,” would become “make a *quick* turn.” In the aligned goal condition, 12 of the 20 sentences contained an accuracy word. For instance, “she, *thorough*, is, try, very” would become “she is very thorough,” and “clock, boiling, my, *accurate*, is” would become “my clock is accurate.” In the control group, sentences were neutral, as in Experiment 1.

Cognitive load. As in Experiment 1, we used the PCL scale ($M=7.03$, $SD=1.78$) and reaction time on the Stroop test ($M=8.33$, $SD=5.55$) to measure participants’ cognitive load.

Funnel debriefing. The same six-item questionnaire and LIWC procedures were used to assess awareness of the primed goal. No participant responses were flagged as aware.

Procedures

The experiment was administered by Qualtrics online. Participants were first randomly assigned to goal conditions. The priming task appeared first. To ensure the sentence unscrambling task did not create differences in cognitive load, we administered PCL immediately after and confirmed no differences between groups ($p=.51$). Participants then read the directions for the LSAT logical reasoning task, where either a difficult goal or do-best was assigned. After clicking that they understood their goal, a new screen appeared with the task. Participants were given 4 minutes to complete the reasoning task. Then, they completed the PCL scale and rated their perception of complexity. Next, participants completed the Stroop test, followed by the awareness questionnaire. Finally, participants answered the goal-recall question.

Results

Descriptive statistics by experimental condition are reported in Table 4, and bivariate correlations are reported in Table 5. To simultaneously test each directional hypothesis, we used multiple planned orthogonal comparisons in the ANOVA model by including a contrast for

Table 4
Descriptive Statistics by Condition in Experiment 2

<i>Variable</i>	Speed Prime–Difficult Goal Simple Task					Speed Prime–Do-Best Goal Simple Task				
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Task performance	39	59.19	33.29	0	100	60	57.36	24.45	0	100
Cognitive load	39	7.67	1.49	5	9	60	7.13	1.62	2	9
Response time	39	10.05	9.66	2.53	61.48	60	7.9	3.73	2.32	18.77
Task complexity	39	6.92	2.11	1	9	60	6.67	1.9	1	9
	Accuracy Prime–Difficult Goal Simple Task					Accuracy Prime–Do-Best Goal Simple Task				
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Task performance	32	77.49	21.61	0	100	58	61.54	25.95	0	100
Cognitive load	32	7.06	1.29	4	9	58	6.4	2.07	2	9
Response time	32	7.47	3.49	4.45	19.54	58	8.39	5.15	3.23	36.79
Task complexity	32	6.81	1.51	3	9	58	6.26	2.12	1	9
	Control–Difficult Goal Simple Task					Control–Do-Best Goal Simple Task				
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Task performance	28	64.07	26.13	14.29	100	60	59.53	26.93	0	100
Cognitive load	28	6.75	2.1	2	9	60	6.78	1.67	2	9
Response time	28	8.37	9.64	3.62	55.45	60	9.3	5.02	4.02	32.01
Task complexity	28	6	2.51	1	9	60	6.55	2.07	1	9
	Speed Prime–Difficult Goal Complex Task					Speed Prime–Do-Best Goal Complex Task				
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Task performance	31	46.78	28	0	100	45	42.95	17.48	7.14	100
Cognitive load	31	7.03	2.27	1	9	45	7.36	1.57	2	9
Response time	31	9.8	9.15	4.57	53.1	45	7.48	2.86	3.77	14.84
Task complexity	31	7.61	1.65	1	9	45	7.33	1.95	1	9
	Accuracy Prime–Difficult Goal Complex Task					Accuracy Prime–Do-Best Goal Complex Task				
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Task performance	22	54.15	27.51	21.43	100	55	47.58	21.65	0	100
Cognitive load	22	7.32	1.43	4	9	55	7.11	1.8	1	9
Response time	22	6.61	2.53	3.9	13.97	55	7.44	3.39	3.45	18.33
Task complexity	22	7.41	1.5	4	9	55	7.25	1.66	2	9
	Control–Difficult Goal Complex Task					Control–Do-Best Goal Complex Task				
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Task performance	26	66.81	26.95	21.43	100	59	44.54	20.35	0	100
Cognitive load	26	7.08	1.74	3	9	59	7	1.89	1	9
Response time	26	8.28	4.52	3.47	24	59	8.41	4.23	3.75	32.46
Task complexity	26	7.38	1.63	2	9	59	7.03	2.22	1	9

Note. *n* = sample size; *M* = mean; *SD* = standard deviation; *Min* = minimum; *Max* = maximum.

Table 5
Experiment 2, Bivariate Correlations

<i>Variable</i>	1	2	3	4	5	6
1. Assigned goal ^a						
2. Primed aligned goal vs. no primed goal ^b	0.01					
3. No primed goal vs. primed misaligned goal ^c	-0.08	-0.5				
4. Task performance ^d	0.16***	0.04	0.06			
5. Cognitive load	0.06	0.00	-0.09*	0.03		
6. Response time	0.03	-0.07	0.01	-0.2***	-0.02	
7. Task complexity	0.04	0.02	-0.06	-0.03	0.5***	-.01*

Note. $n = 515$.

^a0.5 = Accuracy goal, -0.5 = do-best goal.

^b0.5 = Primed accuracy goal, -0.5 = no primed goal.

^c0.5 = No primed goal, -0.5 = primed speed goal.

^dMean-centered.

* $p < .05$; *** $p < .001$.

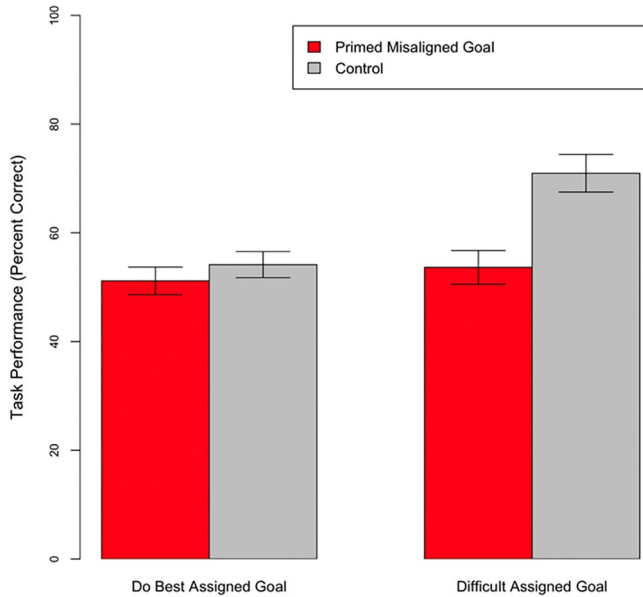
primed accuracy goal (.5) vs. no primed goal (-.5) and a contrast for primed speed goal (-.5) versus no primed goal (.5), along with their interactions with the assigned goal condition.

In this model, holding all else constant, a difficult assigned accuracy goal compared to a do-best goal improved accuracy by 9.68%, $F(1, 509) = 16.13$, $p < .001$, $\eta_p^2 = .03$; a primed accuracy goal compared to no prime goal improved accuracy by 7.69%, $F(1, 509) = 4.97$, $p = .032$, $\eta_p^2 = .01$; and a misaligned primed speed goal compared to no prime goal reduced accuracy by 10.15%, $F(1, 509) = 9.26$, $p = .002$, $\eta_p^2 = .02$. We observed an interaction between assigned goal and misaligned primed speed goal such that the misaligned goal appeared to suppress the benefit of a difficult goal, $F(1, 509) = 4.62$, $p = .032$, $\eta_p^2 = .01$ (see Figure 3). We further probed this interaction with a simple slope analysis, confirming that when an assigned goal was present, the primed speed goal significantly reduced task performance, $b = 17.32$, $F(1, 509) = 10.69$, $p = .001$; however, when there was no assigned goal, the primed speed goal had no effect ($p = .463$). This suggests that it is not a misaligned primed goal with the task per se (i.e., a primed speed goal) that undermines task performance independently, but importantly, the negative effect of the misaligned primed goal appears to be contingent on a present conflict with an assigned goal.

Supporting Hypothesis 1, the aligned primed goal for accuracy compared to no prime goal did not increase the perceived cognitive load ($p = .406$), and it resulted in significantly less cognitive load as measured with response time on the Stroop task, $F(1, 509) = 4.64$, $p = .032$, $\eta_p^2 = .01$. In contrast, supporting Hypothesis 2, the misaligned primed speed goal, compared to no prime goal, significantly increased perceived cognitive load, $F(1, 509) = 4.89$, $p = .028$, $\eta_p^2 = .01$, and when it was combined with an assigned difficult goal, this combination led to increased cognitive load assessed with response time on Stroop task, $F(1, 509) = 7.33$, $p = .007$, $\eta_p^2 = .01$.

Next, we examined the boundary condition model with perceived task complexity as a moderator of the assigned and primed goal effects. Results are reported in Table 6. We continued to observe a positive main effect of an assigned difficult goal and an aligned primed goal on task performance, as well as a negative main effect of a misaligned primed goal on

Figure 3
Experiment 2: Interaction of Primed Misaligned Goal and Assigned Goal on Performance



Note. This figure shows the two-way interaction between a misaligned primed and assigned goal related to accuracy and speed performance during a logical reasoning task ($n=515$). The control primed goal represents a condition in which no goal was primed (.5) in comparison to a condition in which a misaligned goal (speed) was primed ($-.5$). For the assigned goal condition, participants were either told to “do their best” ($-.5$) or were assigned a difficult accuracy goal (.5).

Table 6
Experiment 2: Full Model with Task Complexity Interactions

Predictor	<i>b</i>	<i>SE</i>	<i>df</i>	<i>F</i>	<i>p</i>	η_p^2
Intercept	57.53	1.2	1	2286.47	<.001***	0.82
Assigned goal ^a	9.96	2.4	1	17.17	<.001***	0.03
No primed goal vs. primed misaligned goal ^b	10.4	3.33	1	9.74	0.002**	0.02
Primed aligned goal vs. no primed goal ^c	7.58	3.44	1	4.85	0.028*	0.01
Perceived task complexity ^d	-0.48	0.62	1	0.58	0.447	0.00
Assigned goal $\times$ (no prime vs. misaligned prime)	15.44	6.67	1	5.36	0.021*	0.01
Assigned goal $\times$ (aligned prime vs. no prime)	8.2	6.89	1	1.42	0.234	0.00
(No prime vs. misaligned prime) $\times$ task complexity	-1.41	1.66	1	0.73	0.394	0.00
(Aligned prime vs. no prime) $\times$ task complexity	-4.42	1.73	1	6.51	0.011*	0.01
Assigned goal $\times$ task complexity	1.02	1.24	1	0.67	0.413	0.00

Note. Sum of square errors = 334,736.1; $R^2 = .065$; number of observations = 515.

^a0.5 = Accuracy goal, -0.5 = do-best goal.

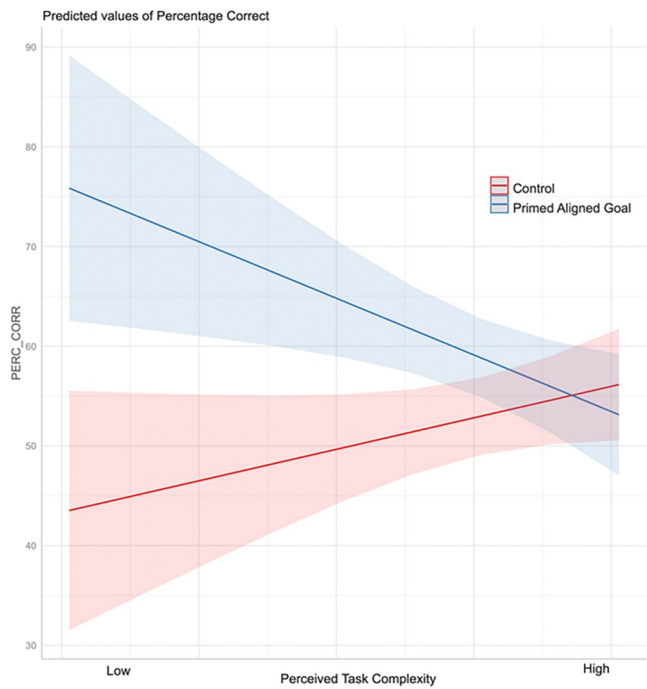
^b0.5 = No primed goal, -0.5 = primed speed goal.

^c0.5 = Primed accuracy goal, -0.5 = no primed goal.

^dMean-centered.

*** $p < .001$; ** $p < .01$; * $p < .05$.

Figure 4
Experiment 2: Interaction of Task Complexity and Primed Aligned Goal on Performance



Note. This figure illustrates the two-way interaction between an aligned primed (accuracy) goal and perceived task complexity on task performance (percent of questions correct on logical reasoning task). It was generated with *ggpredict* in *R* using the *ggeffects* package. Solid lines represent the adjusted predicted values for performance by primed goal condition across the spectrum of task complexity scores, controlling for other variables ($n=515$). Shaded areas around the solid lines represent the 95% confidence intervals of the point estimates.

task performance. Likewise, we continued to observe a significantly negative interaction between the misaligned primed goal and the assigned goal, such that this combination had the worst effect on performance. Consistent with Experiment 1, we found an interaction between the aligned primed goal and perceived task complexity: the positive effect of the aligned primed goal diminished as perceptions of task complexity increased (see Figure 4). A simple slope analysis confirmed that the aligned primed goal significantly improved performance only at low levels of perceived task complexity (one standard deviation below the mean), $b = .14$, $F(1, 511) = 2.20$, $p = .23$, and it exerted no significant effect at either average ($p = .386$) or high ($p = .323$) levels of complexity.

Discussion

Only a few studies have tested the negative effects of primed goals, and each examined it in relation to a mutually exclusive assigned goal, such as effective vs. ineffective (Itzhakov

& Latham, 2020), accuracy vs. inaccuracy (Legal & Meyer, 2009), and achieve vs. under-achieve (Sitzmann & Bell, 2017). This has left a gap in our understanding of how a primed goal impacts performance when misaligned with an assigned goal but when both goals are relevant to the task and achievable simultaneously. Our results revealed that a misaligned assigned and primed goal undermines performance. Moreover, when a primed goal was aligned with an assigned goal, cognitive load was not increased. In contrast, when a primed goal was misaligned with an assigned goal, performance declined and cognitive load increased. This is a lose-lose scenario for organizations and employees because not only is cognitive load increased, but instead of getting a benefit for using more attention, performance actually suffers. These results also replicated the findings from the win-win scenario of Experiment 1: When a primed goal was aligned with an assigned goal, performance was enhanced without increasing cognitive load.

Consistent with Experiment 1, we found a negative interaction between the perception of task complexity and the positive primed goal effect on performance. Together, this might indicate that automated cognition is less helpful when a task is perceived as complex. In both Experiments 1 and 2, though, the tasks were novel to the participants as they had likely not performed these tasks previously. For this reason, it is possible that the automated behavior needed to achieve the primed goal was not embedded in the cognitive system of the participants who found the tasks complex. To probe this, in the next experiment, we use a routine work task and screen participants to ensure the performance task is familiar. This enables us to examine if the negative interactions found in Experiments 1 and 2 are explained by task novelty/familiarity.

Experiment 3

Several aspects of this experiment enhance the validity and generalizability of the prior two studies we reported. First, Baumeister, Vohs, and Funder (2007) called for analyses of behavior in psychological experiments in addition to cognitive performance. Unlike Experiments 1 and 2, which both assessed cognitive performance (i.e., creativity and logical reasoning), this study measured behavioral performance (typing speed and accuracy). Relatedly, to ensure this task was routine (in contrast to relatively novel tasks in the first two experiments), we recruited only participants who type as a regular part of their job duties. Second, because it would be nearly impossible and likely unethical to prime misaligned goals to undermine job performance in a real organization, this quasi-field study reflects work performance to an extent by using working professionals (who were recruited/paid by Qualtrics). Third, to measure cognitive load, we used a probe reaction time task (Macrae, Bodenhausen, Schloerscheidt, & Milne, 1999) to mitigate an alternative explanation that cognitive load in Experiments 1 and 2 on the Stroop test captured unrelated variance. This task interrupts participants midway through the task to assess their cognitive load more directly.

Design and Participants

The design was a 3 (misaligned primed goal, aligned primed goal, no primed goal) by 2 (difficult assigned goal, do-best assigned goal) by 2 (simple task, complex task) factorial design.

As in the first two experiments, we used the G*Power statistical power analysis software for power analysis (Faul et al., 2007). The primed goal effect size from the second experiment related to the misaligned primed goal ($\eta_p^2 = .02$) was converted to an effect size $f = .143$, with an alpha of .05, 80% power, $df = 1$, and 12 groups. This revealed that a total sample of 386 would suffice. To ensure the task was familiar and to qualify for the study, participants were asked: "Do you use a keyboard for typing as a regular part of performing your job duties?" Those who answered "no" were automatically screened out by Qualtrics and did not count as participants. Qualtrics initially provided data for 422 participants. We then removed responses of participants who did not complete the survey ($n = 25$), responded in gibberish or with non-sensical answers, or copy-pasted text rather than manually typing the passages ($n = 79$), as well as one participant who typed less than five words and two participants who didn't attempt the response reaction probe. The final sample consisted of 315 participants (53.9% female, $M_{age} = 42.27$, $SD = 14.86$).⁴ They were from the United States, with work experience in information technology, education, healthcare, trade, and government/public service, with an average job tenure of 15 years ($SD = 12.2$), and 7% were retired. Occupational roles varied, including manager, software developer, teacher, accountant, administrative assistant, writer, management consultant, librarian, and medical transcriptionist.

Experimental Manipulations and Measurement of Variables

Performance task and assigned goal. The performance task involved typing a passage. Because a goal was assigned for accuracy, performance was measured with the percent of words in error out of total words typed (i.e., error percentage) ($M = 8.65\%$, $SD = 8.71$). Participants' passages were read by two research assistants who were blind to the hypotheses, and they recorded the number of errors. When discrepancies existed between coders, they discussed the passage, counted the errors together, and reached an agreement. A pilot study indicated that retyping the passage with 90% accuracy would result in an expected success rate of 10%.

Task complexity. This was manipulated by altering the task requirements. In the simple condition, participants were told to retype the passage verbatim. In contrast, in the complex condition, participants were told to correct spelling, grammar, and word-choice errors as they retyped the passage. Participants rated task complexity on a 9-point scale ($M = 5.05$, $SD = 1.93$). The simple condition was rated at 4.62 ($SD = 1.83$), the complex condition was rated at 5.55 ($SD = 1.93$), and the difference between groups was significant, $F(1, 309) = 19.18$, $p < .001$.

Primed goal. The same goal-priming procedures described in Experiment 2 were used to administer the speed, accuracy, and control group scrambled sentences.

Cognitive load. We used a response time probe reaction task to assess cognitive load (Macrae et al., 1999). This involves an unexpected interruption during the performance task. When the interruption occurs, it requires participants to respond quickly. For this study, the interruption screen stated: "As FAST as possible, click on the word 'RIGHT.'" The word "right" was presented in red text. Two answer choice bubbles appeared horizontally: "RIGHT" appeared on the left in blue text, and "LEFT" appeared on the right in red text. Thus, participants had to

attentionally override an instinct to match the color and position of the word. Cognitive load was measured by their reaction time for correct responses ($M=4.36$ $SD=2.01$).

Funnel debriefing. The same questionnaire and LIWC procedures were used to assess awareness of the primed goal. No participant responses were flagged as aware.

Procedures

The experiment was administered online using Qualtrics. After the screening question, participants were given a practice task with a passage to retype verbatim. This ensured that performance on the main task would be familiar. When finished, participants clicked “next” to move to the scrambled sentence task. Then, participants were given instructions for the main task and assigned either a do-best or difficult goal. After clicking that they understood their goal, a new screen appeared with the passage to be retyped. The practice task had set expectations that participants would click “next” when finished. However, unbeknownst to them, after one minute, they were unexpectedly interrupted by the reaction probe. After responding, participants finished typing. When done, they were probed for awareness and answered the goal recall question.

Results

Descriptive statistics are reported in Table 7, and bivariate correlations are shown in Table 8. Like in Experiment 2, we used multiple planned orthogonal comparisons in the ANOVA model to test both hypotheses simultaneously. We included a contrast for the aligned primed accuracy goal (.5) vs. no primed goal (−.5) and a contrast for the misaligned primed speed goal (−.5) versus no primed goal (.5) and their interactions with the assigned goal condition.

Replicating the results from the first two experiments, we observed the significant main effects. The difficult assigned goal compared to a do-best goal reduced error percentage by 2.38%, $F(1, 309)=5.71$, $p=.017$, $\eta_p^2=.02$, and an aligned primed accuracy goal compared to no prime goal reduced error percentage by 3.81%, $F(1, 309)=7.38$, $p=.007$, $\eta_p^2=.02$. A misaligned primed speed goal compared to no prime goal increased error percentage by 3.34%, $F(1, 309)=5.34$, $p=.022$, $\eta_p^2=.02$. The two-way interaction between the primed and assigned goals was not significant. Supporting Hypothesis 1, the aligned primed accuracy goal compared to no prime goal did not increase cognitive load assessed on the probe interruption task ($p=.79$). In contrast, supporting Hypothesis 2, the misaligned primed speed goal significantly increased measured cognitive load compared to no prime goal, $F(1, 309)=4.26$, $p=.039$.

Lastly, we added interactions between the goal conditions and perceived task complexity as in the prior two experiments. Results are reported in Table 9. We continued to observe the expected main effects of assigned and primed goals on performance, but unlike Experiments 1 and 2, we did not find significant interactions between either goal type and task complexity.

Discussion

Both hypotheses were supported using a different measure of cognitive load and a familiar task. The lack of interaction between an aligned primed goal and task complexity suggests

Table 7
Descriptive Statistics by Condition in Experiment 3

<i>Variable</i>	Misaligned (Speed) Prime–Difficult Goal Simple Task					Misaligned (Speed) Prime–Do-Best Goal Simple Task				
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Error percentage	29	5.41	7.02	1.33	30.1	26	7.65	19.14	0.69	100
Response time	29	4.5	1.63	2.58	10.4	26	4.82	2.74	2.62	12.93
Task complexity	29	4.34	1.86	1	8	26	5.08	1.67	1	9
<i>Variable</i>	Aligned (Accuracy) Prime–Difficult Goal Simple Task					Aligned (Accuracy) Prime–Do-Best Goal Simple Task				
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Error percentage	25	2.81	1.9	0.68	7.43	31	2.8	1.65	0	5.96
Response time	25	4.13	1.12	2.27	6.61	31	4.76	2.26	1.64	13.06
Task complexity	25	3.88	1.56	1	7	31	4.35	1.68	1	7
<i>Variable</i>	Control–Difficult Goal Simple Task					Control–Do-Best Goal Simple Task				
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Error percentage	27	3.65	4.02	0.68	17.5	31	5.79	7.43	0.64	40.91
Response time	27	3.48	0.91	1.8	5.29	31	4.16	1.25	2.5	7.41
Task complexity	27	5	2.09	1	9	31	5.03	1.85	2	9
<i>Variable</i>	Misaligned (Speed) Prime–Difficult Goal Complex Task					Misaligned (Speed) Prime–Do-Best Goal Complex Task				
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Error percentage	26	10.11	8.79	1.2	36.1	14	11.1	6.81	1.96	26.47
Response time	26	4.83	4.27	2.54	24.0	14	4.59	2.07	2.85	8.83
Task complexity	26	5.96	1.46	3	9	14	5	2.22	1	9
<i>Variable</i>	Aligned (Accuracy) Prime–Difficult Goal Complex Task					Aligned (Accuracy) Prime–Do-Best Goal Complex Task				
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Error percentage	19	2.9	2.44	0	7.19	33	9.95	9.54	1.27	42.31
Response time	19	3.89	1.43	2.23	8.68	33	4.44	1.22	2.29	7.54
Task complexity	19	6.11	1.97	3	6	33	5.79	1.98	2	9
<i>Variable</i>	Control–Difficult Goal Complex Task					Control–Do-Best Goal Complex Task				
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Error percentage	23	8.04	5.88	1.18	26.7	31	10.11	9.4	1.95	40
Response time	23	4.41	1.54	1.85	6.61	31	4.24	1.43	1.48	7.47
Task complexity	23	5.26	2.12	1	8	31	5.06	1.84	1	8

Note. *n* = sample size; *M* = mean; *SD* = standard deviation; *Min* = minimum; *Max* = maximum.

that perceived task complexity as a boundary condition in the first two experiments was perhaps because the task novelty rendered any stored behavioral patterns less applicable as complexity increased. In contrast, this behavioral task of typing was more closely related to the participants' work. This could indicate that when tasks are well-practiced, stored behavioral patterns are more deeply engrained in the cognitive system and less affected by perceived task complexity. This is consistent with Frese (2021), who noted that task familiarity

Table 8
Experiment 3 Bivariate Correlations

<i>Variable</i>	1	2	3	4	5
1. Assigned goal ^a					
2. Primed aligned goal vs. no primed goal ^b	−0.03				
3. No primed goal vs. primed misaligned goal ^c	−0.1	−0.53			
4. Total error percentage	−0.12*	−0.09	−0.05		
5. Cognitive load via response time	−0.07	0.06	−0.12*	0.12*	
6. Task complexity ^d	−0.01	−0.02	0	0.09	.02

Note. $n=315$.

^a0.5=Accuracy goal, −0.5=do-best goal.

^b0.5=Primed accuracy goal, −0.5=no primed goal.

^c0.5=No primed goal, −0.5=Primed speed goal.

^dMean-centered.

* $p < .05$.

Table 9
Experiment 3: Full Model with Task Complexity Interactions

<i>Predictor</i>	<i>b</i>	<i>SE</i>	<i>df</i>	<i>F</i>	<i>p</i>	η_p^2
Intercept	6.55	0.5	1	173.32	<.001***	0.36
Assigned goal ^a	−2.33	1	1	5.49	0.020*	0.02
No primed goal vs. primed misaligned goal ^b	−3.78	1.4	1	7.29	0.007**	0.02
Primed aligned goal vs. no primed goal ^c	−3.19	1.44	1	4.87	0.028*	0.02
Perceived task complexity ^d	0.42	0.26	1	2.66	0.104	0.01
Assigned goal $\times$ (no prime vs. misaligned prime)	−2.29	2.8	1	0.67	0.414	0.00
Assigned goal $\times$ (aligned prime vs. no prime)	−2.11	2.88	1	0.54	0.464	0.00
(No prime vs. misaligned prime) $\times$ task complexity	0.45	0.71	1	0.4	0.527	0.00
(Aligned prime vs. no prime) $\times$ task complexity	−0.96	0.77	1	1.59	0.209	0.01
Assigned goal $\times$ task complexity	−0.1	0.51	1	0.04	0.842	0.00

Note. Sum of square errors=23,097; $R^2=.059$; number of observations=315.

^a0.5=Accuracy goal, −0.5=do-best goal.

^b0.5=No primed goal, −0.5=speed goal.

^c0.5=Primed accuracy goal, −0.5=no primed goal.

^dMean-centered.

*** $p < .001$; ** $p < .01$; * $p < .05$.

might moderate the goal-to-performance relationship such that more attention is required for novel tasks. However, after a task has become routine, primed goals offer performance more robust benefits.

General Discussion

The search for sources of employee motivation has been ongoing for about a century (Latham & Budworth, 2014). Still, nearly all organizational behavior theories are based on attentional processing (Natemeyer & Hersey, 2011; Zedeck, 2010). Though studies have

revealed positive effects of primed goals on performance (Chen et al., 2021; Latham et al., 2017; Weingarten et al., 2016), little research has examined attention trade-offs that might arise when the pursuit of an assigned goal is (mis)aligned with a simultaneously primed goal. This is important to examine because attentional processing is irreplaceable for adaptive organizational functioning (Stajkovic & Sergent, 2019). We addressed this knowledge gap in three experiments.

Our findings contribute to the goal and cognitive load literature by demonstrating that a primed goal aligned with an assigned goal enhances performance without increasing cognitive load. These results support the conception that primed goals operate relatively attention-free and that they might offer a viable technique to help employees improve their performance while saving on their attentional processing. In this win-win scenario, performance is improved, and attention that might have otherwise been used to boost performance is saved, enabling it to be redirected to where it is more irreplaceable (e.g., handling the next round of unexpected layoffs).

In contrast, when a primed goal is misaligned with an assigned goal, performance decreases and cognitive load increases. This is a lose-lose scenario for employees and organizations because employees' cognitive load is increased, and instead of getting a benefit for expending more attentional resources, performance is worse. These results appear to refute the notion that an assigned goal can target one task dimension (accuracy) while a primed goal simultaneously targets another dimension (speed) independently, and they come together to enhance both accuracy and speed of performance. Instead, this combination of misaligned goals generated the worst performance and cognitive load effects, implying cognitive trade-offs.

Reconciling the competing conceptions of primed goal operation as either relatively attention-free or attention-consumptive, our findings suggest that both perspectives appear valid. However, a missing piece in prior research was examining the simultaneous operation of dual goals that could be aligned (at no cost to attention) and misaligned (at cost to attention), as we do in the present research. Understanding how different goals interact to affect cognitive load is important in multitasking environments where cognitive overload can easily disrupt functioning (Kahneman, 2011; Kahneman & Tversky, 2000). By addressing these dynamics, our findings advance goal theory and provide insights for optimizing performance in pursuing varied goals.

Our findings also extend the findings of Wood et al. (1987). Their meta-analysis found that assigned goals were generally less effective for complex tasks, where primary studies focused largely on single-goal contexts and performance. Building on this, our work examines both performance and cognitive load in a dual-goal context, when two goals are at play—one assigned and the other primed, and their alignment varies. Our findings suggest that the presence of dual goals, when they differ in the levels of awareness and alignment, creates cognitive trade-offs. These results introduce gradation in the interpretation of traditional results that the goal-performance relationship is moderated by task complexity. For example, aligned primed and assigned goals led to enhanced performance while mitigating cognitive load, but the positive effect of an aligned primed goal diminished as perceptions of task complexity increased. In contrast, misaligned goals exacerbated attentional demands, leading to diminished outcomes regardless of task complexity. These effects were observed in novel tasks (Experiments 1 and 2) but not on a well-practiced work task (Experiment 3),

suggesting that task familiarity influences the interplay between dual goals. Together, these insights contribute to a further, fine-grained understanding of complex relationships among assigned goals, primed goals, task complexity, and task familiarity and their interweaved effects on performance and cognitive load.

Limitations

We mitigated threats to internal validity (see Shadish, Cook, & Campbell, 2001) as follows. Random assignment (alongside properly powered sample sizes) minimized the effects of preexisting differences between/among the groups. Regarding cognitive load, randomization helped to rule out the possibility that the Stroop task and probe reaction task measures captured differences in cognitive load unrelated to the manipulations.⁵ Ambiguity about the direction of causality is ruled out as the interventions preceded performance. Online administration of the experiments by a third party minimized local history, diffusion of treatment, and experimenter demands.

In each experiment, we measured performance immediately following the priming task. Thus, our results of primed goal effects are limited to the tested duration. Bargh et al. (2001) initially demonstrated that priming effects last five minutes. Stajkovic et al. (2006) then showed that if participants recalled a priming task they engaged in the prior day, the effects unfolded again. Shantz and Latham (2009) built on this by documenting that primed goal effects, on average, lasted over a three-hour shift. Most recently, Stajkovic et al. (2019) conducted a priming goal study in a customer service organization for a week and found that the positive primed goal effects lasted, on average, the entire five-day workweek. Given that our studies followed the same methods used in prior research, we have no reason to expect the observed effects would not persist for durations similar to those observed in prior studies. However, examining the strength of manipulations and the duration of primed goal effects is a fruitful avenue for future research.

Further, the goal misalignment examined here might not extend to other goal combinations. For instance, if a primed goal is unrelated, rather than content-misaligned, with an assigned goal, the relationships could be altered because the cognitive activities underlying the primed goal in our experiments were relevant to the task (speed and accuracy to typing). Combinations that introduce goals irrelevant to the task (perhaps inadvertently) might yield varied results.

Finally, primed goals impact outcomes without participants' awareness, which could generate ethical concerns. These issues are discussed in detail elsewhere (Latham & Ernst, 2006). Briefly, external cues can only prime goals valued by individuals, frequently repeated by them and stored in their cognitive system (Papies, 2016; Papies, Potjes, Keesman, Schwinghammer, & van Koningsbruggen, 2014). Priming does not infuse new goals; it only triggers existing goal-behavior associations.

Future Research

An interesting avenue for future research is a corollary of our Hypothesis 1, which focused on whether a primed, aligned goal boosts performance without increasing cognitive load. As work afflictions stem from cognitive overload (Goh, Pfeffer, & Zenios, 2016; Stajkovic &

Sergeant, 2019), research and organizations could focus on reducing overload by creating more manageable work demands without losing performance. Primed goals could enable organizations to reduce assigned goal difficulty, thereby decreasing cognitive load. Yet, losses in performance from assigning less difficult goals could, perhaps, be offset by aligned primed goals. This raises the question of whether the performance boost from the primed goal is sufficient to offset the loss that occurs when switching from a difficult to an easy assigned goal. Future research could examine this trade-off as an alternative “win-win” scenario to the one tested here.⁶

Another promising direction for future research would be to examine cognitive load as a mediator for performance gains later throughout the day, which was initially attributed to the attenuated cognitive load from a primed aligned goal. Prior research has shown that mediators of primed goal-performance effects include enhancing self-set goals, commitment, and motivation (Ganegoda et al., 2016; Latham et al., 2020; Stajkovic et al., 2019). Yet, it could also be that attentional savings might accumulate over the day following an aligned primed goal, perhaps leading to improved downstream performance on subsequent tasks. Similarly, the negative effects of misaligned primed goals might be amplified by time, as the increased cognitive burden from the misaligned goal leaves less attention for subsequent tasks, undermining performance. Future research could design longitudinal experiments to explore how primed aligned and misaligned goals impact cognitive load and performance subsequently—for example, during the workday.

Implications for Practice

How organizations incorporate primed goals will likely depend on further empirical evidence and their views on human sustainability. To enhance awareness and understanding of human sustainability at work, we reflect on several philosophical nuances of this concept.

Human sustainability at work is about ensuring that organizations contribute positively to the health and well-being of their employees rather than psychologically depleting them (Stajkovic & Stajkovic, 2024). Just as natural resources can become depleted, employees are key resources in most organizations, and they, too, can become depleted (Barnes & Wagner, 2023). Although human sustainability has received less attention than environmental sustainability, we suggest it is equally important because the workplace environment is just as essential to human well-being as the natural environment. The goal of human sustainability is not to shift the focus away from environmental issues but to shed light on the sustainability of work environments.

It is important to emphasize that economic progress does not have to be at odds with human sustainability. In this research, sustaining humans in organizations includes maintaining their performance and cognitive capacity. This can be approached from two perspectives. The first, reflected in Hypothesis 1, assumes that performance is the focal variable in industrial-organizational psychology (Judge, Jackson, Shaw, Scott, & Rich, 2007) and that global competition for economic success will not diminish (Blustein, 2019; Korunka & Kubicek, 2017). In line with these premises, priming goals that are aligned with difficult assigned goals, as we found in this work, is one method for meeting performance demands without increasing employee cognitive load.

The alternative approach reverses the correlates, focusing on reducing cognitive load while maintaining performance. This idea is rooted in the philosophy of humanism at work

(Voltaire, 1756). Unlike the approach we tested, this scenario suggests lowering the difficulty of the goal to support human sustainability by reducing cognitive strain. However, this approach is rarely seen in the goal-setting literature or organizational practice (Locke & Latham, 2013). Additionally, deliberately reducing work engagement has been labeled “quiet quitting,” which research finds can lead to limited career advancement, negative reputation, skill stagnation, loss of confidence, and financial consequences (Serenko, 2023). Nonetheless, alternative perspectives are necessary for future research and practical applications related to human sustainability.

Whether organizations assign difficult goals or lower assigned goal difficulty, they can still benefit from priming aligned goals by designing work environments that support goal priming. For example, goal primes aligned with assigned goals can be embedded in emails from executives (Stajkovic et al., 2019) and other digital communication, workplace art (Vohs, Mead, & Goode, 2006), and documents (Shantz & Latham, 2009, 2011). Additionally, goal priming can be incorporated into work environments by changing screensavers, desktop backgrounds, stationery features, and other physical elements—such as furniture arrangements or wall art (Kay, Wheeler, Bargh, & Ross, 2004). Importantly, goal priming can be implemented at little to no financial cost at work.

Our findings also highlight the importance of ensuring that cues in the workplace do not unintentionally prime misaligned goals. The downstream effects of misaligned primed goals include not only derailed goal pursuits and increased cognitive load but also an inability to correct the misalignment because it occurs without awareness. To mitigate this, organizations could enact “priming audits”—systematic reviews of cues in the workplace to identify those that might inadvertently trigger misaligned goals. For example, if an organization’s leadership is having an important contract negotiation with the local union, and the hope is for an amicable discourse, perhaps the meeting should not be scheduled in the boardroom. This is because the boardroom has been shown to prime aggression (Kay et al., 2004) and, in the context of this example, might have a counterproductive effect on the intended goal of congenial conversation.

A precursor to priming audit in an organization would be a training program to help employees learn about priming and to help them identify goal primes in their work environment. Such a program could start with awareness training, in which employees learn why and how situational cues can influence work behavior without awareness. Employees could then engage in small *group discussions* to identify potential primes in their environment, such as phrasing in emails from executives (Stajkovic et al., 2019) or among themselves, office arrangements (Kay et al., 2004), or visuals (Shantz & Latham, 2009).⁷ Thereafter, organizations might consider implementing *targeted interventions* focusing, for example, on removing misaligned primes identified in the prior step of the training and reinforcing goal-congruent cues in the workplace.

Regarding boundary conditions, our research suggests that difficult assigned goals (vs. primed goals) are more likely to sustain positive performance effects as complexity increases, particularly for novel tasks. While earlier findings indicated that task complexity moderates the effects of assigned goals (Wood et al., 1987), newer developments in goal theory (Locke & Latham, 2013) emphasize that conscious goals are especially valuable for complex tasks. These goals encourage individuals to develop strategies, adapt to ongoing challenges, and sustain effort. Given goal commitment, assigning difficult goals can provide more value for complex tasks than easy ones (Stajkovic & Sergent, 2019). This aligns with the role of

attention in new and complex goal pursuits compared to cognitive automation underlying primed goals (Bargh et al., 1996). As employees repeat similar tasks over time and those tasks become routinized, though, the positive effect that a primed aligned goal withstands increases in task complexity. This provides an efficient supplement to assigned goals without increasing cognitive load in these conditions.

Conclusion

We examined how primed and assigned goals interact to influence performance and cognitive load, and whether these relationships change as perceived task complexity increases. Across three experiments, our findings indicate that a primed goal aligned with an assigned goal enhances performance without increasing cognitive load. However, for novel tasks, the positive performance effect of the aligned primed goal was moderated by perceived task complexity – such that as perceptions of complexity increased, the benefits of the primed goal weakened. In contrast, for well-practiced tasks, complexity did not diminish the positive primed goal effect. On the flip side, a misaligned primed goal paired with an assigned difficult goal led to reduced performance and increased cognitive load. These findings suggest that organizations should exercise caution when implementing goal priming, ensuring that any primed goals are aligned with goals deliberately assigned by the organization.

Moving forward, future research could continue to investigate the dynamics between primed and assigned goals, focusing on how this interplay influences performance and cognitive load across diverse organizational settings and over longer timeframes. Such work would deepen our understanding of the role that primed goals can play in supporting human sustainability at work.

ORCID iD

Kayla S. Stajkovic  <https://orcid.org/0000-0002-5346-6168>

Alexander D. Stajkovic  <https://orcid.org/0000-0002-6348-3068>

Notes

1. Priming research is not without criticism. It has been critiqued as atheoretical (Dijksterhuis, 2014; Locke, 2015), and many studies have been scrutinized for replicability (Cesario, 2014; Harris, Coburn, Rohrer, & Pashler, 2013). This, however, has not been the case with organizational research on primed goals, in part because this research has relied from its inception on goal theory (Latham & Locke, 2018) to guide hypothesis development, research design, and testing.

2. A human brain processes 10^{14} (one hundred trillion) operations per second (Carlsmith, 2020; Moravec, 1988). Because attention can focus on only one thing at a time, all but one of these operations are automated (Postle, 2015). Baumeister, Bratslavsky, Muraven, and Tice (2018) estimated that only 5% of daily activity occurs through attentional processing, yet most adaptive human functioning in contemporary society depends on attention—that is, understanding and resolving conflict, abstract thinking, envisioning prospects, learning, social functioning, and volitional (vs. instinctual) action. Colloquially, many have heard the advice to “pay attention,” “focus,” “zero in,” and “keep your eye on the ball.”

3. We followed previous research to determine the ratio of prime words and sentences. Stajkovic et al. (2006) built on Bargh et al. (2001), and Stajkovic et al. (2019) extended both studies, using 60% (12 out of 20 sentences) as the standard. Two related issues arise here. The first is whether priming operates like a switch (on/off) or

whether its effect strengthens with more primes (i.e., the more primes, the stronger the effect). The dominant view in both social psychology and organizational behavior appears to favor the on/off model (Latham et al., 2010). The second issue concerns how strong the priming manipulation should be to trigger a goal without making it conscious. Based on previous findings, 60% (12/20) seems effective without triggering awareness, though other ratios may also be effective.

4. Though lower than the estimated sample size of 386 participants, the data retained are of high quality and reflect genuine participation, ensuring that the analyses are based on meaningful and interpretable results. We acknowledge that this may slightly diminish the statistical power to detect significant effects.

5. For example, as participants completed studies online, they might have used different computers, monitors, and internet services. Experimental randomization, especially with sufficiently large samples, helps ensure that these potential errors randomize and cancel out when summed across conditions (Shadish et al., 2001).

6. We thank our reviewer for this insightful suggestion of an alternative win-win scenario.

7. We conducted an informal class experiment on this idea. After covering goal setting and goal priming, we asked students to walk around the business school building and identify instances in which intended and primed goals appeared misaligned. Two themes emerged from this exercise and subsequent group discussions: (1) the numerous open social spaces encouraged mingling, which was intended by the school/building design, but for some students, this inadvertently reduced class attendance, and (2) the pervasive aroma of food being served throughout the building made it for some students to focus on studying. While we had previously considered the impact of food distractions, we hadn't anticipated that visible socializing might dissuade some from prioritizing class attendance.

References

- Aarts, H., & Dijksterhuis, A. 2003. The silence of the library: Environment, situational norm, and social behavior. *Journal of Personality and Social Psychology*, 84: 18-28.
- Bargh, J. A. 1990. Auto-motives: Preconscious determinants of social interaction. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior*, vol. 2: 93-130. New York, NY: Guilford Press.
- Bargh, J. A. 1992. The ecology of automaticity: Toward establishing the conditions needed to produce automatic processing effects. *American Journal of Psychology*, 105: 181-199.
- Bargh, J. A., & Chartrand, T. L. 2000. The mind in the middle. In H. T. Reis & C. M. Judd (Eds.), *Handbook of research methods in social and personality psychology*: 253-285. New York, NY: Cambridge University Press.
- Bargh, J. A., Chen, M., & Burrows, L. 1996. Automaticity of social behavior: Direct effects of trait construct and stereotype activation on action. *Journal of Personality and Social Psychology*, 71: 230-244.
- Bargh, J. A., Gollwitzer, P. M., Lee-Chai, A., Barndollar, K., & Trötschel, R. 2001. The automated will: Nonconscious activation and pursuit of behavioral goals. *Journal of Personality and Social Psychology*, 81: 1014-1027.
- Bargh, J. A., Green, M., & Fitzsimons, G. 2008. The selfish goal: Unintended consequences of intended goal pursuits. *Social Cognition*, 26: 534-554.
- Barnes, C., & Wagner, D. T. 2023. Leading for human sustainability: An extension of restricted employee sustainability theory. *Research in Organizational Behavior*, 43: 100197.
- Baumeister, R. F., Bratslavsky, E., Muraven, M., & Tice, D. M. 2018. Ego depletion: Is the active self a limited resource? In R. Baumeister, E. Bratslavsky, M. Muraven, & D. Tice (Eds.), *Self-regulation and self-control*: 16-44. New York, NY: Routledge.
- Baumeister, R. F., Vohs, K. D., & Funder, D. C. 2007. Psychology as the science of self-reports and finger movements: Whatever happened to actual behavior? *Perspectives on Psychological Science*, 2: 396-403.
- Beersma, B., Hollenbeck, J. R., Humphrey, S. E., Moon, H., Conlon, D. E., & Ilgen, D. R. 2003. Cooperation, competition, and team performance: Toward a contingency approach. *Academy of Management Journal*, 46: 572-590.
- Bijleveld, E., Custers, R., & Aarts, H. 2009. The unconscious eye opener: Pupil dilation reveals strategic recruitment of resources upon presentation of subliminal reward cues. *Psychological Science*, 20: 1313-1315.
- Block, R. A., Hancock, P. A., & Zakay, D. 2010. How cognitive load affects duration judgments: A meta-analytic review. *Acta Psychologica*, 134: 330-343.
- Blustein, D. L. 2019. *The importance of work in an age of uncertainty*. New York, NY: Oxford Univ. Press.
- Campbell, D. J. 1988. Task complexity: A review and analysis. *Academy of Management Review*, 1: 40-52.

- Carlsmith, J. 2020, September 11. How much computational power does it take to match the human brain? *Open Philanthropy*. Retrieved from <https://www.openphilanthropy.org/research/how-much-computational-power-does-it-take-to-match-the-human-brain/>
- Carver, C. S., & Scheier, M. F. 1998. *On the self-regulation of behavior*. New York, NY: Cambridge University Press.
- Cesario, J. 2014. Priming, replication, and the hardest science. *Perspectives on Psychological Science*, 9: 40-48.
- Chartrand, T. L., & Bargh, J. A. 1996. Automatic activation of impression formation and memorization goals: Nonconscious goal priming reproduces effects of explicit task instructions. *Journal of Personality and Social Psychology*, 71: 464-478.
- Chen, X., & Latham, G. P. 2014. The effect of priming learning vs. performance goals on a complex task. *Organizational Behavior and Human Decision Processes*, 125: 88-97.
- Chen, X., Latham, G. P., Piccolo, R. F., & Itzhakov, G. 2021. An enumerative review and a meta-analysis of primed goal effects on organizational behavior. *Applied Psychology*, 70: 216-253.
- Cohen, J. 1988. *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Erlbaum.
- Custers, R., & Aarts, H. 2010. The unconscious will: How the pursuit of goals operates outside of conscious awareness. *Science*, 329: 47-50.
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. 2001. The job demands- resources model of burnout. *Journal of Applied Psychology*, 86: 499-512.
- Dijksterhuis, A. 2014. Welcome back theory. *Perspectives of Psychological Science*, 9: 72-75.
- Dijksterhuis, A., & Aarts, H. 2010. Goals, attention, and (un)consciousness. *Annual Review of Psychology*, 61: 467-490.
- Dijksterhuis, A., Bos, M. W., Nordgren, L. F., & Van Baaren, R. B. 2006. On making the right choice: The deliberation-without-attention effect. *Science*, 311: 1005-1007.
- Erez, M., Gopher, D., & Arazi, N. 1990. Effects of goal difficulty, self-set goals, and monetary rewards on dual task performance. *Organizational Behavior and Human Decision Processes*, 47: 247-269.
- Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. 2007. G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39: 175-191.
- Fishbach, A., Friedman, R. S., & Kruglanski, A. W. 2003. Leading us not into temptation: Momentary allurements elicit overriding goal activation. *Journal of Personality and Social Psychology*, 84: 296-309.
- Freed, J. 2020, June 30. Why cognitive load could be the most important employee experience metric in the next 10 years. *Forbes*.
- Frese, M. 2021. Primed goals and primed actions: A commentary from an action theory point of view. *Applied Psychology*, 70: 262-267.
- Ganegoda, D. B., Latham, G. P., & Folger, R. 2016. The effect of a consciously set and a primed goal on fair behavior. *Human Resource Management*, 55: 789-807.
- Ganster, D. C. 2005. Executive job demands: Suggestions from a stress and decision-making perspective. *Academy of Management Review*, 30: 492-502.
- Goh, J., Pfeffer, J., & Zenios, S. A. 2016. The relationship between workplace stressors and mortality and health costs in the United States. *Management Science*, 62: 608-628.
- Gollwitzer, P. M. 1999. Implementation intentions: Strong effects of simple plans. *American Psychologist*, 54: 493-503.
- Gopher, D., & Braune, R. 1984. On the psychophysics of workload: Why bother with subjective measures? *Human Factors*, 26: 519-532.
- Haerem, T., & Rau, D. 2007. The influence of degree of expertise and objective task complexity on perceived task complexity and performance. *Journal of Applied Psychology*, 92: 1320-1331.
- Harris, C. R., Coburn, N., Rohrer, D., & Pashler, H. 2013. Two failures to replicate high-performance-goal priming effects. *PLoS One*, 8: e72467.
- Iskander, M. 2019. Burnout, cognitive overload, and metacognition in medicine. *Medical Science Educator*, 29: 325-328.
- Itzhakov, G., & Latham, G. P. 2020. The moderating effect of performance feedback and the mediating effect of self-set goals on the primed goal-performance relationship. *Applied Psychology*, 69: 379-414.
- Judd, C. M., McClelland, G. H., & Ryan, C. S. 2011. *Data analysis: A model comparison approach*. New York, NY: Routledge.

- Judge, T. A., Jackson, C. L., Shaw, J. C., Scott, B. A., & Rich, B. L. 2007. Self-efficacy and work-related performance: The integral role of individual differences. *Journal of Applied Psychology*, 92: 107-127.
- Kahneman, D. 1973. *Attention and effort*. Englewood Cliffs, NJ: Prentice-Hall.
- Kahneman, D. 2011. *Thinking fast and slow*. New York, NY: Farrar, Straus, and Giroux.
- Kahneman, D., & Tversky, A. 2000. *Choices, values, and frames*. Cambridge, UK: Cambridge University Press.
- Kay, A. C., Wheeler, S. C., Bargh, J. A., & Ross, L. 2004. Material priming: The influence of mundane physical objects on situational construal and competitive behavioral choice. *Organizational Behavior and Human Decision Processes*, 95: 83-96.
- Korunka, C., & Kubicek, B. 2017. *Job demands in a changing world of work*. New York, NY, USA: Springer.
- Kruglanski, A. W., Shah, J. Y., Fishbach, A., Friedman, R., Chun, W. Y., & Sleeth-Keppler, D. 2002. A theory of goal systems. In M. P. Zanna (Ed.), *Advances in experimental social psychology*, vol. 34: 331-378. San Diego, CA: Academic Press.
- Kukla, A. 1972. Foundations of an attributional theory of performance. *Psychological Review*, 79: 454-470.
- Latham, G. P., Brcic, J., & Steinhauer, A. 2017. Toward an integration of goal setting theory and the automaticity model. *Applied Psychology*, 66: 25-48.
- Latham, G. P., & Budworth, M. H. 2014. The study of work motivation in the 20th century. In L. K. Bryan (Ed.), *Historical perspectives in industrial and organizational psychology*, 383-412. New York, NY: Psychology Press.
- Latham, G. P., & Ernst, C. T. 2006. Keys to motivating tomorrow's workforce. *Human Resource Management Review*, 16: 181-198.
- Latham, G. P., Hu, J., & Brcic, J. 2020. The effect of a context-specific primed goal on goal commitment and team performance. *Applied Psychology*, 69: 805-833.
- Latham, G. P., & Locke, E. A. 1991. Self-regulation through goal setting. *Organizational Behavior and Human Decision Processes*, 50: 212-247.
- Latham, G. P., & Locke, E. A. 2018. Goal setting theory: Controversies and resolutions. In D. Ones, N. Anderson, C. Viswesvaran, & H. Sinangil (Eds.) *Handbook of industrial, work & organizational psychology* (2nd ed): 145-166. Thousand Oaks, CA: Sage.
- Latham, G. P., Stajkovic, A. D., & Locke, E. A. 2010. The relevance and viability of subconscious goals in the workplace. *Journal of Management*, 36: 234-255.
- Legal, J. B., & Meyer, T. 2009. Goal priming and self-efficacy: Independent contributions to motor performance. *Perceptual and Motor Skills*, 108: 383-391.
- Lewin, K. 1935. *A dynamic theory of personality*. New York, NY: McGraw-Hill.
- Locke, E. A. 2015. Theory building, replication, and behavioral priming: Where do we need to go from here? *Perspectives on Psychological Science*, 10: 408-414.
- Locke, E. A., & Latham, G. P. 1990. *A theory of goal setting & task performance*. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Locke, E. A., & Latham, G. P. 2004. What should we do about motivation theory? Six recommendations for the twenty-first century. *Academy of Management Review*, 29: 388-403.
- Locke, E. A., & Latham, G. P. 2009. Has goal setting gone wild, or have its attackers abandoned good scholarship? *Academy of Management Perspectives*, 23: 17-23.
- Locke, E. A., & Latham, G. P. 2013. *New developments in goal setting and task performance*. New York, NY: Routledge.
- Locke, E. A., Smith, K. G., Erez, M., Chah, D., & Schaffer, A. 1994. The effects of intra-individual goal conflict on performance. *Journal of Management*, 20: 67-91.
- Macrae, C. N., Bodenhausen, G. V., Schloerscheidt, A. M., & Milne, A. B. 1999. Tales of the unexpected: Executive function and person perception. *Journal of Personality and Social Psychology*, 76: 200-213.
- Mansouri, F. A., Koechlin, E., Rosa, M. G., & Buckley, M. J. 2017. Managing competing goals: A key role for the frontopolar cortex. *Nature Reviews Neuroscience*, 18: 645-657.
- March, J. G., & Simon, H. A. 1958. *Organizations*. New York, NY: Wiley.
- Marien, H., Custers, R., Hassin, R. R., & Aarts, H. 2012. Unconscious goal activation and the hijacking of the executive function. *Journal of Personality and Social Psychology*, 103: 399-415.
- Meyer, D. E., Irwin, D. E., Osman, A. M., & Kounios, J. 1988. The dynamics of cognition and action: Mental processes inferred from speed-accuracy decomposition. *Psychological Review*, 95: 183-237.

- Miller, G. A. 1956. The magical number seven, plus or minus two: Some limits on our capacity for processing information. *Psychological Review*, 63: 81-97.
- Moravec, H. 1988. *Mind children: The future of robot and human intelligence*. Cambridge, MA: Harvard University Press.
- Naismith, L. M., Cheung, J. J., Ringsted, C., & Cavalcanti, R. B. 2015. Limitations of subjective cognitive load measures in simulation-based procedural training. *Medical Education*, 49: 805-814.
- Najmi, S., Amir, N., Frosio, K. E., & Ayers, C. 2015. The effects of cognitive load on attention control in subclinical anxiety and generalized anxiety disorder. *Cognition and Emotion*, 29: 1210-1223.
- Natemeier, W. E., & Hersey, P. 2011. *Classics of organizational behavior*. Long Grove, IL: Waveland Press, Inc.
- Norman, D. A., & Bobrow, D. G. 1975. On data-limited and resource-limited processes. *Cognitive Psychology*, 7: 44-64.
- Paas, F., Tuovinen, J. E., Tabbers, H., & Van Gerven, P. W. 2003. Cognitive load measurement as a means to advance cognitive load theory. *Educational Psychologist*, 38: 63-71.
- Paas, F. G., van Merriënboer, J. J., & Adam, J. J. 1994. Measurement of cognitive load in instructional research. *Perceptual and Motor Skills*, 79: 419-430.
- Papies, E. K. 2016. Health goal priming as a situated intervention tool: How to benefit from nonconscious motivational routes to health behavior. *Health Psychology Review*, 10: 408-424.
- Papies, E. K., Potjes, I., Keesman, M., Schwinghammer, S., & van Koningsbruggen, G. M. 2014. Using health primes to reduce unhealthy snack purchases among overweight consumers in a grocery store. *International Journal of Obesity*, 38: 597-602.
- Pennebaker, J. W. 2011. *The secret life of pronouns: What our words say about us*. New York, NY: Bloomsbury.
- Pessiglione, M., Schmidt, L., Draganski, B., Kalisch, R., Lau, H., Dolan, R. J., & Frith, C. D. 2007. How the brain translates money into force: A neuroimaging study of subliminal motivation. *Science*, 316: 904-906.
- Posner, M. 1980. Orienting of attention. *Quarterly Journal of Experimental Psychology*, 32: 3-25.
- Posner, M. I., & Rothbart, M. K. 2007. Research on attention networks as a model for the integration of psychological science. *Annual Review of Psychology*, 58: 1-23.
- Posner, M. I., Rothbart, M. K., Vizueta, N., Levy, K., Thomas, K. M., & Clarkin, J. F. 2002. Attentional mechanisms of borderline personality disorder. *Proceedings of the National Academy of Science*, 99: 16366-16370.
- Postle, B. R. 2015. *Essentials of cognitive neuroscience*. New York, NY: Wiley-Blackwell.
- Schouten, J. F., & Bekker, J. A. M. 1967. Reaction time and accuracy. *Acta Psychologica*, 27: 143-153.
- Serenko, A. 2023. The human capital management perspective on quiet quitting: Recommendations for employees, managers, and national policymakers. *Journal of Knowledge Management*, 28: 27-43.
- Shadish, W. R., Cook, T. D., & Campbell, D. T. 2001. *Experimental and quasi-experimental designs for generalized causal inference* (2nd ed). Boston, MA: Cengage Learning.
- Shantz, A., & Latham, G. 2011. The effect of primed goals on employee performance: Implications for human resource management. *Human Resource Management*, 50: 289-299.
- Shantz, A., & Latham, G. P. 2009. An exploratory field experiment of the effect of subconscious and conscious goals on employee performance. *Organizational Behavior and Human Decision Processes*, 109(1): 9-17.
- Sheeran, P., Webb, T. L., & Gollwitzer, P. M. 2005. The interplay between goal intentions and implementation intentions. *Personality and Social Psychology Bulletin*, 31: 87-98.
- Sitzmann, T., & Bell, B. S. 2017. The dynamic effects of subconscious goal pursuit on resource allocation, task performance, and goal abandonment. *Organizational Behavior and Human Decision Processes*, 138: 1-14.
- Slocum, J. W., Cron, W. L., & Brown, S. P. 2002. The effect of goal conflict on performance. *The Journal of Leadership and Organizational Studies*, 9: 77-89.
- Stajkovic, A. D., Latham, G. P., Sergent, K., & Peterson, S. 2019. Prime and performance: Can a CEO motivate employees without their awareness? *Journal of Business and Psychology*, 34: 791-802.
- Stajkovic, A. D., Locke, E. A., & Blair, E. S. 2006. A first examination of the relationships between primed subconscious goals, assigned conscious goals, and task performance. *Journal of Applied Psychology*, 91: 1172-1180.
- Stajkovic, A. D., & Sergent, K. 2019. *Cognitive automation and organizational psychology: Goal priming as a new source of competitive advantage*. New York, NY: Routledge.
- Stajkovic, A. D., & Stajkovic, K. S. 2024. *Human sustainability and cognitive overload at work: The psychological cost of working*. New York, NY: Taylor & Francis.
- Stroop, J. R. 1935. Studies of interference in serial verbal reactions. *Journal of Experimental Psychology*, 18: 643-662.

- Takarada, Y., & Nozaki, D. 2018. Motivational goal-priming with or without awareness produces faster and stronger force exertion. *Scientific Reports*, 8: 10135.
- Tausczik, Y. R., & Pennebaker, J. W. 2010. The psychological meaning of words: LIWC and computerized text analysis methods. *Journal of Language and Social Psychology*, 29: 24-54.
- Tversky, A., & Kahneman, D. 1981. The framing of decisions and the psychology of choice. *Science*, 211: 453-458.
- van Maanen, L. 2016. Is there evidence for a mixture of processes in speed-accuracy trade-off behavior? *Topics in Cognitive Science*, 8: 279-290.
- van Merriënboer, J. J., & Sweller, J. 2005. Cognitive load theory and complex learning: Recent developments and future directions. *Educational Psychology Review*, 17: 147-177.
- Vohs, K. D., Mead, N. L., & Goode, M. R. 2006. The psychological consequences of money. *Science*, 314: 1154-1156.
- Voltaire, 1756. *Essai sur les mœurs et l'esprit des nations*, edited by Ren'e Pomeau, 2 vols. (Paris: Garnier, reprinted in English in 1963).
- Webb, T. L., & Sheeran, P. 2003. Can implementation intentions help to overcome ego-depletion? *Journal of Experimental Social Psychology*, 39: 279-286.
- Weingarten, E., Chen, Q., McAdams, M., Yi, J., Hepler, J., & Albarracín, D. 2016. From primed concepts to action: A meta-analysis of the behavioral effects of incidentally presented words. *Psychological Bulletin*, 142: 472-497.
- Wickelgren, W. A. 1977. Speed-accuracy tradeoff and information processing dynamics. *Acta Psychologica*, 41: 67-85.
- Wood, R. E., Mento, A. J., & Locke, E. A. 1987. Task complexity as a moderator of goal effects: A meta-analysis. *Journal of Applied Psychology*, 72: 416-425.
- Woodworth, R. S. 1899. Accuracy of voluntary movement. *The Psychological Review: Monograph Supplements*, 3(3): i-144.
- Zajonc, R. B. 1980. Feeling and thinking: Preferences need no inferences. *American Psychologist*, 35: 151-175.
- Zedeck, S. 2010. *Handbook of industrial and organizational psychology*. Washington, DC: . American Psychological Association.