



# THE EFFECT OF PRIMED GOALS ON EMPLOYEE PERFORMANCE: IMPLICATIONS FOR HUMAN RESOURCE MANAGEMENT

**AMANDA SHANTZ AND GARY LATHAM**

*Overwhelming evidence in the behavioral sciences shows that consciously set goals can increase an employee's performance. Thus, HR professionals have had little, if any, reason to be interested in subconscious processes. In the past decade, however, laboratory experiments by social psychologists have shown that goals can be primed. That is, people's behavior is affected by goals of which they are unaware. Because a conscious goal consumes cognitive resources, this finding has important implications for employee efficiency in the workplace. This paper discusses the results of priming a performance goal in two organizational settings. Call center employees who were primed using a photograph of a woman winning a race raised significantly more money from donors than those who were randomly assigned to a control group. A meta-analysis revealed that a photograph can prime the subconscious to increase job performance. The results of the present study demonstrate that subconscious motivation is a concept worthy of exploration for both human resource scholars and practitioners. © 2011 Wiley Periodicals, Inc.*

*Keywords:* prime, subconscious, goal setting, job performance

**G**oal setting theory (Locke & Latham, 1990, 2002) states that conscious goals are the immediate regulators of individual behavior because a person's choice of a goal focuses attention toward goal-relevant activities and away from goal-irrelevant activities. Given goal commitment, employees will exert effort and persist in pursuing a goal until the specified goal is attained (Latham, 2007).

## **Consciously Set Goals**

Goal setting has a long history in managing an organization's human resources (Latham, 1983). This is because goal setting is a core variable in effective performance appraisals, coaching, training, transfer of training, and self-management. For example, Latham, Mitchell, and Dossett (1978) found that the performance appraisals of engineers and scientists had no effect on behavior unless a

Correspondence to: Amanda Shantz, Kingston Business School, Kingston Upon Thames, Surrey, KT2 7LB, UK, Phone: +44 (0) 202 8417 5026, Fax: +44 (0) 1142685766, E-mail: a.shantz@kingston.ac.uk

**Human Resource Management**, March–April 2011, Vol. 50, No. 2, Pp. 289–299

© 2011 Wiley Periodicals, Inc.

Published online in Wiley Online Library (wileyonlinelibrary.com).

DOI: 10.1002/hrm.20418

specific goal was set based on the feedback these employees received. This finding is consistent with other research on management by objectives (Odiorne, 1965). In relation to coaching, setting specific performance goals resulted in twice as much improvement

---

*One drawback of consciously setting a goal, however, is that it consumes cognitive resources. Given that cognitive resources are limited, this effect can be problematic.*

---

in an employee's performance than did a discussion of general goals or criticism without referring to a specific goal (Burke, Weitzel, & Weir, 1978). Wexley and Nemeroff (1975), who studied employees of a large urban hospital, found that setting distal as well as proximal goals led to increased interpersonal skills of department heads and reduced absenteeism of their subordinates. Training in self-management skills that involved setting goals for the number of days to come to work, writing a behavioral contract with oneself to increase goal commitment, and self-monitoring behavior

on goal progress led to transferring this training to the job, and significantly increasing the job attendance of unionized hourly workers (Frayne & Latham, 1987; Latham & Frayne, 1989).

One drawback of consciously setting a goal, however, is that it consumes cognitive resources (Anderson, 1983, 1985). Given that cognitive resources are limited, this effect can be problematic.

### **Priming a Goal in the Subconscious**

Beginning in the 1990s, social psychologists started investigating a methodology that circumvents this problem, namely, priming a goal. Priming is defined as the temporary nonconscious activation of a behavior (Bargh & Chartrand, 1997). During the time that a primed goal remains active in the subconscious, it exerts a passive effect on an individual's behavior even though that person is unaware that the goal exists (Bargh, 1994, 2005).

To date, there is no accepted theory that explains the effect of a primed goal on behavior. This is not necessarily a criticism

because numerous researchers have argued that proper theory building is inductive rather than deductive (e.g., Locke, 2007; Mischel, 2009; Roe, 2009; Tversky cited by Mischel, 2009). Nevertheless, to explain this phenomenon further, Chartrand, Dalton, and Cheng (2007) argued that (a) environmental features can trigger automatic goal activation which then (b) directly affects goal-directed cognition and behavior without the individual's being aware of this process. In short, a primed goal affects behavior in the absence of conscious attention or awareness of pursuing a goal.

This explanation is similar to Gollwitzer's (1999) theory of implementation intentions. An implementation intention, Gollwitzer's theory states, is a mental link that is created unconsciously between a specific future situation and the intended goal response. Thus, an individual becomes committed to goal-directed behavior once an appropriate setting for doing so is encountered. The theory further states that this occurs automatically in that no conscious effortful control is exerted. Rather, an individual switches to being controlled by a preselected contextual cue of which that person is quite unaware. The sight of a person, group, or setting becomes sufficient to trigger the desired intention without the individual realizing it. A primed goal or an implementation intention, however, only affects subsequent behavior to the extent that it preexists in an individual's mind as a desired state that is associated with positive affect (Custers & Aarts, 2007).

In a typical laboratory experiment involving priming, Bargh, Chen, and Burrows (1996) primed participants by asking them to circle words related to elderly people (e.g., sentimental, wrinkles). When those in the experimental group subsequently left the laboratory, they walked significantly more slowly down a hallway than did those who had been randomly assigned to the control group. Fishbach, Friedman, and Kruglanski (2003) primed participants with the word "diet" by having them sit in a room in which magazines on dieting and exercise were displayed. Subsequently, those people were offered food. Those in the experimental group chose an apple significantly

more frequently than a piece of chocolate relative to those in the control group.

Aarts and Dijksterhuis (2003) investigated the effect of a photograph on activating situational norms. Undergraduate students were randomly assigned to one of three conditions. In the first condition, participants were exposed to a picture of a library for 30 seconds, and informed that they would, at a later date, go to the library. In the second condition, participants were shown a picture of a railway station. Finally, in the third condition, the participants were asked to view the library picture, but were not instigated with the goal to visit the library. Next, the participants were asked to read aloud 10 words presented on a computer screen into a device that measured sound pressure. Participants who viewed the picture of the library and were assigned the goal of visiting the library later spoke more quietly than those exposed to the other two conditions. The sound pressure did not differ between the participants who viewed the picture of the library alone and those who viewed the picture of the railway station.

In the above three experiments, the primed goal was presented supraliminally. That is, the prime was presented in ways such that the person was aware of its existence, but saw no direct relationship between the primed goal and the experimental task that followed (Chartrand & Bargh, 2002). Supraliminal presentation stands in stark contrast to subliminal priming, which typically involves presenting primed material on a computer below the field of focal vision, so that an individual does not report any awareness at all. Bargh and Morsella (2008) have criticized the use of subliminal priming because of its lack of ecological validity. They argued that subliminal stimuli are too weak or brief in natural settings to have an enduring effect on behavior.

One limitation of the social psychology experiments on priming is the short time lag used to measure a change in behavior after the primed goal is introduced. Typically, task performance is assessed within minutes, if not seconds, following the prime. If the effect of a prime is short-lived, the significance of

these findings for human resource management would be inconsequential. Moreover, the tasks social psychologists used in their priming experiments were typically of questionable relevance for most work settings (e.g., length of time to walk through a hallway, choice of food).

### Primed Goals: Implications for HRM

Despite the shortcomings of the extant research in social psychology on primed goals, Latham, Stajkovic, and Locke (2010) have argued that the findings may have practical significance for human resource professionals for several reasons. First, a primed goal has been found to have motivational effects that are similar to a conscious goal in terms of performance. Both goals influence choice, effort, and persistence (e.g., Bargh, Gollwitzer, Lee-Chai, Barndollar, & Tröetschel, 2001). Second, given the limits of an employee's focal awareness, it is obvious that a person relies continually on his or her subconscious (Locke & Latham, 2004). Thus, a subconscious goal, relative to a conscious goal, consumes fewer cognitive resources (Anderson, 1985; Dijksterhuis & Nordgren, 2006). Hence, a goal that is in the subconscious can actually increase an employee's efficiency. Finally, evidence exists that a conscious goal and a subconscious goal are not necessarily correlated. Their effect on job performance has been found to be additive (Shantz & Latham, 2009); that is, the two goals together have a greater effect on performance than either one alone.

To date, only one field experiment on the effect of a primed goal has been published. The dependent variable in this study, namely, money, is highly relevant for work settings. The length of the experiment was an entire work shift. Specifically, Shantz and Latham (2009) studied employees in a call center who were soliciting money for a university. Using a  $2 \times 2$  factorial design, employees randomly assigned to an experimental group were given a specific monetary goal to attain. They were presented with printed directions, as was normal protocol in that call center, on how to solicit donations from alumni. The

employees in the control group were given the same printed directions. The directions given to the experimental group was printed over a color background photograph of a woman who was winning a race. This is consistent with Aarts and Dijksterhuis's (2003) laboratory experiment where a photograph was used as the prime. At the end of the work shift, the group assigned a specific monetary goal showed a significant increase in performance. This finding is consistent with the voluminous findings on the motivational benefits of consciously setting a goal (Latham, 2007; Mitchell & Daniels, 2003). In addition, the employees who were primed with a goal for achievement via the photo of the woman winning a race raised significantly more money from donors than did their colleagues in the control group. There was no interaction effect. This was the first time such findings had been reported from an organizational setting.

Prior to 2009, no social psychology experiment, to Shantz and Latham's knowledge, had been conducted to determine whether a primed goal actually affected the subconscious. Consequently, Shantz and Latham (2009) conducted a second experiment whereby people responded to a projective test, namely, the Thematic Apperception Test (TAT). The TAT was used because both the theory and empirical data suggest that implicit motives are optimally measured by a projective test (Schultheiss & Brunstein, 2001). Again, participants were assigned randomly to two conditions. Those shown the photograph of the woman winning the race scored higher on need for achievement, as measured by the TAT, than did those in the control group.

Despite these results, data from only one organizational setting do not provide a clear basis for evidence-based management (Latham, 2009; Rousseau, 2006). Before results can be interpreted with confidence, Campbell and Stanley (1966) argued that replication is required at other times and in different settings. A major threat to external

---

*Despite these results, data from only one organizational setting do not provide a clear basis for evidence-based management.*

---

validity, they suggested, is sampling bias. Although acknowledging that sampling representativeness is impossible for perfect achievement, and using research on teaching as an example, Campbell and Stanley further argued, "One way to increase it is to reduce the number of students or classrooms participating from a given school or grade and to increase the number of schools and grades in which the experiment is carried on" (p. 19). Consequently, two field experiments involving call center employees in two different geographical areas from the call center that Shantz and Latham (2009) had studied previously were conducted. Both work shifts lasted 4 hours; in contrast, the work shift in the Shantz and Latham field experiment lasted just 3 hours.

The hypothesis tested in the present two field experiments was that employees who are primed with a photograph showing personal achievement would raise significantly more money from donors than do those in the control group. This hypothesis was based on both Gollwitzer's theory (1999) and Chartrand et al.'s (2007) mini theory; namely, that the environment (in this case instructions on ways to obtain monetary donations overlaying a photograph of a person winning a race) triggers or primes a nonconscious goal such that the primed person excels at the task. A meta-analysis was then conducted on the results from these two field experiments and the Shantz and Latham (2009) experiment.

## Study 1

### Participants

Study 1 was conducted in a call center in a different organizational setting from Shantz and Latham's (2009) field experiment. The contract employees ( $n = 20$ ) were hired to raise money for a university in Ontario, Canada. The mean age of the employees was 20.95 ( $SD = 2.12$ ), and 40% of them were men.

### Procedure

Employees were randomly assigned to either the experimental ( $n = 10$ ) or the control

group ( $n = 10$ ). All participants were informed that they would be asked to assess an information packet given to them by their supervisor for soliciting money from donors (specifically, information regarding student scholarships). Thus, the employees were not aware that they were participating in a field experiment. The employees worked independently in cubicles. They wore headphones to minimize disturbing one another when telephoning potential donors.

In the experimental condition, the achievement goal was primed following the procedure used by Shantz and Latham (2009). Ideas provided for soliciting funds were printed on the background of a photograph of a woman winning a race. As noted, the information packet for those in the control group was identical with the sole exception that there was no background photograph. Thus, all the employees received the same instructions. The shift lasted 4 hours, and each employee was paid by the hour regardless of how much money he or she raised.

At the end of each shift, the employees were administered a 4-item questionnaire to determine whether any of them were aware of the hypothesis. The questions were "What do you think was the purpose of the information packet?"; "Did you notice anything unusual about the information packet?"; "Was anything in the information packet an (a) enabler of your performance, (b) a distractor to your performance, or (c) neither?"; and "Do you have any comments?"

## Results

### Manipulation Check

No one in the experimental group indicated that the photograph might have influenced their performance. Therefore, none of the participants was dropped from the analysis. No one in either the experimental or the control group wrote additional comments to the fourth question. Because no one asked a question or made a comment suggesting possible knowledge of the experiment's purpose, it appears that no diffusion between the

study conditions took place. A chi-square test showed that employees in the experimental condition did not differ from those in the control condition on whether they felt that the information packet influenced their performance,  $\chi^2(1, N = 20) = .31, p > .05$ .

### Hypothesis

Because the data were positively skewed (Kolmogorov-Smirnov significance was less than .05), consistent with Tabachnik and Fidell's (1996) recommendation, the dependent variable, namely, the amount of money participants raised, was transformed to its logarithm. An independent sample two-tailed *t*-test revealed a significant difference in performance between the primed ( $M = 2.55, SD = .33$ ) and the control group ( $M = 2.10, SD = .55$ ) conditions,  $t(18) = 2.23, p < .05, d = .99$ .

## Discussion

The results of this field experiment provide further evidence that a primed goal can have a positive effect on job performance. Due to the small sample size ( $n = 20$ ) in the first field experiment, a second study was conducted. This study took place in a different organizational setting in a different Province in Canada; this time, it was Quebec.

## Study 2

### Method

#### Participants

The participants in this study were 44 contract employees hired by a call center to raise money for a university, working during four different shifts, with each shift lasting 4 hours. Their mean age was 20.14 years ( $SD = 1.38$ ), and 34.1% were men. In contrast to participants in Study 1, in which the employees were Anglophone, the employees in this experiment were Francophone.

#### Procedure

Employees were randomly assigned to either the experimental group or the control group.

The procedure followed in this field experiment was identical to that used in Study 1. The dependent variable was the amount of money each employee raised. As was the case in the first experiment, all the employees remained in the same condition for the entire experiment. The participants worked on one of 4 days.

## Results

### Manipulation Check

The results of the manipulation check were the same as those obtained for Study 1. None of the employees indicated any awareness of the hypothesis; namely, that the photograph was

---

*Replicating results is as critical for advancing the science of HRM as it is for informing actual practice.*

---

presented to increase their job performance. No one in the experimental condition commented on the photograph. Further, no one in the control group indicated they were aware that some employees received an information packet that contained a photograph. A chi-square test indicated that no significant difference existed between the experimental and the control group on whether the

participants thought that anything in the information packet was intended to affect—or not affect—performance,  $\chi^2(1, N = 44) = 1.46, p > .05$ .

### Hypothesis

The data were positively skewed (Kolmogorov-Smirnov significance was less than .05); therefore, the dependent variable, namely, the amount of money raised by employees, was transformed into its logarithm (Tabachnik & Fidell, 1996). A two-tailed, independent *t*-test revealed a significant difference in performance between the employees in the primed group ( $M = 2.03, SD = .89$ ) versus the control group ( $M = 1.32, SD = 1.39$ ),  $t(42) = 2.04, p < .05, d = .61$ . Hence, the hypothesis was supported.

To determine whether the effect of the backdrop photograph on the amount of money raised could be attributed to performance on any one of the 4 days when the data were collected, a regression was

conducted to determine whether the day of the week interacted with the primed goal. The only variable that had a significant ( $p < .05$ ) zero-order correlation with performance was the primed goal. The interaction between week day/work shift, and performance was not significant,  $F(3, 40) = 2.06, p = .12$ .

## Study 3: Meta-Analysis

A meta-analysis was conducted on the results of three field experiments conducted in the three different organizations at three different points in time in two different provinces in Canada. Following the meta-analytic procedures of Hunter and Schmidt (1990), we calculated a sample-weighted point estimate of the effect size of the manipulation (*d*-statistic) from the data collected in the Shantz and Latham (2009) experiment and the two field experiments reported here. Doing so allowed us to report a relatively stable estimate of the effect and a confidence interval. The average *d*-statistic across the three field experiments was .56 ( $p < .05$ ), combined sample size was 145, and the confidence interval was .35–.78.

## Discussion

Replicating results is as critical for advancing the science of HRM as it is for informing actual practice (Eden, 2002; Hubbard, Vetter, & Little, 1998; Tsang & Kwan, 1999). The two field experiments described in this article replicated the results obtained by Shantz and Latham (2009). The meta-analysis of data obtained from three call centers at different points in time indeed provide strong support for the effectiveness of priming a goal to increase the job performance of call center employees.

The theoretical and practical importance of the present findings is at least threefold. First, the data revealed that the beneficial effect of a primed goal on job performance endures beyond a few seconds or a few minutes, as has been found in previous social psychology experiments (e.g., Moskowitz & Grant, 2009), to an actual work shift (i.e., four hours) as was found in both of the field

experiments reported in this article and by Shantz and Latham (2009). This finding is important because, as noted in the introduction, a conscious goal consumes cognitive resources that are limited (Kanfer & Ackerman, 1989). The present findings suggest that the subconscious can be harnessed to an employee's and employer's advantage. Previous research suggests that a primed goal increases efficiency in that it is akin to a "pattern detector," which automatically matches up the environment to stored knowledge structures in memory. This, in turn, leads to goal-directed behavior (George, 2009; Loftus & Klinger, 1992; Wilson, 2002). Making decisions consciously means relying on mental connections made through a relatively slow and effortful process, in contrast to the associative qualities of using a subconscious system (Epstein, 1990, 1994; Kihlstrom, 1987).

Second, and arguably most importantly, these findings suggest the need to change the way we view behavior in the workplace. Most human resource researchers and managers adhere to the view that behavior can be explained based on conscious processes. The present study provides empirical support for the recent call by a small number of researchers to expand this view of organizational behavior to include the role of the subconscious. For example, Dane and Pratt (2007) highlighted the need to study decision-making based on intuition, where the defining characteristic is nonconscious. In their literature review, Dane and Pratt (2007) found that for decisions ranging from choosing art posters, predicting the length of a relationship, or deciding on college courses, people make better decisions when told to rely on their intuition rather than to reflect consciously on the reasons for their decisions.

Similarly, George (2009) presented a cogent argument for believing that employees respond to their jobs automatically based on environmental cues and the nonconscious activation of knowledge structures in memory. Thus, a third contribution of the present study is that it suggests that environmental cues in the workplace, such as photographs relevant to appraising, coach-

ing, and training employees, allow employees to apply what has been learned during training to their job. They can work diligently in the absence of direct supervision (i.e., self-management), which may significantly increase their performance.

To date, the primes used in the published literature have been general in nature (e.g., a photograph of a woman winning a race) rather than specific to a task. Goal-setting theory (Locke & Latham, 1990) has argued that a goal should be specific to the task. Primes for which an employee reports no awareness, yet that depict work-related tasks, may have a greater effect on job performance than will a "general" primed goal. A qualitative study by Cohen, Hancock, and Tyler (2006) showed that photographs that are displayed in organizations have mimetic capacity in that they propel employees to behave in concert with the images that the photos portray.

### Limitations and Directions for Future Research

A major limitation of the present two field experiments is that the results are limited to the job performance of call center employees. These employees were studied because of the availability of a hard criterion measure relevant to most organizational settings, namely, money, to assess the effect of the independent variable, namely, a primed goal. More research is now needed to examine the external validity of these findings for employees from different populations using different performance criteria.

Although the present findings show that the effect of a primed goal on job performance lasts for more than a few minutes, knowledge is currently lacking as to if, or when, people

---

*Most human resource researchers and managers adhere to the view that behavior can be explained based on conscious processes. The present study provides empirical support for the recent call by a small number of researchers to expand this view of organizational behavior to include the role of the subconscious.*

---

become desensitized to that primed goal. Adaptation theory (Helson, 1964a, 1964b) states that a stimulus typically has only a temporary effect on behavior. If a person encounters stimuli (e.g., photographs) that are similar to the individual's adaptation level, that person will likely be indifferent to those stimuli. The stimuli will have little or no effect on behavior. Thus, knowledge is needed regarding when a prime loses its effect on behavior and the type of prime that should replace it.

Care may also be necessary in choosing primes; for example, photographs that will not demotivate job performance. To date, no research exists on whether a prime can have a deleterious effect on behavior in an organizational setting. Evidence that this effect is a possibility can be inferred from the laboratory experiment conducted by Bargh et al. (1996), where students who were primed with words relating to the elderly subsequently walked significantly more slowly than those in the control group.

In summary, research on organizational behavior in the 20<sup>th</sup> century has focused largely on cognitive processes to study

motivation in the workplace (e.g., Vroom, 1964). The findings from that research stream have been reassuring to HRM professionals in that they show that employees act rationally. Later research has shown that conscious intentions and goals predict, explain, and influence employee behavior (Locke & Latham, 1990). Expanding this research to include subconscious processes may disturb, provoke, and definitely challenge conventional thinking regarding human resource management. Those who disagree with doing so may try to dismiss such work as meretricious and sensationalist. Nevertheless, the present findings suggest that the study of subconscious processes appears to be a research stream that is worthy to explore in the context of managing an organization's human resources.

### Acknowledgments

*The authors thank Ronald Piccolo for his assistance in conducting the meta-analysis. Preparation of this paper was funded in part by a grant to the second author from the Social Sciences and Humanities Research Council of Canada.*

---

**AMANDA SHANTZ** is a senior lecturer at Kingston Business School in the Department of Leadership, Human Resources, and Organisation. She completed an M.Sc. in Human Resource Management from the London School of Economics and a Ph.D. in the Centre for Industrial Relations and Human Resources at the University of Toronto. Her current research interests include nonconscious goals, change management, stigmatization, and "dirty work."

**GARY LATHAM** is the Secretary of State Professor of Organizational Effectiveness at the Rotman School of Management, University of Toronto. He is a fellow and past president of both the Society for Industrial-Organizational Psychology and the Canadian Psychological Association. His research interests include goal setting, nonconscious goals, and self-efficacy, among others. He has published widely in outlets such as *Academy of Management Journal*, *Journal of Applied Psychology*, *Organizational Behavior and Human Decision Making Processes*, and *Personnel Psychology*.

---

## References

- Aarts, H., & Dijksterhuis, A. (2003). The silence of the library: Environmental, situational norm, and social behavior. *Journal of Personality and Social Psychology*, 84(1), 18–28. doi: 10.1037/0022-3514.84.1.18
- Anderson, J. (1983). *The architecture of cognition*. Cambridge, MA: Harvard University Press.
- Anderson, J. (1985). *Cognitive psychology and its implications*. New York, NY: Freeman.
- Bargh, J. A. (1994). The four horsemen of automaticity: Awareness, efficiency, intention, and control in social cognition. In R. S. Wyer Jr., & T. K. Srull (Eds.), *Handbook of social cognition* (2nd ed., pp. 1–40). Hillsdale, NJ: Erlbaum.
- Bargh, J. A. (2005). Bypassing the will: Toward demystifying the nonconscious control of social behavior. In R. R. Hassin, J. S. Uleman, & J. A. Bargh (Eds.), *The new unconscious* (pp. 37–60). Oxford, England: Oxford University Press.
- Bargh, J. A., & Chartrand, T. (1997). Studying the mind in the middle: A practical guide to priming and automaticity research. In H. Reis & C. Judd (Eds.), *Research methods in social psychology* (pp. 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 & Social Psychology*, 71(2), 230–244. doi: 0022-3514
- Bargh, J. A., Gollwitzer, P. M., Lee-Chai, A., Barndollar, K., & Tröetschel, R. (2001). The automated will: Nonconscious activation and pursuit of behavioral goals. *Journal of Personality and Social Psychology*, 81(6), 1014–1027. doi: 10.1037//0022-3514.81.6.1014
- Bargh, J. A., & Morsella, E. (2008). The unconscious mind. *Perspectives on Psychological Science*, 3(1), 73–79. Retrieved from <http://pps.sagepub.com/>
- Burke, R. J., Weitzel, W., & Weir, T. (1978). Characteristics of effective employee performance review and development interviews: Replication and extension. *Personnel Psychology*, 31(4), 903–919. doi: 10.1111/j.1744-6570.1978.tb02130.x
- Campbell, D. T., & Stanley, J. C. (1966). *Experimental and quasi-experimental designs for research*. Chicago, IL: Rand McNally.
- Chartrand, T. L., & Bargh, J. A. (2002). Nonconscious motivations: Their activation, operation, and consequences. In A. Tesser, D. A. Stapel, & J. V. Wood (Eds.), *Self and motivation: Emerging psychological perspectives* (pp. 13–41). Washington, DC: American Psychological Association.
- Chartrand, T. L., Dalton, A. N., & Cheng, C. M. (2007). The antecedents and consequences of nonconscious goal pursuit. In J. Y. Shah & W. L. Gardner (Eds.), *Handbook of motivation science* (pp. 342–355). New York, NY: Guilford Press.
- Cohen, L., Hancock, P., & Tyler, M. (2006). Beyond the scope of the possible: Art, photography and organizational abjection. *Culture and Organization*, 12(2), 109–125. doi: 10.1080/14759550600682908.
- Custers, R., & Aarts, H. (2007). Goal-discrepant situations prime goal-directed actions if goals are temporarily or chronically accessible. *Personality and Social Psychology Bulletin*, 33(5), 623–633. doi: 10.1177/0146167206297404
- Dane, E., & Pratt, M. G. (2007). Exploring intuition and its role in managerial decision making. *Academy of Management Review*, 32(1), 1–48. Retrieved from <http://www.aom.pace.edu/amr/>
- Dijksterhuis, A., & Nordgren, L. F. (2006). A theory of unconscious thought. *Perspectives on Psychological Science*, 1(2), 95–109. doi: 10.1111/j.1745-6916.2006.00007.x
- Eden, D. (2002). Replication, meta-analysis, scientific progress, and AMJ's publication policy. *Academy of Management Journal*, 45(5), 841–846. Retrieved from <http://journals.aomonline.org/amj/>
- Epstein, S. (1990). Cognitive-experiential self-theory. In L. Pervin (Ed.), *Handbook of personality: Theory and research* (pp. 165–192). New York, NY: Guilford Press.
- Epstein, S. (1994). Integration of the cognitive and the psychodynamic unconscious. *American Psychologist*, 49(8), 709–724. Retrieved from <http://www.apa.org/pubs/journals/amp/>
- Fishbach, A., Friedman, R. S., & Kruglanski, A. W. (2003). Leading us not unto temptation: Momentary allurements elicit overriding goal activation. *Journal of Personality and Social Psychology*, 84(2), 296–309. doi: 10.1037/0022-3514.84.2.296
- Frayne, C. A., & Latham, G. P. (1987). Application of social learning theory to employee self-management of attendance. *Journal of Applied Psychology*, 72(3), 387–392. Retrieved from <http://www.apa.org/pubs/journals/apl/>
- George, J. M. (2009). The illusion of will in organization behavior research: Nonconscious processes and job design. *Journal of Management*, 35(6), 1318–1339. doi: 0.1177/0149206309346337
- Gollwitzer, P. M. (1999). Implementation intentions and effective goal pursuit: Strong effects of simple plans. *American Psychologist*, 54(7), 493–503.

- Retrieved from <http://www.apa.org/pubs/journals/amp/>
- Helson, H. (1964a). *Adaptation level theory*. New York, NY: Harper & Row.
- Helson, H. (1964b). Current trends and issues in adaptation-level theory. *American Psychologist*, 19(1), 26–38. Retrieved from <http://www.apa.org/pubs/journals/amp/>
- Hubbard, R., Vetter, D. E., & Little, E. L. (1998). Replication in strategic management: Scientific testing for validity generalizability and usefulness. *Strategic Management Journal*, 19(3), 243–254. doi: 10.1002/(SICI)1097-0266(199803)19:3<243::AID-SMJ951>3.0.CO;2-0
- Hunter, J. E., & Schmidt, F. L. (1990). *Methods of meta-analysis*. Newbury Park, CA: Sage.
- Kanfer, R., & Ackerman, P. L. (1989). Motivation and cognitive abilities: An integrative/aptitude-treatment interaction approach to skill acquisition. *Journal of Applied Psychology*, 74(4), 657–690. Retrieved from <http://www.apa.org/pubs/journals/apl/>
- Kihlstrom, J. F. (1987). The cognitive unconscious. *Science*, 237, 1445–1452.
- Latham, G. P. (1983). The role of goal setting in human resources management. In K. D. Rowland & G. R. Ferris (Eds.), *Research in personnel and human resources management* (pp. 169–199). Greenwich, CT: JAI Press.
- Latham, G. P. (2007). *Work motivation: History, theory, research, and practice*. Thousand Oaks, CA: Sage.
- Latham, G. P. (2009). *Becoming the evidence based manager*. Boston, MA: Davies-Black.
- Latham, G. P., & Frayne, C. A. (1989). Self-management training for increasing job attendance: A follow-up and a replication. *Journal of Applied Psychology*, 74(3), 411–416. Retrieved from <http://www.apa.org/pubs/journals/apl/>
- Latham, G. P., Mitchell, T. R., & Dossett, D. L. (1978). The importance of participative goal setting and anticipated rewards on goal difficulty and job performance. *Journal of Applied Psychology*, 63(2), 163–171. Retrieved from <http://www.apa.org/pubs/journals/apl/>
- Latham, G. P., Stajkovic, A., & Locke, E. A. (2010). The relevance and viability of subconscious goals in the workplace. *Journal of Management*, 36(1), 243–255. doi: 10.1177/0149206309350777
- Locke, E. A. (2007). The case for inductive theory building. *Journal of Management*, 33(6), 867–890. doi: 10.1177/0149206307307636
- Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice Hall.
- Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist*, 57(9), 379–387. Retrieved from <http://www.apa.org/pubs/journals/amp/>
- 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(3), 388–403. Retrieved from <http://www.aom.pace.edu/amr/>
- Loftus, E. F., & Klinger, M. R. (1992). Is the unconscious smart or dumb? *American Psychologist*, 47(6), 761–765. Retrieved from <http://www.apa.org/pubs/journals/amp/>
- Mischel, W. (2009). Becoming a cumulative scientist. *APS Observer*, 22(3), 18.
- Mitchell, T. R., & Daniels, D. (2003). Motivation. In W. Borman, D. Ilgen, & R. Klimoski (Eds.), *Comprehensive handbook of psychology: Vol. 12. Industrial and organizational psychology* (pp. 225–254). Hoboken, NJ: Wiley.
- Moskowitz, G. B., & Grant, H. (2009). *Psychology of goals*. New York, NY: Guilford Press.
- Odiorne, G. S. (1965). *Management by objectives: A system of managerial leadership*. New York, NY: Pitman.
- Roe, A. A. (2009, May). Expanding the scope of work and organizational psychology. Paper presented at the 14th European Congress of Work and Organizational Psychology, Santiago de Compostela, Spain.
- Rousseau, D. M. (2006). Is there such a thing as evidence-based management? *Academy of Management Review*, 31(2), 256–269. Retrieved from <http://www.aom.pace.edu/amr/>
- Schultheiss, O. C., & Brunstein, J. C. (2001). Assessing implicit motives with a research version of the TAT: Picture profiles, gender differences, and relations to other personality measures. *Journal of Personality Assessment*, 77(1), 71–86. Retrieved from <http://www.informaworld.com/smpp/title~content=t775653663>
- Shantz, A., & Latham, G. P. (2009). An exploratory field experiment of the effect of conscious and subconscious goals on employee performance. *Organizational Behavior and Human Decision Processes*, 109(1), 9–17. Retrieved from [http://www.elsevier.com/wps/find/journaldescription.cws\\_home/622929/description#](http://www.elsevier.com/wps/find/journaldescription.cws_home/622929/description#)

- Tabachnick, B. G., & Fidell, L. S. (1996). *Using multivariate statistics* (3rd ed.). New York, NY: HarperCollins.
- Tsang, E. W. K., & Kwan, K. M. (1999). Replication and theory development in organizational science: A critical realist perspective. *Academy of Management Review*, 24(4), 759–780. Retrieved from <http://www.aom.pace.edu/amr/>
- Vroom, V. H. (1964). *Work and motivation*. New York, NY: Wiley.
- Wexley, K. N., & Nemeroff, W. F. (1975). Effectiveness of positive reinforcement and goal setting as methods of management development. *Journal of Applied Psychology*, 60(4), 446–450. Retrieved from <http://www.apa.org/pubs/journals/apl/>
- Wilson, T. D. (2002). *Strangers to ourselves: Discovering the adaptive unconscious*. Cambridge, MA: Belknap Press of Harvard University Press.