New Developments in and Directions for Goal-Setting Research

Gary P. Latham[1] and Edwin A. Locke[2]

[1]University of Toronto, Ontario, Canada, [1]University of Maryland, College Park, MD, USA

Abstract. Goal setting is an "open" theory built on inductive findings from empirical research. The present paper briefly summarizes this theory. Emphasis is then given to findings that have been obtained in the present millennium with regard to (1) the high performance cycle, (2) the role of goals as mediators of personality effects on performance, (3) personality variables as moderators of goal effects on performance, the effect of (4) distal, (5) proximal, and (6) learning goals on performance on tasks that are complex for people, (7) the ways in which priming affects the impact of a goal, (8) the interrelationship between goal setting and affect, and (9) the results of goal setting by teams. Potential directions for research on goal setting in the workplace are suggested with regard to goal abandonment, perfectionism, an employee's age, subconscious goals, and the relationship between goals and knowledge.

Keywords: goal setting, high performance cycle, affect, teams

From the end of the 19th century through the first 60 years of the 20th century, goal setting was used sporadically as an intervention in "one-shot" atheoretical studies. For example, Bryan and Hartner (1897) found that the performance of telegraph operators improved when they were working toward a specific task goal. Taylor (1911) advocated giving each employee a task, a specific, difficult amount of work to complete, to a certain quality, on the basis of time and motion study. Wyatt, Frost, and Stock (1934) found that boredom was reduced by giving factory workers "definite aims" to complete a certain number of units in a given period of time. Mace (1935) conducted a series of laboratory experiments where he showed that the standard that was set affected a person's performance, but only when the person's ability had developed to the point where there was a reasonable expectation by the individual that the standard could be reached. Otherwise, urging people to do their best led to the highest performance. Ryan (1947, 1970) argued the importance of intentions to anticipate future obligations or to avoid them. Meyer, Kay, and French (1965) showed the importance of including goal setting as an essential aspect of a performance appraisal.

These studies were ad hoc in that they were conducted without building on the findings of those that preceded them. There was no theoretical framework to guide these studies, nor was one built from these studies. There was no attempt to discover where or why goal setting affects performance and satisfaction.

The quality and quantity of studies on goal setting increased dramatically in the latter half of the 20th century with the emergence of Locke and Latham's (1990a, 2002) goal-setting theory. By the dawn of the 21st century, the theory had generated more than 1,000 studies (Mitchell & Daniels, 2003). Hence, the motivational benefits are now well known to practitioners as well as scientists (Borgogni & Petitta, 2004; Latham, 2004). Yet the theory's content continues to be developed inductively to the present day.

The genesis of the theory, over 40 years ago, eschewed formal deductive propositions to be tested one by one. Rather, the empirical research on this theory began with one specific question: Does goal setting affect one's performance on a task (e.g., Locke, 1968). With the discovery that the answer is yes, research was conducted to answer further questions but this was not done in any particular order. The question of external validity was examined by determining whether goal setting affects performance positively on different tasks in sundry situations (e.g., Latham & Locke, 1975). In this time period, lateral integration was successfully explored by looking at the relationship between specific challenging goals and related concepts at the same level of abstraction, namely, feedback, participation in setting a goal, incentives, satisfaction, and a person's self-efficacy (e.g., Latham & Yukl, 1975; Latham, Mitchell, & Dossett, 1978; Locke, Cartledge, & Koeppel, 1968). Similarly, there were attempts at vertical integration. Goal setting was investigated with regard to individual differences regarding values and personality (e.g., Yukl & Latham,

European Psychologist 2007; Vol. 12(4):290–300
DOI 10.1027/1016-9040.12.4.290

1978). The theory was also elaborated upon in terms of identification of the mediators that explain why goal setting increases performance (e.g., Locke & Bryan, 1969; Terborg, 1976). Finally, the boundary conditions of goal setting were explored (e.g., Wood, Mento, & Locke, 1987). The results of these studies have been summarized elsewhere (Locke & Latham, 1990a; Locke & Latham, 2002; Latham, 2007). Suffice it to state here that goal setting affects performance in laboratory, simulated, and organizational settings regardless of whether the individual, group, or (small) organization (or an organizational unit) is the level of analysis (e.g., Locke & Latham, 2002; Weldon, Jehn, & Pradhem, 1991). Holding goal difficulty constant, a goal increases performance regardless of whether it is assigned, self-set, or set participatively (Latham, Erez, & Locke, 1988; Latham & Frayne, 1989; Latham, Steele, & Saari, 1982). Moreover, goals affect performance in time spans ranging from one minute to 25 years (Locke, 1982; Latham & Baldes, 1975; Howard & Bray, 1988). These findings have been obtained in Asia, Australia, Europe, and North America (Locke & Latham, 2002).

The purpose of the present paper is three-fold. First, the theory of goal setting, based on the above data, is explained. Second, new findings in the present millennium are reviewed with regard to the high performance cycle, personality, learning goals, framing of goals, affect, and group goals. These findings are not presented in any particular order because there is no logical basis for doing so. Third, future directions for goal-setting research in the workplace are suggested regarding goal abandonment, perfectionism, an employee's age, subconscious goals, and the relationship between goals and knowledge.

Goal Setting Theory

The theory of goal setting states that there is a positive linear relationship between a specific high goal and task performance. Thus, the theory makes explicit that a specific high goal leads to even higher performance than urging people to do their best. A goal also affects satisfaction in that it serves as the standard for evaluating one's own performance. A higher goal requires higher performance for a person to experience positive affect than does commitment to a lower goal. Two factors affect the goals that a person chooses: the importance of the goal to the individual and self-efficacy, namely, self-confidence that the goal for a specific task is, indeed, attainable. The mediators of goal setting are choice, effort, persistence, and strategy. Goals are moderated by ability, goal commitment, feedback in relation to goal pursuit, the complexity of the task for an individual or group, and situational factors (e.g., presence of needed resources). Goal concepts have been integrated into a longitudinal high performance cycle (HPC; Locke & Latham, 1990a,b).

New Developments

The High Performance Cycle

The HPC shown in Figure 1 provides a framework for understanding motivation in the workplace based on goal theory and, in addition, provides a basis for making interventions (Latham, 2007). In brief, the HPC states that an employee's motivation is affected by specific challenges and demands such as high goals. Goal moderators were noted above. For example, people with low self-efficacy are unlikely to choose or commit to a high goal whereas the opposite is true for those individuals with high self-efficacy. Indeed, people with high self-efficacy not only commit to high goals, they typically set even higher ones upon goal attainment.

The mean effect size for goals is larger for simple than complex tasks, but this difference disappears when people with complex tasks possess the requisite knowledge and skills to perform them (e.g., Latham et al., 1978). Goal effects work through the mechanisms (mediators) noted above.

The HPC resolves the century-old debate regarding the relationship between job satisfaction and performance. For example, the HPC does not posit that job satisfaction leads directly to job performance. Rather, job satisfaction affects an employee's commitment to the employing organization, which in turn leads to employee commitment to future challenges. Hence, the recursive nature of the HPC shown in Figure 1.

An enumerative review of the literature provided strong support for the individual facets of the HPC (Latham, Locke & Fassina, 2002). Only one study has attempted to test the HPC empirically. Because that study was missed in the enumerative review, it is reported here. Using LISREL, Selden and Brewer (2000) analyzed the US Office of Personnel Management's (OPM) survey of federal government employees where the sample size consisted of 2,474 civil servants. Since the OPM survey was not constructed specifically for testing the HPC, Selden and Brewer focused on items, based as best they could, on the concepts' descriptions provided by Locke and Latham (1990a, 1990b). Thus, in many cases they had to use approximate measures to represent goal concepts. For example, an individual's performance consisted of that person's most recent performance appraisal. Contingent rewards were assessed through two questions that probed an employee's perception of the administration of performance-based pay.

Consistent with the HPC, high demands (e.g., "my job is challenging," "people in my workgroup are expected to work hard") were shown to have a significant positive effect on an employee's performance. Higher levels of commitment led to higher performance. Supervisory support, which is a means of gaining commitment, showed the strongest relationship to performance. This was a key finding of Ronan, Latham, and Kinne's (1973) study of loggers.

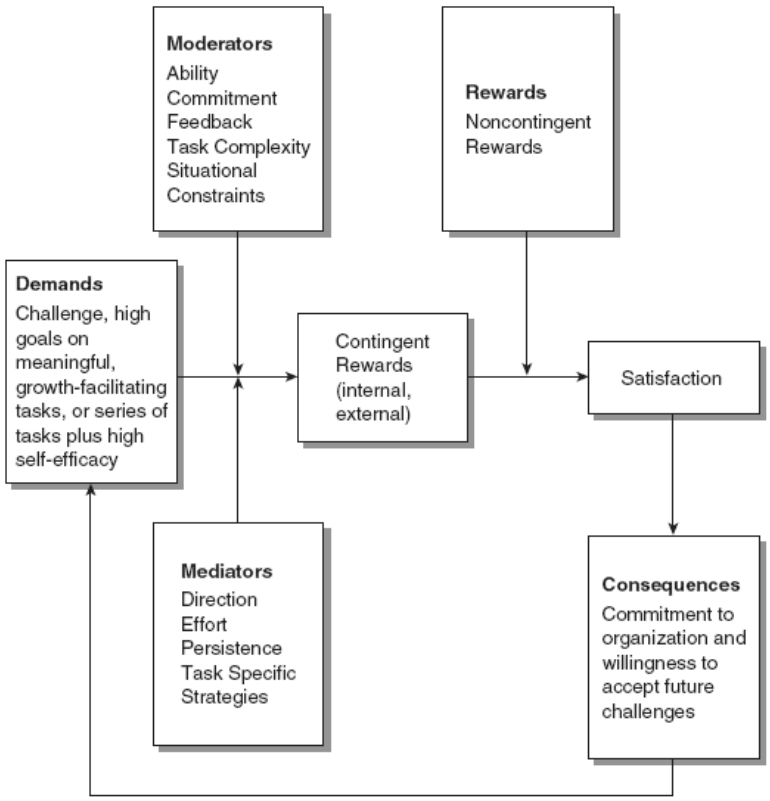

Figure 1. The high performance cycle.

In addition, the authors found that employees who believed that they could accomplish something worthwhile (which implies goal importance) consistently outperformed their colleagues who thought otherwise. Self-efficacy was also positively linked to performance. Employees with tasks that were complex, defined in their study as tasks with conflicting work assignments, where the appropriate course of action was unknown and, hence, needed to be identified, had lower performance ratings than their counterparts who had less complex tasks.

With regard to contingent rewards, people who performed well perceived that they received larger monetary rewards than their peers who did not perform well. Moreover, there was a positive relationship between perceptions of contingent rewards and job satisfaction. Employees with higher levels of job satisfaction were also the people who were more committed to their organization.

With regard to practical significance, the authors concluded that the HPC and the empirical findings derived from it "have important implications for policy makers and public managers" (Selden & Brewer, 2000, p. 545). However, because the data were cross-sectional rather than longitudinal, and the data consisted solely of self-reports, the results must be viewed with caution. To study a causal motivational cycle requires a longitudinal design, preferably one that allows for the collection of data from multiple sources. Finally, as noted, Selden and Brewer did not have available ideal measures of the concepts they used (King & King, 1990).

Indirect support for the recursive aspect of the HPC can be found in the study by Ilies and Judge (2005). Positive affect, which was likely associated with self-efficacy, mediated a significant proportion of the relationship between feedback and future goals that were set. After meeting or exceeding their goals, people did not decrease their effort so as to minimize the positive discrepancy between their performance and their goals. Rather they set higher goals to attain even higher performance. Although this is generally the case, individual differences with regard to personality need to be taken into account.

Personality

Missing from the HPC is an emphasis on personality. This is because, until the final decade of the 20th century, theories of work motivation, whether they focused primarily on behavior or cognition, downplayed the importance of personality (e.g., Mitchell, 1979). In their review of the literature, Locke, Shaw, Saari, and Latham (1981) concluded that the only consistent finding regarding personality traits and goal setting effects on performance was inconsistency. In the present millennium, this is no longer the case.

One trait that has received considerable attention is goal orientation. Dweck's (1999, p. 1040) goal-orientation theory states that "adaptive motivational patterns are those that promote the establishment, maintenance, and attainment of personally challenging and personally valued

achievement goals. Maladaptive patterns, then, are associated with a failure to establish reasonable, valued goals, to maintain effective striving toward those goals, or ultimately, to attain valued goals that are potentially within one's reach." People with a learning goal orientation focus on mastering new tasks. Errors are viewed by them as inherent in the learning process. Those with a performance goal orientation choose tasks that are likely to allow them to look good in the eyes of others; they avoid those where they are unlikely to do well (VandeWalle, Cron, & Slocum, 2001).

As was the case in the Ilies and Judge study, Donovan and Williams (2003) also examined the goal revision process. In general, college athletes were found to set their distal goals for the season considerably higher than their best performance during the previous year. Goal orientation was a moderator. Those with a performance goal orientation, who believed that one's ability is fixed, lowered their end-of-season goals when the performance discrepancy with their mid-season goal was negative.

Brett and VandeWalle (1999) found that goal orientation did not affect performance directly; rather it was mediated by the goals that are set. Those people with a learning goal orientation tend to select a learning goal while those with a performance goal disposition tend to select a performance goal that they believe is attainable.

Adler and Weiss (1988), however, argued that setting a specific, challenging goal creates a strong situation that attenuates the effect of personality on a person's behavior. Hence, goal orientation researchers seldom include the setting of a specific high goal (a state) in their experiments. To remove this gap in the literature, Seijts, Latham, Tasa, and Latham (2004) investigated both goal setting and goal orientation on the same task.

As is the case with a performance goal, Seijts et al. (2004) found that setting a specific high learning goal also creates a strong situation. Using a complex business simulation of the US cellular phone industry, the authors found, consistent with Dweck's theory, that both a "prove" and an "avoid" performance goal orientation correlated negatively with a person's performance in the "do your best," a weak condition. A learning goal orientation correlated positively with performance when people were urged to do their best. However, setting a specific, high, learning goal, a state, led to significantly higher performance than either a specific, high, performance goal or a vague goal to "do your best" regardless of a person's goal orientation. However, the effect of learning goals on performance was enhanced for people with a learning goal orientation. Self-efficacy and information search, which were reciprocally related, mediated the effect of specific, high, learning goals.

Judge, Locke, and Durham (1997) developed a theory of traits that they labeled core self-evaluations (CSE). This is because the four traits are based on a person's appraisals of people, events, and things in relation to the individual. The core self-evaluations are an aggregate measure of (1) self-esteem, (2) locus of control, (3) neuroticism, and (4) overall confidence in one's ability to deal with a variety of situations in one's life. Erez and Judge (2001) found that these core evaluations together predict motivation and performance, whereas when used as individual variables, each of them does so less consistently. Specifically Erez and Judge found that the CSE predicted goal setting, which, in turn, influenced strategies that affected an employee's sales performance.

Locke (2001) as well as Baum, Locke, and Smith (2001) found that the relationship between personality and performance is mediated by situationally specific goals and self-efficacy. Baum and Locke (2004) conducted a 6-year follow-up study of entrepreneurs. They found that personality traits have an indirect rather than a direct effect on performance through a superordinate goal or vision, goal setting, and self-efficacy.

Proximal and Distal Learning and Performance Goals

Fundamental to goal-setting theory is the assertion, stated earlier, of a positive motivational effect of a specific high goal on performance. A challenge to that assertion came from a study by Kanfer and Ackerman (1989). They showed that in the early stages of learning, contrary to the theory, urging people to do their best leads to higher performance than a specific high goal. Sheer effort and persistence to attain a specific level of performance taxes the limited cognitive resources necessary for task mastery. At least two factors appear to mitigate this finding.

First, proximal goals can be set so as to facilitate what Frese and Zapf (1994) term error management. For example, Latham and Seijts (1999) showed the importance in highly dynamic settings of actively seeking feedback and reacting quickly to it when pursuing an outcome goal. After replicating Kanfer and Ackerman's finding of the superiority of a vague "do best" goal relative to those with a distal, specific, high goal regarding earnings, they found that people, who were paid on a piece-rate basis to make toys under conditions where the amount of money paid per toy changed continuously without warning, had the highest performance when proximal goals were set. Feedback from a proximal goal provides information on whether a person's picture of reality is congruent with distal goal attainment. There is an increase in information feedback when proximal goals are set in addition to a distal goal.

When the knowledge or skill for attaining a goal is unknown, a second approach to mitigating the findings of Kanfer and Ackerman is to set a learning goal. The primary distinction between a performance and a learning goal is the framing of the instructions. The emphasis of a performance goal is on the performance outcome to be obtained (e.g., a score of 95 or more on an exam, increase revenue by 20%, reduce costs by 15%). A search for information to enable goal attainment is not emphasized because the requisite knowledge, skills, and ability are treated as a given.

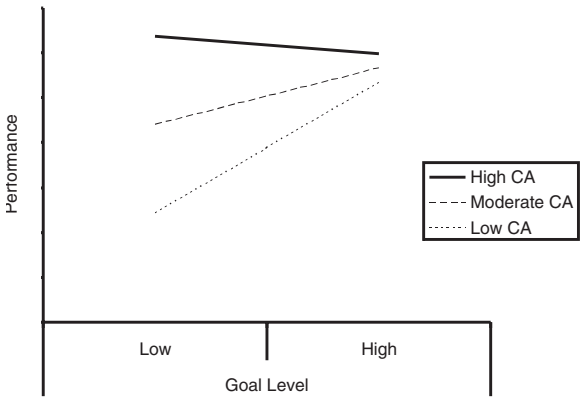

Figure 2. Graphic depiction of the goal difficulty level × cognitive ability interaction on performance.

Choice, effort, persistence, and ability, that is, extant knowledge and skill, are all that is required. A performance goal cues an individual to recall the appropriate strategies and/or skills (Locke et al., 1981).

A learning goal, in contrast to a performance goal, changes one's focus when the strategy or strategies to attain the goal is not known. Hence, the instructions are framed so that attention is given to the discovery of the strategies, processes, or procedures necessary to perform a task effectively (Seijts & Latham, 2005). A person's unitary attentional pool of resources, consistent with Kanfer and Ackerman's (1989) cognitive resource allocation theory, is explicitly directed to learning/mastering the task rather than worrying about the performance outcome.

Latham, Seijts, and Crim (2006) showed that on a task that is complex for people, the higher the learning goal the higher their performance. Cognitive ability and goal commitment affected strategy development, which in turn affected performance. Contrary to previous findings on performance goals (e.g., Locke, 1965), the performance of those lower in cognitive ability was more positively affected by the setting of increasingly difficult learning goals than was the case for people higher in cognitive ability. As the results in Figure 2 indicate, a specific high learning goal and cognitive ability appear to compensate for one another to some degree. People with lower cognitive ability who were assigned a high learning goal approached the performance of those with higher cognitive ability who were assigned a specific low learning goal.

As cited earlier, Seijts et al. (2004) found that assigning a specific high learning goal, as is the case with an assigned performance outcome goal (Adler & Weiss, 1988; Yukl & Latham, 1978), masks individual differences in personality. As is the case with a performance goal, task complexity also appears to moderate the effect of a learning goal on performance. On a task that was straightforward for people, Winters and Latham (1996) found no significant differences in performance between those with a learning goal relative to those in the "do your best" condition. People with a specific high performance goal had the highest performance. Only when the task was complex for people did a learning goal lead to higher performance than the other two conditions. Consistent with Kanfer and Ackerman's (1989)results, the instruction to "do your best" led to higher performance than the setting of a distal performance goal.

Drach-Zahavy and Erez (2002) replicated this finding. People who were given a specific high learning goal regarding the discovery of appropriate strategies had higher performance than those who were assigned either a specific performance or a general "do best" goal. Taken together, these studies suggest that learning goals, although different conceptually in their emphasis from performance goals, share similar theoretical and empirical properties.

Using a complex simulation, Noel and Latham (2006) examined entrepreneurial behavior in starting up and maintaining a business. Those who used a learning goal were able to keep their simulated firms running longer than those using a performance outcome goal. Strategy and self-efficacy had a reciprocal mediating effect on performance.

Seijts and Latham (2001) examined the effect of setting proximal goals in conjunction with a distal learning or a distal outcome goal on a complex task that was stable rather than dynamic. Again, those who were urged to do their best performed better than those with a specific high performance goal and, once again, their performance was significantly lower than those with a specific high learning goal. Goal commitment was significantly higher to the learning goal than it was to the performance goal. Moreover, self-efficacy increased across conditions in the learning-goal condition and decreased in the performance-goal condition. Mediation analyses revealed that strategies had a direct effect on self-efficacy and an indirect effect on performance. Although proximal goals had no direct effect on performance, those individuals with proximal goals had a significantly greater number of strategies than those with only a distal goal. On a dynamic task there would likely be a direct effect. Research is needed to test this hypothesis.

When people lack the knowledge to attain a goal, but the appropriate behaviors are known by subject-matter experts, a learning goal is neither necessary nor appropriate. Brown and Latham (2002) found that behavioral goals, identified through a job analysis, led to higher performance than the setting of a learning goal or urging people to do their best.

Both Noel (1997) and Masuda (2006), working independently, investigated the effect of setting learning and performance goals simultaneously on a task that was complex for people. Consistent with cognitive resource allocation theory, Noel found that the addition of a performance goal hurt, rather than helped, the performance of groups relative to those with only a learning goal.

Masuda provided participants with strategies that had to be learned. Her findings, contrary to Noel's (1997), showed that if either learning or performance goals were high, or if both were high for an individual, performance was high as compared to other goal combinations. The number of strategies learned was highly correlated with performance.

This study differs from the Noel as well as the Seijts and Latham (2001) study, in that the requisite strategies in the latter two studies had to be discovered "from scratch" after the learning goal was set. Her study also differs from both the Brown and Latham (2002), and Earley and Perry (1987) studies in that the participants in these two studies were told what strategies/behaviors to use. No additional learning was required. Hence, Masada's experimental design, in which strategies were named but still had to be learned, is halfway between that of the Noel, and Seijts and Latham studies, on the one hand, and that of the Earley and Perry, and Brown and Latham studies on the other.

More research is needed on if, when, and/or how to combine learning goals, performance goals, and knowledge. Seijts and Latham (2005) argued that once the necessary knowledge or skill has been acquired, a learning goal is no longer of value; a specific high performance goal should be set. However, there are tasks that require continuous learning, because the task or task environment is dynamic, and the requisite knowledge has yet to be discovered. On such tasks, learning goals alone might always result in optimum performance. However, at General Electric Jack Welch is alleged to have demanded continuous learning and yet he also imposed high performance goals on his top business managers. So how should learning and performance goals be used or combined in a dynamic organizational setting: learning goals alone, performance goals alone, learning goals followed by performance goals, both types of goal together or some changing combination of these? This is another issue that is ripe for future research.

Framing

The effects of framing have been examined regarding the positive vs. negative aspects of goal setting. Drach-Zahavy and Erez (2002) studied goal setting in relation to the stress that it can cause. When the goal for performance on a complex task was framed positively, namely something a person can learn to perform well, people had significantly higher performance than was the case for those where the goal was framed negatively, as something they might have difficulty mastering. Using a different type of framing, Roney, Griggs, and Shanks (2003) found that a negatively framed goal ("Try not to miss answering more than 3 of these 15 anagrams") led to significantly worse performance than either a positively framed goal ("Try to solve at least 12 of these anagrams") or a vague goal to do one's best.

Errors are bound to occur in the pursuit of a difficult performance or learning goal. Frese's (2005) research shows that they can be framed positively (e.g., "the more errors you make, the more you learn"). His studies have shown that (1) allowing people opportunities to make errors and (2) explicitly encouraging them to learn from their errors improves their subsequent performance. A moderator, once again, is task complexity; this framing has little or no effect on tasks that are straightforward for people. However, on a complex task, Keith and Frese (2005) found that error training creates a sufficiently strong situation to mask the effect of a person's goal orientation. Hence, they rejected their initial hypothesis that people with a high learning-goal orientation should benefit more from error training than people with a performance-goal orientation. Research is now needed on the main and interaction effects of learning goals as a state with error training that frames errors as beneficial to the learning process. In addition to performance, there is likely to be a significant increase in a person's affect.

Affect

Goal setting not only affects a person's performance, it affects a person's subjective well-being. A meta-analysis revealed that goal attainment is associated with increases in positive affect and decreases in negative affect (Koestner, Lekes, Powers, & Chicoine, 2002). In an enumerative review of the self-regulation literature, Sonnentag (2002) reached a similar conclusion. In addition to a person's performance, goal setting, feedback, and self-efficacy were shown to play a crucial role in fostering a person's subjective well-being.

Consistent with goal-setting theory, which posits that higher goals lead to higher satisfaction than lower goals, Wiese and Freund (2005), in a study conducted in Germany, found that only those people who perceived that their goal had been difficult to attain reported a significant increase in positive and a decrease in negative affect, an increase in job satisfaction, and perceptions of occupational success over a 3-year timeframe. Goal progress was a strong predictor of self-reports of occupational success. This was not the case, however, when their goal was perceived by them to have been relatively easy. There was no data to suggest that those who had higher goals experienced feelings of exhaustion. An unexpected finding was that lack of goal attainment in one's personal life was related to higher degrees of subjective well-being when the person experienced goal progress on the job. The authors concluded that compensatory switching enabled people to concentrate emotion regulation in their work domain.

Latham and Brown (2006) examined the relative effect of learning versus performance goals of students on their subsequent satisfaction with their MBA program. They found that people who set learning goals were more satisfied than those who set a performance goal.

Using Weiss and Cropanzano's (1996) affective events theory as a framework, Ilies and Judge (2005) found that goal regulation explains in part the links among emotion, intentional behavior, and action. Performance feedback influenced an individual's affective state, and through the goals that the person subsequently set, the person's behavior.

Teams

Wegge and Haslam (2005) found, in line with previous studies of groups, that specific, challenging, group (team) goals led to better performance than "do best" goals on a brainstorming task. In addition, they found that assigned group goals, participatively set group goals, and participatively set group goals combined with individually set goals all worked equally well, as goal difficulty level was equalized across conditions.

The dynamics within a team (e.g., communication), however, often introduce complexities not found when a goal is set by or for an individual. For example, the sharing of knowledge and information is essential for a team to become and remain effective. Quigley, Tesluk, Locke, and Bartol (in press) found that the greater the knowledge sharing between members of two person teams on a complex business simulation, the higher their performance. Moreover, knowledge sharing interacted with self-set goal level to further improve performance.

There can be conflict between an individual's and a team's goals. Seijts and Latham (2000) found that a social dilemma is a boundary condition for the positive effect on performance typically obtained from goal setting. Only when a person's goal is compatible with the team's goal is the team's performance enhanced. When money is involved, people choose to pursue their personal goal even though doing so is detrimental to their team's performance. This was especially likely to occur in seven-person teams than it was in the smaller three-person teams.

Similarly, Stanne, Johnson, and Johnson (1999) reported that when people view goal attainment as competitive, that is, they perceive that the attainment of other people's goals decreases the probability of them attaining their goal, they are likely to withhold information and ideas. They may even obstruct the goal pursuit of others.

The pursuit of self-interest does not necessarily prevent collaboration; in fact, it can sometimes promote collaboration. Here again, framing and perception are important. Cooperation is likely to occur if two or more people perceive the attainment of their respective goals as correlated positively. That is, as others reach their goals, a person also attains his or her goal. Latham (2004) argued that this is likely to occur if people within a team share a superordinate goal or vision. Wong, Tjosvold, and Zi Yu (2005) provided empirical support for this assertion. Working with companies and their suppliers in China, they found that the relationship between a high level of a shared vision among employees and low levels of taking unfair advantage of others was mediated partially by cooperative goal setting. "Indeed partners who are committed to pursuing their self interests and recognize that these interests are cooperatively related may engage in minimal opportunism and, more generally, may be prepared to make their partnerships highly effective" (Wong et al., 2005, p. 789).

New Directions

To date, goal-setting researchers, consistent with goal-setting theory, have emphasized the importance of goal commitment. Little, if anything, is known with regard to when and how to encourage goal abandonment. Disengagement from a goal that is not attainable or is no longer appropriate is an adaptive strategy because it frees up resources that can be invested in appropriate and attainable goals, and minimizes feelings experienced from accumulated failures (Latham, 2007). Schönpflug (1986), for example, has argued that goal setting and stress are likely to be interrelated when resources, a moderator variable included in goal-setting theory, are low and unanticipated problems appear.

Related to the above subject matter is the issue of perfectionism (Latham, 2007). Some people set performance-outcome goals that are truly impossible for them to attain, or make progress toward. They may, nevertheless, persist in pursuing such goals because their self-worth (self-esteem) is contingent upon goal attainment (Latham & Locke, 2006). The methodology of Brown and Beck (2002) could be investigated as a way to minimize the dysfunctional consequences of perfectionism in the workplace.

Because of the increasingly aging workforce in the West, research on life span should be taken into account in the context of goal setting. For example, socioemotional selectivity theory (Carstensen & Mikels, 2005) states that self-set goals are set in temporal contexts. Younger people, because they typically see their time horizon as expansive, usually set goals that involve the acquisition of information. Hence, they are more likely than their older counterparts in the workforce to seek assignments that challenge their skills and eventually enhance their performance. Older workers, who perceive boundaries on their time, often commit to goals for emotionally meaningful aspects of their life, especially in regard to feeling socially interconnected. The dependent variables for evaluating the performance of these two demographically different populations of workers may need to be reconsidered (Kanfer & Ackerman, 2004). Moreover, older people tend to focus on positive material to the exclusion of the negative. They may rely more on affect than cognition for making decisions. Carstensen and Mikels (2005) pointed out that this can enhance their subjective well-being if their goals can be attained, yet lead to poorly thought-out decisions because the goal was not in their best interest. Ways to prevent such decisions await further research (Latham, 2007).

Related to this issue, Borgogni and Petitta (2003) have pointed to the need to take into account the dynamics within a team that enhance or reduce a team's collective efficacy regarding goal attainment. The age mix of a team's members are likely to be an important moderator

variable. In addition, these authors stressed the need for research on the interpersonal relationships among team members and between team members and their boss. Relational aspects are a likely moderator of the effect of feedback on a team's goal attainment.

The type of goal that should be set may also be affected by an employee's age. Akerman (2000) found a strong positive relationship between adult age (up to 60 years) and knowledge level. A gradual decline in cognitive ability is likely compensated by this increase in job knowledge. Drawing upon Kanfer's (1987) adaptation of expectancy theory regarding (1) effort – performance, (2) performance utility, and (3) effort utility, Kanfer and Ackerman (2004) suggested several research paths relevant to the application of goal setting in the workplace. Extrapolating from their suggestions, we hypothesize that an employee's age may be a moderator of when to use performance-outcome goals versus learning goals versus behavioral goals. For example, when sheer effort and persistence will lead to goal attainment (e.g., number of sales calls), a performance-outcome goal may be optimum relative to the other two for young employees. Midlife employees who have acquired a great deal of knowledge and/or experience may also benefit from the setting of high performance goals. Their acquisition of knowledge likely lessens the demand for sheer effort (e.g., revenue generated). The physical and psychological demands inherent in a high performance-outcome goal may lead older workers to engage in, what Brockner and Higgins (2001) have labeled, a prevention focus, namely, ways to minimize errors–ways to "play it safe". For senior level people, setting learning goals may be optimal for maintaining, if not increasing their performance, as they are exposed to increasing environmental and task complexities (e.g., ways to increase market share). For employees nearing an age where they are able to retire, behavioral goals may be more optimal for such tasks as mentoring others. In short, research is needed to determine the benefits, if any, of tailoring goal setting to the age-related capacities of an employee.

Implementation intentions and subconscious goals need to be investigated within the work force. Among the most intriguing paths forward in goal-setting research is the study of implementation intentions and subconscious goals (Latham & Pinder, 2005). Gollwitzer and his colleagues (e.g., Brandstätter, Lengfelder, & Gollwitzer, 2001) found that implementation intentions on tasks that are complex for people lead to a higher rate of goal attainment than goal commitment only. An implementation intention is a mental link that is created between a specific situation and an intended goal-directed response. It specifies when, where, and how behavior is likely to lead to goal attainment once an appropriate situation is encountered. Once an implementation intention is formed, people switch from conscious, effortful control of this conscious goal directed behavior to becoming "automatically" controlled by preselected contextual cues. Once these cues are activated, motivation guides a person's behavior toward goal attainment without a person consciously focusing on the goal at the time.

It should be noted, however, that the types of tasks Gollwitzer and colleagues studied were usually one-time, straightforward actions (apply to school, get an X-ray), which the person already knew how to do. To date, only one study, to the authors' knowledge, has investigated implementation intentions in the workplace. Brandstätter, Heimbeck, Malzacher, and Frese (2003) found that people were more successful in obtaining vocational retraining when, in addition to setting goals to do so, they formulated an implementation intention. In most work settings, however, task performance is ongoing, and complex. Possibly Gollwitzer's methodology could be applied fruitfully in organizations to minimize work procrastination (e.g., help one to get started on a task).

Bargh and Ferguson (2000), in their review of the social psychology literature, concluded that subconscious goals produce the same outcomes as conscious goals, and are affected by the same moderators. Stajkovic, Locke, and Blair (2006) found that subconscious priming, achieved by having participants unscramble sentences containing, in this case, achievement-related words, affected performance on a brainstorming task, as did the assignment of conscious goals. Moreover, there was an interaction effect. Although the main effect of a conscious goal led to performance that was higher than the main effect for a subconscious goal, those who had both a conscious and a subconscious goal performed best. To date, no study in this area has been conducted in a work setting. The extant social psychology experiments have been limited to "free situations" relative to structured work settings.

In a follow-up study, Stajkovic and Locke (2007) pitted consciously assigned and subconsciously primed goals against one another in a proofreading task, using speed and accuracy as dependent variables. The two conflicting goals did partially offset one another in relation to speed. However, the effect of conscious goals was far stronger than primed goals, and subconscious priming did not affect proofreading accuracy at all. Clearly, additional studies are warranted regarding the relative effectiveness of different methods of priming.

Goal hierarchies also warrant further research. For example, little is known about how people prioritize goals, especially when faced with multiple tasks. Little is known on whether or how they look for causal relationships among goals at different levels (e.g., how will attaining X help or hinder attaining Y?)

Finally, there is the issue of goals and knowledge. This, by implication, "connects" goal setting to the entire field of cognitive psychology. Research so far has only scratched the surface of the issue of how goals and knowledge affect one another, and work together to affect performance. Consider one fascinating example: Wegge and Dibbelt (2000) found that goals affect the speed of information processing.

Conclusion

Goal setting is an open theory. It was and continues to be built through induction. There is no limit to the types of additional studies that can be fruitfully conducted. We have talked here about the HPC, personality, proximal goals, learning goals, framing, affect, goal setting in teams, unrealistic goals, goals in relation to age, implementation plans, and subconscious priming. Additional studies are needed within each of these areas.

Acknowledgments

This paper is an extended version of a presentation by the second author to the 26th International Association of Applied Psychology in Athens, Greece, July 2006. Funding for this paper was supported in part by a grant to the first author by the Social Sciences and Humanities Research Council (SSHRC) of Canada.

References

Ackerman, P.L. (2000). Domain-specific knowledge as the "dark matter" of adult intelligence: gf/gc, personality, and interest correlates. *Journal of Gerontology: Psychological Sciences, 55*, 69–84.

Adler, S., & Weiss, H.M. (1988). Recent developments in the study of personality and organizational behavior. In C.L. Cooper & I.T. Robertson (Eds.), *International review of industrial and organizational psychology* (pp. 307–330). Oxford, UK: Wiley.

Bargh, J., & Ferguson, M.J. (2000). Beyond behaviorism: On the automaticity of higher mental processes. *Psychological Bulletin, 126,* 925–945.

Baum, J.R., & Locke, E.A. (2004). The relationship of entrepreneurial traits, skill, and motivation to subsequent venture. *Journal of Applied Psychology, 89,* 587–598.

Baum, J.R., Locke, E.A., & Smith, K.G. (2001). A multidimensional model of venture growth. *Academy of Management Journal, 44,* 292–303.

Borgogni, L., & Pettita, L. (2003). *Lo suiluppo delle persone nelle organizzantion: Goal setting, coaching and counseling* [Developing people in organizations]. Carocci: Roma.

Brandstätter, V., Lengfelder, A., & Gollwitzer, P.M. (2001). Implementation intentions and efficient action initiation. *Journal of Personality and Social Psychology, 81*, 946–960.

Brandstätter,V., Heimbeck, D., Malzacher, J.T., & Frese M. (2003). Goals need implementation intentions: The model of action phases tested in the applied setting of continuing education. *European Journal of Work and Organizational Psychology, 12*, 37–59.

Brett, J.F., & VandeWalle, D.M. (1999). Goal orientation and goal content as predictors of performance in a training program. *Journal of Applied Psychology, 84*, 863–873.

Brockner, J., & Higgins, E.T. (2001). Regulatory focus theory: Implications for the study of emotions at work. *Organizational Behavior and Human Decision Processes, 86*, 35–66.

Brown, G.P., & Beck, A.T. (2002). Dysfunctional attitudes, perfectionism, and models of vulnerability to depression. In G.L. Flett & P.L. Hewitt (Eds), *Perfectionism: Theory, research, and treatment* (pp. 231–251). Washington, DC: American Psychological Association.

Brown, T.C., & Latham, G.P. (2002). The effects of behavioral outcome goals, learning goals, and urging people to do their best on teamwork behavior in a group problem-solving task. *Canadian Journal of Behavioral Science, 34,* 276–285.

Bryan, W.L., & Hartner, N. (1897). Studies in the physiology and psychology of the telegraphic language. *Psychological Review, 4*, 27–53.

Carstensen, L.L., & Mikels, J.A. (2005). At the intersection of emotion and cognition. Aging and the positivity effect. *Current Directions in Psychological Science, 14,* 117–121.

Donovan, J.S., & Williams, K.J. (2003). Minding the mark: Effects of time and causal attributions on goal revision in response to goal performance descriptions. *Journal of Applied Psychology, 88,* 379–390.

Drach-Zahavy, A., & Erez, M. (2002). Challenge versus threat effects on the goal-performance relationship. *Organizational Behavior and Human Decision Processes, 88,* 667–682.

Dweck, C.S. (2000). *Self-theories: Their role in motivation, personality, and development* (Essays in social psychology). Philadelphia, PA: Psychology Press.

Earley, P.C., & Perry, B.C. (1987). Work plan availability and performance: An assessment of task strategy priming on subsequent task completion. *Organizational Behavior and Human Decision Processes, 39*, 279–302.

Erez, A., & Judge, T.A. (2001). Relationship of core self-evaluations to goal setting, motivation, and performance. *Journal of Applied Psychology, 86,* 1270–1279.

Frese, M. (2005). Grand theories and midrange theories. Cultural effects on theorizing and the attempt to understand active approaches to work. In K.G. Smith & M. Hitt (Eds.), *The Oxford handbook of management theory: The process of theory development* (pp. 84–108). Oxford University Press.

Frese, M., & Zapf, D. (1994). Action as the core of work psychology: A German approach. In H.C. Triandis, M.D. Dunnette, & L. Hough (Eds.), *Handbook of industrial and organizational psychology* (Vol. 4, pp. 271–340). Palo Alto, CA: Consulting Psychologists Press, Inc.

Howard, A., & Bray, D.W. (1988). *Managerial lives in transition: Advancing age and changing times.* New York: Guilford.

Ilies, R., & Judge, T.A. (2005). Goal regulation across time: The effects of feedback and affect. *Journal of Applied Psychology, 90,* 453–467.

Judge, T.A., Locke, E.A., & Durham, C.C. (1997). The dispositional causes of job satisfaction: A core self-evaluation approach. *Research in Organizational Behavior, 19*, 151–188.

Kanfer, R. (1987). Task-specific motivation: An integrative approach to issues of measurement, mechanisms, processes, and determinants. *Journal of Social and Clinical Psychology, 5,* 237–264.

Kanfer, R., & Ackerman, P.L. (1989). Motivation and cognitive abilities: An integrative/aptitude-treatment interaction approach to skill acquisition. *Journal of Applied Psychology, 74,* 657–690.

Kanfer, R., & Ackerman, P.L. (2004). Ageing, adult development,

and work motivation. *Academy of Management Review, 29,* 440–458.

Keith, N., & Frese, M. (2005). Self-regulation in error management training: Emotion control and metacognition as mediators of performance effects. *Journal of Applied Psychology, 90,* 677–691.

King, L.A., & King, D.W. (1990). Role conflict and role ambiguity: A critical assessment of construct validity. *Psychological Bulletin, 107*, 48–64.

Koestner, R., Lekes, N., Powers, T.A., & Chicoine, E. (2002). Attaining personal goals: Self-concordance plus implementation intentions equals success. *Journal of Personality and Social Psychology, 83*, 231–244.

Latham, G.P. (2004). The motivational benefits of goal setting. *Academy of Management Executive, 18,* 126–129.

Latham, G.P. (2007). *Work motivation: History, theory, research, and practice*. Thousand Oaks, CA: Sage.

Latham, G.P., & Baldes, J.J. (1975). The "practical significance" of Locke's theory of goal setting. *Journal of Applied Psychology, 60,* 122–124.

Latham, G.P., & Brown, T.C. (2006). The effect of learning vs. outcome goals on self-efficacy and satisfaction in a MBA Program. *Applied Psychology: An International Review, 55*, 606–623.

Latham, G.P., Erez, M., & Locke, E.A. (1988). Resolving scientific disputes by the joint design of crucial experiments by the antagonists: Application of the Erez-Latham dispute regarding participation in goal setting. *Journal of Applied Psychology Monograph, 73,* 753–772.

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,* 411–416.

Latham, G.P., & Locke, E.A. (1975). Increasing productivity with decreasing time limits: A field replication of Parkinson's law. *Journal of Applied Psychology, 60,* 524–526.

Latham, G.P., & Locke, E.A. (2006). Enhancing the benefits and overcoming the pitfalls of goal setting. *Organization Dynamics*.

Latham, G.P., Locke, E.A., & Fassina, N.E. (2002). The high performance cycle: Standing the test of time. In S. Sonnentag (Ed.), *The psychological management of individual performance. A handbook in the psychology of management in organizations* (pp. 201–228). Chichester: Wiley.

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,* 163–171.

Latham, G.P., & Pinder, C.C. (2005). Work motivation theory and research at the dawn of the twenty-first century. *Annual Review of Psychology, 56,* 485–516.

Latham, G.P., & Seijts, G.H. (1999). The effects of proximal and distal goals on performance on a moderately complex task. *Journal of Organizational Behavior, 20,* 421–429.

Latham, G.P., Seijts, G.H., & Crim, (2006, August). *The effects of learning goal difficulty level and cognitive ability on strategy development and performance.* Paper presented at the annual meeting of the Academy of Management, Atlanta, GA.

Latham, G.P., Steele, T.P., & Saari, L.M. (1982). The effects of participation and goal difficulty on performance. *Personnel Psychology, 35,* 677–686.

Latham, G.P., & Yukl, G.A. (1975). A review of research on the application of goal setting in organizations. *Academy of Management Journal, 18,* 824–845.

Locke, E.A. (1965). The relationship of task success to task liking and satisfaction. *Journal of Applied Psychology, 49,* 379–385.

Locke, E.A. (1968). Toward a theory of task motivation and incentives. *Organizational Behavior and Human Decision Processes, 3,* 157–189.

Locke, E.A. (2001). Self-set goals and self-efficacy as mediators of incentives and personality. In M. Erez & U. Kleinbeck (Eds.), *Work motivation in the context of a globalizing economy* (pp. 13–26). Mahwah, NJ: Erlbaum.

Locke, E.A. (2007, August). What happens to performance when conscious and subconscious goals are in conflict? In G.P. Latham (Chair), *Conscious and subconscious goal effects on self-efficacy and performance in single and dual tasks.* Symposium presented at the Academy of Management, Philadelphia, PA.

Locke, E.A., & Bryan, J.F. (1969). Knowledge of score and goal level as determinants. *Journal of Applied Psychology, 53*, 59–65

Locke, E.A., Cartledge, N., & Koeppel, J. (1968). Motivation effects of knowledge of results: A goal setting phenomenon? *Psychological Bulletin, 70,* 474–485.

Locke, E.A., & Latham, G.P. (1990a). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice-Hall.

Locke, E.A., & Latham, G.P. (1990b). Work motivation and satisfaction: Light at the end of the tunnel. *Psychological Science, 1,* 240–246.

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*, 705–717.

Locke, E.A., Shaw, K.M., Saari, L.M., & Latham, G.P. (1981). Goal setting and task performance: 1969–1980. *Psychological Bulletin, 90*, 125–152.

Masuda, A. (2006). *The effects of learning and outcome goals on performance using a moderately complex task.* Unpublished doctoral dissertation, State University of New York at Albany.

Mace, C.A. (1935). Incentives: Some experimental studies. In *Industrial health research report* (Great Britain), No. 72.

Meyer, J.P., Kay, E., & French, J. (1965). Split roles in performance appraisal. *Harvard Business Review, 65*, 123–129.

Mitchell, T.R. (1979). Organizational behavior. *Annual Review of Psychology*, 30, 243–81.

Mitchell, T.R., & Daniels, D. (2003). Motivation. In W.C. Borman, D.R. Ilgen, & R.J. Klimoski (Eds.), *Comprehensive handbook of psychology: Industrial organizational psychology* (Vol. 12, pp. 225–254). New York: Wiley.

Noel, T. (1997). *The effects of learning goals on group performance on an independent task.* Unpublished doctoral dissertation, University of Colorado at Boulder. UMI#9812911

Noel, T, & Latham, G.P. (2006). The importance of learning goals versus outcome goals for entrepreneurs. *International Journal of Entrepreneurship and Innovation, 7*, 213–220.

Quigley, N.R., Tesluk, P.E., Locke, E.A., & Bartol, K.M. (2007). A multilevel investigation of the motivational mechanisms underlying knowledge sharing and performance. *Organizational Science, 18,* 71–88.

Ronan, W.W., Latham, G.P., & Kinne, S.B. (1973). The effects of goal setting and supervision on worker behavior in an industrial situation. *Journal of Applied Psychology, 58*, 302–307

Roney, C.J.R., Griggs, M., & Shanks, B. (2003). *The mediation*

and moderation of general motivational variables by specific goals that are negatively framed. Unpublished manuscript.

Ryan, T.A. (1947). *Work and effort: The psychology of production*. New York: Ronald Press.

Ryan, T.A. (1970). *Intentional behavior*. New York: Ronald Press.

Schönpflug, W. (1986). Behavioral economics as an approach to stress theory. In M.H. Appley and R. Trumbull (Eds.), *Dynamics of stress: Physiological, psychological, and social perspectives* (pp. 81–98). New York: Plenum.

Seijts, G.H., & Latham, G.P. (2000). The effects of goal setting and group size on performance in a social dilemma. *Canadian Journal of Behavioral Science, 32*, 104–116.

Seijts, G.H., & Latham, G.P. (2001). The effect of learning, outcome, and proximal goals on a moderately complex task. *Journal of Organizational Behavior, 22*, 291–307.

Seijts, G.H., & Latham, G.P. (2005). Learning versus performance goals: When should each be used? *Academy of Management Executive, 19*, 124–131.

Seijts, G.H., Latham, G.P., Tasa, K., & Latham, B.W. (2004). Goal setting and goal orientation: An integration of two different yet related literatures. *Academy of Management Journal, 47,* 227–239.

Selden, S.C., & Brewer, G.A. (2000). Work motivation in the senior executive service: Testing the high performance cycle theory. *Journal of Public Administration Research and Theory, 10*, 531–550.

Sonnentag, S. (2002). Performance, well-being, and self-regulation. In S. Sonnentag (Ed.), *Psychological management of individual performance* (pp. 405–424). New York: Wiley.

Stajkovic, A.D., Locke, E.A., & Blair E.S. (2006). A first examination of the relationship between primed subconscious goals, assigned conscious goals, and task performance. *Journal of Applied Psychology, 91,* 1172–1180.

Stanne, M.B., Johnson, D.W., & Johnson, R.T. (1999). Does competition enhance or inhibit motor performance: A meta-analysis. *Psychological Bulletin, 125*, 133–154.

Taylor, F. (1911). *Principles of scientific management*. New York: Harper.

Terborg, J.R. (1976). The motivational components of goal setting. *Journal of Applied Psychology, 61*, 613–621.

VandeWalle, D.M., Cron, W.L., & Slocum, J.W. (2001). The role of goal orientation following performance feedback. *Journal of Applied Psychology, 86*, 629–640.

Weiss, H.M., & Cropanzano, R. (1996). Affective events theory: A theoretical discussion of the structure, causes, and consequences of affective experiences at work. In B.M. Staw & L.L. Cummings (Eds.), *Research in organizational behavior* (Vol. 18, pp. 1–74). Greenwich, CT: JAI.

Wegge, J., & Dibbelt, S. (2000) Zur wirkung von Zielsetzungen auf die Informationsverarbeitung bei Buchstabenvergleichsaufgaben [Effects of goal setting on information processing in letter-matching tasks]. *Zeitschrift für Experimentelle Psychologie, 47*, 89–114.

Wegge, J., & Haslam, S.A. (2005). Improving work motivation and performance in brainstorming groups: Effects of three group goal setting strategies. *European Journal of Work and Organizational Psychology, 14*, 400–430.

Weldon, E., Jehn, K.A., & Pradham, P. (1991). Processes that mediate the relationship between group goal and improved group performance. *Journal of Personality and Social Psychology, 61*, 555–569.

Wiese, B.S., & Freund, A.M. (2005). Goal progress makes one happy, or does it? Longitudinal findings from the work domain. *Journal of Occupational and Organizational Psychology, 78*, 287–304.

Winters, D., & Latham, G.P. (1996). The effect of learning versus outcome goals on a simple versus a complex task. *Group and Organization Management, 21,* 236–250.

Wong, A., Tjosvold, D., & Yu, Z. (2005). Organizational partnerships in China: Self-interest, goal interdependence, and opportunism. *Journal of Applied Psychology, 90,* 782–791.

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.

Wyatt, S., Frost, L., & Stock, F.G.L. (1934). *Incentives in repetitive work*. Industrial Health Research Board (Great Britain) Report, No. 69.

Yukl, G.A., & Latham, G.P. (1978). Interrelationships among employee participation, individual differences, goal difficulty, goal acceptance, goal instrumentality, and performance. *Personnel Psychology, 31,* 305–324.

About the authors

Gary Latham is the Secretary of State Professor of Organizational Effectiveness at the Rotman School of Management, University of Toronto, Canada, past President of the Canadian Psychological Association, and President Elect of the Society of Industrial and Organizational Psychology. His research interests include work motivation, performance management, and self-regulation.

Edwin A. Locke is Dean's Professor of Leadership and Motivation Emeritus at the R.H. Smith School of Management, University of Maryland, College Park, MD, USA. He now resides in California. His research interests include work motivation, job satisfaction, and philosophy of science. Contact information: elocke@rhsmith.umd.edu

Professor G. Latham

Rotman School of Management
University of Toronto
105 St. George Street
Toronto, Ontario M5S 3E6
Canada
Tel. +1 416 978-4916
E-mail latham@rotman.utoronto.ca

