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Journal of Management 1999; 25; 231
DOI: 10.1177/014920639902500302

Journal of Management
1999, Vol. 25, No. 3, 231–292

Old Friends, New Faces: Motivation Research in the 1990s

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This article reports the principal findings of over 200 studies of work motivation published between January 1990 and December 1997. We examined research relevant to seven traditional motivational theories (Motives and Needs, Expectancy Theory, Equity Theory, Goal-Setting, Cognitive Evaluation Theory, Work Design, and Reinforcement Theory) and three emerging topic areas (Creativity, Groups, and Culture). For each area, we summarize the research, identify trends and discuss issues that deserve further research attention. We conclude by examining trends in research in the field overall and considering the implications of these trends for the future role of motivation in organizational behavior research.

Employee performance is frequently described as a joint function of ability and motivation, and one of the primary tasks facing a manager is motivating employees to perform to the best of their ability (Moorhead & Griffin, 1998). In fact, motivation has been described as "one of the most pivotal concerns of modern organizational research" (Baron, 1991: 1).

But what exactly is work motivation? Pinder (1998) describes work motivation as the set of internal and external forces that initiate work-related behavior, and determine its form, direction, intensity, and duration. Work motivation is a middle-range concept that deals only with events and phenomena related to people in a work context. The definition recognizes the influence of both environmental forces (e.g., organizational reward systems, the nature of the work being performed) and forces inherent in the person (e.g., individual needs and motives) on work-related behavior.

An essential feature of the definition is that it views work motivation as an invisible, internal, hypothetical construct (Pinder, 1998). We cannot actually see work motivation nor can we measure it directly. Instead, we rely on established

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theories to guide us in measuring the observable manifestations of work motivation. For some theories (e.g., equity theory), work motivation is expected to manifest itself in both attitudinal (e.g., satisfaction) and behavioral (e.g., performance) measures, whereas for other theories (e.g., goal-setting) the primary manifestation of work motivation is behavioral (e.g., enhanced performance when ability is held constant).

This article presents a review of empirical research on work motivation published during the 1990s. We conducted a series of partially overlapping searches of the ABI/INFORM and PsychINFO electronic databases for the period January 1990 through December 1997. First, a search using the keywords "work" and "motivation" identified 1127 abstracts. Additional searches using keywords related to traditional motivational theories (e.g., "equity theory") identified 5021 abstracts. Given this volume of published research, we established guidelines to narrow the scope of our review.

First, we limited our review to studies addressing *work* motivation. Thus, we included only research using adult subjects (vs. children or adolescents) and focusing on work behavior (vs. academic achievement, recreational activities, etc.). We included laboratory studies using student subjects if the students were performing a physical or cognitive task that might generalize to activities in a work setting. We did not include research on sports behavior unless subjects were performing the sport as part of their employment (e.g., as professional athletes). Second, we reviewed only *empirical* work published in English language journals. We did not include in our review theories that have yet to generate empirical work (e.g., Kidwell & Bennett, 1993; Klein, 1990; Vardi & Weiner, 1996). Nor did we include previous reviews of the literature (e.g., Kanfer, 1990; Locke & Latham, 1990a, 1990b) or book chapters (e.g., George & Brief, 1996; Griffin & McMahan, 1994; Kanfer & Heggestad, 1997). Third, we concentrated on studies in which work motivation was a *central* focus. We did not include articles examining specific types of motivation (e.g., motivation to manage, motivation to be an entrepreneur), articles describing instrument development (e.g., Amabile, Hill, Hennessey, & Tighe, 1994; Furnham, Sadka, & Brewin, 1992), or articles in which motivation was only one of a constellation of variables. After applying these guidelines, the scope of our review covered more than 200 articles. We apologize if we have omitted empirical work that should appear. However, we are confident we have captured the major thrust of motivation work during this time period.

The review is organized into two main sections. The first section focuses on our "old friends." These are the traditional motivational theories with which we are all familiar and whose absence one would sorely miss. Our old friends are: Motives and Needs, Expectancy Theory, Equity Theory, Goal-Setting, Cognitive Evaluation Theory, Work Design, and Reinforcement Theory. After reviewing the empirical work in each area, we provide our assessment of the research accomplishments during the 1990s and the research challenges that remain.

The second section of the review focuses on "new faces." These are research areas that have seen increased interest and activity during the 1990s. The new faces include: Creativity, Groups, and Culture. Each of these areas has its roots in

one (or more) of our old friends. However, each has grown beyond these roots and established an independent personal identity. For each of our new faces, we summarize the research conducted and discuss strengths and weaknesses.

Finally, in our conclusion, we describe the trends we observed in motivational research in the 1990s and discuss the implications of these trends for motivational research in the next century.

Old Friends: Motives and Needs

Motivation research has a long history of considering employee motives and needs (Alderfer, 1969; Maslow, 1954; McClelland, 1961). Interest in these areas peaked in the 1970s and early 1980s, and the last fifteen years has seen little empirical or theoretical research. The majority of work on motives and needs in the 1990s falls into three areas: an examination of the job attributes that motivate individuals, research that examines need for achievement, and research on the Protestant work ethic.

Motives. We identified seven articles that focused on the job attributes that motivate employees. Most of this research used Herzberg's distinction between intrinsic (motivators) and extrinsic (hygiene) factors (Herzberg, 1982; Herzberg, Mausner, & Snyderman, 1967) and compared the attributes preferred by one group (usually public sector employees) to those preferred by another. For example, Maidani (1991) compared public sector and private sector employees' ratings of the importance of fifteen job factors. He found that both sectors identified intrinsic factors as important, but public sector employees rated extrinsic factors as more important than private sector employees did. Jurkiewicz and Massey (1997) found that public sector supervisory and non-supervisory employees had similar preferences for fifteen job attributes. However, non-supervisory employees reported not receiving what they wanted on fourteen of the fifteen dimensions, whereas supervisory employees reported gaps on only half of the attributes. Emmert and Taher (1992) examined the effect of intrinsic and extrinsic job factors on the satisfaction, work involvement, and work motivation of professional public sector employees. They found public sector professionals' social relations on the job and the fulfillment of intrinsic needs were the best predictors of attitudes. Gabris and Simo (1995) assessed whether public sector employees were motivated by different needs (e.g., a higher need to serve the public and lower need for monetary rewards) than private sector employees and found no significant differences on twenty motivational needs. Employees of non-profit organizations responded similarly to both groups, reporting only a lower need to compete, a lower need for autonomy, and a higher need for serving the community. Finally, Vinokur-Kaplan, Jayaratne, and Chess (1994) examined the impact of workplace conditions and motivators on the job satisfaction and retention of social workers in public agencies, non-profit agencies, and private agencies. They found opportunities for promotion and job challenge were the most important factors influencing the job satisfaction of individuals in non-profit and public agencies.

Additional research on motives examined the continuing relevance of Herzberg's theory. Relying on a small sample of engineers, Phillipchuk and Whittaker

(1996) found significant differences between their results and Herzberg's (1982). For example, their results showed no advancement motivators and half the typical recognition and responsibility motivators. Additionally, both advancement and recognition had a higher frequency of *dis*satisfaction than satisfaction. Finally, neither salary or job security was identified by respondents as important to their satisfaction or dissatisfaction. Although the authors conclude their results validate Herzberg's theory, a closer examination suggests significant differences between their findings and Herzberg's exist.

Three studies examined the motives of individuals in non-U.S. contexts. Leviatan (1992) found older (45+ years) kibbutz workers preferred jobs that satisfied higher order needs to jobs offering better physical conditions or convenience. In a study of Australian directors of child-care centers, survey respondents reported that intrinsic motivators such as "interesting and challenging work" and "feeling of achievement" were more important to their job satisfaction than "salary" (Savery & Wingham, 1991). In contrast, Caribbean hotel workers identified higher wages, working conditions, and appreciation for their work as prime motivating factors (Charles & Marshall, 1992).

Needs. Recent research on needs focused primarily on need for achievement. This work usually examined the relationship between need for achievement (or achievement striving) and work behavior. Research demonstrated that achievement striving is related to sales performance (Bluen, Barling, & Barns, 1990) and in-role behavior (Lee, 1995). Achievement also interacts with other variables to influence performance. For example, Barling, Kelloway, and Cheung (1996) found achievement striving interacted with time management to predict sales performance. Wright, Kacmar, McMahan, and Deleeuw (1995) demonstrated that cognitive ability moderates the relationship between need for achievement and performance.

Longitudinal studies on achievement motivation demonstrated that achievement predicts future performance. Stein, Smith, Guy, and Bentler (1993) found lower adolescent achievement motivation significantly predicted more negative job behaviors and lower job satisfaction in young adulthood. Miner, Smith, and Bracker (1994) found the motivational variable of task theory (which closely parallels achievement motivation theory and includes a desire for personal achievement) predicted entrepreneurial success five years later. McClelland and Franz (1992) found parenting achievement pressure in the first two years of life was associated with adult need for achievement and earned income.

Protestant work ethic. The Protestant Work Ethic (PWE) represents the degree to which individuals place work at or near the center of their lives. PWE has become conceptualized as a key individual difference variable that may influence adult's work attitudes and behaviors. Research during the 1970s and 1980s demonstrated that individuals who score highly on the PWE were more satisfied with their jobs, were more involved with their jobs, were more committed to their organizations, and more likely to stay with their organization. (See Furnham, 1990, for a review.) Research during the 1990s replicates some of these findings and expands the outcome variables considered in PWE research.

Randall and Cote (1991) found that individuals holding a strong PWE were more involved with their jobs. Saks, Mudrack, and Ashforth (1996) found, in a sample of temporary employees, that high work ethic employees had lower turnover rates than low work ethic employees did. Saks et al. demonstrated that job satisfaction and organizational commitment mediate the effect of PWE on turnover.

Mudrack (1992) found that individuals endorsing PWE were more likely to visit their company's fitness center and more likely to believe that exercise led to work-related benefits. Judge and Martocchio (1996) demonstrated that individuals who scored higher on the PWE were more likely to make internal attributions about their absences from work than individuals who scored lower on PWE. Weaver (1997a) reported that self-employed individuals more strongly endorsed PWE beliefs than organizationally employed individuals.

Three studies examined PWE in non-U.S. samples. Ali and Azim (1995) found a positive correlation between PWE and work loyalty in a Canadian sample. In a sample of Bangladeshi employees, Khaleque (1992) found work ethic was related to work performance. However, while the correlation between PWE and performance was positive for both men and women, the relationship was significant only for men. Tang (1990) examined the relationship between PWE, feedback, and intrinsic motivation for Taiwanese university students. Tang reports a significant interaction between PWE and feedback. Intrinsic motivation (as measured by time spent on a task during a free-choice period) increased for low PWE subjects who received negative performance feedback. However, performance feedback (positive or negative) did not affect the intrinsic motivation of high PWE subjects.

Finally, two studies consider if there has been a decline in PWE. Examining data from nationwide public opinion surveys from 1973–1993, Weaver (1997b) found no decrease in work ethic. Similarly, Tansey, Hyman, Zinkhan, and Chowdhury (1997) evaluated work, achievement, leisure, and affiliation themes in business magazine advertisements. They conclude there has been no decline in work ethic in the United Kingdom or United States.

Research accomplishments. Herzberg's (1982) distinction between intrinsic and extrinsic factors continues to have considerable intuitive appeal, particularly in organizational settings in which managers have limited access to financial motivators. Individuals consistently express preferences for intrinsic job attributes, and individuals' preference patterns may eventually contribute to our understanding of employees' occupational and organizational choices. The research examining need for achievement has begun to use more sophisticated research designs permitting the examination of interactive and longitudinal effects on performance (McClelland & Franz, 1992; Wright et al., 1995). Research on the PWE has expanded in scope, examining a broad range of outcome variables (e.g., fitness center use, intrinsic motivation, absence attributions).

Research challenges. The limited research on motives during the 1990s is disappointing given that other areas of micro organizational behavior research (e.g., employee selection) have demonstrated the value of personality and dispositional variables in predicting employee behavior. As motives can be conceptu-

alized as reflecting underlying personality differences, one might expect similar advances in motivation research. (See Kanfer & Heggested, 1997, for a discussion of the role of personality in motivation research.) Unfortunately, much of the research on motives is atheoretical and none of the studies we reviewed attempted to link preferences for job attributes to work behavior. Research on motives relies primarily on individuals' self-reported preferences for job attributes and has found few consistent differences between groups in preference patterns. It is notable that none of this research appears in mainstream management journals.

A similar observation can be made for research on PWE. This work usually is not guided by theory; few studies consider effects on work performance. Although research on need for achievement seems to have progressed past the "personality variable du jour" stage, research on needs has neglected other relevant needs (e.g., need for power or need for affiliation).

Expectancy Theory

Expectancy theory (Vroom, 1964) suggests that motivation is a multiplicative function of three constructs: expectancy, instrumentality, and valence. Empirical work on expectancy theory declined substantially in the 1990s. In a meta-analysis of expectancy theory research, Van Eerde and Thierry (1996) report seventy-four empirical studies that test expectancy theory predictions conducted prior to 1990; we identify only ten such studies since 1990. This decrease in research on expectancy theory likely reflects the theory's maturity. Expectancy theory generated substantial interest following its introduction in the 1960s. Thirty years later most of the basic questions about the theory have been examined. However, direct tests of expectancy theory describe only some of the relevant work in this area. Research on expectancy theory in the 1990s falls into four categories: research that uses expectancy theory as a general framework, direct tests of expectancy theory, integrations of expectancy theory with other theories of motivation, and subjective expected utility theories as a forum for examining decision biases.

Expectancy theory as a general framework. A variety of work uses expectancy theory as a general framework for assessing, interpreting, or evaluating employee behavior. This research does not explicitly test the tenets of expectancy theory, although it often measures and incorporates some features of the theory. For example, Rasch and Tosi (1992) integrated elements of expectancy theory, goal-setting, and need for achievement in examining the perceived performance of software engineers. They distilled expectancy theory characteristics to a measure of effort and demonstrated that effort affects performance and is affected by goal difficulty, goal clarity, and achievement needs. Monge, Cozzens, and Contractor (1992) examined the effect of two communication variables (information and group communication) and three motivational variables (perceptions of equity, expectations of benefits, and perceived social pressure) on innovations in organizations that utilized Scanlon plans. Although the rationale for expectations of benefits is explicitly linked to expectancy theory, the operationalization of this variable does not reflect the theory. Similarly, Harrison (1995) used a subjective expected utility approach as a basis for an extended theory of

volunteer motivation. However, his empirical work did not include assessment of subjective expected utility. Overall, although this type of research is informed by expectancy theory, it relies on the theory only in the most general terms.

Direct tests of expectancy theory. The most comprehensive examination of expectancy theory in the 1990s is the meta-analysis by Van Eerde and Thierry (1996). Van Eerde and Thierry analyzed the correlations of seventy-seven studies (from 1964 to 1990) on Vroom's (1964) original expectancy model and work-related criteria. They examined the effect of each element of expectancy theory (expectancy, instrumentality, and valence) as well as motivational force (the multiplicative model) on each of five criteria (performance, effort, intention, preference, and choice). They also considered two moderators previously discussed in the literature—type of design (within-subjects vs. between-subjects) and measurement of constructs. A continuing issue in expectancy theory research is the interpretation and operationalization of the expectancy, instrumentality, and valence constructs (see Van Eerde and Thierry, 1996, and Klein, 1991, for a discussion of this issue). Three findings from this meta-analysis are most significant. First, Vroom's multiplicative models did not yield higher effect sizes than analyses of the specific components. Second, for studies examining effort or preference, correlations for studies using within-subjects designs were higher than for those using between-subjects designs. These results reinforce the position articulated by Mitchell (1974) that expectancy theory is a within-person decision-making model and is appropriately studied using within-subjects, rather than between-subjects, designs. Finally, attitudinal criterion variables (intention and preference) were more strongly related to the models and elements of the model than behavioral variables (performance, effort, and choice).

The empirical tests of expectancy theory conducted during the 1990s are consistent with the results of Van Eerde and Thierry's (1996) meta-analysis. For example, Brooks and Betz (1990) found that the Expectancy X Valence interaction accounted for 12% to 41% of the variance in a laboratory study of occupational choice. However, expectancy alone was as good a predictor as the product. (Brooks and Betz's study also reflects the continued use of between-subjects designs in expectancy research.) Snead and Harrell (1994) found similar results for managers' intentions to use a decision support system. Although the increment was significant, a multiplicative model (E X V) provided little additional explanatory power (.07) over an additive model. Saks, Wiesner, and Summers (1994) tested expectancy theory in a study examining the effects of traditional and realistic job previews on job choice. They found that expectation of work-related needs (roughly instrumentality) and the valence of these needs (I X V) significantly predicted job choice. Adding self-efficacy (roughly expectancy) to the regression further increased predictive power.

Seven other studies provide straightforward applications of expectancy theory. Allen, Lucero, and Van Norman (1997) combined a within- and a between-subjects approach in applying expectancy theory to decisions to participate in an employee involvement program. Along with expectancy and instrumentality, they assessed the valence of a variety of outcomes associated with volunteering and not volunteering. They found higher motivational force scores increased the likeli-

hood that an individual would volunteer. Smith, Hindman, and Havlovic (1997) found expectancy theory predicted employees' votes in a multi-union election. Burton, Chen, Grover, and Stewart (1992–1993) found expectancy theory predicted user motivation to utilize an expert system. Watson and Behnke (1991) found expectancy was negatively related to performance on a computer project. However, they suggest the questions used to assess expectancy focused subjects' attention on external pressures, thereby decreasing intrinsic motivation. Finally, Mastrofski, Ritti, and Snipes (1994) used expectancy theory to examine DUI enforcement by police officers. However, they note that their data—collected from secondary sources and not designed to directly assess expectancy theory—does not provide a clear assessment of the theory. Nonetheless, their indicators of expectancy and valence significantly predicted DUI arrests. However, their indicator of instrumentality was negatively associated with arrest productivity.

Perhaps the most interesting application of expectancy theory is a study by Chen and Miller (1994) who used an expectancy theory approach to examine strategic decisions. Their interest was in how organizations can engage in competitive attacks while reducing the risk of retaliation. Chen and Miller (1994) suggested that the centrality of the attacked market (valence), the difficulty of responding to the attack (expectancy/instrumentality), and the visibility of the attack (a prerequisite for response) would determine the competitor's response. The multiplicative model derived from expectancy theory significantly explained variance in competitors' response, above that accounted for by the additive main effects. However, it did so only very modestly. Consistent with the results of the Van Eerde and Thierry's (1996) meta-analysis, the main effects were far stronger than the interaction effects. Chen and Miller's (1994) study is noteworthy for its application of expectancy theory to the organizational level of analysis.

Integrations of expectancy theory. Five articles explicitly examine how expectancy theory can be integrated with other theories to provide a clearer understanding of motivation. The first, Yancey, Humphrey, and Neal (1992) integrated expectancy theory with theories of arousal. The second, Harder (1991), proposed a synthesis of equity theory and expectancy theory. The others, Klein (1991), Mento, Locke, and Klein (1992), and Tubbs, Boehne, and Dahl (1993) examined goal-setting and expectancy theory.

Yancey et al. (1992) used an arousal framework to explain the typically small relationship between expectancy theory predictions and performance. They suggest that components of expectancy theory that are generally combined additively or multiplicatively may have countervailing influences on performance. Therefore, they may "cancel each other out" when they are combined. Specifically, Yancey et al. predicted that high task confidence (expectancy) and high incentive (valence) would be positively related to arousal. Arousal is curvilinearly related to performance. Thus, high levels of expectancy coupled with high levels of incentives may create high levels of arousal and actually lead to decreased performance. Yancey et al. found the predicted relationship between task confidence and arousal, and incentives and arousal. However, they did not assess performance.

Harder (1991) examined contradictory predictions from equity theory and expectancy theory in the case of major league baseball free agents in the year prior to their free agency. Harder suggested that under equity theory, one would expect performance of these individuals to decline (as they would feel undercompensated). However, under expectancy theory, one would expect an increase in performance (e.g., home run percentage) that would lead to highly valent outcomes (e.g., larger salary) in the following season. Harder found that batting average (which has a weaker relation to salary outcome) declined in the year before a player became a free agent. However, home run ratio (which has a stronger relation with salary) did not decline. Harder suggested a synthesis of equity and expectancy theory in which equity's effect on performance is contingent on the strength of the performance-outcome expectancy. Individuals faced with undercompensation choose an avenue of decreased performance, *but only to the extent that it does not affect future rewards*.

Klein (1991) noted that previous empirical attempts to integrate expectancy theory and goal-setting have led to conflicting results and suggested that some of these conflicts might result from differences in the operationalization of expectancy theory constructs and from unresolved issues in the causal ordering of goal and expectancy theory constructs. Klein reported the results of a meta-analysis demonstrating that different operationalizations of expectancy theory constructs are associated with different study results. Additionally, he conducted a study to systematically assess the effect of these different operationalizations. His results demonstrated that the different operationalizations influenced the significance and direction of empirical findings. However, for almost all operationalizations, there were significant relationships between expectancy theory constructs and goal choice, goal commitment, and performance. Finally, using mediation and path analyses, Klein concluded that goals *mediate* the effects of expectancy theory constructs on performance.

Mento et al. (1992) found that the amount of valence attached to goals was negatively associated with goal level—people with high goals expected less satisfaction with each possible performance level than people with low goals. However, difficult goals were associated with higher instrumentality—that is, achieving higher goals was more associated with a series of specific outcomes (e.g., showing competence, developing ability).

Tubbs et al. (1993) used expectancy theory to explain the effect of assigned goals. They focused on the patterns or functions associated with expectancy, instrumentality, valences, and motivational force when an individual evaluates a continuous variable (like task performance). Tubbs et al. (1993) hypothesized that assigned goals affect these functions, thereby affecting performance, but found only limited support for their hypotheses. Their most significant finding is the nonlinearity of the functions, a finding consistent with Naylor, Pritchard, and Ilgen's (1980) theory of behavior in organizations. The Naylor et al. (1980) theory forms the basis for the final set of studies we review.

Subjective expected utility theories and decision biases. The final set of studies seeks to integrate expectancy (and expectancy-like) theories with decision theory. Although their focus on motivation earns them inclusion in this chapter,

to some extent expectancy theory simply provides a forum for investigating predictions of decision theory. Three studies focus on this integration of decision making research and subjective expected utility theories: Sawyer (1990), Switzer and Sniezek (1991), and Henry and Strickland (1994).

Sawyer (1990) considered the effect of risk and uncertainty on individuals' judgments of contingencies (in this case, the relationship between acts and products from Naylor et al.'s, 1980, theory of motivation) and their decisions to allocate time to an activity. When contingencies were learned under uncertain conditions, individuals judged contingencies to be more linear than they actually were. Additionally, individuals preferred to allocate resources to the more certain contingencies. In conditions where functions were equally uncertain, individuals used the optimal allocation rule. Sawyer's (1990) study provides one of the few empirical tests of Naylor et al.'s (1980) theory. His results suggest the theory, which is a refinement and extension of expectancy theory, may not be any more successful in predicting resource allocations or behavior in uncertain environments than the traditional expectancy theory approach.

The second study, Switzer and Sneizek (1991), also used the Naylor et al. (1980) framework. Switzer and Sneizek (1991) examined the effect of the anchoring and adjustment heuristic on judgments of contingent relations (again, the act to product contingency) and on actual allocations of time and effort. Their results demonstrated that both irrelevant information (e.g., experiment number) and relevant information (e.g., assigned goals) act as anchors and influence contingency judgments. However, these anchoring effects were not related to subsequent behavior. There were no differences in the number of products produced or the speed of task-relevant behavior for individuals with low or high anchors. Switzer and Sniezek (1991) suggested that differences in performance expectancies (i.e., the act to product contingency) "were overridden by the perceived value of the outcome or otherwise ignored" (p. 227). They recommended focusing more attention on the relation of expectancies to other elements of motivation.

The final study, Henry and Strickland (1994), examined the effect of judgment biases on a particular type of judgment—self-assessments of predicted performance (self-predictions). Henry and Strickland (1994) suggested that expectancy strength and performance-contingent incentives would lead individuals to *overestimate* their future performance. Additionally, individuals in the strong expectancy condition were expected to engage in more spontaneous goal-setting than those in the weak expectancy condition. The results supported these predictions. Individuals were more accurate in the self-predictions when the link between effort and performance was portrayed as weak. Additionally, weak expectancies enhanced task performance, despite less spontaneous goal-setting.

Research accomplishments. Expectancy theory has become a standard in motivation, as reflected by its incorporation as a general framework for a wide variety of research—both in motivation, as reviewed here and elsewhere (Brockner, 1992; Kilduff, 1990). However, the research reviewed here suggests a simple main effect model may provide a better fit for the relationship between variables than the traditional multiplicative models. The most interesting research on

expectancy theory in the 1990s is the application of the theory to the behavior of organizations (Chen & Miller, 1994) and attempts to integrate the theory with other theories (equity, goal-setting, decision making). These approaches are systematic and rigorous efforts to broaden the scope of the theory.

Research challenges. There have been few advances in expectancy theory research in the 1990s. Many of the direct applications of the theory are plagued with the same measurement and design issues identified twenty years ago (Mitchell, 1974). These studies provide little new insight toward the motivation process. There appears to be little need for continued research that merely examines applications of expectancy theory. Research integrating decision theory and expectancy theory provides an opportunity to understand how individuals form expectancy judgments. Unfortunately, this work appears to have had little impact on mainstream expectancy theory research.

Equity and Justice Theory

Equity theory has experienced its ups and downs since Adams (1963, 1965) first proposed it as a way of understanding how employees respond to situations in which they are treated more or less favorably in comparison to a referent "other." According to the theory, inequitable comparisons result in a state of dissonance or tension that motivates the person to engage in behavior designed to relieve the tension (e.g., raise or lower work efforts to reestablish equity, leave the situation that is causing inequity). Research on equity theory has examined the effect of inequitable comparisons on employee attitudes expected to reflect the dissonance (e.g., job satisfaction), as well as behavior intended to adjust or compensate for the inequity (e.g., theft, organizational citizenship behavior).

Soon after equity theory's appearance in the literature, Weick (1966) described it as one of the most useful organizational behavior theories, and several reviews concluded that the evidence for equity theory was generally strong (Greenberg, 1982; Mowday, 1991). Research consistently found that undercompensated workers lowered their performance (reduced their inputs) (Greenberg, 1982). However, critics have also described equity theory as one of the "not so useful" theories in organizational behavior (Miner, 1984). Research findings on overcompensation have been less consistent than those on undercompensation (Mowday, 1991). Additionally, the theory is vague with respect to which of a variety of behavioral options (e.g., lowering inputs, raising outcomes, leaving the situation) is likely to be observed in any particular context (Greenberg, 1990a). As a result, equity theory largely fell out of favor in the organizational behavior literature.

In examining the 1990's literature, we noticed that equity theory is being applied to a variety of areas outside of work motivation: intimate and marital relationships (e.g., Buunk & VanYperen, 1991; Longmore & DeMaris, 1997; VanYperen & Buunk, 1991), provision of public goods (Chan, Godby, Mestelman, & Muller, 1997; van Dijk & Wilke, 1993, 1994), and consumer behavior (Lapidus & Pinkerton, 1995). In contrast, the 1990s literature applying equity theory to work motivation is sparse. Current organizational behavior research related to equity theory is more likely to use a justice framework that goes beyond

the emphasis on distributive justice that is captured by equity theory. This approach argues that employees attend to both process and outcomes in deciding whether they are treated fairly by organizations (Greenberg, 1990a) and suggests that procedural justice (fairness of procedures used in an exchange) and interactional justice (whether the person is treated with concern and consideration during the exchange) play a role in predicting employee behavior at work.

Our review of the 1990's research related to equity theory is organized into three areas: (1) application of equity theory to understand job satisfaction and other attitudes; (2) application of equity theory to predict employee behavior; and (3) application of justice theory to understand organizational citizenship behavior.

Equity theory and attitudes. Although equity theory was initially described as a motivational theory, with inequity leading to behavior intended to correct the experienced inequity, some research in the 1990s did not examine the inequity-behavior link. Instead, research focused directly on the inequity component, examining how inequity was associated with attitudes like dissatisfaction. The research in the 1990s consistently demonstrated that underpayment inequity was associated with negative attitudes; however, there continues to be ambiguity about the effects of overpayment inequity. Joshi (1990) found that users' perceptions of inequitable distributions of information resources contributed to dissatisfaction with their organization's information systems department. Dutch researchers found that general practitioners (van Dierendonck, Schaufeli, & Sixma, 1994) and nurses (VanYperen, Buunk, & Schaufeli, 1992) who felt that they contributed more to their patient relationships than they received in return experienced more emotional exhaustion and more negative attitudes toward patients. Underpayment inequity in comparison to a series of referents (others in your job category at your company, your pay in previous jobs) was associated with lower pay satisfaction in a sample of restaurant managers (Summers & DeNisi, 1990). However, Sweeney (1990) found evidence of a curvilinear relationship between pay inequity and pay satisfaction in three national studies, such that both overpayment and underpayment inequity were associated with lower pay satisfaction. In contrast, Johnson and Johnson (1991) found that pay equity (whether employees believed they were fairly paid relative to others doing the same kind of work) was not associated with the organizational commitment reported by employees of a large utility agency. However, educational equity (whether employees believed they were paid commensurate with their education level) and occupational equity (whether employees believed their occupation was perceived as appropriately prestigious by people outside the organization) were associated with commitment.

Perry (1993) found a linear relationship between pay equity and job satisfaction. African-Americans whose income was more than $2,000 below the national median reported the lowest levels of job satisfaction, and African-Americans whose income was more than $3,000 above the median reported the highest job satisfaction. However, Carr, McLoughlin, Hodgson, and MacLachlan (1996, Study 2) found that Australian employees who were paid either more or less than other people in their occupation reported less job satisfaction than employees who were equitably paid.

Levine (1993) calculated wage residuals for more than 8,000 manufacturing employees. Wage residuals reflect employees' wages relative to employees with similar demographics (e.g., sex, race) and human capital (education, training). Therefore, employees with low wage residuals might be expected to experience inequity relative to similar others and exhibit negative responses. Consistent with this line of reasoning, Levine found that employees with higher wage residuals reported that they were less likely to quit, were more satisfied with their pay, were willing to work harder than they had to, and were more committed to the firm.

Huseman, Hatfield, and Miles (1985, 1987) proposed equity sensitivity as an individual difference measure influencing reactions to inequity situations. In this approach, individuals are classified along a continuum as either Benevolents (who are tolerant of undercompensation situations), Equity Sensitives (who adhere to equity norms), or Entitleds (who are tolerant of overcompensation situations). An instrument to measure equity sensitivity was validated in five samples (King & Miles, 1994), and subsequent research has further investigated differences among the three groups. King, Miles, and Day (1993) investigated college students' reactions to scenarios and concluded that Benevolents generally do not experience the distress predicted to occur in inequitable situations—both undercompensation and overcompensation. In addition, there is evidence that Benevolents, Equity Sensitives, and Entitleds place different values on different kinds of organizational outcomes. Entitleds place a higher emphasis on external tangible outcomes (e.g., pay), and Benevolents place a higher emphasis on intrinsic outcomes (e.g., a sense of accomplishment) (King et al., 1993; Miles, Hatfield, & Huseman, 1994). Further, Fok, Hartman, Villere, and Freibert (1996) found that Chinese employees had more of a Benevolent orientation, whereas British and French employees were more Entitlement oriented. However, to date there has been no research demonstrating that members of the three groups (Benevolents, Equity Sensitives, and Entitleds) respond differently to inequity situations in terms of motivation or behavior.

Finally, Bylsma and Major (1992, 1994) studied gender differences in reactions to inequity. Previous research has indicated that women have a lower sense of personal entitlement than do men with regard to outcomes such as pay (Major, 1987, 1989). Using a scenario methodology, Bylsma and Major (1992) found that the gender differences in personal entitlement were eliminated when men and women received the same information about referent pay or received the same performance feedback. However, Bylsma and Major (1994) found that both men and women were more sensitive to ingroup (same-sex) referent information. Even when information about the pay of both ingroup and outgroup referents was available and unavoidable, men's and women's judgments of entitlement and pay satisfaction were influenced more by information about ingroup than outgroup referents.

Equity theory and behavior. Research examining the motivational implications of equity theory has explored a variety of factors inducing inequity (e.g., perceived inequity, pay inequity, feedback distributions) and a variety of motivational indicators (e.g. self-reported motivation, performance, illegal behavior, intention to persist with an innovation).

Insurance salespeople's perceived inequity (compared to other salespeople in the company) on five dimensions (monetary rewards, task assignments, supervisory behavior, promotions, and recognition) had a negative association with the salespeople's reported extrinsic motivation (Tyagi, 1990). However, only inequity on supervisory behavior and recognition had a negative influence on reported intrinsic motivation.

Carr et al. (1996, Study 1) found that the knowledge that one was overpaid or underpaid lowered intrinsic motivation. College students who were paid for their participation in an experiment spent less time working on puzzles during a free choice period when they learned that other students had been paid double or half the amount for participating in the same experiment.

The fact that salary and performance information are readily available for professional athletes made it possible for a series of studies to examine equity predictions for professional athletes. Harder (1991) suggested that free agents are in a position of perceived undercompensation. In major league baseball, power hitting is more closely tied to salary and is associated with greater market value than is batting average (Bretz & Thomas, 1992; Harder, 1991). So, undercompensated players would be expected to adjust the equity ratio by changing performance on dimensions that would not have a long-term negative impact on their pay outcomes. Consistent with this reasoning, free agency had a significant negative effect on batting average during the option year, but had no effect on home run ratio. Using continuous measures of overcompensation and undercompensation, Harder (1992) demonstrated that baseball players with a higher percentage of overcompensation created more runs. In contrast, percentage of undercompensation was associated with overall performance but not run creation. Undercompensated basketball players engaged in more selfish behavior by taking more shots per game, whereas overcompensated players engaged in more cooperative team behavior indicated by nonscoring performance.

Bretz and Thomas (1992) noted that baseball players' offers to binding arbitration represent the player's personal calculation of the outcome/input ratio critical to equity theory. Filing for salary arbitration and losing arbitration appears to be consistent with objective estimates of inequity (Howard & Miller, 1993). Players who lost their arbitration decisions performed more poorly in the following season, and were more likely than players who won the decision to change teams or leave major league baseball (Bretz & Thomas, 1992).

In a series of studies using scenario (Sheehan, 1991), survey (Sheehan, 1991), and experimental methodologies (Sheehan, 1993), Sheehan suggested that employees experience inequity when coworkers leave for better jobs. The experienced inequity had negative effects on employees' job satisfaction (Sheehan, 1991), intentions to improve their own outcomes (Sheehan, 1991), and job performance (Sheehan, 1993).

Summers and Hendrix (1991) investigated how managers' perceptions of pay equity with respect to their three most important referents influenced the managers' performance and turnover intentions. Perceptions of pay equity had no impact on performance, but did have an indirect impact on turnover intentions that

was mediated by a variety of attitudinal measures (e.g., job satisfaction, pay satisfaction).

Research suggests that individuals engage in illegal behaviors to maintain equity in relationships, either with their employing organization or with other people. Greenberg (1990b) found that reported pay inequity and employee theft increased when plant employees experienced a temporary 10-week pay reduction. However, the negative effects of the pay reduction occurred only among employees who had not received an adequate explanation of the reduction from management. Glass and Wood (1996) found that students' intentions to illegally copy software for another student was a function of software price. The higher the student's inputs to the exchange (software cost), the less likely the student was to copy the software. In addition, the opportunity to restore equity in the relationship by repaying a debt to the other student was positively associated with intentions to copy the software.

When outcomes are contingent on group performance, individuals may use the distribution of individual feedback within the group to decide whether they are overcompensated or undercompensated. In a study conducted by Barr and Conlon (1994), students participated in a decision-making simulation as members of three person teams and expected to receive course credit contingent on their team's performance. For several simulation rounds, teams were required to use job rotation. Students were not interested in continuing to use job rotation when group feedback was negative. However, when group feedback was positive, their interest in continuing to use job rotation depended on the distribution of individual feedback within the group. When the group received positive feedback, persistence in using job rotation was highest when students received positive feedback consistent with the majority of their team members (equitable situation). When the group received positive feedback but students received feedback that was inconsistent with the majority of their teammates, students were less interested in continuing the innovation that had placed them in an inequitable situation.

Justice theory and citizenship behavior. Several studies in the 1990s examined the impact of justice on organizational citizenship behaviors (OCBs). OCBs are defined as discretionary activities that fall outside of the employee's actual job description. An employee can increase or decrease these activities as a way of adjusting his or her equity relationship with the employer without a corresponding effect on personal outcomes such as performance ratings or salary (Harder, 1991). Moorman (1991) found that supervisor ratings of employee OCBs were predicted from employees' perceptions of interactional justice, but Niehoff and Moorman (1993) found that OCBs were predicted from employees' perceptions of the fairness of formal procedures, with interactional justice having a surprising *negative* effect on one dimension of citizenship. Deluga (1994) found that continuing education students' OCBs were related to their beliefs that their supervisor gave them a "fair deal." Lee (1995) found that a measure of procedural justice predicted both in-role and extra-role citizenship behaviors of consumer products employees. However, Lee also found that a measure of distributive justice (fairness of a bonus) was negatively associated with in-role citizenship

behavior. Lee suggests that the employees might have been happy with the bonus but not with the procedure used to determine the bonus.

Research accomplishments. Equity theory's predictions regarding the effects of undercompensation have proven to be very robust, predicting behavior in both the laboratory and the field. Equity research during the 1990s drew on a broad range of resources (e.g., published statistics for professional athletes, organizational pay reductions) to study employee behavior in real-life organizational contexts. Equity theory also has begun to explore a range of behavioral reactions to inequity, including illegal behaviors, performance, and intention to persist with an innovation. Probably the most promising advance in the equity theory area is the integration of distributive and procedural justice, which encourages research to explore how employees evaluate organizational procedures (e.g., performance appraisal procedures), as well as the outcomes resulting from those procedures (e.g., salary decisions).

Research challenges. Unfortunately, although some research on equity theory has begun to explore behavioral consequences of inequity, the bulk of the research in this area continues to rely upon attitudinal dependent measures (satisfaction, commitment) or self-reported measures of intentions to change effort or to look for another job. There is a definite need to explore the effects on inequity on employees' behavior over an extended time period. In addition, the integration of equity and procedural justice has yet to capitalize on the strengths of equity theory. Equity theory describes a cognitive comparison process underlying equity evaluations, and suggests particular referent standards that are used in this process. In contrast, the procedural justice literature has usually asked subjects to report their assessments of justice without identifying the standards subjects used in making these evaluations. A greater focus on referent standards may eventually help to explain the mixed results concerning the relation between various justice components (e.g., procedural, interactional) and OCBs.

Goal-Setting

Multiple reviews and meta-analyses of the goal-setting literature have concluded that there is substantial support for the basic principles of goal-setting theory (Locke & Latham, 1990a, 1990b; Wofford, Goodwin, & Premack, 1992). First, specific difficult goals consistently lead to better performance than specific easy goals, general goals such as "do your best," or no goals (Latham & Locke, 1991; Locke, 1996). Second, goal-setting is most effective when there is feedback showing progress toward the goal (Latham & Locke, 1991; Locke, 1996).

The linear relationship between goal difficulty and performance assumes that the individual is committed to the goal and possesses the knowledge and skills necessary to achieve it. Therefore, goal commitment is especially critical when goals are specific and difficult (Latham & Locke, 1991; Locke, 1996). Participation and self-set goals have been found to be effective strategies for enhancing goal commitment (Locke, 1996). In addition, self-efficacy has been found to influence both the difficulty of the goal accepted, and commitment to the goal (Locke, 1996).

Although most research on goal-setting in the 1990s continued to rely on college students, the tasks performed by these students have grown increasingly complex, encompassing course-long organizational simulations (e.g., Chesney & Locke, 1991) and sophisticated computerized tasks (e.g., Earley, Northcraft, Lee, & Lituchy, 1990; Gilliland & Landis, 1992). In addition, several field studies of goal-setting were conducted in the 1990s. Rasch and Tosi (1992) integrated expectancy, goal-setting and individual difference variables in a study of software development professionals' job performance. Although perceived goal difficulty had a negative effect on self-reported job performance, both perceived goal difficulty and perceived goal clarity had positive effects on reported effort, which in turn was positively associated with self-reported performance. Barrick, Mount, and Strauss (1993) found that sales representatives' autonomous goal-setting and goal commitment were associated with greater sales volume and higher supervisory ratings of job performance. Chesney and Locke (1991) used a simulation in which college students operated as firm presidents to make a series of strategic decisions. Students with higher personal goals (measured on a post-task questionnaire) had higher firm performance. There was some evidence of a moderator effect of organizational strategy; the goal-performance relation was stronger when effective strategies were used.

During the 1990s, research focused on several important issues related to goal-setting. First, research explored various moderators of the goal difficulty-performance relationship. Second, research examined the integral role of goal commitment in goal-setting (Wofford et al., 1992). Third, research explored the roles of personal goals and self-efficacy. Fourth, after decades of research examining the effectiveness of goal-setting, one new trend in the 90s was to study boundary conditions for the usually positive effects of difficult goals. Each of these research areas is described in detail below. In addition to these areas, goal-setting research also examined the effect of group goals. We review the 1990's research on group goals in the section on Groups and Teams.

Moderators of the goal difficulty-performance relationship. Goal-setting is especially effective when feedback is provided that permits the individual to track progress relative to the goal. During the 1990s, researchers continued to explore the impact of different kinds of feedback in combination with goal-setting. Earley et al. (1990) found that the performance of college students in a stock market simulation was higher when a specific, difficult goal appeared in combination with either specific process feedback or with specific outcome feedback. The highest performance was achieved when the specific, difficult goal was combined with both specific process and specific outcome feedback, leading Earley et al. (1990) to conclude that the effects of the feedback were additive. Outcome feedback tells a person that change is needed, but process feedback tells the person how to change.

Wright (1990a) found that the operationalization of goal difficulty operated as a significant moderator in a meta-analysis of the goal difficulty-performance relationship. In an experimental study, Wright, Hollenbeck, Wolf, and McMahan (1995) found differences between the effects of goals expressed in terms of absolute performance level and goals expressed in terms of improvement over the

person's past performance. For performance level goals, college students' performance on a class scheduling task increased with increasing goal difficulty. However, for performance improvement goals, performance followed an inverted-U function, with poor performance associated with very difficult goals. A follow-up study suggested that the results for very difficult goals were a function of how high-ability subjects responded to absolute and performance improvement goals. High ability subjects set personal goals anchored around the assigned absolute goals. But when they were confronted with very difficult performance improvement goals, high ability subjects set personal goals anchored around their past performance.

Campbell and Furrer (1995) found that goal difficulty and competition had independent effects on the performance of college students solving arithmetic problems, such that performance was enhanced by difficult goals and by a lack of competition. However, Allscheid and Cellar (1996) found no effect of competition on the performance of college students performing an anagram task.

Goal acceptance and goal commitment. In order for assigned goals to affect individual performance, individuals must initially accept the goal and remain committed to it (Locke & Latham, 1990b). That is, individuals must be truly trying to attain the assigned goal. Therefore, individual performance results from an interaction between goal difficulty and goal commitment, with the highest level of individual performance occurring when individuals are highly committed to difficult goals (Tubbs, 1993). Although there is agreement on goal commitment's theoretical importance, the 1990s saw considerable discussion regarding whether goal commitment was most appropriately operationalized through self-reported commitment to an assigned goal, self-reported commitment to a personal (self-set) goal, or calculation of discrepancies between assigned and personal (self-set) goal (Tubbs 1993; Tubbs, 1994; Tubbs & Dahl, 1991; Wright, O'Leary-Kelly, Cortina, Klein, & Hollenbeck, 1994).

Research in the 1990s examined the factors that influence goal acceptance and goal commitment. Earley, Shalley, and Northcraft (1992) found that students performing a "hidden word" task took longer to make goal acceptance decisions when the goal was equivocal, whereas decisions were faster for goals that were clearly easy or overly difficult. The extra time spent deliberating the acceptance of equivocal goals was associated with more sophisticated task strategies and higher task performance. Vance and Colella (1990) found that increasing the level of assigned goals led to a steady decrease in college students' commitment to those goals as they performed a series of trials of an anagram task. Wright and Kacmar (1994) found that college students solving anagrams reported more commitment to specific goals (goals that gave a specific quantitative number of anagrams to solve) than to broad goals (goals that specified a target range of anagrams to solve).

One of the most frequently studied factors influencing goal commitment was monetary incentives. Locke and Latham (1990b) suggested that monetary incentives strengthen goal commitment if the amount of money is sufficiently large and the incentives are not tied to goals perceived as impossible. Wright (1992) examined the goal commitment of college students working on a class scheduling

task under a variety of monetary and goal difficulty conditions. When goals were easy, a large goal-attainment bonus boosted goal commitment and performance. However, when goals were difficult, high piece-rates and high hourly rates resulted in higher goal commitment and performance than a goal-attainment bonus. Wright (1992) suggests that making incentives dependent on goal attainment under difficult goal conditions leads individuals to reject goals that in the absence of an incentive would lead to high performance. However, Lee, Locke, and Phan (1997) found no main or interaction effects associated with goal difficulty and incentive plan on the goal commitment of college students solving arithmetic problems.

Martin and Manning (1995) assigned difficult goals to college students working on an anagram task and manipulated task difficulty and normative information. When the task was easy, students with high goal commitment were unaffected by normative information, but students with low goal commitment performed worse when they were told that others had performed well on the task. When the task was difficult, students with low goal commitment were unaffected by normative information, but students with high goal commitment performed better when they were told that others had performed well on the task. Martin and Manning (1995) suggest that when both tasks and goals are difficult, high commitment students rely on normative information to decide whether the goal is really achievable.

In addition to contextual factors, researchers in the 1990s studied individual differences that might be associated with goal commitment. Johnson and Perlow (1992) found that a component of need for achievement (need for mastery) was associated with college students' commitment to a difficult goal assigned for an air traffic controller simulation. Barrick et al. (1993) found that sales representatives who were high in conscientiousness were more likely to have autonomously set goals in the past, and to be more committed to subsequent goals.

Personal (self-set) goals and self-efficacy. Although much of the earlier research on goal-setting examined assigned goals, research in the 1990s focused heavily on personal (self-set) goals. Self-set goals are frequently more desirable than assigned goals because they automatically engender high commitment (Hinsz, Kalnbach, & Lorentz, 1997). In addition, individuals who reject assigned goals may set personal goals that exert an impact on performance.

Research in the 1990s also examined the role of self-efficacy in goal-setting. Self-efficacy generally refers to what a person believes he or she can do on a particular task (Mitchell, Hopper, Daniels, George-Falvy, & James, 1994). Outside of the goal-setting literature, self-efficacy has been associated with the intrinsic motivation of employed adults (Fletcher, Hansson, & Bailey, 1992), training performance (Gist, Stevens, & Bavetta, 1991; Mathieu, Martineau, & Tannenbaum, 1993), job search activities leading to reemployment (Eden & Aviram, 1993), and women's participation in union activities (Bulger & Mellor, 1997). In goal-setting contexts, self-efficacy has been found to be associated with goal commitment (Wofford et al., 1992). People with high self-efficacy are likely to set high personal goals and to perform well (Locke & Latham, 1990b).

Therefore, self-efficacy and personal goals are likely to play important roles in determining performance either in the presence or the absence of assigned goals.

The mediating roles of self-efficacy and personal goals are well established. Although there is some evidence that self-efficacy is more influential at early stages of task performance while a person is still unfamiliar with a task, over time self-efficacy may become less important than personal goals in determining performance (Mitchell et al., 1994). In addition, cognitive mediators such as self-efficacy may be accompanied by physiological mediators such as arousal and heartrate that have received less attention in the literature (Gellatly & Meyer, 1992).

Earley and Lituchy (1991) conducted three studies using undergraduates and found that self-efficacy and personal goals consistently mediated the effects of assigned goals on performance. In the Vance and Colella (1990) research described earlier, the authors were initially surprised to observe that students with specific, difficult goals solved more anagrams than students in a no-goal control group, even when goals were very difficult and students were rejecting the assigned goals. However, Vance and Colella (1990) found that even when students rejected the assigned goals, they maintained high personal goals that aided performance. Lee et al. (1997) varied goal difficulty and incentive plan for college students solving arithmetic problems over two trials. On the second trial, participants working for a goal-contingent bonus had higher performance with moderate goals than with easy or difficult goals, but hourly and piece-rate participants had higher performance with easy or difficult goals than with moderate goals. Lee et al. (1997) suggest that bonus participants adjusted their personal goals and self-efficacy at the end of the first trial. If participants suspected by the end of the first trial that they would not achieve the bonus associated with a difficult goal, they lowered personal goals and self-efficacy and performance suffered as a result.

Research has also examined the personal and contextual factors that influence self-efficacy and that lead to high personal goals. Phillips and Gully (1997) investigated college students' self-efficacy and their personal goals for performance on an upcoming midterm exam. Using Button, Mathieu, and Zajac's (1996) measures of learning and performance orientation, Phillips and Gully (1997) suggested that a performance orientation (i.e., an orientation in which people strive to demonstrate competence) would be associated with lower self-efficacy whereas a learning orientation (i.e., an orientation in which people strive to learn something new) would be associated with higher self-efficacy. Consistent with this, ability, learning orientation, and an internal locus of control were positively associated with self-efficacy, whereas a performance orientation was negatively associated with self-efficacy.

Johnson, Turban, Pieper, and Ng (1996) found that performance feedback (information about the actual quantity completed) influenced self-efficacy and personal goals of college students doing word search problems, but normative feedback (information about performance relative to others) had no effect on these variables. Mathieu and Button (1992) examined the simultaneous effects of normative information (information about prior students' performance) and self-

efficacy on college students' personal goals for multiple trials of a Scrabble-type word task. Self-efficacy was more influential than normative information on personal goals in the first trial and remained influential in the second trial, whereas normative information was more influential on personal goals in the second trial than in the first. Earley and Erez (1991) examined the relative effects of normative information and assigned goals on students' self-efficacy, personal goals, and performance on an arithmetic task. Their results provide evidence of a recency effect, such that the strongest influence on self-efficacy, personal goals, and performance was the manipulation (normative information or assigned goals) that occurred immediately prior to task performance.

Phillips, Hollenbeck, and Ilgen (1996) examined when individuals would be motivated to set personal goals that were higher than past performance. College students set personal goals for four different tasks over five trials. Positively discrepant personal goals were quite common, occurring over 50% of the time across tasks and trials. Two kinds of positive discrepancy were identified: Low ability students sometimes maintained high personal goals without adjusting downward for performance, and high need for achievement students sometimes set high personal goals that were inconsistent with previous performance.

In addition to self-efficacy, self-esteem might be expected to influence personal goals, although Pilegge and Holtz (1997) suggest that high self-esteem individuals would be uninterested in investing effort in the uninvolving tasks traditionally studied in goal-setting research. They found that high self-esteem college students did set higher goals for a brainstorming task when students identified with their coworkers, whereas the goals set by low self-esteem students were not influenced by social identity. Tang and Sarsfield-Baldwin (1991) found that student self-esteem had no effect on the personal goals students set for performing an anagram task. However, on the second of two trials, self-esteem was associated with student self-efficacy for the task.

One of the difficulties in using self-set goals is encouraging people to set challenging goals. Hinsz et al. (1997) found that presenting college students with an arbitrary high anchor during instructions resulted in much higher self-set goals (and correspondingly higher performance) than a self-set condition with no anchor, with the same level of self-reported goal commitment. Wright (1990b) speculated that college students performing a class scheduling task would be more likely to self-set goals, and self-set higher goals, under contingent (piece-rate and bonus) incentive systems than under noncontingent (hourly and no-pay) incentive systems. However, the type of incentive system had no impact on students' likelihood of engaging in spontaneous goal-setting or on the level of self-set goals.

Boundary conditions. A number of studies examined situations in which the accepted relationship between goals and performance was not observed. First, research suggests that goals can narrow an individual's focus to perform only behaviors directly associated with goal attainment, at the cost of other desirable behaviors. Staw and Boettger (1990) found that students who were given the specific goal of improving the grammar of a recruiting brochure were less likely to correct errors in the brochure's content than subjects who were given a general goal. However, students who were explicitly given a goal of improving the

brochure content made more changes than students with a general goal and students with a grammar goal. Similarly, Wright, George, Farnsworth, and McMahan (1993) found that college students were less likely to help a coworker perform an order processing task when students were highly committed to difficult performance goals.

Second, research suggests that multiple goals can sometimes cause individuals to experience conflict, and sacrifice performance on one goal to meet a second goal. Gilliland and Landis (1992) looked at the trade-off between quantity and quality goals assigned to college students selecting stocks for investment. A difficult quantity goal was consistently associated with more portfolios being processed. However, when subjects performed a difficult task (one in which the "good" stock was hard to identify) and were unable to meet both quantity and quality goals, students neglected the quality goal and maximized quantity. Locke, Smith, Erez, Chah, and Schaffer (1994) also examined the tradeoff between quantity and quality goals among students assembling complex models and found students' experienced-goal conflict was negatively associated with quantity of production. Unconflicted-quantity goals resulted in the highest quantity and the lowest quality, and unconflicted-quality goals were associated with lower quantity and higher quality, although these means were not significantly different from goal-conflict conditions. Locke et al. (1994) found that faculty members' experience of research pressure was associated with goal conflict, and goal conflict was in turn associated with lower research productivity. However, at the same time, pressure was associated with making research a priority and using research strategies, and these two variables were positively associated with research productivity. Kernan and Lord (1990) assigned college students difficult goals on multiple tasks. Under high valence conditions (goal attainment would result in a lottery ticket), college students gave a higher priority to the task most likely to lead to a positive outcome (i.e., the task with the lowest performance-goal discrepancy on earlier trials).

Third, research suggests that difficult goals do not always result in higher performance on complex tasks, inspiring researchers to examine factors that might make goal-setting effective for these tasks. Mone and Shalley (1995) found that "do your best" goals led to higher quantity of performance than specific difficult goals on a complex task, whereas specific difficult goals led to higher quantity of performance on a simpler version of the same task. Kanfer, Ackerman, Murtha, Dugdale, and Nelson (1994) suggested that goal-setting activities require cognitive resources, and spaced practice on a complex task would provide intervals for goal-setting activities without "stealing" attentional resources away from task performance. College students who performed a complex air-traffic controller task in a massed practice session (only 15 second intervals separating trials from one another) had worse performance under difficult goals than under "do your best" goals. But students who performed the task in a spaced practice session (4 minute intervals separating trials from one another) had better performance under difficult goals than under "do your best" goals.

However, DeShon, Brown, and Greenis (1996) found little evidence that goal-setting activities require substantial cognitive resources. When college stu-

dents simultaneously performed a primary (manual tracking) and a secondary (letter memorization) task, the difficulty of the assigned goal on the primary task was associated with higher performance on the primary task. But there were no differences in performance on the secondary task as a result of goal difficulty. Therefore, there was no evidence that the self-regulatory processes "stole" attentional resources from either task. As an alternative to the idea that goal-setting deflects cognitive resources from performance on a complex task, DeShon and Alexander (1996) proposed that goal-setting may incorrectly "frame" the requirements of complex tasks. Instead of relying on intuitive or heuristic processes, goal-setting may lead individuals to adopt less effective, explicit learning strategies. DeShon and Alexander demonstrated that the performance of students working on a complex stock market prediction task was unaffected by goal difficulty. However, when the task required all participants to engage in explicit learning (by requiring participants to "think aloud" as they performed the task), specific, difficult goals resulted in higher performance than "do your best" goals.

Research accomplishments. Goal-setting continued to be a very active area of research during the 1990s. The straightforward application of goal-setting principles is a major strength, particularly as the effectiveness of goal-setting is demonstrated on complex tasks and in field settings. Also, the integration of personal variables such as self-efficacy, self-esteem, and conscientiousness with goal-setting will be useful in predicting whether goal-setting is likely to be effective for particular individuals.

Research challenges. As goal-setting research continues to identify boundary conditions and to place a greater emphasis on within-person variables (e.g., personal goals, goal commitment), the parsimony of goal-setting theory is threatened. Most studies use some combination of a standard set of variables (e.g., goal specificity, goal difficulty, goal acceptance, goal commitment, feedback, self-set goals, task complexity). However, the operationalization of the variables, the subset of variables examined, and the predicted (and tested) relationships (mediators vs. moderators) are rarely the same, making comparisons across studies extremely difficult. As a result, it is somewhat difficult to draw firm conclusions about theory advancements resulting from goal-setting research published in the 1990s.

Cognitive Evaluation Theory

Deci (1971) developed Cognitive Evaluation Theory (CET) and suggested that there are two motivational subsystems: an extrinsic subsystem and an intrinsic subsystem. He hypothesized that intrinsically motivated persons have an "internal locus of causality." That is, intrinsically motivated individuals attribute the cause of their behavior to internal needs and perform behaviors for intrinsic rewards and satisfaction. However, aspects of the situation (e.g., the reward system, the feedback system) in which the behavior is performed may lead the individual to question the true causes of his or her behavior. If these individuals attribute their behavior to the situational factors, the shift from internal causes to external causes results in a decrease in intrinsic motivation (Deci & Ryan, 1980).

CET emphasizes that situational variables are only problematic if they are perceived by the person as "controlling" his or her behavior. Feedback from an external source is expected to lower intrinsic motivation if it is perceived by the individual as "controlling," but not if it is perceived to be "competence" feedback. Following the logic of CET, people should be most intrinsically motivated in work environments that minimize attributions of their behavior to "controlling" external factors. Further, Deci and Ryan (1980) emphasize that the shift between motivational subsystems operates in both directions, and creating situations that encourage people to see themselves as competent (e.g., by providing praise and positive feedback) will increase intrinsic motivation.

CET produced a boom of research during the 1970s and 1980s, and several meta-analyses have examined the effect of extrinsic rewards on intrinsic motivation during this time period (Cameron & Pierce, 1994; Rummel & Feinberg, 1988; Tang & Hall, 1995; Wiersema, 1992). Although Rummel and Feinberg (1988) collapsed across different operationalizations of intrinsic motivation (persistence on a task during a "free choice" period and self-reported interest or liking for the task), the other meta-analyses examined the effect of rewards on alternative operationalizations. The meta-analyses consistently show that that there is a negative effect of rewards on persistence during a "free choice" period (Cameron & Pierce, 1994; Tang & Hall, 1995; Wiersema, 1992), especially when those rewards are expected and not tied to specific performance standards (Cameron & Pierce, 1994; Tang & Hall, 1995). Unexpected rewards had no detrimental effects on time spent during free choice (Cameron & Pierce, 1994; Tang & Hall, 1995).

Unfortunately, although the meta-analytic results are somewhat consistent with respect to free choice behavior, other operationalizations of intrinsic motivation fare less well. Wiersema (1992) found that task-contingent and performance-contingent extrinsic rewards had no effect on task performance during the reward period. Tang and Hall (1995) report a negative effect of task-completion rewards on attitude measures drawn from a variety of questionnaire ratings. However, using a more narrow definition of "task interest," Cameron and Pierce (1994) found no effect.

In addition, the meta-analyses reach different conclusions regarding the effects of performance-contingent rewards. Cameron and Pierce (1994) report no significant effect on the free choice measure when rewards are contingent on performance, whereas Tang and Hall (1995) report a negative effect.

Athough there has been less attention paid to the effects of praise and positive feedback on intrinsic motivation, Cameron and Pierce (1994) conclude that subjects rewarded with verbal praise or positive feedback show significantly greater intrinsic motivation than nonrewarded subjects, as manifested by both behavior during a "free choice" period and attitude measures. This finding is consistent with CET because verbal rewards provide informational value to a person about his or her competence on the task.

During the 1990s, the organizational research addressing predictions of CET appeared to level off. Although the organizational literature continued to debate the merits of CET and its implications for financial rewards in organizations (Frey, 1997; Kristjánsson, 1993; Snelders & Lea, 1996), we identified a limited

number of articles applying CET to work motivation. In contrast, CET research is alive and well in diverse areas, such as consumer behavior (Graham, 1994), education (Vallerand, Gagné, Senécal, & Pelletier, 1994), control of addictive behaviors (McBride, Curry, Stephens, Wells, Roffman, & Hawkins, 1994), health (Dwyer, 1995), and sport psychology (Duda, Chi, Newton, Walling, & Catley, 1995).

Although not directly testing CET predictions, two studies used the concept of intrinsic motivation to discuss motivation in organizations. Thompson and Bono (1993) used intrinsic motivation factors such as empowerment, meaning, and social integration to understand how volunteer firefighters maintained their motivation. Daley (1997) demonstrated that a supervisor's ability to provide intrinsic rewards (recognition) was related to subordinate evaluations of supervisor effectiveness.

CET postulates that intrinsic motivation mediates the effect of external factors on employee behavior. Only one study directly tested this mediational effect (Jussim, Soffin, Brown, Ley, & Kohlhepp, 1992, Study 3). College students first completed an anagram task and received feedback from a confederate "teacher" who evaluated their ability and effort on the task as either high or low. Following the feedback, students self-appraised their ability and effort and reported their liking for solving anagrams. The students then performed a second anagram task and reported their interest in continuing to solve anagrams. Thus, this study was able to examine the mediating effect of intrinsic motivation (measured by liking for the anagram task) on three different outcome measures: (1) performance on the second anagram task; (2) persistence on the second anagram task; and (3) self-reported interest in continuing to solve anagrams. Jussim et al. (1992) used causal modeling to demonstrate that the feedback influenced students' feelings of competence (measured by the ability and effort self-appraisals). These self-appraisals were associated with liking for anagrams, and liking in turn influenced performance on the second anagram task, persistence on the second task, score on the second task, and self-reported interest in continuing to solve anagrams.

During the period covered by this review, researchers have examined the influence of feedback, surveillance, external influence attempts, monetary rewards, and work/play task signals on intrinsic motivation.

Feedback and motivation orientation. Three studies examined how feedback interacted with motivation orientation to affect intrinsic motivation, with mixed results. Rummel and Feinberg (1990) found that female college students with a general intrinsic task orientation spent less time solving Soma puzzles during a free choice period when they received controlling ("It is important that you perform well since we are paying you to do this task"), rather than competence ("It is good to see that we are paying someone who is competent at this task") feedback. In contrast, students with an extrinsic orientation spent more time on the puzzles when they received controlling feedback. Rummel and Feinberg (1990) concluded that their results were more consistent with a reinforcement perspective than a CET perspective because intrinsic motivation was highest

when the students received feedback that was consistent with expectations based on their motivation orientations.

In a field experiment examining performance in a microprocessor training course, Martocchio and Webster (1992) examined the interactive effects of feedback sign (positive or negative) and a measure of motivation orientation they described as "cognitive playfulness in human-computer interactions." Feedback sign had a greater influence on the performance of less cognitively playful trainees than on more cognitively playful trainees. Martocchio and Webster (1992) suggested that individuals with a playful orientation are already intrinsically motivated, and approach computer training with a more spontaneous and imaginative style that encourages skill development. Therefore, positive feedback may be a more effective external source of motivation for less cognitively playful individuals than for more cognitively playful individuals. However, Martocchio and Webster noted that the feedback provided to their trainees was always constructive—the negative feedback was attributed to external factors, and the positive feedback was attributed to internal factors. Therefore, none of their trainees received feedback that would be likely to be perceived as controlling.

Surveillance. Enzle and Anderson (1993) found that college students spent less time playing with Legos during a free choice period when they had previously been monitored by an observer with a controlling purpose (i.e., performance evaluation, distrust) than when they had not been monitored, or when they had been monitored by an observer with a noncontrolling purpose (i.e., incidental purpose, personal interest). Unexpectedly, students who had been monitored by an observer who did not explain his purpose had intrinsic motivation as low as that of students in the controlling conditions. As a result, Enzle and Anderson (1993) conducted a second study contrasting a "no explanation" condition with conditions in which performance evaluation, distrust, or both were presented as reasons for the observer's surveillance. Intrinsic motivation in the "no explanation" condition was as low as intrinsic motivation in the double-controlling—performance evaluation plus distrust—condition.

External influence. Dahlstrom and Boyle (1994) used CET to predict the effect of vendors' influence attempts on the intrinsic motivation of mainframe computer users. Vendors' use of "controlling" influence strategies (e.g., threatening poorer service if the user didn't buy products from the vendor) was negatively associated with user intrinsic motivation (measured by satisfaction with the relationship), whereas the use of "informational" influence strategies (e.g., providing detailed information about product features) was positively associated with intrinsic motivation.

Monetary rewards. Erez, Gopher, and Arzi (1990) examined the joint effects of monetary rewards and goals on the performance of college students who were simultaneously performing two tasks. Self-set goals were expected to enhance intrinsic motivation, whereas monetary rewards were expected to elicit extrinsic motivation. Results suggested that the combination of monetary rewards and self-set goals was generally detrimental to performance. Self-set goals led to the highest performance, but only when the goals were either moderately or very difficult.

Work and play task signals. Glynn (1994) found that MBA students who operated as "production managers performing a Learning Company Exercise" reported less interest in continuing the task than students who operated as "starship captains playing the Word Blaster! Game." Glynn suggests that these differences in motivation resulted from the students' labeling of the task as either "work" (producing an "ends" orientation that reduced intrinsic motivation) or "play" (producing a "means" orientation that increased intrinsic motivation). Similarly, Juniu, Tedrick, and Boyd (1996) found that amateur musicians described rehearsals as leisure and were motivated by intrinsic factors such as pleasure, relaxation, and a sense of self-expression, whereas professional musicians described rehearsals as work and were motivated primarily by remuneration. However, Webster and Martocchio (1993) found that labeling a software training task "play" increased motivation to learn and performance on a test of software knowledge only for younger employees.

Research accomplishments. CET provides a very strong theoretical definition of motivation, but previous research has operationalized CET predictions in different ways, sometimes emphasizing time spent on a task and sometimes emphasizing task performance or reported interest in the task. Meta-analyses and mediational tests are beginning to clarify the relationship between motivational measures and subsequent performance. In addition, CET is beginning to integrate individual measures (e.g., motivation orientation) with contextual variables (e.g., feedback) that influence motivation. This research might be useful in distinguishing between initial motivation levels (resulting from dispositional variables) and changes in motivation levels (resulting from contextual variables).

Research challenges. The decline in organizational CET research is unfortunate, since the organizational literature is increasingly emphasizing strong cultures and employee empowerment. These organizational strategies might be expected to reduce the amount of "controlling" policies experienced by employees and increase intrinsic motivation. Unfortunately, there is no CET research addressing these issues in field settings.

Work Design

There was substantial interest from researchers and practitioners in work design during the 1990s. A survey of 181 senior human resource professionals reports that work design in the U.S. is perceived as having scale, scope, and commitment and experiencing success (McCann & Buckner, 1994). Empirical research on work design has primarily focused on Hackman and Oldham's (1976, 1980) Job Characteristics Theory (JCT).[1] JCT emphasizes the importance of five job characteristics (skill variety, task identity, task significance, feedback, and autonomy) in evoking psychological states that result in positive individual and organizational outcomes (e.g., high job satisfaction). The bulk of this research appears early in the 1990s. Of the seventeen articles we identified, 82.4% of articles (14) were published in 1990–1992, and 17.6% (3) were published in 1993–1997. The articles we review can be broadly categorized into three areas: explicit tests of the model, applications of the theory, and extensions of the theory.

Explicit tests of the model. JCT generated over 200 studies during the 1970s and 1980s (Fried & Ferris, 1987). Several reviews and meta-analyses have attempted to synthesize these results (Fried & Ferris, 1987; Griffin & McMahan, 1994; Taber and Taylor, 1990; Wall & Martin, 1994). Fried and Ferris (1987) provide a comprehensive review and meta-analysis of relevant research on JCT. They conclude that: (1) job characteristics are related to both psychological and behavioral outcomes; (2) the critical psychological states mediate the role between job characteristics and outcomes; and (3) growth need strength (GNS) moderates the relationship between job characteristics and performance. However, Fried and Ferris also note that: (1) the correlations between job characteristics and the psychological states were less supportive of the model; and (2) although the results support the multidimensionality of job characteristics, there was no agreement on the exact number of dimensions.

During the 1990s, research continued to provide explicit tests of JCT. Several of these studies examine the mediating (psychological states) and moderating (GNS, knowledge and ability, context satisfactions) relationships identified by the theory.

Job characteristics. Although there is little research during the 1990s focusing primarily on the measurement of job characteristics, three studies addressed this issue. Spector and Jex (1991) compared the use of incumbents' reports of job characteristics (the measure typically used in JCT research), ratings from job descriptions, and the *Dictionary of Occupational Titles*. They reported only modest correlations between incumbent ratings and the other sources. Moreover, only incumbent ratings correlated significantly with a number of outcome variables (e.g., job satisfaction, turnover intentions). Spector and Jex (1991) concluded that incumbent ratings alone cannot be used to thoroughly test JCT. They recommended more research examine objective ratings of job characteristics to investigate why their relationship with employee outcomes differs so greatly from incumbents' subjective ratings.

However, the second study suggests objective characteristics may affect outcomes. Dodd and Ganster (1996) examined the interactive relationship between the job characteristics of feedback, autonomy, and variety by manipulating the characteristics in the lab. Both perceptions of job characteristics and objective manipulations affected satisfaction. Additionally, objective variety and objective autonomy interacted to affect satisfaction and performance. Objective feedback and objective autonomy also interacted to affect performance.

The third study by Fried (1991) focused on the instruments used most often to assess incumbents' perceptions of job characteristics—the Job Diagnostic Survey (JDS, Hackman & Oldham, 1975) and the Job Characteristics Inventory (JCI, Sims, Szilagyi, & Keller, 1976). Fried (1991) used meta-analysis to compare the relationships of the corresponding scales of the JDS and the JCI with work satisfaction and performance. He reported that the task identity and feedback scales from the two instruments demonstrated similar relationships with satisfaction and performance. There was also convergence between the autonomy scales for performance and the skill variety scales for satisfaction. However, the autonomy scales and variety scales demonstrated different relationships with satisfac-

tion and performance (respectively). Fried (1991) noted that these differences must be considered when drawing conclusions for narrative or meta-analytic reviews.

Moderating effects. Although there were several meta-analyses that examined the effect of GNS during the 1980s (Fried & Ferris, 1987; Loher, Noe, Moeller, & Fitzgerald, 1985; Spector, 1985), a clear picture has yet to emerge. Research on GNS in the 1990s tried to overcome some of the limitations of earlier work (reviewed in the meta-analyses). For example, Champoux (1991) noted that the relationships identified by JCT are multivariate. Thus, he conducted multivariate tests of the model using canonical correlation analysis and hierarchical multiple regression. His results were generally supportive of the theorized relationship that GNS moderates the relationship between the core job characteristics and the critical psychological states, and between the critical psychological states and affective responses. Indeed, Champoux (1991) reported that not only do individuals who are high in GNS respond more positively when job characteristics or psychological states increase, but those low in GNS respond more negatively to such increases.

Evans and Ondrack (1991) examined the moderating effect of GNS using both additive and multiplicative formulations of motivating potential score (MPS). They found that the best formula for predicting overall satisfaction and satisfaction with work itself was a simple additive model. This formula showed a small, but significant, interaction with GNS. No such interaction occurred for the multiplicative formula.

Johns, Xie, and Fang (1992) noted that most previous research on GNS relied on subgroup correlational analysis—not the most appropriate test for interaction effects. In a study of utility company managers, Johns et al. (1992) reported moderator effects due to GNS, context satisfaction, knowledge/skills, and performance-reward contingencies. However, the GNS effects were modest at best and only some of the other effects were as predicted by the model. For example, less educated managers were more sensitive to the psychological states; managers lower on security and social satisfaction reported that higher scope jobs created more positive psychological states. Contrary to Champoux's conclusions, Johns et al. (1992) suggested an unmoderated model is most appropriate.

A third study by Tiegs, Tetrick, and Fried (1992) also examined the moderator effects of GNS and context satisfactions. Tiegs et al. (1992) evaluated the responses of 6405 employees in various jobs and occupations and found no support for the moderating effects of either GNS or context satisfactions.

Finally, Champoux (1992) tested the hypothesis that job complexity and affective outcomes are curvilinearly related, and that both GNS and context satisfactions interact with this curvilinear effect. Champoux (1992) concluded the addition of a curvilinear effect of job scope to JCT is warranted, although the moderating effects of GNS and context satisfactions on this relationship are complicated.

Mediating effects. Several of the studies listed above also examined the mediating effect of the three critical psychological states. Champoux (1991) found support for the relationship between the core job characteristics and psychological

states, and between the psychological states and affective outcomes (moderated by GNS). However, he did not directly test if the psychological states fully mediated the relationship between job characteristics and affective outcomes. Johns et al. (1992) explicitly examined the mediating role of the psychological states and found it met Baron and Kenny's (1986) criteria for "perfect mediation." Renn and Vandenberg (1995) also examined the mediating role of the critical psychological states and concluded that the psychological states are only partial mediators of job characteristic effects.

Applications of the theory. Five studies report relatively straightforward applications of Hackman and Oldham's model. The primary conclusion of these articles is that perceptions of job characteristics affect attitudinal and behavioral outcomes. Several studies assessed the impact of new technology on job characteristics. For example, Wall, Corbett, Martin, Clegg, and Jackson (1990) examined the effect of two alternative implementations of advanced manufacturing technology: (1) specialist control; and (2) operator control. In the specialist control system, operators have minimal involvement. They are primarily responsible for loading, monitoring, and unloading the machine and alerting a specialist (usually an engineer) in the event of a malfunction. In the operator control system, the operators assume responsibility for maintenance and programming in addition to their other tasks. Thus, this latter system increases the operator's autonomy, skill variety, task identity, and task significance. Additionally, it allows control of machine-generated performance variance at the source. As predicted, Wall et al. (1990) report increased performance (for high variance systems), increased intrinsic job satisfaction, and decreased job pressure under the operator control implementation.

In an examination of similar technology, Adler (1991) evaluated the effect of three flexible manufacturing systems. He found that systems in which employees reported higher perceptions of skill variety, task significance, autonomy, and feedback reported higher levels of satisfaction and internal work motivation (and in one installation, higher efficiency).[2]

A study by Shafer, Tepper, Meredith, and Marsh (1995) suggested that cellular manufacturing has both positive and negative effects on employee job attitudes. Job characteristics positively mediated the relationship between cellular manufacturing and employee attitudes. However, there was also a direct negative effect of cellular manufacturing on job attitudes.

Griffin (1991) conducted a longitudinal study of technology-based work redesign for bank tellers. Griffin's work is notable for the length of study (4 years) and the change in attitudinal and performance measures during that time. Consistent with much work redesign research, Griffin found that attitudes improved six-months following redesign, although there was not a simultaneous change in performance. However, at 24 months and 48 months, Griffin reports attitudes returned to their original level and performance significantly improved. This change in performance over time is consistent with the results of Wall et al. (1990).

Finally, Kelly (1992) evaluates thirty-one case studies on JCT. His conclusions are not consistent with the three studies listed above. He concluded that

when job redesign leads to perceptions of improved job content, employees generally experience higher levels of job satisfaction. However, changes in attitudes are generally not related to higher levels of work performance. He proposes a "twin-track" model and suggests that the determinants of performance are different from the determinants of satisfaction.

Extensions of the theory. The final set of studies in this area extends job design research in new directions. Wong and Campion (1991) noted that although Hackman and Oldham (1980) provide some general principles about how to design motivating jobs (e.g., form natural work units), very little is known about how the specific combination of tasks affects job motivation. Wong and Campion (1991) examined how the motivational values of task combinations are related to the motivational values of jobs [i.e., relating the parts (tasks) to the whole (jobs)]. They investigated how the motivational values of tasks, task interdependence, and task similarity affected job design. They found that motivational task design was positively related to motivational job design. Task interdependence demonstrated an inverted-U relationship with motivational job design: jobs with medium task interdependence had higher motivational values than jobs with low or high task interdependence. The effect of task similarity was small and mixed and did not contribute significant incremental variance to motivational job design. Finally, their results showed that motivational job design mediated the relationship between motivational task design and affective outcome variables.

Oldham, Kulik, and Stepina (1991) were interested in variables that intervene between job complexity and work outcomes. They considered the interactive effects of physical environment and the individual difference, stimulus screening, and job complexity on satisfaction and performance. Like Spector and Jex (1991), Oldham et al. (1991) used the *Dictionary of Occupational Titles* to derive job complexity scores. They found employees had the lowest performance and satisfaction when their jobs were low in complexity, their screening skills were weak, and they worked in dense areas (few enclosures or close to other employees).

Yeh (1995) examined the effect of leadership style on perceptions of job characteristics, whereas Humphrey and Berthiaume (1993) examined the effect of job characteristics on perceptions of leaders. Yeh found that individuals rated skill variety, task significance, and autonomy higher when they had supportive (vs. task oriented) leaders. Humphrey and Berthiaume found that the relative task complexity of the leaders' job affected subordinates' perceptions. Specifically, supervisors whose tasks were more complex than their subordinates' tasks received more favorable ratings than those whose tasks were less complex than their subordinates' were.

Finally, Campion and McClelland (1991) examined the costs and benefits of job enlargement. They noted that most research on job design uses a motivational approach to evaluated outcomes—focusing on benefits like satisfaction and motivation. However, Campion and McClelland noted the relevance of three other approaches: mechanistic (focusing on efficiencies), biological (focusing on benefits of physical comfort and health), and perceptual-motor (focusing on reliability and usability). They suggested that enlarged jobs will be higher on motivational

attributes, but lower on mechanistic and perceptual-motor. Their results generally supported these predictions. However, unexpectedly, motivational job design was positively related to efficiency and negatively related to work space. (This effect is consistent with Oldham et al., 1991.) Campion and McClelland concluded that a broader consideration of costs and benefits should be included when implementing job design.

Research accomplishments. Research on job design remained active during the early 1990s. A continued strength in the area is the use of field settings. Although some of this work focuses on simple applications of JCT, most of the work reflects specific tests of the model or theoretical extensions. The applications of the model generally find support for its predictions regarding employee attitudes and behaviors, and tests of the theory provide consistent support for the mediating effect of the critical psychological states. However, effects for GNS remain inconclusive, with the bulk of the research suggesting an unmoderated model is best. Extensions of the model consider contextual variables such as the physical environment in which work is performed and the source of job characteristic ratings. Overall, JCT continues to receive support and provides a useful framework for job design.

Research challenges. The success of JCT research also reflects its challenge. There has been little research on JCT since 1993, and this decline in research may be appropriate. After twenty years of research, a clear picture of the psychological and behavioral effects of job design has emerged. It is notable that most of the field studies during the 1990s focused on work that was impacted by technology. The impact of technology provides a fruitful area for future empirical investigation and theory development. Future research should continue to emphasize contextual variables (e.g., the physical environment, group settings, salary structures) that might influence the effectiveness of design efforts. In addition, research should continue to explore the possible economic and efficiency tradeoffs that result from designing jobs following JCT principles.

Reinforcement Theory

Reinforcement theory emphasizes the relationship between behavior and its consequences (Rogers & Skinner, 1956; Skinner, 1969). Within the field of organizational behavior, the most systematic efforts to apply reinforcement theory principles have used the OBMod paradigm (Luthans & Kreitner, 1975, 1985). The OBMod paradigm describes a systematic framework within which employee behaviors are identified, measured, and analyzed in terms of their functional consequences (i.e., existing reinforcements). Then, an intervention is developed and applied, and post-intervention behaviors are measured. Andrasik (1989) reported enthusiastically in 1979 on the effectiveness of OBMod interventions in 20 applications. Although not all the studies reported quantitative cost savings, those that did reported extremely favorable cost-benefit returns. More recently, Stajkovic and Luthans (1997) conducted a meta-analysis of OBMod studies published from 1975 to 1995. The analysis indicated that the average person in an OBMod control group would exhibit a 17% improvement in performance after an OBMod intervention. However, the meta-analysis also indicated that performance

improvements were generally larger for interventions introduced in manufacturing settings rather than in service settings.

The literature on employee compensation and benefits frequently discusses employee motivation as an organizational goal (Frank, 1990; Hong, Yang, Wang, Chiou, Sun, & Huang, 1995; Pierce & Furo, 1990; Welbourne & Gomez Mejia, 1995). However, although the possible motivational effects of incentive systems such as gainsharing (Welbourne & Gomez Mejia, 1995), employee benefits (Hong et al., 1995), employee stock ownership plans (Pierce & Furo, 1990), and individual-level bonuses (Frank, 1990) have received theoretical and practitioner attention, we found few empirical studies examining these systems in the 1990s motivational literature. Although reinforcement theories would appear to be a natural source of testable hypotheses, Welbourne and Gomez Mejia (1995) point out that most of the empirical research on incentive systems tends to be atheoretical. However, there were several notable exceptions to this trend, which we describe below. Finally, there was increased attention during the 1990s to organizational punishment.

Reinforcement effects. Welsh, Luthans, and Sommer (1993a) found that providing contingent extrinsic rewards (e.g., soap, clothing, music tapes) or contingent supervisor praise improved productivity among Russian weaving mill employees, but an employee participation program did not. In another study at the same mill, Welsh, Luthans, and Sommer (1993b) found that functional behaviors (e.g., checking looms, helping coworkers) increased and dysfunctional behaviors (e.g., being idle, having dirty hands) decreased during an intervention period when supervisors administered contingent social rewards (attention and praise) and positive feedback. However, contrary to OBMod predictions, no behavior reversal was observed when the supervisors ceased the reinforcement. Welsh et al. (1993b) suggest that the positive behavior of the weaving employees may have been maintained by coworkers in the setting who continued to provide positive social reinforcement.

Sama, Kopelman, and Manning (1994) found that making performance feedback available to transcription service employees increased production levels by 18.5% over a five-week period, even though employees were already exceeding the industry production norms by more than 200% before the feedback system was introduced. Luthans (1991) found that, in comparison with a control group, bank employees provided better customer service when their supervisors administered immediate, positive, specific, graphic feedback about service performance. However, Waldersee and Luthans (1994) contrasted the effectiveness of positive and corrective feedback in improving customer service performance of fast food workers and found that employees who received positive feedback improved significantly less than employees who received corrective feedback and employees in a control group.

Makin and Hoyle (1993) report on the use of the Premack Principle to motivate four professional engineers. The Premack Principle describes a reinforcement strategy in which more desirable job activities are used to reward individuals for performing less desirable activities. By systematically applying the Premack Principle, Makin and Hoyle (1993) improved the engineers' productivity

between 73 and 270%. Welsh, Bernstein, and Luthans (1992) used the Premack Principle to improve the performance of fast food employees by rewarding performance at a targeted workstation with work time at the employee's favorite workstation.

Puffer and Meindl (1992) examined supervisor efforts to motivate volunteers at the United Way. They describe two alternative models: (1) a congruence model, in which motivation results when individuals receive incentives that are matched to their personal motives (e.g., an individual with affiliative motives is invited to participate in social activities); and (2) an incongruence model, in which motivation results when an organization de-emphasizes individual motives by providing incentives consistent with the organizational culture (e.g., an organization provides feedback that they are working for a "good cause" when the individual is more concerned about career advancement). Results indicated that the congruence model was supported for volunteer attitudes, but the incongruence model was supported for volunteer performance.

Facteau, Dobbins, Russell, Ladd, and Kudisch (1995) found that trainees' perceptions of intrinsic incentives were positively associated with pretraining motivation, but perceptions of extrinsic incentives were not.

Incentive systems. Four studies reported on individual-level incentive systems. Oah and Dickinson (1992) compared the effects of a linear piece-rate system (in which an incentive was paid for each piece produced beyond a performance standard) and an exponential system (in which the amount of the incentive increased as productivity increased) on college students' performance at a proof operator task. Students working under the two incentive schemes displayed the same productivity, although students working under the exponential scheme earned more money. Frisch and Dickinson (1990) examined the effects of incentive schemes varying the percentage of incentive pay to base pay (0% - no incentives, 10%, 30%, 60% or 100%). College students assembling parts made from bolts, nuts, and washers demonstrated significantly greater productivity when they received incentives. However, the productivity of students in the different incentive groups did not differ significantly. Dickinson and Gillette (1993) compared a piece-rate system in which 100% of pay was incentive-based with a base pay plus incentive program. College students entered numbers into a database using a numerical keypad. No systematic relationship emerged between productivity and two pay systems, leading Dickinson and Gillette (1993) to conclude that the presence of a reward contingency, and not the magnitude of the contingency, is the critical determinant of productivity. Banker, Lee, Potter, and Srinivasan (1996) found that a sales-based bonus program for salespeople had the most positive effects on organizational performance in stores that faced intense competition from other retailers and served a larger proportion of upscale customers. In addition, the bonus program eventually displaced the amount of supervisory monitoring necessary to maintain salesperson performance.

Two studies examined the motivational effects of gainsharing plans. Hatcher and Ross (1991) studied a manufacturing plant's change from an individual incentive system to a gainsharing plan and found that employees reported an increased sense of teamwork and concern for performance after the change. In

addition, the number of grievances filed and the percentage of defective products declined as a result of the change. Gowen and Jennings (1991) conducted a longitudinal analysis of the first twenty-nine months of a gainsharing program that progressed from a group plan to a plantwide plan, and from a nonparticipative plan to a participative plan. Although the change to a plantwide plan had little overall impact, the introduction of participation into the plan had significant effects on productivity gain and scrap rate reduction.

Three studies examined the effects of combining goals, feedback, and monetary bonuses on performance. LaFleur and Hyten (1995) found that the quality of performance of hotel banquet staff improved when staff members received monthly bonuses based on their ability to meet accuracy and timeliness goals in setting up banquet functions. Performance decreased when the intervention was discontinued, and returned to a high level when the intervention was reintroduced. Austin, Kessler, Riccobono, and Bailey (1996, Study 1) found that a combination of goals, feedback, and monetary reinforcements improved roofer performance and reduced labor costs. Finally, using the same roofers, Austin et al. (1996, Study 2) increased safety compliance by giving the roofers the opportunity to earn time off with pay if they achieved safety goals.

Punishment effects. Managers punish employees in an effort to produce behavior change, although other reasons may also exist (Butterfield, Trevino, & Ball, 1996). Research suggests that characteristics of punishment influence its effectiveness in producing behavioral change. Ball, Trevino, and Sims (1994) studied supervisor-subordinate dyads who had recently been involved in a punishment event and found that punishment that was perceived by employees as inappropriately harsh resulted in a decline in the employee's performance. Employees who had more control over disciplinary procedures and over the actual punishment were perceived by supervisors as engaging in more organizational citizenship behaviors. Punishment also influences other employees who know about the punishment event. Trevino and Ball (1992) found that MBA students who learned about a punishment episode during an in-basket exercise generally perceived punishment as most just when the wrongdoer received a harsh punishment, although the impact on MBA behavior was not directly assessed.

Schnake and Dumler (1990) examined the joint effects of a vicarious punishment event and negative social cues on college students' performance on a coding task. Students who witnessed a coworker being punished for poor performance reported lower intrinsic motivation. However, vicarious punishment appeared to offset the detrimental effects of negative social cues (e.g., "this task is boring") on performance. Students who witnessed a punishment event did not suffer a decline in performance as a result of exposure to negative social cues, whereas students who were exposed to negative social cues but not a punishment event had lower performance.

Two studies examined the effect of punishment on social loafing (i.e., the lower performance of individuals working in groups than those working alone). Schnake (1991) examined the effect of negative cues (coworkers announcing they intend to withhold effort) on social loafing and how punishment and goal-setting mitigate the effect of the negative cues. He found that both vicarious punishment

and goal-setting reduced social loafing. However, goal-setting was more effective at reducing social loafing than punishment. George (1995) examined salespersons' perceptions of supervisory reward and punishment behavior and supervisor's ratings of salespersons' social loafing behavior. Contingent supervisory rewards lowered social loafing, and non-contingent supervisory punishment increased loafing, whereas contingent punishment and non-contingent reward had no effects.

Research accomplishments. The primary accomplishment in research on reinforcement theory is the renewed interest in punishment as an influence on employee behavior. The initial research in this area is intriguing, and the area warrants additional attention. A second important accomplishment is the movement of reinforcement theory research away from simple tasks in laboratory settings. Instead, research during the 1990s concentrated on field settings and began to explore international applications.

Research challenges. There has been little systematic research in mainstream organizational behavior journals on the reinforcement effects of various incentive programs. Although there has been substantial interest in these compensation systems (e.g., Scanlon plans), the compensation research has largely proceeded independently of the organizational literature on reinforcement theory. In addition, reinforcement theory has only begun to explore the effects of non-monetary reinforcements (e.g., feedback, praise) in organizational settings.

New Faces: Creativity

One of the new faces seen during the 1990s is the integration of motivation and creativity. Researchers have defined creativity as the production of novel and useful ideas (Amabile, Conti, Coon, Lazenby, & Herron, 1996; Woodman, Sawyer, & Griffin, 1993). Creativity is an individual-level process affected by dispositional and situational variables.[3] As such, individual-level creativity is closely linked to the motivational process and research on creativity has either implicitly or explicitly used motivation as an invisible, internal, hypothetical construct directing employee behavior.

Early research on creativity emphasized dispositional influences, exploring individual personality and problem-solving characteristics that resulted in creativity (Barron, 1966; MacKinnon, 1965). However, recent research suggests that creativity may be a changeable, trainable skill (Basadur, Wakabayashi, & Graen, 1990). During the 1990s, researchers have used traditional motivation theories such as goal-setting (Redmond, Mumford, & Teach, 1993; Shalley, 1995), CET (Oldham & Cummings, 1996; Shalley, 1995), and JCT (Oldham & Cummings, 1996) to examine how a variety of contextual variables influence creativity. We focus on this work below.

Creativity goals. The results of three studies suggest that creativity goals enhance creativity. Shalley (1991) found that the presence of either a specific and difficult creativity goal, or a "do your best" creativity goal enhanced the creativity of college students' solutions to human resource problems. Further, the presence of a creativity goal appeared to compensate for negative effects of low task discretion on creativity. Shalley (1995, Study 2) suggested that the positive effects

of a creativity goal are greatest when individuals with a "do your best" creativity goal work alone and expect their responses to be evaluated. Although CET might predict the effect of an expected evaluation to suppress intrinsic motivation, and therefore creativity, Shalley (1995) argued that the informational (rather than the controlling) component of the evaluation was highlighted in this research since students expected no punishment or retaliation for poor performance. Carson and Carson (1993) found that students who were assigned a creativity goal either alone or jointly with a quantity goal performed more creatively on a verbal fluency task than individuals assigned a quantity goal only. In general, the presence of a creativity goal appears to enhance creativity, but it may do so at the expense of other aspects of performance, including quantitative productivity (Shalley, 1995, Study 2).

Characteristics of the work environment. CET predicts that characteristics of the environment that are perceived as "controlling" are likely to inhibit intrinsic motivation, and hence creativity as well. Therefore, researchers have explored the effects of performance evaluation and supervisory style on creativity. In two studies using very different tasks (one verbal, one artistic), Amabile, Goldfarb, and Brackfield (1990) found that creativity was enhanced when participants did not expect their products to be evaluated. Oldham and Cummings (1996) suggested that complex jobs and supportive, noncontrolling supervision create a working environment that fosters creativity. They found employees were rated as most creative by their supervisors, and wrote the most patent disclosures, when employees had a creative personality, worked on complex jobs, and had supportive and noncontrolling supervision. Similarly, Scott and Bruce (1994) found that high quality relationships (i.e., relationships characterized by support and trust) between employees and their supervisors were positively associated with supervisors' ratings of employee innovative behavior.

Taking a goal-setting perspective, Redmond et al. (1993) examined how variations in leader behavior influenced the quality and originality of advertising campaigns created by college students during a marketing simulation. As students prepared their campaigns, assigned leaders (1) presented students with either high self-efficacy or average self-efficacy information; (2) described the task objective as either performance or learning; and (3) gave problem-construction instructions or not. Marketing executives rated the student campaigns as having the highest quality and originality when leaders had given problem-construction instructions and when leaders had given students high self-efficacy information. Redmond et al. (1993) suggested the improved quality and originality of the campaigns was a consequence of higher student motivation. Problem-construction instructions resulted in students spending more time on campaign development, and high self-efficacy information was associated both with students spending more time on campaign development and writing longer (higher word count) campaigns.

Social context. Since employees frequently perform organizational tasks in the presence of other people, there has been some interest in how the social context influences creativity. West and Anderson (1996) investigated the innovativeness of top management teams in 27 organizations and concluded that the quality of team innovation was determined primarily by group composition, but

the team's overall level of innovation was a consequence of the team's social processes. Larger groups and groups with a higher proportion of innovative individuals generated innovations that were rated as more radical by experts. Members' perceptions of team support for innovativeness was positively associated with expert ratings of the team's overall innovativeness. Similarly, Burningham and West (1995) and Agrell and Gustafson (1994) both found that measures of support for innovation significantly predicted group innovation. The Amabile et al. (1990) research described earlier found no evidence that working in the presence of other people had an effect on creativity, although there was some evidence that other people might have a negative effect on creativity if the people were described as monitoring the performer. Finally, Shalley and Oldham (1997) found mixed results for the effects of competition on creative performance. Consistent with CET, creativity was high in some conditions where the controlling aspects of competition were minimized (e.g., when individuals were in competition with others present but not visible, and when individuals were in competition with absent others and were visible to noncompetitive others). However, CET predictions were not supported in other conditions where the controlling aspects were minimized (e.g., creativity was low when individuals competed with absent others and were not visible to noncompetitive others).

James, Chen, and Goldberg (1992) suggested that the awareness of conflict can boost originality if people are performing tasks in which they are "specialists." James et al. (1992, Study 1) asked employees with either a social or instrumental orientation to write a brief story about two people getting married (i.e., social creativity) and to generate possible uses for a brick (i.e., instrumental creativity). For some participants, James et al. (1992) heightened their awareness of conflict by asking the participants to rate the amount of conflict they experience at work and between work and nonwork before engaging in the creativity tasks. For participants with a heightened awareness of conflict, a social orientation led to more creativity on the social task, whereas an instrumental orientation led to more creativity on the instrumental task. In a second study, minority students with a social orientation generated more creative solutions to a social problem when their awareness of conflict was heightened. Finally, James (1995) asked female college students with either a social or an instrumental orientation to write an essay about either their ideal future career (instrumental goal) or their ideal long-term love relationship (social goal). For some students, a sense of conflict was induced. When students' orientation and essay assignment were consistent with one another (e.g., social orientation writing about social goals), conflict enhanced originality on a subsequent creativity task. However, when students had an instrumental orientation and wrote about their social goals, conflict lowered creativity.

Summary. Research on creativity is a natural extension of earlier research on employee motivation. The same contextual variables that are predicted to foster intrinsic motivation are also associated with creative performance, so organizations can simultaneously influence motivation and creative performance in an effective way. However, the direct mediating influence of intrinsic motivation on creativity was not demonstrated in any of the 1990s research.

Groups and Teams

During the last two decades there has been a shift in organizations toward more group-based work. This shift is reflected in motivation research by increased attention to motivation in group settings. Research in this area generally falls into two categories: the design of work for autonomous work teams, and the effects of group goal-setting. Research on work teams has its foundation in research on work design (and JCT); group goal-setting is an extension of individual goal-setting research.

Work teams. Four studies explicitly examine the effect of job characteristics or work design on the affective and behavioral responses of autonomous work teams. Cordery, Mueller, and Smith (1991) conducted a longitudinal study comparing semi-autonomous work teams and traditionally organized work groups. Semi-autonomous teams reported higher levels of job scope (i.e., characteristics associated with intrinsic job satisfaction) and greater intrinsic satisfaction, extrinsic satisfaction, and organizational commitment. Cordery et al. (1991) also found higher levels of turnover and absenteeism for semi-autonomous teams. They concluded that employees in autonomous work groups report more favorable work attitudes, but they cautioned that the turnover and absence data illustrate some of the pressures associated with establishing autonomous work groups.

Janz, Colquitt, and Noe (1997) investigated the effect of two job characteristics (autonomy and interdependence), team development, and contextual support on the team effectiveness of knowledge workers. They predicted increased interdependence would constrain the positive relationship between autonomy and job motivation. Their results supported this prediction for planning autonomy (e.g., scheduling team activities) and product autonomy (e.g., suggesting new services), but not for people autonomy (e.g., firing team members). Additionally, they found the relationship between job motivation and team process behavior (e.g., innovating, sharing) was more positive for developmentally mature teams. These process behaviors were positively related to team effectiveness, and this relationship was moderated by contextual support variables (clear goals, communication, feedback, and time pressure).

Pearson (1992) utilized JCT as the foundation for a two-year longitudinal study of semi-autonomous work groups in a unionized engineering workshop. After the initial installation of participative work meetings for the semi-autonomous groups, the groups' ratings of role ambiguity and role conflict decreased, and ratings of job satisfaction increased. Although there were no immediate differences in job motivation, productivity, or attendance, by the end of the study these variables were also significantly higher for the semi-autonomous work groups than for the nonautonomous work groups.

The final study on work team motivation examined the impact of member assignment on work motivation. Jin (1993) examined the effect of work group formation on work motivation for work teams in China. In a longitudinal study, Jin (1993) found that voluntarily formed work teams reported higher work motivation, higher cooperative intentions and interpersonal relations, greater work satisfaction, fewer disciplinary problems, and higher quantity and quality perfor-

mance. There were no differences in absenteeism or safety. Jin (1993) suggested these effects stem from an increase in cooperation and self-determination that may affect perceived collective efficacy. Additionally, Jin suggested this opportunity for self-determination may be particularly effective in the context of typical authoritarian Chinese work systems.

Group goal-setting. The sustained interest in group goal-setting began in the late 1980s (Matsui, Kakuyama, & Onglatco, 1987). This research demonstrated that the goal-setting effect was applicable to groups. However, research also demonstrated that there were additional complexities when group goals were set. Most of the research on group goal-setting in the 1990s attempts to identify mediators and moderators of the group goal-setting effect.

O'Leary-Kelly, Martocchio, and Frink (1994) provided a meta-analytic and narrative review of the group goal-setting literature (which includes four studies published in the 1990s). The meta-analysis demonstrated the clear effect of group goals on group performance. The narrative review examined the influence of eight variables on group performance: goal specificity, goal difficulty, goal source, task type, subject type, experimental setting, group type, and time. They reported that specificity and difficulty demonstrated positive effects on group performance. Additionally, both assigned goals and participatively set goals positively affected performance. However, the percentage of studies in which participatively set goals were associated with increased performance was higher than for assigned goals (100% vs. 78%, respectively). O'Leary-Kelly et al. (1994) also noted some trends in goal-setting research beginning in 1980 that continue through the 1990s. These include the increased use of: specific goals, difficult goals, laboratory settings, and student subjects. They suggested future research should focus more on participatively set goals, independent tasks, and the effect of goal-setting at different stages of a group's lifecycle. Most of the research reviewed here does not follow these suggestions. Rather, as noted above, the research focuses on variables that may affect and explain the group goal-setting effect.

Strategy and tactics. Several studies have examined the relationship between group goals and a group's strategy or tactics on group performance. Some of this research considers how individual vs. group goals might affect the strategies group members employ. Mitchell and Silver (1990) and Crown and Rosse (1995) examined the impact of individual goals, group goals, and "do your best" goals on the development of cooperative or competitive strategies. They found that individual goals increased the competitive strategies employed by group members, which interfered with the group's ability to perform an interdependent (or nonsummative, in the Crown and Rosse study) task. Mitchell and Silver (1990) found that when individuals received group goals, group goals plus individual goals, or "do your best" goals, group performance was higher on an interdependent task than when individuals received an individual goal alone. Similarly, Crown and Rosse (1995) found when group members received individual goals, the group performed more poorly than when individuals received other goal combinations. When individuals received group goals or individual groupcentric goals (goals that maximize the individual's contribution to the group), group performance was similar to the "do your best" goal condition.

However, when group goals were combined with individual groupcentric goals, group performance was 36% higher than the "do your best" condition and superior to other goal conditions. In both studies, the individual goals were associated with more competitive strategies, whereas the group-oriented goals were associated with more cooperative strategies (which are critical to group success in an interdependent task). Mitchell and Silver's (1990) and Crown and Rosse's (1995) results suggest that task strategies mediate the relationship between group goals and group performance. Specifically, goals that encourage the development of appropriate strategies improve group performance.

In a field study, Doerr, Mitchell, Klastorin, and Brown (1996) varied goal type (group vs. individual) and material flow policy (pull vs. push). Pull flow policies require greater interdependence between group members; push flow policies allow individuals to be independent. Doerr et al. predicted that when the goal was matched with the appropriate flow type (group with pull, individual with push), productivity and satisfaction would be higher than when goal and flow were mismatched. Their results provide partial support for the predictions. When group goals were matched with pull policies, group performance was higher than when they were combined with push policies or there was no goal. However, under a push policy, individual goals were better than no goals, but group goals produced higher performance. For satisfaction, the results fully supported the predictions. Individuals were most satisfied when group goals were combined with a pull policy and individual goals were combined with a push policy. Doerr et al.'s study provides some support for the generalizability of the laboratory results reported above to a field setting.

Weingart (1992) also considered the role of strategy on group performance. She examined the effect of goal difficulty and task component complexity on effort, planning (amount, timing, and quality), and subsequent group performance. She found that effort partially mediated the group goal difficulty-group performance relationship; effort and amount of planning about the use of supplies mediated the task component complexity-group performance relationship. Additionally, as with the Mitchell and Silver (1990) and Crown and Rosse (1995) studies, the quality of this planning influenced group performance. Weingart (1992) also reported that goal difficulty affected the time spent planning, and goal difficulty and task component complexity affected the quality of group coordination. However, neither of these planning variables affected group performance.

Smith, Locke, and Barry (1990) examined the relationship between goals, planning time, planning quality and performance. College students were grouped into "organizations" for six sessions of an organizational simulation and assigned either a specific, challenging goal or a "do your best" goal. Setting specific organizational goals was positively related to planning quality and organizational performance. Additionally, quality of planning moderated the planning time-performance relationship. More time spent planning was associated with high performance when planning quality was high, and low performance when planning quality was low.

Weldon, Jehn, and Pradhan (1991) examined the effect of group goals on group process and group performance. They found a significant difference in

performance on a structure-building task between groups with high and low goals. However, this performance effect was mediated by group process. Groups with higher goals exerted more effort, planned more, were more likely to change both individual and group strategies, and were less concerned about quality than groups with low goals. However, group goals did not significantly affect morale-building communication, non task-related talk, discussion of acts and supplies, extra-role behavior, performance monitoring, or redistribution of work across group members. Of these variables, only performance monitoring had a significant effect on group performance.

Mesch, Farh, and Podsakoff (1994) examined the effect of positive and negative feedback on group goal-setting, satisfaction, performance, and strategy. They found groups that received negative feedback were less satisfied, but set higher goals, developed more strategies, and performed at higher levels than groups that received positive feedback.

The final study to examine the effect of goals and team tactics on performance is Durham, Knight, and Locke (1997). Durham et al. (1997) examined the effect of leader style (autocratic vs. participative) and assigned goal difficulty on team self-set goals, team efficacy, team tactics, and team performance. As with the research described above, team performance on a complex task improved when the team developed effective tactics for performance. Teams with participative leaders developed more effective tactics than those with autocratic leaders. There were both main effects and an interaction effect for quality of tactics and team-set goal difficulty on team performance; quality of tactics had the stronger direct effect. The interaction revealed that when teams used good tactics, more difficult team-set goals led to higher levels of team performance. When teams used poor tactics, team-set goal difficulty was unrelated to performance. Finally, assigned goal difficulty affected team-set goal difficulty directly and through its effect on team efficacy. Efficacy affected team performance only indirectly through its effect on team-set goal difficulty.

Goal acceptance and group cohesiveness. A second set of studies examined the impact of group cohesiveness and goal acceptance or commitment on group performance. Podsakoff, MacKenzie, and Ahearne (1997) conducted two studies examining the relationship between group cohesiveness, goal acceptance, and group performance. In Study 1, Podsakoff et al. (1997) found that goal acceptance moderated the relationship between group cohesiveness and group productivity for paper mill machine crews. Group cohesiveness had a positive impact on productivity, but only when the group accepted the goal set for it by the organization.

In Study 2, Podsakoff et al. (1997) found that the extent to which a leader fostered the acceptance of group goals moderated the relationship between group cohesiveness and group productivity. When leaders strongly fostered acceptance of group goals, cohesiveness was positively related to agency commissions for insurance sales representatives. When leaders did not foster acceptance of group goals, the relationship between cohesiveness and commissions was negative. (A similar pattern is found for percentage of quota obtained, but this relationship is not significant.)

Klein and Mulvey (1995) examined the relationship between group cohesiveness, goal difficulty, goal acceptance, and group performance. Klein and Mulvey (1995) found that group cohesiveness was positively related to self-set goal difficulty and goal commitment. Moreover, self-set group goal difficulty and group goal commitment were positively correlated with group performance. The results suggest that goals mediated the relationship between group cohesiveness and group performance.

The Podsakoff et al. (1997) and Klein and Mulvey (1995) studies differ in terms of the form of the relationship between group cohesiveness, goal commitment/acceptance, and group performance. Podsakoff et al. (1997) found that goal acceptance moderated the relationship between group cohesiveness and group performance. Klein and Mulvey (1995) found goal difficulty and goal acceptance mediated the relationship between cohesiveness and performance. However, in their discussion, Klein and Mulvey (1995) suggested that cohesiveness should also moderate the relationship between goals and performance. They state, "While cohesive groups may be more effective at attaining their goals, the goals of cohesive groups are not necessarily goals for high performance . . . high performance would be expected from a cohesive group with a goal for high performance whereas low performance would be expected for a cohesive group with a goal for low performance . . ." (p. 51).

Collective efficacy. A number of studies focus on group (or collective) efficacy (Jex & Gudanowski, 1992; Lindsley, Brass, & Thomas, 1995; Mulvey & Klein, 1998; Whyte, 1998). For our review, we discuss only those studies that consider both collective efficacy and group goal-setting. As noted above, Durham et al. (1997) examined the relationship between assigned goals, team efficacy, self-set goals, and team performance. They found the difficulty of assigned goals positively affected team efficacy and team-set goals. Team efficacy also had a direct positive relationship with team-set goals. Teams reporting higher team efficacy set more difficult goals for themselves. Durham et al. (1997) found no direct effect of team efficacy on team performance; there was an indirect effect of efficacy through team-set goal difficulty.

Prussia and Kinicki (1996) also explicitly examined group goals and collective efficacy. Prussia and Kinicki (1996) predicted that group affective evaluations, group goals, and collective efficacy would mediate the relationship between performance feedback and vicarious experience and group performance. Prussia and Kinicki (1996) found group affective evaluations and collective efficacy completely mediated the relationship between performance feedback and group effectiveness; collective efficacy partially mediated the relationship between vicarious experience and group effectiveness. However, they found no mediating effect of group goals. Nor did group goals directly affect group performance. Prussia and Kinicki (1996) concluded that when collective efficacy is included in the model, the group goal-performance effect is eliminated.

These two studies suggest very different relationships between group goals, collective efficacy and group performance. This is an area that undoubtedly deserves further investigation in the future.

Summary. As organizations continue to move toward group-based systems, research on motivation within groups is increasingly important. Thus far, this research has drawn primarily on JCT and goal-setting as frameworks for understanding group motivation. These two approaches are reflected in very different types of research. Research stemming from JCT examines intact work teams in an organizational setting, whereas research stemming from goal-setting tends to rely on ad hoc groups (formed for the experiment) and laboratory settings. Application of our knowledge from these laboratory settings to work teams in organizational settings is needed.

Research on groups could also benefit from drawing on a broader range of motivation theories. For example, little is known about how groups form perceptions of expectancies, instrumentalities, or valences. Certainly the groups literature suggests that group membership will have both a direct and indirect effect on individuals' perceptions of their own expectancies, instrumentalities, and valences, as well as their perceptions of these values for the group overall. Similarly, while some work has considered equity theory within a group context (Barr & Conlon, 1994), additional research from this perspective might increase our understanding of group motivation. For example, drawing on relative deprivation theory, research might examine the effects of undercompensation and overcompensation at the group level. In general, research on group motivation provides an interesting venue for much future work.

Culture[4]

Although cross-cultural research is not a completely "new face" in the area of motivation, research in this area increased during the 1990s. Research on motivation has been criticized for focusing almost exclusively on U.S. populations. The cross-cultural research reviewed here begins to address that deficit.

Motives, needs and the Protestant work ethic. Most of the cross-cultural comparisons on motivation examine differences in motives, needs, PWE, or preferences for job attributes. Borg and Braun (1996) compared the existence, relatedness, and growth work values of East and West Germans. They found the underlying structure of these values was the same for both groups, but West Germans put less weight on the existence and relatedness values than East Germans. Silverthorne (1992) compared supervisors' and subordinates' rankings of ten motivational job factors in the United States, Russia, and Taiwan. He found the correlations between employee rankings and manager rankings were significant in the United States and Taiwan samples. However, Russian managers' rankings were not significantly correlated with the rankings of their subordinates. Silverthorne (1992) suggested that managers in Russia have little idea about what their subordinates value, whereas in the U.S. and Taiwan, supervisors have a stronger understanding of subordinate motivation. He concluded that there is not a universal set of motivators. Silverthorne (1996) presented a similar comparison between U.S. and Taiwanese subjects with regard to how comfortable they are with assumptions about human nature derived from Theory X, Theory Y, and Theory Z. Silverthorne (1996) found that the Taiwanese subjects score higher on all three scales when compared to normative data for the U.S. and suggested that

the Taiwanese may be more committed to motivational issues than their U.S. counterparts.

Several studies conducted by Yamauchi and his colleagues focus on cross-cultural differences on a variety of work motivation and attitude dimensions. For example, Yamauchi, Beech, Hampson, and Lynn (1991) found British university students scored higher on work effort and ambition, whereas Japanese students scored higher on work tension and confidence in success. Yamauchi, Lynn, and Rendell (1994) examined gender differences in both a Japanese sample and an Irish sample of adults on seven work motivations and attitudes (work ethic, mastery, competitiveness, savings, achievement motivation, valuation for money, and achievement through conformity). They found that Japanese men scored significantly higher on mastery than Japanese women. However, Japanese women scored significantly higher on achievement motivation than Japanese men. For the Northern Irish sample, men and women differed significantly only on competitiveness; Irish males scored higher than Irish females. Yamauchi and Li (1993) compared university students in Japan and China on the same set of work motivation and attitude measures. They found the Chinese students reported stronger motives and attitudes toward achievement than the Japanese students, whereas Japanese students reported a stronger work ethic. A significant gender X culture interaction was found for competitiveness. Japanese males were more competitive than Japanese females, whereas Chinese females were more competitive than Chinese males. There were also slight variations in the factor structures for achievement-related motives for the two samples.

Moran (1990) compared Irish and American samples on three dimensions: locus of control, work ethic, and achievement motivation. Moran (1990) reported that Irish workers were lower on need for achievement than their American counterparts, but were not different on the other two dimensions. However, Irish students scored significantly lower than American students on all three dimensions.

Baum et al. (1993) examined the relationship between entrepreneurs' and managers' motivational needs (need for achievement, need for affiliation, need for autonomy, and need for dominance). They expected main effects for role (entrepreneur vs. manager) and nationality (Israel vs. U.S.) as well as a role X nationality interaction. The results generally supported these predictions. There was a main effect for nationality for all four needs. A main effect for role was found for need for autonomy (with entrepreneurs having higher need for autonomy than managers). Nationality and role produced a significant interaction for need for dominance and need for affiliation and a marginally significant interaction for need for achievement. These needs differed for entrepreneurs and managers in the Israeli sample, but there were no significant differences between entrepreneurs and managers in the U.S. sample.

Rather than relying on mean differences in scale ratings, Shome, Sen, and Bhardwaj (1995) used factor analysis to explore the similarities and differences between Bangladeshi and Indian bank managers on achievement motive, belief about work, and organizational climate. Their analyses revealed that three factors emerged for each group. However, the factor structures differed for the Bang-

ladeshi and Indian managers, suggesting the cultures differ in their conceptualization of these constructs.

Chang, Wong, Teo, and Fam (1997) also used factor analysis to assess cultural similarities or differences. Chang et al. used the Work and Family Orientation Scale (Helmreich & Spence, 1978) as a measure of need for achievement and found similar factor structures for samples from Singapore and the U.S.

Manso-Pinto, Gonzalez, and Gonzalez (1993) compared the job attribute preferences of Chilean managers to those of other countries. Manso-Pinto et al. (1993) reported that Chilean managers list intrinsic job attributes (type of work, advancement possibilities, pride in company) as the most preferred attributes. These attributes are similar to those reported by Blumberg, Brenenstuhl, and Jourdan (1988). However, Chilean managers differ from previous samples in their ranking of advancement, pride in company, pay and working conditions. Chilean managers rank these attributes as more important than Blumberg et al.'s samples from Britain, Hungary, Japan, and the United States.

Alpander and Carter (1991) compared employee need patterns in eight foreign subsidiaries of a major multinational company (Belgium, Spain, Germany, Italy, Venezuela, Mexico, Colombia, and Japan). They found that need to control one's environment was the most dominant need in all countries.

Couger and O'Callaghan (1994) compared the motivation of Spanish and Finnish computer personnel to U.S. personnel. Couger and O'Callaghan (1994) found that people attracted to the computer field have a high need for growth and a low need for social interaction. However, in Finland, the technical specialist job had a mismatch between the job's motivation potential and the employee's need for growth. In Spain, such a mismatch occurred for the programmer/analyst position. These mismatches were not found for U.S. personnel.

Frese, Kring, Soose, and Zempel (1996) examined differences in personal initiative at work for East and West German subjects. They found lower personal initiative in the East German sample than the West German sample. Additionally, analyses on the East German sample revealed that control at work (autonomy) and complexity (how difficult an individual's job decisions are) affected changes in initiative. When individuals' jobs allowed them discretion and challenge, personal initiative increased.

Many studies examine work ethic across cultures. Unfortunately, no consistent pattern of cultural differences or similarities emerges from this work. For example, Giorgi and Marsh (1990) report a general consistency in work ethic for the Western European countries of France, Italy, West Germany, the United Kingdom, Holland, Belgium, Denmark, and Spain. However, Furnham et al. (1993) examined seven measures of work ethic across thirteen countries (Australia, Ciskei, Germany, Great Britain, Greece, Hong Kong, India, Israel, New Zealand, South Africa, West Indies, the U.S., and Zimbabwe). Furnham et al. report significant differences between the scores of subjects from the different countries. Subjects from First World countries generally had lower scores than those from Third World countries. Niles (1994) reported no differences between Sri Lankans and Australians when the work ethic assessed the belief that hard work will lead to success. However, when work ethic is assessed as a need for

mastery, Sri Lankans scored lower than Australians. Stones and Philbrick (1992) found PWE scores for black South Africans were comparable to scores reported in earlier research for American subjects. Furnham and Rajamanickam (1992) report both a main effect for sex and for country in a sample of Indian and British adults. Women endorsed PWE beliefs more than men did, and Indian respondents endorsed PWE beliefs more than British respondents did. Baguma and Furnham (1993) examined differences between PWE beliefs in Great Britain and Uganda. They report effects for country and sex. Ugandans scored significantly higher than Britons; women scored higher than men. Interactions revealed there were larger sex differences in the British sample than the Ugandan sample. Finally, Ali, Falcone, and Azim (1995) report that U.S. subjects scored higher on the PWE than Canadian subjects. Women scored higher than men did.

Compensation. There are many articles that discuss cross-cultural compensation (Bowker, 1988; Latta, 1992; Mervosh, 1997). However, we found only one empirical study that addressed this issue. Pennings (1993) examined executive compensation practices in the U.S., France, and Netherlands. Pennings (1993) also interviewed executives in these countries to assess their beliefs about the pay-performance relationship. Pennings (1993) found that only U.S. companies had a widespread practice of long-term executive compensation plans. Additionally, the amount of money "at risk" was much higher for U.S. company executives, as was the size of bonus payout. The interviews revealed that Dutch and French company executives were much more skeptical about the efficacy of performance-contingent executive rewards. These executives reported that pay was not the primary motivator for executives and perceived a less clear relationship between their behavior and firm performance. Pennings noted that these differences in executive pay practices and beliefs reflect cultural differences in uncertainty avoidance and individualism.

Expectancy theory. One study examined the effect of culture on expectancy theory perceptions. Dubinsky, Kotabe, Lim, and Michaels (1994) examined differences in perceptions of expectancies, instrumentalities, and valences between U.S., Korean, and Japanese sales personnel. In general, although they found significant differences between the U.S. sales personnel and the Japanese and Korean salespersons, there were few differences between the Japanese and the Korean samples. Specifically, U.S. salespersons reported higher expectancies and higher ratings of valence for pay increases, job security, promotion, and personal growth and development. There were no significant differences between the Korean and Japanese samples for these variables. However, for extrinsic instrumentalities, U.S. salespersons provided significantly higher ratings than Japanese salespersons, whose ratings were significantly higher than the Korean salespersons.

Goal-setting. Only one study examined the effect of culture and goal-setting. This study is notable for its reliance on theory for hypothesis generation. Erez and Somech (1996) examined how goal specificity, communication, incentives, and cultural collectivism affect social loafing. Erez and Somech (1996) found social loafing occurred only when collectivism was low and the goal was not specific ("do your best"). In all other situations—when collectivism was high,

communication was available, or there was a specific goal—group performance was comparable to the sum of the individual group members' performance.

Summary. It is encouraging to see the broad range of samples receiving attention in motivation research. Additionally, the increase in this research reflects the growing acknowledgment of the importance of culture. Unfortunately, there is little systematic research in this area. Research on culture is characterized by convenience samples and simple "do the groups differ?" approaches. There is no unifying theory guiding this work. We believe understanding cultural differences is increasingly important. However, future research in this area needs to be theory driven. Most research on culture acknowledges Hofstede's work, but this framework is not systematically integrated with other theoretical perspectives. For example, how might differences in cultures (uncertainty, collectivism, femininity, power distance) influence perceptions of equity? How might culture affect individuals' reactions to work design? Future research needs to do more than suggest culture will affect individual responses. It needs to consider how and why culture matters, based on theory rather than simple intuition or empiricism.

Conclusion

We conclude our review of the motivation literature with some reflections about trends and future development. By the 1990s, most of the traditional motivation theories had received considerable empirical support. Research continues to refine the models, and to suggest moderators and boundary conditions, but the basic tenets of goal-setting, equity theory, expectancy theory, and JCT remain unchallenged. Although some new motivational theories were introduced during the 1990s (Kidwell & Bennett, 1993; Klein, 1990; Vardi & Weiner, 1996), these theories have not yet been empirically validated. On the whole, our "old friends" appear firmly entrenched and we do not foresee any major paradigm shifts in our understanding of employee motivation. As a result, we see little need for organizational behavior research to continue conducting simple empirical "tests" of the basic theories.

O'Reilly (1991) described motivation as the "most frequently researched topic in micro-OB" (p. 431). In our efforts to gather articles to form the basis of this review, we were initially surprised that a search on the keywords "work" and "motivation" identified a limited number of articles, largely outside the scope of established motivational theories such as goal-setting or equity theory. Yet, later searches using theory names as keywords established that research using these motivational theories was active and thriving. We saw this as a paradox: How were organizational behavior researchers writing empirical articles using motivational theories without using the central construct of "motivation?"

After reviewing the 1990s literature, we believe that we have identified the source of this paradox. Organizational behavior research has largely abandoned the concept of "motivation" and has replaced this broad concept with more specific measures of employee behavior (e.g., task performance, organizational citizenship behaviors). Research on motivation during the 1990s was largely done through the "back-door." That is, researchers did not intend to study "motivation."

They had other, more specific goals in mind, such as studying employee performance in work teams, or studying when employees engage in discretionary behaviors. Established motivational theories were an effective framework for predicting these behaviors when researchers did not explicitly measure "motivation," or even suggest "motivation" as an explanatory mediating construct.

This trend has had some important pluses for organizational behavior research. Most importantly, the trend has resulted in an application of motivational frameworks to employee behaviors (e.g., organizational citizenship behavior, creativity) and organizational contexts (e.g., work teams, international contexts) that were not explicitly addressed in the traditional motivational literature. In addition, looser applications of the motivational frameworks may identify interesting new organizational behavior constructs. For example, although the motivation literature has traditionally focused on ways to increase employee motivation, Gemmill and Oakley (1992) have suggested that it would be productive to concentrate on exploring the causes and meaning of "boredom" in organizations.

If this trend toward a "loose" application of traditional motivation theories continues, it may be a misnomer to continue to describe our "old friends" as "motivational theories." Instead, these theories have evolved into general frameworks describing employee behavior. As evidenced by our "new faces," the field is increasingly organized around employee behaviors (e.g., creativity, organizational citizenship) and contexts (work teams, international contexts), rather than theoretical constructs such as "motivation." It may no longer be useful to conduct reviews of the motivational literature, given that the motivational frameworks are being applied to such a broad range of behaviors. Instead, our literature reviews might be more fruitfully organized around the dependent measures or the contexts studied in the research.

However, we also see dangers inherent in this trend. First, particular frameworks are becoming associated with a limited range of dependent variables. We eliminated many equity articles from this review because they examined only attitudinal responses (e.g., job satisfaction, commitment). In contrast, the goal-setting research has relied heavily on task performance as the primary dependent variable. We encourage future research to explore a variety of behavioral and attitudinal dependent measures, regardless of the specific motivational theory selected as an organizing framework.

Second, research during the 1990s appeared determined to skirt the biggest difficulties associated with motivational research: defining motivation and measuring the mediating effects of motivation. While there are some notable exceptions (e.g., Weingart, 1992), we were disappointed to observe that there was little empirical research directly examining how employee motivation influences subsequent task performance. We are concerned that many research areas are measuring either motivation, or outcome variables such as performance, without studying the link between these constructs. Most definitions of motivation include a focus on three components: activation, direction, and maintenance of behavior (e.g., Katzell & Thompson, 1990). Only one study (Blau, 1993) explicitly examined these components. Research on CET has perhaps been most successful in measuring persistence on a task during a free-choice period—however, this

persistence is not usually linked to other dependent measures such as job performance. And as CET is increasingly applied to cognitive behaviors (as we see in the creativity literature), persistence during a free-choice period is being supplanted by easier-to-measure performance outcomes. As greater and greater emphasis is placed on objective measures of employee performance in organizational research, motivation is moving backstage as a largely unmeasured, but still theoretically relevant, mediating variable. If our goal is understanding employee behavior, as well as predicting employee behavior, we cannot neglect measuring important mediating variables that capture the essence of "motivation." However, deciding how to meaningfully measure "motivation" is a considerable challenge in today's organizations. With the majority of employees working in service industries or performing "knowledge work," there are fewer external indicators of effort that can be used to infer motivation. Choice of behavior and persistence in pursuing that choice should receive greater research attention as indicators of motivation.

Finally, we suggest that the trends in the motivational literature are leading us to an important choice point in theory development. If our "old friends" are being used as general frameworks describing employee behavior, should we make more effort to integrate traditional theories, or should the "old friends" be arrayed as a theoretical smorgasbord for researchers studying employee behavior? We would argue for the latter. There have been previous attempts to integrate motivational theories (e.g., Naylor et al., 1980), and our review of the 1990s literature suggests that these integrative theories have not been particularly successful in inspiring and guiding investigative research. Again, this is largely the result of organizational behavior research being designed to investigate specific aspects of employee behavior in specific contexts. As the research questions become more focused, different "old friends" have particular relevance. Keeping the theories separate preserves their unique contributions.

So, what is in store for motivation in the next century? We have identified three areas that draw on traditional motivation approaches—creativity, groups, and culture. To date, these "new faces" have drawn most heavily upon work design and goal-setting theory, but they would benefit from research based on other motivational approaches as well. We believe these areas characterize the interesting motivation research of the future. We call for additional research on these areas that is grounded in traditional motivational theories, but urge researchers not to abandon the central construct of motivation. Continued effort should be placed on defining and measuring motivation within these "new faces."

Acknowledgment: We would like to thank Jerry Ross, Marshall Schminke, Christina Shalley, and two anonymous reviewers for their helpful comments on an earlier draft of this manuscript.

Notes

1. Much of the research on work design in the 1980s examined Salancik and Pfeffer's (1978) Social Information Processing (SIP) model. It is notable that we could find no similar empirical research in the 1990s. Two articles (Meyer, 1994; Zalesny & Ford, 1990) provide reviews of SIP research and propose

revisions of the model. Several other articles use SIP as a general framework for understanding individuals' attitudes and behavior for outcomes, such as union participation (Fuller & Hester, 1998), participation in planned change (Miller, Johnson, & Grau, 1994), and new technology (Rice & Aydin, 1991). It is also important to note that the focus of SIP is on influences on individuals' attitudes and behaviors—it does not seek to understand or explain underlying motivational processes. As such, even the earlier work on SIP would be beyond the scope of this review.

2. Notably, this is not Adler's (1991) conclusion. He focuses on the objectively different designs of the two systems—one a semi-autonomous work team, the other a traditionally organized department. He concludes that efficiency may drive the satisfaction ratings. However, he notes (and the data demonstrate) that the two groups perceived the job's characteristics very similarly. Indeed, in the traditionally organized group, Adler notes there was an informal expansion of responsibilities.
3. Although closely linked to creativity, in this review we do not discuss organizational innovation. Innovation is the successful implementation of creative ideas within an organization (Amabile et al., 1996). Therefore, creativity is a starting point for organizational innovation—individual creativity is a necessary but not sufficient condition for organizational innovation to operate. The innovation process is likely to be affected by a variety of organizational (e.g., centralization, administrative intensity, amount of slack resources) and environmental factors (e.g., industry type, amount of competition), and has largely been studied at the macro organizational level. For reviews of the innovation literature, we refer readers to an extensive meta-analysis (Damanpour, 1991), the *Academy of Management Review*'s special topic forum on the Management of Innovation (Fiol, 1996), and the *Academy of Management Journal*'s special research forum on Innovation and Organizations (Drazin & Schoonhoven, 1996).
4. For this section, we review only research that compares two cultural groups. Research conducted on individuals or groups from the same culture is reviewed in the appropriate theoretical section of this article.

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