
Work Motivation

Theory and Practice

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ABSTRACT: Major theories of motivation are classified as those dealing either with exogenous causes or with endogenous processes. Whereas the latter help explain motivation, the former identify levers for improving worker motivation and performance. Seven key strategies for improving work motivation are distilled from the exogenous theories. Illustrative programs are described for implementing those strategies, programs that aim at creating organizations in which workers are both better satisfied and more productive. Suggestions are offered for improving the science and technology of work motivation.

In recent years, work motivation has emerged as an increasing topic of concern for American society. This heightened interest is due, in part, to the flagging productivity of our organizations. Demographic changes have further underscored the need for innovative approaches to developing, motivating, and retaining valuable human resources. There is no longer an endless supply of qualified individuals either for unskilled entry-level positions or for technical or more highly skilled jobs (Szilagyi & Wallace, 1983). Moreover, changes have occurred in what American workers want out of jobs and careers and, for that matter, out of their lives in general (Katzell, 1979; Lawler, 1985). Demographic projections for the increased diversity of the American workforce in the 1990s and beyond are also raising the additional problems of matching motivational practices to the needs and values of diverse subgroups of employees (Thompson & DiTomaso, 1988).

Interest in work motivation among psychologists and other behavioral scientists who study organizations has escalated dramatically as well. In fact, probably no other subject has received more attention in recent journals and textbooks of organizational behavior (Cooper & Robertson, 1986). Current reviews of that literature amply document the extensive empirical research that has been done and the theories that have been formulated (e.g., Landy & Becker, 1987; Locke & Henne, 1986; Pinder, 1984).

In this article we endeavor to bring together major theories, research, and applications on the subject of motivation for work performance. Work motivation is defined as a broad construct pertaining to the conditions and processes that account for the arousal, direction,

magnitude, and maintenance of effort in a person's job. We begin by briefly summarizing and classifying key theories. Seven key strategies for improving work motivation are then distilled from this classification. Various programs are described for implementing those strategies, with the aim of creating work situations in which workers are both better satisfied and more productive. Last, we suggest some future directions for research and practice.

Theories of Work Motivation

The early theories of work motivation can be characterized as simplistic. One view was that the key to motivating people at work was a behavioral version of the carrot and stick: Pay people for being good workers and punish or fire them for being otherwise. That was a basic tenet of so-called scientific management (Taylor, 1911). In contrast was the notion that a happy worker is a good worker, a notion that has been criticized as the core of the naive "human relations" movement (Perrow, 1972). Eventually the validity of both of these formulations was called into question by empirical findings. For example, it was noted that workers respond to incentives and disincentives other than money and even the keeping of a job (Herzberg, Mausner, & Snyderman, 1959; Roethlisberger & Dickson, 1939), and the basic assumption of the human relations movement was challenged by the typically low correlations between job satisfaction and job performance (Brayfield & Crockett, 1955).

To deal with such deficiencies, other students of work motivation have since proposed a variety of other theoretical approaches, which we summarize in the following subsections. The list is not meant to be exhaustive, but rather indicative of major classes of theories that have received considerable attention from researchers and scholars interested in work motivation. Although there may be differences in the specific formulations of different theorists within a category, we believe it is more useful here to emphasize common or related ideas. Readers interested in extensions or variations of the theories, as well as citations of the original literature, can consult the general reviews cited earlier.

Although theories of work motivation have been categorized in various ways, we have chosen to classify them broadly as either dealing with *exogenous* causes or *endogenous* processes. We believe this conceptualization facilitates the examination of what is known about the

conditions and practices affecting work motivation. Exogenous theories focus on motivationally relevant independent variables that can be changed by external agents. Thus, exogenous variables (e.g., organizational incentives and rewards and social factors such as leader and group behavior) represent action levers or handles that can be used by policymakers (or experimenters, for that matter) to change the motivation of workers. Endogenous theories, in turn, deal with process or mediating variables (expectancies, attitudes, etc.) that are amenable to modification only indirectly in response to variation in one or more exogenous variables.

Exogenous Theories

Motive/need theory. People have certain innate or acquired propensities to seek out or avoid certain kinds of stimuli. These propensities, called motives or needs, influence behavior and are major determinants of performance. Various theories differ in content regarding the number of basic needs or sets of needs proposed and in whether needs are arranged in some hierarchical order.

Incentive/reward theory. Incentives consist of features of the work situation (e.g., what the supervisor says and does) that lead the workers to associate certain forms of behavior (e.g., high quality of product) with a reward (e.g., praise). Disincentives are stimuli that conversely evoke avoidance, or refraining, such as a company policy that docks pay when employees are absent. Incentives are therefore important in attracting and holding employees and in directing behavior. Rewards are stimuli that satisfy one or more motives and therefore arouse positive psychological states that serve to encourage and maintain the behavior that produced them.

Reinforcement theory. People are motivated to perform well when there have been positive consequences of good performance. Conversely, ineffective behavior should not be positively reinforced or should be punished. The effects of reinforcement depend heavily on the schedule according to which reinforcers are delivered. Hence, more attention is devoted to schedules than to the properties of the reinforcers.

Goal theory. The basic proposition of goal theory is that people will perform better if goals are defined that are difficult, specific, and attractive. People need feedback to continue to perform at high levels. Commitment to a goal may be increased by money or another concrete reward or by participating in setting the work goals.

Personal and material resource theory. Constraints on workers' abilities or opportunities to attain their work goals are demotivating. In the extreme, such constraints can lead to apathy or learned helplessness. Conversely, conditions that facilitate goal attainment are positively motivating. These constraints and facilitators can be personal (such as skill level) or material (such as equipment).

Group and norm theory. People are motivated to perform well when their work group facilitates and approves of it. The dynamics of formal and informal work groups often include the development of cohesiveness, the emergence of norms regarding behavior, particularly about how much work is appropriate, and the conformity of individual members to these norms. The work group develops and maintains adherence to norms through the use of social rewards and sanctions. Working in the presence of other group members is itself a source of arousal, especially if the other members are perceived as monitoring or evaluating one's performance. People are also prone to absorb the attitudes and behavioral dispositions of other group members.

Sociotechnical system theory. People are motivated to perform well when the work system is designed so that conditions for effective personal, social, and technological functioning are harmonized. The work should be meaningful, challenging, and diversified, and workers should have the skills, autonomy, and resources to do it well.

Endogenous Theories

Arousal/activation theory. Arousal/activation theories focus on internal processes that mediate the effects of conditions of work on performance. Physiological and affective states are the two types of mediators that have received the most attention.

Expectancy-valence theory. People are motivated when they expect that effort will result in good performance, which in turn will be instrumental in attaining valued outcomes.

Equity theory. People are motivated by their need for fair treatment. Justice consists of a balance between a worker's inputs in a given situation (e.g., ability, seniority) and its outcomes (e.g., money, promotions). Equity exists when output/input ratios for the individual employee and the reference source (e.g., co-worker, profession) are equal.

Attitude theory. People who have favorable attitudes toward their jobs, work, and/or organizations will be more highly motivated to remain in and perform their jobs. The principle of cognitive consistency also implies that people will act in ways that accord with their attitudes. Two major work-related attitudes are job satisfaction (affect associated with one's job) and job involvement (how important the job is to the incumbent).

Intention/goal theory. A person's performance is determined by the goals to which he or she is committed. The goals may be self-set or accepted from those set by others. Intentions are cognitive representations of goals to which the person is committed. People who are committed to specific, hard goals perform at higher levels than people who have easier or vaguer goals.

Attribution/self-efficacy theory. Although attribution and self-efficacy represent two somewhat different theoretical strands, they can be merged in their implications for work motivation. Attribution theory is concerned with explanations that people have for why particular events occur or why people behave as they do. If

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people think that the causes of their performance are stable, internal, and intentional, successful performance will affect their self-efficacy beliefs favorably. People with perceptions of greater self-efficacy and higher self-esteem are more likely to have higher performance standards and goals, have expectations of better performance, have more favorable job attitudes, and show greater willingness to put forth effort on challenging tasks.

Other cognitive theories. With the exception of arousal/activation theory, the endogenous theories of motivation summarized above feature various cognitive processes. Several other cognitive formulations have recently been advanced. Because they have not yet been the target of extensive research and application in work situations, we simply note them here. They include social cognition, social information processing, and control theory (see Ilgen & Klein, 1989).

Exogenous Theories: Seven Motivational Imperatives

Although endogenous theories help explain what is going on in motivation, it is the exogenous theories that suggest "action levers" that can be employed to change work motivation. Seven key strategies for improving work motivation can be distilled from the exogenous theories. Table 1 presents these motivational imperatives. Each of the columns corresponds to an exogenous construct. Within each column, the motivational imperative or principle implied by the related exogenous theory is summarized and illustrative programs that have been used to fulfill the imperative are listed. Space prevents us from discussing all of the specific programs that organizations have used with some degree of success, or even all that are listed in Table 1. In this section, we briefly describe some of the more widely employed programs that have been used to implement the motivational imperatives. For purpose of illustration, we also describe in greater detail one example relating to each of the seven imperatives.

Personal Motives and Values

The motivational imperative inherent in motive/need theory is that it is important to ensure that workers have motives and values relevant to the type of organization and to the jobs in which they are placed. It should be noted that the theoretical and practical value of the construct of personal motives has been questioned (e.g., Salancik & Pfeffer, 1978). Nevertheless, this theory remains central to two basic strategies for improving work motivation: (a) selecting workers whose motives match the situation (personnel selection), and (b) developing those motives in them (motive training).

Personnel selection. In an extensive, long-term effort to assess managerial potential, measures of various personal characteristics were obtained from junior managers at AT&T in an assessment center by such techniques as paper-and-pencil tests, projective tests, interviews, and observed group exercises (Bray, Campbell, & Grant, 1974). Among the findings was that 64% of the initial 61

assesseees who had been predicted to reach middle management in fact did so eight years later; that figure may be contrasted with only 32% of 62 assesseees reaching middle management who had been predicted not to do so.

Not all of the measures in this study addressed motivational characteristics. But among those qualities that predicted success in attaining the middle-management level were need for advancement, energy, primacy of work, inner work standards, range of interests, and need for security (inverse relationship). Summarizing the qualities deemed essential to managerial success in the study, Bray and Grant (1966) pointed to the importance of motivation to perform well, desire for rapid advancement, independence of the approval of others, and lesser concern with security, in addition to having the requisite intellectual, administrative, and social abilities.

Howard and Bray (1988) subsequently reported a 20-year follow-up of a total of 266 assesseees in the AT&T program. Motivational dimensions again proved to be prominent in predicting career advancement and success 20 years later—specifically, the dimensions of advancement or achievement motivation and work involvement. This study also shed light on motivational factors predictive of staying with or voluntarily leaving the company: Stayers scored, on average, significantly higher on need for security, company value orientation, work involvement, and tolerance for delayed gratification but showed less urgent need for advancement.

Job previews. Another program designed to implement the motivational imperative of fitting workers' motives to the job provides candidates with realistic job previews. Although results have not always been positive, there have been numerous instances of reduction in later turnover when organizations provided applicants with realistic previews of what their jobs would be like via brochures, films, and even reports of previous employee attitude surveys, thereby furnishing a basis for self-selection (Wanous, 1980).

Motive training. The second broad strategy, that of changing motives by training, is based on the premise that some of the motives pertinent to work behavior are at least partly learned and therefore subject to change. For example, McClelland and Winter (1969) demonstrated that achievement motivation can be strengthened through training, with favorable consequences for job success. Training women to be more assertive and dominant in work relationships is another application of this approach (O'Donnell & Colby, 1979).

Incentives and Rewards

The imperative that follows from incentive/reward theory is that jobs and their associated perquisites must be designed so as to be attractive, interesting, and satisfying to workers. When a national sample of 1,500 workers was asked about the importance to them of various features of a job, the highest ratings were assigned to the rewards of interesting work, good pay, availability of needed resources, having sufficient authority, and friendly and cooperative co-workers (Survey Research Center, University

Table 1
Approaches to Improving Work Motivation

Imperative and programs	Exogenous variables						
	1. Personal motives and values	2. Incentives and rewards	3. Reinforcement	4. Goal-setting techniques	5. Personal and material resources	6. Social and group factors	7. Sociotechnical systems
Motivational imperative	Workers' motives and values must be appropriate for their jobs	Make jobs attractive, interesting, and satisfying	Effective performance must be positively reinforced, but not ineffective performance	Work goals must be clear, challenging, attainable, attractive	Provide needed resources and eliminate constraints to performance	Interpersonal and group processes must support goal attainment	Personal, social, and technological parameters must be harmonious
Illustrative programs	Personnel selection Job previews Motive training Socialization	Financial compensation Promotion Participation Job security Career development Considerate supervision Job enrichment Benefits Flexible hours Recognition "Cafeteria" plans	Financial incentive plans Behavioral analysis Praise and criticism Self-management	Goal setting Management by objectives Modeling Quality circles Appraisal and feedback	Training and development Coaching and counseling Equipment Technology Supervision Methods improvement Problem solving groups	Division of labor Group composition Team development Sensitivity training Leadership Norm building	Quality of work-life programs Socio-technical systems designs Organizational development Scanlon plan

of Michigan, 1971). Having control over one's working life appears to be becoming increasingly salient as well (Katzell, 1979; Lawler, 1985).

Enlightened employers and unions endeavor to create working conditions and policies that provide such rewards. It is important to note, however, that the best of such programs can be undercut if they are administered inequitably. The motivational role of equity was noted among the endogenous theories summarized earlier. Its importance extends even to administering nonmonetary rewards such as status (Greenberg, 1988).

Job enrichment. Job enrichment is one kind of innovative program designed to fulfill the imperative of making jobs attractive, interesting, and satisfying. Many behavioral scientists have advanced the thesis that diversified, challenging jobs are more satisfying and intrinsically motivating than simpler, more routine ones (e.g., Hackman & Oldham, 1975, 1980; Herzberg, 1966). A number of attempts to implement this thesis have been reported; in the aggregate they show that effects of job enrichment on attitudes are usually favorable, whereas effects on performance, although often positive, are less consistent (Stone, 1986).

A program undertaken with 90 clerical workers in a large quasi-federal agency illustrates this approach (Orpen, 1979). The employees were divided into two groups, in one of which no changes were made. The jobs of the employees in the other group were enriched by increasing skill variety, task identity and significance, autonomy, and feedback, these being core dimensions of job scope proposed by Hackman and Oldham (1975). Measures of attitudes, quality and quantity of job performance, turnover, and absenteeism were obtained before, during, and after the experimental period, which lasted six months. The resulting job performance of employees in the experimental group differed little from that of employees in the comparison group. However, not only were job attitudes significantly better among the employees whose jobs had been enriched, but absenteeism and turnover declined. The positive effects were stronger among employees having stronger needs for personal growth and achievement, as hypothesized by Hackman and Oldham (1975).

This study underscores the importance of person-environment fit (Pervin, 1968), in this case fitting the rewards to the employees. Furthermore, we are reminded that job performance depends on factors in addition to improved motivation: Resources and methods for doing the job are also important, so changes in job design are not likely to improve performance unless the new procedures are at least as efficient as the old ones (Fein, 1971). It is also worth noting that reactions to job characteristics depend on social cues as well as on their objective properties (Griffin, Bateman, Wayne, & Head, 1987).

Of course, the variety of incentives and rewards reflected in various organizational practices is enormous. Examples in addition to job enrichment include financial compensation, promotion, merit rating, benefit programs, considerate supervision, and recognition awards. Because

there are individual differences in what people regard as desirable in their jobs, Lawler (1987) espoused the idea of having a package of rewards and benefits from which individuals could choose the combination most suitable for them. Such so-called "cafeteria" plans have been found to be workable and useful in industry (Cohn, 1988).

Reinforcement

Some behavioral psychologists would question the inclusion of reinforcement in a list of motivational factors, preferring to consider it as a description of how behavior is shaped by its consequences. However, inasmuch as it can account for the arousal, direction, and maintenance of effort, students of work motivation often view it literally as a motivational mechanism.

The imperative that derives from this motivational element is that effective performance should be positively reinforced in order to be maintained in the future. Conversely, ineffective behavior should not be rewarded, and a case can even be made for the judicious use of aversive reinforcement, or punishment, in organizations (Arvey & Ivancevich, 1980). In contrast to rewards and incentive theory, the emphasis here is not on the nature of the reinforcers as much as on their linkage to performance.

Behavior analysis. In a quasi-experiment in a wholesale bakery by Komaki, Berwick, and Scott (1978), the targeted behavior consisted of specific practices or conditions that an analysis of previous accidents suggested would avert injuries. The employees were given instructions on what constituted safe and unsafe practices, were shown a record of their performance of each during a baseline period, and were encouraged to improve their incidence of safe practices from the approximately 70% level during the baseline period, to 90%. Safe performance was then reinforced by feedback via regularly posting the percentage of safe incidents observed for each group as a whole and by having the supervisors comment favorably to individual employees when they saw them performing certain selected acts safely. The percentage of safe practices increased markedly during the 8- to 11-week intervention periods—from 70% to 96% in one department and from 78% to 98% in the other. Within a year, the lost-time accident rate stabilized at the relatively low figure of below 1 per million work-hours, less than one fifth the accident rate during the year preceding the initiation of the program. Although the intervention introduced training, goal setting, and observation in addition to reinforcement, the fact that performance subsided to pre-intervention levels during a reversal period and later improved again when reinforcement was resumed points to reinforcement as the principal causal mechanism.

Financial reinforcement programs. Traditionally, financial compensation is often administered in a non-contingent way, or the contingency involves just coming to work regularly enough and performing well enough to avoid discharge. Another problem occurs when the appropriate contingent rewards are indeed administered but their contingency is not clearly understood, because an awareness that rewards are contingent appears to con-

tribute to their effectiveness (Feder & Ferris, 1981). However, a number of systems have been devised for tying financial remuneration more directly to performance. Incentive pay systems link the workers' remuneration to some concrete measure of output, such as sales or parts completed. Research data, on average, support the beneficial effects of such techniques on performance (Locke, Feren, McCaleb, Shaw, & Denny, 1980). Guzzo, Jette, and Katzell (1985) reported wide variation in those effects, from excellent to negligible. Possibilities for these variations include (a) differences in coping with such problems as measuring performance and providing a sufficiently large pay supplement, and (b) situational differences that have been occurring that make incentive plans based on individual or small-group performance less congruent with contemporary social values (Lawler, 1987).

More consistent with the emerging organizational climate and culture are plans that accept the reality of employees as influential participants in the organization and that relate their compensation to performance either of the whole organization or of its major subdivisions. There are basically three types of such plans: profit sharing; employee stock ownership; and gain sharing, in which the supplemental payments depend on production improvements rather than profits. The advantages of the latter are that changes in production are more directly attributable to employee performance and can be calculated more frequently. Hammer (1988) provided a review of these various plans and a framework for understanding their effects. Comprehensive organization-wide plans, such as the Scanlon Plan, typically involve a number of nonfinancial motivational factors as well, so they may be regarded as a type of "quality of work-life" program, to be described later (Katzell & Yankelovich, 1975).

Nonfinancial reinforcers. Such reinforcers may also be made contingent on performance. Examples include time off, opportunity to obtain additional vacation time, and posting of individual performance data, in addition to feedback and praise that were described earlier.

Self-management. Another approach to reinforcement adapts the practice of self-management from clinical psychology (Stuart, 1977). Target setting, monitoring, and feedback reinforcement are here the responsibility of the individual employee rather than of a mentor or supervisor (e.g., Frayne & Latham, 1987).

A criticism of extrinsic reinforcement is that it may reduce intrinsic motivation to do the job (Deci, 1972). However, there are two rejoinders to that criticism: (a) No one has shown that in actual employment situations use of extrinsic reinforcement reduces total motivation to work; and (b) designing work so that it is maximally self-reinforcing and intrinsically rewarding is not inconsistent with the basic notion of rewarding good performance (Farr, 1976; Hamner, 1974). This, in fact, appears to be the way in which organizational reward systems are moving.

Goal Theory

The motivational imperatives that follow from goal theory are that the goals of work should be specific, clear, at-

tractive, and difficult but attainable. Feedback or knowledge of results of goal attainment is useful for maintaining the motivational force of goals (Locke, Cartledge, & Koepel, 1968).

Goal-setting programs. A field experiment by Pritchard, Jones, Roth, Stuebing, and Ekeberg (1988) demonstrates how a program of goal setting and feedback can favorably affect productivity and attitudes. The experiment was conducted with five groups of Air Force personnel totaling approximately 80 individuals over the course of the study. One group repaired electronic equipment, and the other four were engaged in storage and distribution of materials and supplies. Productivity measures were compiled over a baseline period of 8 to 9 months. For the next 5 months, the groups received monthly feedback on their productivity. For the following 5 months, each group participatively set difficult but attainable productivity goals for itself. On average, productivity improved 50% over baseline during the 5-month feedback period, which the experimenters pointed out probably involved informal goal setting by the groups as well. When formal goal setting was added to feedback, productivity improved an additional 25%. Significant improvements were also found in measures of job satisfaction and morale, but not in turnover intentions. Taken together, the results strongly support the positive motivational effects of setting specific, difficult but attainable goals, coupled with feedback on performance.

Although in this case formal goal setting followed feedback and was done participatively and at the group level, other studies have shown positive results when goals are assigned or set on an individual basis and when formal feedback follows, rather than precedes, goal setting (see reviews by Locke, Shaw, Saari, & Latham, 1981, and Tubbs, 1986). It should also be noted that the positive effects of goal setting are sometimes only temporary (Ivancevich, 1976; Quick, 1979).

Management by objectives. Positive results have also been reported for other types of programs that aim to improve motivation through goals. For example, although specific practices vary, management by objectives (MBO) programs typically entail an element of participative negotiation between a supervisor and a subordinate in the setting of work goals, plus considerations of what might help the subordinate attain them, and feedback on past performance, which can also incorporate praise and criticism. Reviewing experience with MBO, Carroll and Tosi (1973) concluded that setting hard goals results in better performance only for employees who have self-confidence and expect to achieve the goals—contingencies that probably moderate the effects of all goal-setting treatments. It is also important that the employee be committed to the goals, a condition that is fostered by ensuring that the goals are acceptable, which the participative nature of MBO helps to accomplish (Locke, Latham, & Erez, 1988).

Goals are imparted as features of several other practices of human resource management, including job descriptions, training, performance appraisal, participative

management, quality circles, and incentive pay plans. Although such practices are not usually undertaken mainly as goal-setting techniques, we should recognize that their worth may depend in large measure on how well they serve that function (Locke et al., 1980).

Personal and Material Resources

There is recent evidence that inadequate resources can adversely affect the attitudes and emotions of workers (e.g., Eisenberger, Huntington, Hutchison, & Sowa, 1986; Freedman & Phillips, 1985; O'Connor et al., 1984). Katzell and Thompson (1986) found in a path analysis of their complex motivational model that the adequacy of resources had a significant direct effect on the perceived level of extrinsic rewards and thereby indirectly affected morale and work effort. Such findings indicate that resource adequacy does affect motivation.

The motivational imperative that derives from this thesis is manifestly that workers need to have the personal, social, and material resources that facilitate performing their work and attaining their goals. The specific programs and interventions that can contribute to that end are countless. Katzell and Guzzo (1983) reviewed 10 years of literature reporting behavioral science interventions aimed at improving various aspects of worker performance. Of the 206 reports, 83% found improvement in at least one objective aspect of performance, and 72% also found improvements in worker attitudes. Many interventions, such as training, had obvious implications for resource improvement and corresponded to facilitators discussed by various contributors to the volume by Schoorman and Schneider (1988). Unfortunately for our purpose, few of the studies expressly traced effects on specific motivational processes. However, the fact that the majority of the studies showed improvements in both attitudes and performance is again suggestive of the involvement of motivational factors, as is the fact that several of the types of intervention were derived specifically from motivational theory, including appraisal and feedback, MBO, goal setting, financial incentives, and job design.

Social and Group Factors

The motivational imperative that derives from social and group theories is that interpersonal and group processes must support members' goal attainment. A number of programs have been devised with the aim of improving the motivational climate afforded by groups.

Division of labor. An instructive example is offered by a quasi-experimental field study reported by Fisher (1981). The work of production employees in a major corporation was traditionally done via an assembly line. The intervention involved reorganizing employees into five semi-autonomous work teams that were supplied with the responsibility and information they needed to manage their work. The resulting dramatic improvements in production and costs were maintained over a 4-year follow-up period. This study illustrates the motivational benefits of restructuring the traditional division of labor in one

or more of the following ways summarized by Walton (1976): setting up self-managing work teams, giving teams responsibility for whole tasks rather than special fragments, and/or encouraging flexibility of job responsibilities among group members.

Group composition. Another approach to improving the motivational climate of work groups involves composing groups so that the members are more likely to work well together. Perhaps the most systematic program for applying this insight was devised by Schutz (1966). His research lent support to the theory that a good motivational fit involves matching people whose interpersonal needs complemented each other (e.g., by ensuring that group members who need friendship and affection are balanced by group members disposed to offer such rewards; that those who are passive are matched with others inclined to be assertive; and so forth). In addition to creating groups with need complementarity, establishing groups whose members have similar attitudes and demographic characteristics has also been found to be favorable for work performance (Turban & Jones, 1988).

Team development. Team development is another group-centered approach. These programs can be broadly categorized as (a) group goal setting and norm building; (b) group problem solving; (c) interpersonal and intergroup relations; and (d) role negotiation concerned with clarifying and improving allocation of responsibilities among group members (Beer, 1976; Woodman & Sherwood, 1980). Team development programs often contain more than one of these features. (See Sundstrom, De Meuse, and Futrell, this issue, pp. 120-133).

Leadership. Programs for selecting and developing people who can function effectively as leaders can be useful for improving the performance and attitudes of group members (Guzzo et al., 1985). Good leaders can help to create the conditions noted above that enhance the motivational effects of group membership (Locke, 1974; Yukl, 1989).

Sociotechnical Systems

We have noted that interventions in field situations generally are unable to focus the exogenous changes on a single motivational construct, although the programs we have cited so far were typically aimed principally at one or another of the six other constructs we identified. An alternative strategy exists that deliberately involves several or all of the exogenous constructs in an orchestrated set of changes. Although these changes are not necessarily introduced simultaneously, the ultimate objective is to develop a system of exogenous variables that harmonizes the individual, social, and technical parameters of the organization. This type of intervention has variously been termed sociotechnical, system-wide, or quality of work-life (QWL).

For example, Goodman (1979) reported on a wide-ranging QWL intervention guided by sociotechnical principles at a mining company. The changes, which involved miners and supervisors in one section of the mine,

included such features as increased training, improved internal communication, shared responsibility for decisions among workers and managers, job rotation, and incentive pay. Compared with another section of the mine, the experimental section showed improved job attitudes but only slight improvements in performance. However, another well-known system-wide intervention, this one in a garment factory, conversely resulted in marked improvements in performance but relatively slight changes in attitudes (Marrow, Bowers, & Seashore, 1967; Seashore & Bowers, 1970). Reviews of a number of system-wide interventions by Guzzo and Bondy (1983) and Katzell, Bienstock, and Faerstein (1977) showed that such changes often result in improvements in both performance and attitudes and generally have stronger effects than do more limited changes.

Summary and Conclusions

The vast body of research and theory that we have endeavored to summarize here points to a number of practices that can raise the level of motivation of people in work organizations. We have formed these into the following seven imperatives: (a) Ensure that workers' motives and values are appropriate for the jobs on which they are placed; (b) make jobs attractive to and consistent with workers' motives and values; (c) define work goals that are clear, challenging, attractive, and attainable; (d) provide workers with the personal and material resources that facilitate their effectiveness; (e) create supportive social environments; (f) reinforce performance; and (g) harmonize all of these elements into a consistent socio-technical system.

Rational, and even self-evident, as these principles may seem, it is no secret that most organizations have far to go in implementing them. For example, it has been reported that fewer than one third of employees surveyed perceive that their compensation is based on their performance (Plawin & Suied, 1988). Perhaps acknowledging the principles is one thing, but acting on them—implementing them—is quite another. This obstacle to utilization may stem from either or both of two sources. One is that the technology for applying the principles may not be known. Alternatively, there may be barriers to employing the technology. We refer here to well-known issues of resistance to social and institutional change: vested interests, conflicts of interest, tradition, threats to power or privilege, and so forth. The strategies and tactics for coping with resistance to change in themselves constitute a set of process technologies known collectively as organizational development and conflict management; because those are discussed in other articles in this issue, we do not endeavor to treat them here.

It is also possible that the alleged obviousness of the principles is largely a matter of hindsight, as is so often the case with psychological pronouncements. People may not really appreciate the salience of these principles or, if they do, may not know how to apply them. We hope that dissemination of the principles and practices sum-

marized in the present article will help overcome those reasons for suboptimum motivational conditions in organizations.

However, although it is evident that much has been learned about work motivation, we still have far to go in advancing our understanding of its ingredients and in perfecting techniques for applying that understanding. On the scientific front, agendas deserving further attention include the following:

1. Clarify the conceptualization of the key constructs and improve their operationalization. To illustrate, it is apparent that job involvement is an important element in work motivation. However, it seems that job involvement is actually not a unitary construct but reflects both state and trait factors (Rabinowitz & Hall, 1977). Moreover, although as a construct it can be differentiated from job satisfaction and organizational commitment, operational measures of the three are excessively correlated (Brooke, Russell, & Price, 1988).

2. Develop integrative theories. Mitchell (1982) and others have suggested that the various theories of motivation are individually incomplete and that it would be desirable to integrate them in a comprehensive framework. Katzell and Thompson (in press) described a model that combines virtually all of the constructs cited in Table 1. Landy and Becker (1987) argued that the motivational dynamics of such diverse outcomes as job satisfaction, choice behavior, and production are likely to be quite different and therefore lend themselves to less extensive middle-range theories. Another approach to middle-range theory construction would be to fit various theories to differences in situations, such as properties of individuals (Mayes, 1978) or of work settings (Staw, 1977).

3. Perform empirical research to test the developments resulting from each of the preceding two agenda items.

4. Pay more attention to individual differences. Theories of and research on work motivation have generally focused on environmental determinants of attitudes and performance; even theories of personal motives have emphasized person-environment fit. More attention to habitual or even biological dispositions of the individual that may to some degree determine his or her attitudes and energy levels in all work situations is warranted (Arvey, Bouchard, Segal, & Abraham, 1989; Staw, Bell, & Clausen, 1986; Staw & Ross, 1985).

In addition to these and undoubtedly other needed advances in the science of work motivation, there is a need to develop or improve the technology for improving work motivation. Specific areas needing development are so numerous that we can but suggest a few for illustration:

1. What can be done to increase the attractiveness of and commitment to work goals (Hollenbeck & Klein, 1987)?

2. How can job involvement be increased? Some of these methods may involve changing the characteristics of work and its context, whereas others may have to address the personal dispositions of workers (Rabinowitz & Hall, 1977).

3. How can sociotechnical systems be designed that include most, if not all, of the other six motivational imperatives in orchestrated combination with the technical requirements of the work? The difficulty of this charge is illustrated by a recent set of articles in a special issue of the *Journal of Applied Behavioral Science* ("Innovations in Designing," 1986).

4. How can policymakers be convinced of the desirability and feasibility of applying those motivational imperatives? How can barriers to their adoption be removed?

Projections concerning the not-too-distant future world of work also pose challenges and opportunities for the psychological scientist and practitioner. Here are a few that have motivational implications:

1. As employing organizations undergo frequent changes via downsizing, mergers, acquisitions, new product lines, and so forth, what can replace old-fashioned loyalty and identification as sources of commitment for employees? What will substitute for a sense of long-term continuity and security in their careers?

2. How can the postindustrial society satisfy the newer generation of workers who increasingly value actualization and self-expression relative to traditional bread-and-butter rewards, and who seem to be seeking a better balance between their work and nonwork lives?

3. What are the implications of high technology—computers, robots, telecommunications—for the design of jobs and teams and for selection, training, and careers of workers and managers?

4. What are the implications of changes in sex roles and family patterns for the connections between work and nonwork?

5. How can employers adapt their motivational policies and practices to a work force that is increasingly diverse in terms of gender, age, ethnicity, and culture?

We submit that success in coping with these and similar challenges would contribute much to creating a more productive and happier society.

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