MOTIVATIONAL SYNERGY: TOWARD NEW CONCEPTUALIZATIONS OF INTRINSIC AND EXTRINSIC MOTIVATION IN THE WORKPLACE

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The foundation for a model of motivational synergy is presented. Building upon but going beyond previous conceptualizations, the model outlines the ways in which intrinsic motivation (which arises from the intrinsic value of the work for the individual) might interact with extrinsic motivation (which arises from the desire to obtain outcomes that are apart from the work itself). In a modification of the prevailing psychological view that extrinsic motivation undermines intrinsic motivation, this conceptualization proposes that certain types of extrinsic motivation can combine synergistically with intrinsic motivation, particularly when initial levels of intrinsic motivation are high. Such synergistic motivational combinations should lead to high levels of employee satisfaction and performance. Two mechanisms are proposed for these combinations: *extrinsics in service of intrinsics*, and *the motivation-work cycle match*. Personality and work-environment influences on motivation are discussed, and implications are outlined for management practice and management development.

Employee motivation has always been a central problem for leaders and managers. Unmotivated employees are likely to expend little effort in their jobs, avoid the workplace as much as possible, exit the organization if given the opportunity, and produce low quality work. On the other hand, employees who feel motivated toward their work are likely to be persistent, creative, and productive, turning out high quality work that they willingly undertake.

As the future unfolds, motivation will, if anything, become an even more important managerial problem. Work motivation is not stable; organizational changes can cause it to fluctuate enormously. Consider some current trends in organizations that could have significant implications for the way people feel about their work, their willingness to do their work, the level of effort they are likely to expend, and the quality of their performance:

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- Restructuring and downsizing are occurring on a massive scale throughout most segments of industry, and the trend shows no sign of reversing. Traditional job security is generally on the decline.
- Partly as a result and partly as a concomitant of downsizing, reward and compensation systems are changing; people can no longer assume that their career path within an organization will involve a series of promotions and regular salary increases (Baker 1990).
- Performance evaluation and feedback systems are evolving, to include such innovations as 360° feedback (comprehensive performance feedback from peers and subordinates, as well as supervisors).
- The nature of the work itself—the most basic fact of a person's life within an organization—is also changing rapidly. Technological innovations and incremental improvements mean that the job an employee does today will almost certainly be fundamentally different from the "same" job a decade from now.
- The way in which work is organized has changed greatly in recent years, and will continue to change. For example, more and more organizations are attempting to build cohesive teams as the basic social unit within which work gets done.
- Even the nature of organizations themselves is changing. There has been much talk of "virtual organizations," which are relatively loose collections of different individuals who are brought together at different times and in different ways to achieve some specific goals. Even within organizations that appear more traditional in their employment patterns, personnel flows into, through, and out of the organization have been dramatically altered. Indeed, people can no longer assume that they will have a long-term relationship with any particular organization, and HRM professionals cannot assume employee commitment to the organization.
- Finally, economic and political trends at the national and international level virtually guarantee that business environments will become continually more challenging (Jensen in press).

Any one of these changes could significantly impact the motivation of people working within organizations. Together, their impact is bound to be powerful. Research in both the psychology and the business literatures over the past three decades has documented that motivation varies as a function of several factors in the work environment, including evaluation expectation, actual performance feedback, reward, autonomy, and the nature of the work itself. Moreover, both theory and empirical research have suggested that human motivation toward work can be categorized into two distinct types: intrinsic motivation, which arises from the intrinsic value of the work for the individual (such as its interest value), and extrinsic motivation, which arises from the desire to obtain some outcomes (such as rewards) that are apart from the work itself. Although they can both motivate people to do their work, intrinsic and extrinsic motivation can have very different effects on subjective feelings about the work, eagerness to do the work, and the quality of performance.

Because managers and organizational leaders play an important role in

determining these factors that have been shown to influence motivation, they must learn to understand and deal effectively with human motivation if they wish to successfully shepherd their organizations into the next century.

Scholars and practitioners have long been grappling with the issues of intrinsic and extrinsic motivation; important conceptual and practical advances have resulted. In this article, I will attempt to further our understanding of motivation, how it operates, how it is influenced, and how its principles can be used for practical utility. I will propose that, although extrinsic motivation can work in opposition to intrinsic motivation, it can also have a reinforcing effect. In fact, I will argue that, given the right combination of personality traits and work environment contexts, intrinsic and extrinsic motivation can combine synergistically to yield high levels of performance and personal satisfaction. This conceptualization builds upon, but goes beyond, earlier theories of work motivation.

WORK MOTIVATION

Of the many theories of work motivation, Herzberg's (1966) motivator-hygiene theory has been one of the most influential in recent decades. Essentially, the theory divides motivating factors into two categories—"motivator" factors, which have something to do with the work itself (and the worker's relationship to it), and "hygiene" factors, which have something to do with the surrounding context. Motivator factors include such things as responsible work, autonomy in doing the work, and satisfaction arising from the accomplishment of difficult tasks. Hygiene factors include pay, security, and general working conditions. According to Herzberg, hygiene factors operate primarily as de-motivators if they are insufficient. He suggests that workers are most satisfied and most productive when their jobs are rich in the motivator factors—when the work is interesting. This, he proposes, can be accomplished by job enrichment.

Hackman and Oldham's (1976) model of job enrichment suggests that jobs can be made more motivating by increasing each of the following: skill variety (the number of different skills required by the job), task identity (the degree to which the job produces something meaningful), task significance (the importance of the work), autonomy (the degree to which the individual has freedom in deciding how to carry out the work), and feedback (the degree to which the individual obtains ongoing feedback indicating success in the work, ideally from the outcomes of the work itself).

Many of these same features of the work, particularly autonomy and competence, are discussed as intrinsic motivators by social psychologists and personality psychologists. For example, Deci and his colleagues propose that intrinsic motivation arises when individuals feel both self-determined and competent in their work (Deci 1975; Deci & Ryan 1985). Presumably, people will feel self-determined if they have at least some autonomy in what they do—if, in de-Charms's (1968) terminology, they feel like "origins" of their behavior rather than "pawns" of other people. According to this model, people will feel competent if they obtain feedback that indicates progress in their work, or suggests

ways they can increase their competence. These conditions will be likely to obtain only when the difficulty of the work matches (or slightly exceeds) the person's skill level. Deci also suggests that self-determination and competence cannot work to produce intrinsic motivation unless the target task is interesting in some degree; such interest might arise from skill variety, task identity, and task significance. One psychological theorist proposes that extremely high levels of intrinsic motivation are marked by such strong interest and involvement in the work, and by such a perfect match of task difficulty with skill level, that people experience a kind of psychological "flow," a sense of merging with the activity they are doing (Csikszentmihalyi 1975).

The predominant psychological view proposes that extrinsic motivation works in opposition to intrinsic motivation (e.g. Deci 1971; Deci & Ryan 1985; Lepper, Greene, & Nisbett 1973; Lepper & Greene 1978). Extrinsic motivation arises when individuals feel driven by something outside of the work itself, such as promised rewards or expected evaluations. Generally, these theorists propose that, when strong extrinsic motivators are placed on task engagement, intrinsic motivation to do that task will decline.

Thus, although theorists from Herzberg, to Hackman and Oldham, to Deci and Ryan, all categorize motivation into two broad categories (which can be labeled intrinsic and extrinsic), they differ in their conceptualizations of whether and how the types of motivation combine. Herzberg, like Maslow (1943) in his needs-hierarchy theory, appears to view intrinsic and extrinsic motivation as combining additively; once the scaffolding of extrinsic motivation is taken care of, intrinsic motivation can lead to high levels of satisfaction and performance. Hackman and Oldham suggest that extrinsic motivation can add to what they call "internal motivation" (the satisfaction of having done well on a challenging task), but not to other forms of intrinsic motivation (such as interest and enjoyment). Many psychological theorists, most notably Deci and Lepper, have proposed that extrinsic and intrinsic motivation do not mix well; the former can directly undermine the latter.

The conceptualization that I will present is similar to previous theories in distinguishing between intrinsic and extrinsic motivation, but differs in its propositions about the ways in which intrinsic and extrinsic motivation interact, the mechanisms by which these interactions occur, and the resulting effects on performance.

DEFINITIONS

In our own work, my colleagues and I have adopted definitions of intrinsic and extrinsic motivation that include most concepts proposed by previous theorists.

Individuals are intrinsically motivated when they seek enjoyment, interest, satisfaction of curiosity, self-expression, or personal challenge in the work.

Individuals are extrinsically motivated when they engage in the work in order to obtain some goal that is apart from the work itself.

Thus, we base our definitions of intrinsic and extrinsic motivation on the

individual's perceptions of the task (as interesting, challenging, etc.) and his or her reasons for engaging in it (as a means to an extrinsic end, or as an end in itself). If the reasons have to do with the task as a means to positive, skill-exercising experience or self-expression, then we say that the individual is intrinsically motivated. If the reasons have to do with the task as a means to some external end, then we say that the individual is extrinsically motivated.

Intrinsic motivators are an endogenous part of a person's engagement in the activity; they arise from the person's feelings about the activity, and they are necessarily bound up with the work itself. Extrinsic motivators, although they may be contingent on the work (like pay for performance) are not a logically inherent part of the work. Extrinsic motivators include anything coming from an outside source that is intended to control (or can be perceived as controlling) the initiation or performance of the work, for example: promised reward, praise, critical feedback, deadlines, surveillance, or specifications on how the work is to be done.[1]

Surely, there are many work activities (even in the most interesting jobs) that are purely extrinsically motivated. Few of us have encountered anyone who truly enjoys completing expense reports or doing formal performance reviews of subordinates. Although there may be some activities (for some people, in some jobs) that are purely intrinsically motivated, this case is almost certainly more rare. In fact, it is likely that both intrinsic and extrinsic motivators are present for most tasks that people do in their work. For example, I feel strongly intrinsically motivated to develop and express my ideas in this article, but I am extrinsically motivated to work on the article throughout this particularly lovely June evening by the editor's deadline for completing revisions. Because the two motivational types so often co-occur, it is especially important to consider how they might combine and interact.[2]

Clearly, our views of the types of motivation are similar to those reviewed earlier: the important distinction between the two motivational types lies in the work itself. There are some important differences, however. Most notably, Deci and Ryan (1985) suggest that intrinsic motivation requires a focus on task engagement *process* only; any focus on *product* means that extrinsic motivation has come into play. We do not accept this dichotomy. We suggest, instead, that intrinsic motivation is completely compatible with certain kinds of product focus. For example, if, as an R&D scientist, I am motivated to work on a scientific problem primarily because I want to meet the challenge of cracking a difficult problem, I will be largely focused on the product—the solution that conquers the problem. In that case, my motivation can be considered intrinsic. On the other hand, if I am motivated primarily because I hope the product will qualify me for a corporate prize, my motivation should be considered extrinsic.

MOTIVATION AS STATE AND AS TRAIT

Most work motivation theorists, and most social psychologists studying motivation, have suggested that motivation is a *state* influenced in large part by the immediate situation: People will be intrinsically or extrinsically motivated

as a function of their social environment—as a function of the design of the work, the nature of the reward structure, and so on.[3] A substantial literature has been built over the past two decades, empirically documenting the existence of temporary, situation-specific motivational states. However, most theorists also admit the possibility that motivation can operate like a relatively stable *trait*—that there will be individual differences in basic *motivational orientations*. Although Herzberg (1966) suggests that all humans are similar in having needs for both hygiene factors and motivator factors, Hackman and Oldham (1976) do propose individual differences in responses to the same work situation. They suggest that people who are high in "growth need strength" will be most likely to be motivated by jobs that have high skill variety, task identity, task significance, autonomy, and feedback; people who are low in growth need strength should be relatively unaffected by these aspects of jobs. Deci and Ryan (1985) also propose individual differences. They suggest that some people will be more oriented toward the autonomy-supporting aspects of their work (and will thus be more likely to experience intrinsic motivation), while others will be more oriented toward the controlling aspects of their work (and will thus be less likely to experience intrinsic motivation).

My colleagues and I have undertaken a research program to directly investigate the possibility of individual differences in intrinsic and extrinsic motivational orientations (Amabile, Hill, Hennessey, and Tighe 1993). We designed the Work Preference Inventory (WPI), a short paper-and-pencil personality instrument, with items assessing all proposed aspects of intrinsic motivation (self-determination, competence challenge, task involvement, curiosity, enjoyment, and interest) and extrinsic motivation (concerns with competition, evaluation, recognition, money or other tangible incentives, and constraint imposed by others). We found, after administering the questionnaire to hundreds of working adults in a variety of professions, industries, and levels, that intrinsic and extrinsic motivation do seem to be meaningful trait-like constructs. The intrinsic items clustered onto two scales, labeled Challenge and Enjoyment. The extrinsic items also clustered onto two scales, labeled Recognition and Compensation.

We found that people's scores on the WPI showed considerable stability across several months and even years. Moreover, we have suggestive evidence that the constructs tapped by the WPI do relate to intrinsic and extrinsic motivation as they have been conceptualized by theorists. For example, we have found that college students who score high on general intrinsic motivation toward their work tend to express higher levels of interest in specific academic activities. In addition, we have consistently found negative correlations between age and extrinsic motivation, suggesting that, as might be expected, people are less strongly driven to achieve salary increases and recognition as they progress in their careers. We also found that professional artists who score higher on intrinsic motivation tend to spend more of their own time in their studios, working on their art.

Thus, it appears that both intrinsic and extrinsic motivation can appear in both a temporary *state* form (affected by the environment) and a more stable

personality *trait* form (relatively consistent across time and across situations). The stable motivational orientation may serve as a substrate upon which reactions to specific environmental situations are overlaid. Although some people are generally more highly intrinsically motivated toward what they do, there appear to be some environmental conditions that lead to lowered intrinsic motivation in most people. Even after environmental effects are accounted for, though, we would still expect to see individual differences. Two people working in the same work environment might experience very different levels of job satisfaction, if the motivators in that environment are a much better match to one person's motivational orientation than the other's.

Over long periods of time, work environments with particularly strong motivational structures could effect changes in a person's motivational orientation—in effect, altering that person's motivational "traits." But the causality could be bi-directional, too. For one thing, a person's motivational orientation can "cause" his or her own work environment simply by leading the person to self-select into an environment that matches well. More interestingly, a person with a particularly strong motivational orientation could, over a long period of time, actually alter the motivational environment for others—particularly if that person had a dynamic personality and occupied a leadership role.

INTRINSIC AND EXTRINSIC MOTIVATION: RELATIONSHIP, INTERACTIONS, AND EFFECTS

One of the most central questions facing motivation theorists is the nature of the relationship between intrinsic and extrinsic motivation, and a consideration of the ways in which they might interact. As noted earlier, some theorists suggest that one can build on the other. Others propose that they are incompatible.

A primary purpose of our research on the WPI was to determine the nature of the relationship between intrinsic and extrinsic motivation as personality traits. We found that, as traits, intrinsic and extrinsic motivation are more or less orthogonal. For our working adult sample, the two intrinsic scales (Challenge and Enjoyment) were essentially uncorrelated with the two extrinsic scales (Recognition and Compensation). As might be expected by these near-zero correlations, we found several people who scored high (more than one standard deviation above the mean) on both intrinsic and extrinsic motivation—in fact, about the same number that would be expected by random probability. It appears to be entirely possible for people to be motivated by, for example, both money *and* personal challenge in their work.

Data from our sample of professional artists lends support to the view that intrinsic and extrinsic motivational orientations can work positively together. We found that the creativity of the artist's body of work (as rated by other artists who were blind to identity) positively correlated with both a challenge orientation (intrinsic) and a recognition orientation (extrinsic).

Before we conclude that intrinsic and extrinsic motivation are entirely com-

patible motivational systems, however, we must consider evidence on *state* as well as *trait* motivation. Although the trait-like motivational orientations assessed by the WPI appear to be relatively stable across time, there is abundant evidence that temporary motivational states can be strongly influenced by factors in the social environment. Social psychological research (much of it reviewed in Lepper & Greene 1978) has consistently demonstrated that intrinsic motivation toward a task (interest and satisfaction in doing the task) can be temporarily undermined by the experimental imposition of salient extrinsic constraints such as the promise of a tangible reward or an expert evaluation. These are normative influences; although it is not the case that everyone's intrinsic motivation is undermined by these factors, this is the general pattern that is found.

Additional intriguing evidence about intrinsic and extrinsic motivational states comes from research on task performance. Recent theoretical statements have proposed a causal relationship between intrinsic motivation and creativity (Amabile 1983, 1988). Because cognitive flexibility and complexity are highest under strong intrinsic motivation (McGraw 1978), creativity depends, in part, on an individual's level of intrinsic motivation for the work. By contrast, relatively straightforward (or algorithmic) aspects of performance, such as sheer technical quality, appear to be fostered by extrinsic motivation.

Our own experimental research has consistently demonstrated that the imposition of salient extrinsic motivators can lead to lower levels of creativity in actual performance—but not to lower levels of technical quality in the work. Interestingly, technical quality appears to remain strong under both intrinsic and extrinsic motivation in our research.

When we move outside the laboratory and into the real world, of course, things aren't nearly so simple. Over the past decade, we have examined the work environment differences between high-creativity projects and low-creativity projects in business organizations, using both interviews and questionnaire studies with an instrument called the Work Environment Inventory (WEI, Amabile & Gryskiewicz 1989). We have found that, indeed, many of the extrinsic motivators that we studied experimentally do appear to undermine creativity in settings such as R&D laboratories: win-lose competition within an organization, expected negative evaluation of one's ideas, a concern with rewards, and constraint on how the work is to be done. On the other hand, we found several other factors that might be construed as extrinsic motivators operating as *supports* to creativity: reward and recognition for creative ideas, clearly defined overall project goals, and frequent feedback on the work. Finally, we did find intrinsically-motivating factors that support creativity: some degree of autonomy in the work, work that the individual perceives as positively challenging and important, and a sense of interest and excitement in the work itself (Amabile, Conti, Coon, Lazenby, & Herron 1992; Amabile & S. Gryskiewicz 1987; Amabile & N. Gryskiewicz 1989).

In sum, the research on motivational traits, motivational states, and task performance has yielded some clear findings. There is both stability and change in intrinsic and extrinsic motivation. Although people may be more or

less consistently oriented toward intrinsic and/or extrinsic motivators, the motivational states of most people can be temporarily affected by the presence of salient extrinsic motivators and by the nature of the work. In other words, instead of focusing on either the work environment or individuals as the locus of motivation, we must include both. Moreover, it does not seem that intrinsic and extrinsic motivation operate in a simple additive fashion *or* in simple opposition. Finally, we may need to more finely differentiate our concepts of each motivational type, particularly of extrinsic motivation. It appears that there may be some types of extrinsic motivators that serve to undermine intrinsic motivation and certain aspects of performance (such as creativity), but others that serve to support it.

Thus, research suggests that we need new conceptualizations of how intrinsic and extrinsic motivation operate.

MECHANISMS OF INTERACTION BETWEEN INTRINSIC AND EXTRINSIC MOTIVATION

As noted earlier, the prevailing psychological model of the interaction between intrinsic and extrinsic motivation suggests an antagonism: as extrinsic motivation for an activity increases, intrinsic motivation must decrease. But we already have evidence, from our WPI research, that personality orientations toward high levels of intrinsic motivation can coexist with orientations toward high levels of extrinsic motivation. We also have some evidence from recent studies that high levels of intrinsic and high levels of extrinsic motivation can be made to temporarily coexist through training and experimentally-induced situational factors—with very positive effects on creativity (Hennessey, Amabile, & Martinage 1989; Hennessey & Zbikowski 1993).

In these studies, small groups of children went through brief training sessions designed to help them focus on their own intrinsic motives for learning in school, and to help them develop strategies for keeping extrinsic motivators in perspective. (Children in the control groups went through similar sessions on an unrelated topic.) A few days after the training sessions, in a different situation with a different experimenter, the children individually completed a questionnaire designed to tap motivational orientation and then individually were given a creative activity. Half of the children were offered a reward for doing that activity, and half were not. We found that the motivationally-trained children scored significantly higher on a scale of intrinsic motivation toward learning. We also found that the untrained children who were offered the reward produced less creative work than untrained children not offered the reward. By contrast, the trained children who were offered the reward produced *more* creative work than the trained children who were not offered the reward. It appears that the training altered the fashion in which intrinsic and extrinsic motivation interacted. Instead of detracting from creative performance, the extrinsic motivator added to it—but only for those children whose intrinsic motivation had been bolstered.

Under what conditions and for what types of people might we expect to find these synergistic motivational combinations? How and why should performance be affected by them? When should we expect to find extrinsic and intrinsic motivation working in opposition?

The initial level of intrinsic motivation may be important. It may be that, if a person is deeply involved in the work she does because it is interesting or personally challenging to her, that degree of intrinsic motivation may be relatively impervious to the undermining effects of extrinsic motivators. This proposition is consistent with Bem's (1972) suggestion that individuals' internal attitudes and motives will be most subject to external influences when their initial internal states are vague or ambiguous. Thus, we might expect additive effects of intrinsic and extrinsic motivation when intrinsic motivation toward the work is already strong and salient. On the other hand, we might expect negative effects when intrinsic motivation is present, but less salient to the individual than the extrinsic motivators that are presented.

The research findings reviewed earlier are consistent with these propositions. In laboratory situations, where negative effects are usually found, the research subjects rarely have any ongoing passion for the brief and artificial activities they are given. Studies that tap real-world motivations toward their work, however, often uncover positive, reinforcing effects.

These positive effects should not be expected, however, with all types of extrinsic motivation. We now know enough to suggest that there are at least two broad categories of extrinsic motivators, and that the different types can have very different effects on intrinsic motivation and related aspects of performance. It appears that certain types of reward, recognition, external control, and feedback do not necessarily undermine intrinsic motivation and may actually enhance some aspects of performance. On the other hand, it appears that constraint on how work can be done, as well as other types of reward, recognition, external control, and feedback, will be detrimental to intrinsic motivation and performance. Two compatible mechanisms can be proposed for these differential effects.

Extrinsics in Service of Intrinsics

One potential underlying mechanism can be called "extrinsics in service of intrinsics." Any extrinsic factors that support one's sense of competence without undermining one's sense of self-determination should positively contribute to intrinsic motivation. We can think of these as "synergistic extrinsic motivators." For example (as suggested by Deci & Ryan 1985), reward, recognition, and feedback that confirm competence, as well as feedback that provides important information on how to improve competence, should have such effects. In addition, extrinsic motivators that serve directly to increase one's involvement in the work itself should also operate in service of intrinsic motivation. For example, overall project goals that orient a person toward the nature of the task to be accomplished, or rewards that involve more time or freedom to

pursue exciting ideas, should add to rather than detract from intrinsic motivation and high-level performance. Similarly, performance feedback, including 360° feedback, should enhance intrinsic motivation and performance if it is constructive, non-threatening, and work-focused rather than person-focused.

By contrast, there are some "non-synergistic extrinsic motivators" that may never combine positively with intrinsic motivation, because they undermine one's sense of self-determination without adding to feelings of competence or deep-level involvement in the work. Stringent controls over the conduct of one's work should have such effects, as should any rewards, recognition, or evaluation systems that lead people to feel controlled by powerful others. In our recent study with professional artists, we found that commissioned work was significantly less creative than non-commissioned work, but only when the commissions were accompanied by some constraints on exactly how the work was to be done (Amabile, Phillips, & Collins 1993). Thus, monetary reward itself does not necessarily undermine intrinsic motivation and creativity. But reward that signifies or is accompanied by constraint can have serious detrimental effects.

The Motivation-Work Cycle Match

A second mechanism can be termed the *motivation-work cycle match*. Most significant work that people do in their jobs requires some degree of creativity (or at least could benefit from some degree of creativity). R&D scientists serve as a prototypical example; their job is to produce creative ideas for new processes and products, as well as for improvements on existing processes and products. Creativity depends on two performance aspects: novelty and appropriateness. An idea or product can only be considered creative if it is both different from what has been done before (novel) and useful, valuable, or appropriate to a significant problem (appropriate). Moreover, the production of creative ideas appears to involve several different (though not linear) stages: problem presentation, preparation, idea generation, idea validation, and idea communication (Amabile 1983).

It is likely that the novelty of ideas is determined primarily at the problem presentation and idea generation stages of the process, and that the appropriateness (or value) is determined primarily at the other stages. The novelty of the final product seems to depend heavily on how the problem is initially construed (Getzels & Csikszentmihalyi 1976), as well as on the flexibility of idea generation (Isaksen 1987). By contrast, the level and quality of preparation to solve the problem, as well as the care taken in idea validation and communication may be more important in determining the ultimate utility and acceptability of the new idea.

It is also likely that intrinsic motivation is more important at some stages of the creative process than at others. To be specific, intrinsic motivation may be most important at the problem presentation and idea generation stages, the stages that are proposed to most strongly influence the novelty of the final

idea. It is there that deep-level interest and involvement in the problem seem most crucial; as noted earlier, flexibility and complexity of thought appear to be highest under strong intrinsic motivation (McGraw 1978).[4]

Thus, overall performance is likely to be optimized when motivation matches the stage of the work cycle—specifically, when intrinsic motivation is high during the problem presentation and idea generation stages of the creative process. Intrinsic motivation may be less important at the other stages. Indeed, it is possible that extrinsic motivation may play a facilitative role at those other stages. For example, some scientists report great excitement during the idea-generation and initial working-out stages of the process. However, their motivation sometimes flags if difficulties are encountered during the slow and tedious process of working out the fine details to fully develop, validate, and clearly communicate the idea. (Just think of how painful the doctoral dissertation can be in the final stages!) Some extrinsic motivators, such as clear deadlines or the promise of extrinsic rewards and recognition, may do no harm at these stages (since flexible, creative thinking is no longer the dominant mode); indeed, these motivators, as long as they leave the sense of self-determination intact, should serve to keep the individual engaged in the work. Moreover, these extrinsic motivators may actually enhance the appropriateness or value of the work, by attuning the individual to outcome requirements.

In other words, intrinsic motivation may be essential for novelty in the work, but some degree of some types extrinsic motivation can help to ensure that the output will be timely, complete, and useful.[5]

MOTIVATIONAL SYNERGY: TOWARD A MODEL OF COMBINED INTRINSIC AND EXTRINSIC MOTIVATION

Let me summarize the thoughts I have presented in this article as a series of propositions. These propositions can serve as the foundation for a conceptual model of *motivational synergy*—the positive combination of intrinsic and extrinsic motivation.

- Intrinsic and extrinsic motivation can combine positively, but not according to the simple scaffolding proposed by the need theories of Maslow (1943) and Herzberg (1966). It is not that intrinsic and extrinsic motivators are completely separate systems where one (the extrinsic) must be taken care of before the other (the intrinsic) can become operative. Rather, extrinsic motivation can, under some circumstances, complement intrinsic motivation.
- Extrinsic motivation is most likely to combine synergistically with intrinsic motivation when the initial level of intrinsic motivation is high.
- Only certain types of extrinsic motivators can combine synergistically with intrinsic motivation. These *synergistic extrinsic motivators* provide information about the individual's competence and the value of the product without undermining feelings of self-determination, or directly allow

increased autonomy or involvement in intrinsically interesting tasks. Note the contrast between this view and that of Hackman and Oldham (1980). They propose that extrinsic motivators combine positively with only one particular form of intrinsic motivation, which they call "internal motivation"—the rewarding feeling of having done well on a challenging task. By contrast, the present proposition holds that *particular* forms of extrinsic motivation combine positively with all forms of intrinsic motivation.

- Certain types of extrinsic motivators will not add positively to intrinsic motivation, and will often detract from it. These *non-synergistic extrinsic motivators* are those that lead individuals to feel controlled or constrained by external forces.
- Job satisfaction will depend on the extent to which the motivators available in the work environment (both intrinsic and extrinsic) match the individual's basic motivational orientation toward work.
- Work performance depends (in addition to skill and contextual factors) on the individual's level and type of motivation. A high level of technical quality (appropriateness) in the output requires a high degree of *either* intrinsic or extrinsic motivation (or both). A high level of novelty in the output requires a high degree of intrinsic motivation.
- Even a high initial degree of intrinsic motivation toward one's work can, over time, be undermined by a work environment that is unsupportive of intrinsic involvement in the work and that places a heavy emphasis on extrinsic motivators.
- For individuals whose work involves complex, ongoing projects, a combination of intrinsic motivation and appropriately-timed synergistic extrinsic motivation may lead to the highest levels of creative, productive work.

IMPLICATIONS FOR MANAGEMENT DEVELOPMENT

I began by listing several significant changes that are occurring in many organizations today, changes that will probably continue for some time. Given what we know about work motivation, we must assume that these changes will have profound influences on people's motivation in their work. Many of these changes can be expected to have a negative impact on intrinsic motivation, partly because they directly interfere with intrinsic motivational processes (such as threatened employment termination, which can be perceived as negative information about competence), and partly because they make extrinsic motivators relatively more salient than intrinsic motivators (such as external evaluation by many of one's peers). Some changes, however, could have a positive effect on intrinsic motivation---such as the increased autonomy that can result from working within a self-managed team, or an increased challenge level in the work resulting from new technology.

The propositions presented here are not a complete model of motivational synergy in the workplace, but rather are the preliminary sketch for such a model. Clearly, we need more research to facilitate development of the details

of this model, before fully confident management recommendations can be made. Nonetheless, some themes have already begun to emerge:

- We can confidently state that, because human motivation is so complex and so important, successful management development for the next century must include theoretical and practical education about the types of motivation, their sources, their effects on performance, and their susceptibility to various influences.
- It is clear that we cannot hope to create a high-performing workforce simply by "loading up" the intrinsic and the extrinsic motivators in the work environment, without paying attention to the *type* of extrinsic motivators and the context in which they are presented.
- If managers operate on the simplistic "scientific management" notion that extrinsic motivation is always necessary and always positive, they can wander into a hopeless quagmire. It is extremely difficult to establish extrinsic reward systems that elicit exactly the behaviors that are desired; these systems are almost always flawed. To the extent that workers are more highly intrinsically motivated, they should be less dependent on extrinsic motivators, and the flaws in such systems should matter less. More importantly, complex, creative work performance requires intrinsic motivation.
- On the other hand, it would be a mistake to assume that all extrinsic motivators will have a negative effect on intrinsic motivation and performance, or that some jobs simply don't require extrinsic motivation. Managers who operate on the simplistic notion that extrinsic motivation is always negative may miss the opportunity to achieve the highest levels of positive synergy described here.
- It is an oversimplification to assume that all people are motivated similarly by the same set of factors.
- Finally, it is a mistake to think that one type of motivation is optimal for all aspects of performance.

Successful management development for the next century must help managers learn to foster synergy in the motivational systems of individuals and teams. Critical skills will include: employee selection for high levels of intrinsic motivation on target tasks; matching employees to tasks on the basis of both skill and interest; designing work so that it maximizes intrinsically motivating elements such as optimal challenge (cf. McCauley, 1993); understanding the motivational orientations of individual workers, so that both intrinsic and extrinsic motivators can be used appropriately; effectively combining diverse individuals into high-performing work teams (cf. Conger, 1993); utilizing synergistic extrinsic motivators such as highly informational feedback (cf. Kaplan, 1993); sequencing the use of these extrinsic motivators at different stages of the creative process; eliminating non-synergistic extrinsic motivators as much as possible; and offering work experiences that increase employees' general

sense of competence, skill flexibility and, ultimately, employability. To assist business leaders in achieving these competencies, management development programs themselves must change significantly (cf. Dixon, 1993). Programs of the future should focus not only on business knowledge and interpersonal skills, but also on the nature of work, the nature of groups, and the nature of human motivation—as well as the interconnections between these systems.

Organizational leaders and managers must begin to think of human motivation at work as a complex system where it *is* possible to achieve synergy between persons and their work environments, and between the different types of motivation. The system is complex, but it is not unknowable. We already know much, and we are learning more every day.

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NOTES

1. This discussion is limited to *motivators*, to factors that lead an individual to undertake or persist in an activity. There are also *de-motivators*, factors that may lead an individual to actively avoid an activity. Like motivators, these can come from an external source (such as punishment for having engaged in an activity) or from the activity itself (such as complete failure in every attempt at the activity).

2. Note that a clear determination of an individual's motivation (as intrinsic or extrinsic) depends on the individual's expressed level of interest, enjoyment, and so on, as well as the individual's willingness to engage in the activity in the absence of extrinsic incentives. It is virtually impossible to determine the nature of an individual's motivation by simply observing task engagement at one moment in time.

3. Obviously, temporary motivational states toward a particular activity will also depend to some extent on individual differences in preferences for the activity.

4. It should be noted that this description of the creative process is a vast oversimplification. Certainly, the process is not linear; rather, it undoubtedly involves much recycling back from one stage to an earlier stage. Moreover, any point in the process may lead to loops of additional creative-thinking processes where the generation of new ideas is required, and where high levels of intrinsic motivation may be necessary.

5. This idea originated in a conversation with Steven Kramer, and I am grateful for his input.

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