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1950–1975

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## *The Emergence of Theory*

### Introduction

Research in the early part of the 1950s did not differ appreciably from the research of the four preceding decades. Attitude surveys continued to be the primary method of data collection for I/O psychologists in their study of motivation. Behaviorism was at its zenith in experimental psychology with B. F. Skinner (1953) as its articulate champion. Research with animals continued to show the importance of antecedent stimuli and external consequences on behavior.

Ryan and Smith (1954) argued against I/O psychology adopting the prevailing motivational paradigms of experimental and clinical psychology. To translate worker goals into Watson's (1925) terms of stimuli and responses, they said, was not only useless but misleading since it implies that the laws that govern these stimuli and responses in experimental laboratory paradigms are the same as those that hold for all other stimuli and responses in everyday situations. They took issue with Hull's (1928) and Spence's (1948) research on the primary drives of animals because to postulate some simple mechanism by which new activities come to be attractive to the organism make it difficult, if not impossible, they said, to demonstrate that a particular activity in the work setting arises through biological determinism.<sup>1</sup> As for Freud, Ryan and Smith noted wryly that his evidence that the individual is unaware of his real wish is likely due only to the fact that the individual does not

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<sup>1</sup>Hull and Spence were interested in the biological determinants that activate consummatory and protective behavior. They studied motivation largely in terms of the energizing and directive functions of physiological activators.

wish to admit or explain it to the listener.<sup>2</sup> Finally, they dismissed the relevance of behaviorism and psychoanalysis because neither paradigm emphasized the importance of consciousness in regulating behavior. Consequently, Ryan and Smith called for general theories of motivation by industrial psychologists that take into account the wants, wishes, desires, and experiences of the individual.<sup>3</sup> They argued the importance of intentions to anticipate future obligations or to avoid them.

Whether a means activity is initiated, and the degree of effort which is devoted to it, are functions of (a) the attractiveness of the goal, (b) the attractiveness of the means activity itself and of its surrounding conditions, (c) the uniqueness of the goal (as perceived by the individual), (d) the directness of relationship between the means and the end result, also as perceived or understood by the subject, and (e) the individual's estimates of his ability to perform the means activity well enough to achieve the goal. (Ryan & Smith, 1954, pp. 387–388)<sup>4</sup>

### Job Satisfaction and Job Performance

Viteles (1953) equated motivation with employee performance and morale. The inference drawn from attitude surveys as well as from the Hawthorne studies was that the worker who is highly productive is a worker who has positive attitudes toward the job. Thus a primary variable of interest to I/O psychologists was employee morale or satisfaction.<sup>5</sup>

A major breakthrough in knowledge occurred with an enumerative review of the literature by Brayfield and Crockett (1955) that forcibly and thoughtfully challenged that belief. They showed that there was little or no relationship between these two variables. Shortly thereafter, a quantitative review by Vroom (1964) showed that the median correlation between a

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<sup>2</sup>In acknowledging the importance of goals, Alfred Adler split with Freud over the emphasis of sexual instincts as explanations of behavior. Adler viewed people as goal directed, motivated by their expectations of their future. "Causes, powers, instincts, impulses, and the like cannot serve as explanatory principles. The final goal alone can explain man's behavior" (Adler, 1930, p. 400).

<sup>3</sup>Although people in the workplace were still referred to in scholarly literature as men or girls, the use of the word worker was shifting to that of employee and the neutrally descriptive term, individual.

<sup>4</sup>The seeds were now planted for their future doctoral student to sow, a decade later, Edwin Locke. Note too that letter (e) is a forerunner of Bandura's concept of self-efficacy.

<sup>5</sup>The terms job satisfaction and morale were used interchangeably until Guion (1958) and Stagner (1958) argued for differentiation. The former refers to the individual's attitudes toward the job; the latter refers to the perception that, through cooperation with the group, one's motives or needs will be met.

person's satisfaction and performance was only 0.14. Nevertheless, these two variables remained interdependent in the eyes of many employers and I/O researchers, an issue discussed further in chapter 6.

## Motivation Theory

In 1953 Viteles published his book *Motivation and Morale*.<sup>6</sup> This became the definitive textbook on this subject for three decades. In his review of theories in both experimental and social psychology, he commented favorably on Lewin's "insistence that without a good 'theoretical' foundation applied research follows a path of trial and error, and becomes misdirected and inefficient" (p. 121). One-shot, one-context attitude surveys in the 1930s had hampered the development of motivation theory in the workplace.

In the opening sentence of his "Annual Review of Psychology" chapter, Heron (1954), a psychologist in the United Kingdom, observed:

It may well be that in the last five years we have experienced the end of an era in the history of industrial psychology. No startling development took place, no text appeared to establish a landmark, no new theory provoked widespread discussion and opened fresh vistas; but perhaps something less sensational may be detected. Discontent can sometimes be divine, provided that it results in thinking which ultimately issues in more appropriate activity.<sup>7</sup>

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<sup>6</sup>Edward Webster, at McGill University, was highly skeptical of motivational concepts. He was a 'dyed in the wool' adherent to tests and measurements, selection and vocational guidance. He was shocked when one of his idols, Viteles, came out with *Motivation and Morale in Industry*. So, in the spring of 1954 he scheduled a seminar around this new book. There were at least a dozen masters students around to help Webster examine the contents of this book. They included Victor Vroom and Harry Triandis. "My best recollection is that Ed took it all as a hypothesis yet to be proven but worthy of research" (Vroom, 2003, personal communication).

<sup>7</sup>In his review, Heron (1954) cited approvingly Mace's observation of "the widespread provision in the United States of education for management at the university or college level using the Harvard Business School as a leading example" . . . and the "need for closer collaboration between the business schools and other departments in which psychologists are engaged in research" (p. 222). A decade later, Haire (1960) commented enthusiastically on the conclusions by the Ford Foundation on the need to incorporate industrial psychology research in the curriculum of American business schools. As Vroom (2003, personal communication) noted, these conclusions resulted in a massive infusion of funds, particularly by the Ford Foundation, into building a link between the social science departments and the business schools. The net effect was the hiring of industrial psychologists into business schools. This in turn broadened the emphasis of industrial psychology from primarily selection, performance appraisal and training to motivation, leadership and organizational design.

Heron's observation proved to be remarkably prescient. Innovation and knowledge in I/O psychology were about to blossom in the form of myriad theories of work motivation. These theories would soon provide a framework for planning, conducting, and interpreting research.<sup>8</sup> In the interim, McGregor argued cogently for the immediate applicability of Maslow's need hierarchy theory to industry.

### Need Hierarchy Theory

As was the case with Freud's theory of psychoanalysis, Maslow's (1943) theory of human motivation was based on conclusions he drew from his observations of individuals who came to him for assistance in coping with difficulties in their personal lives. The theory was written during the Great Depression. From the outset of his paper, Maslow acknowledged that:

It is far easier to prove and to criticize the aspects of motivation theory than to remedy them. Mostly this is because of the very serious lack of sound data in this area. I conceive this lack of sound facts to be due primarily to the absence of a valid theory of motivation. The present theory then must be considered to be a suggested program or framework for future research and must stand or fall, not so much on facts available or evidence presented, as upon researches yet to be done, researches suggested perhaps, by the questions raised in this paper. (p. 371)

Rather than a focus on attitudes, Maslow posited that there is a hierarchy of five sets of goals for which people strive in seeking satisfaction of their basic needs. Needs determine the repertoire of behaviors that a person develops in order to satisfy each goal. Unlike the experimental psychologists such as Watson and Thorndike, he emphasized that:

This theory starts with the human being rather than any lower and presumably "simpler" animal. Too many of the findings that have been made in animals have been proven true for animals but not for the human being. There is no reason whatsoever why we start with animals in order to study motivation. (p. 392)

Maslow proposed the following sequential hierarchical order of the development of five basic needs.

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<sup>8</sup>Theories, argued Klein and Zedeck (2004) are invaluable because they tell us why something occurs, not simply what occurs. Good theories provide novel insights that are practical and testable. They simplify and structure what were once scattered observations.

1. Physiological needs. All other needs become simply nonexistent or are pushed into the background until physiological needs are satisfied. A peculiar characteristic of the human organism when it is dominated by a certain need, Maslow said, is that the whole philosophy of the future tends also to change. "For our chronically and extremely hungry man, utopia can be defined very simply as a place where there is plenty of food" (p. 374). When this need is met: "At once other (and 'higher') needs emerge and these, rather than physiological hungers, dominate the organism" (p. 375). Maslow's belief that this lower order need becomes stronger as deprivation increases was likely influenced by the laboratory findings of Hull and Spence with animals.

2. Safety needs. "Again, we may say of the receptors, the effectors, of the intellect and other capacities that they are primarily safety-seeking tools" (p. 376). Confronting a child with the new, unfamiliar, strange, or unmanageable stimuli frequently elicit the danger or terror reaction. The need for safety is manifested in "the common preference for a job with tenure and protection, the desire for a savings account, and for insurance of various kinds (medical, dental, unemployment, disability, old age)" (p. 379), as is "the tendency to have some religious or world-philosophy that organizes the universe and the men in it into some sort of satisfactorily coherent, meaningful whole" (p. 379).

3. Love needs. Once the two lower needs are satisfied, there will emerge the love and affection and belongingness needs. The "thwarting of these needs is the most commonly found core in cases of maladjustment and more severe psychopathology" (p. 381).

4. Esteem needs. Most people have a need or desire for a firmly based high evaluation of themselves, based on achievement that leads to respect from others, and inculcates confidence to face the world. Thwarting this need produces feelings of inferiority, weakness, and of helplessness.

5. Self-actualization. The clear emergence of this need rests upon man's prior satisfaction of the other four. "It refers to the desire for self-fulfillment, namely, to the tendency for him to become actualized in what he is potentially" (p. 382).

The crux of this theory is that as one need becomes fulfilled, its strength diminishes while the strength of the next need higher in the hierarchy increases. Systematic research based on Maslow's (1943) theory did not occur in organizational settings for another two decades.

Nevertheless, the theory and his subsequent book (Maslow, 1954) wherein he described the theory more fully had a tremendous influence on McGregor's (1957) formulation of "Theory X" and "Theory Y."

## Theory X and Theory Y

Douglas McGregor received his Ph.D. from Harvard University where he was influenced by Gordon Allport, a social psychologist. However, McGregor did not see himself as an experimentalist (McGregor, 1960). Rather, he was, in the words of Warren Bennis (1985), a champion of the application of behavioral sciences with a flair for the right metaphor that generated and established a new idea. Of all behavioral scientists, he was in this time period the best known by managers until his death in 1964 (Boone & Bowen, 1987).<sup>9</sup>

McGregor (1957) believed that the time had come to apply the social sciences to make human organizations truly effective: "To a degree the social sciences today are in a position like that of the physical sciences with respect to atomic energy in the thirties. We know that the past assumptions of man are in dispute and in many ways, incorrect" (McGregor, 1957, p. 22). The subject of motivation is the best way, he said, of indicating the inappropriateness of the conventional view of employees, which he called "Theory X." The assumption underlying Theory X is that without active intervention by management, people are passive—even resistant—to organizational needs. This is because the average man is by nature indolent, lacks ambition, is inherently self-centered, and is not very bright. This behavior is not a consequence of man's inherent nature, argued McGregor, rather it is the outcome of management philosophy and practice. He then explained Maslow's theory in detail to show why Theory X is an inadequate approach to motivation: "Unless there are opportunities *at work* to satisfy these higher level needs, people will be deprived. . . . People will make insistent demands for more money under these conditions. It becomes more important than ever to buy the material goods and services which can provide limited satisfaction to the thwarted needs" (p. 28).

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<sup>9</sup>Warren Bennis (2003, personal communication) wrote: "It was through Doug that I got to know Abe so well. When Abe came to Doug's memorial service at MIT with his wife Bertha, at which time I spoke, Bertha whispered to me afterwards that when Abe died, she'd like me to do the same for her husband. I did at Stanford, only a few years later."

Thus, McGregor concluded that a different theory of human motivation was needed in the workplace, a theory based on the correct assumptions about human nature—a theory that makes explicit “the human side of an enterprise.” McGregor called this “Theory Y.” Theory Y differs from Theory X in that the latter places exclusive reliance upon external control of behavior while Theory Y emphasizes self-control and self-direction. The essence of Theory Y is:

The motivation, the potential for development, the capacity for assuming responsibility, the readiness to direct behavior toward organizational goals are all present in people. Management does not put them there. A responsibility of management is to make it possible for people to recognize and develop these human characteristics for themselves. (p. 6)<sup>10</sup>

Successful applications of Theory Y, in McGregor’s view, included management by objectives at Sears, Roebuck and Company, job enlargement, pioneered by IBM and Detroit Edison, participation in the decision-making process, as well as self-appraisals whereby each employee at General Mills and General Electric set targets or objectives and subsequently does a self-evaluation semi-annually or annually.

As was the presentation by Maslow (1943), McGregor’s (1957) article and subsequent book (McGregor, 1960) were void of data to support either Theory Y or Maslow’s theory on which it was directly based. It was not until the 1960s that theory-driven empirical research was conducted. Lyman Porter was among the first to do so.

### **Theory-Driven Empirical Research**

Trained as an experimental psychologist at Yale University under the supervision of Neil Miller, Lyman Porter was immediately hired upon graduation to come to Berkeley by Edwin Ghiselli, a renowned industrial psychologist who, in addition, was the department chair. Never having taken a formal I/O psychology course, Porter obtained the lecture notes of an undergraduate student, Geoffrey Keppel, to help

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<sup>10</sup>This last sentence explains why McGregor would soon endorse Herzberg’s emphasis on the enrichment of jobs. McGregor argued vehemently that an essential task of management is to arrange organizational conditions and methods of operation so that people can achieve their own goals best by directing their own efforts toward organizational objectives (McGregor, 1960, p. 178).

in preparation for teaching one that Ghiselli had assigned to him.<sup>11</sup> Immediately thereafter, Porter devoted his academic life to research in I/O psychology, particularly in regard to motivation.

Porter developed a need deficiency scale that required people to rate the importance of characteristics present in their job as well as how much of each characteristic they would prefer to have in the job. Using Maslow's theory as a framework, Porter (1961) administered a 15-item survey to 64 foremen and 75 middle level managers who worked in three different companies.<sup>12</sup> In that study, Porter deleted reference to physiological needs and replaced it with need for autonomy which he said fell between need for love, which he labeled esteem, and self-actualization. The data showed that the highest order need, self-actualization, is the most critical of those studied, in terms of both perceived deficiency in fulfillment and perceived importance to the individual. This was true for both bottom and middle management. Contrary to Maslow's theory, need for security, in addition to self-actualization, was seen as a more important area of need satisfaction than esteem and autonomy by individuals in both management groups. However, as one might predict from Maslow's theory, the needs for esteem, security, and autonomy were significantly more satisfied in middle than in entry-level management. Porter (1962) replicated his

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<sup>11</sup>Keppel would subsequently become Department Chair at Berkeley in 1972. Porter went on to become the only I/O psychologist in the 20th century to become president (1975–1976) of both the American Psychological Association's Division 14 (I/O Psychology) and the Academy of Management (1974–1975). He was among the first to cogently argue the necessity for a marriage within the field of industrial psychology, namely "the mature personnel-differential part of the field to the younger, and seemingly more glamorous, industrial-social or organizational area" (Porter, 1965, p. 395).

<sup>12</sup>Porter (2005, personal communication) stated: "My intent at the time was never to 'test' Maslow's theory. Rather I was simply using it as a relevant framework for looking at the patterns of need satisfaction among managers in medium and large organizations (i.e., organizations with structures composed of at least several levels of management and different functional areas ). I was interested in studying the management parts of organizations because I felt that the then-existing field of industrial psychology (not until later called industrial-organizational psychology) had always been over-focused on rank-and-file employees and had basically ignored managerial attitudes and behaviors. Maslow's theory for me at the time was simply an interesting 'vehicle' that offered potential for understanding what was going on in the management sections of organizations in terms of manager's attitudes towards the motivational aspects of their jobs. The 'organization' in this case was the American Management Association. Mason Haire provided me contact to one of their key staff members at the time who agreed to sponsor the research project because AMA was interested in undertaking more research (and, in the next few years established a non-profit offshoot called the American Foundation for Management Research to further this aim)."



study in a nationwide survey of managers. The needs for autonomy and self-actualization were reported as the least fulfilled for them as well.

In his third study, Porter (1963a) found that higher level managers placed more emphasis on self-actualization and autonomy needs than did lower level managers. However, no significant differences due to managerial level for the other needs were found. In his fourth study, he looked at horizontal rather than vertical differences in responses of managers. Line managers reported greater need fulfillment than staff. The largest differences were fulfillment of needs for esteem and self-actualization (Porter, 1963b).

In the fifth and final study, Porter (1963c) hypothesized that:

There are good reasons for presuming that organizational level might have an interaction effect on size in relation to job attitudes. For example, a worker at the bottom of a large organization has a much larger superstructure of organization levels and of sheer numbers of people above him than does a similar worker in a small company. . . . However, at the other end of the hierarchy—top management—the picture should be reversed. A top manager in a large company controls or “bosses” more people than a top manager in a smaller organization, and hence has (or should have) more absolute influence in the work situation. (p. 387)

The data supported this hypothesis. At the lower levels of management, managers in smaller companies were more satisfied, that is, they reported greater fulfillment of their needs than their counterparts in large companies. The reverse was true of higher levels of management.

In the next decade, with the publication of Wahba and Bridwell's (1976) critique, Maslow's need hierarchy theory was largely abandoned by the research community. None of their factor analytic studies showed clear support for Maslow's classification of needs. Using a different methodology, namely interviews of managers at AT&T, Hall and Nougaim (1968) also failed to find support for a need hierarchy. Researchers concluded that there was no validity for Maslow's theory.

That Maslow (1965) himself was concerned by the readiness of people to accept his theory as well as Theory Y in the absence of solid research is evident in the following quote:

After all, if we take the whole thing from McGregor's point of view of a contrast between a Theory X view of human nature, a good deal of the evidence upon which he bases his conclusions comes from my researches and my papers on motivations, self-actualization, et cetera. But I of all people should know just how shaky this foundation is as a final foundation. My work on motivations came from the clinic, from a study of neurotic people. The carry-over of this theory to the industrial situation has some support from industrial studies, but certainly

I would like to see a lot more studies of this kind before feeling finally convinced that this carry-over from the study of neurosis to the study of labor in factories is legitimate. The same thing is true of my studies of self-actualizing people—there is only this one study of mine available. There were many things wrong with the sampling, so many in fact that it must be considered to be, in the classical sense anyway, a bad or poor or inadequate experiment. I am quite willing to concede this—as a matter of fact, I am eager to concede it—because I’m a little worried about this stuff which I consider to be tentative being swallowed whole by all sorts of enthusiastic people, who really should be a little more tentative in the way that I am. (pp. 55–56)

In an attempt to address problems with Maslow’s theory, Alderfer (1972) reformulated it based upon three related needs in an organizational setting, namely existence (e.g., pay, fringe benefits), relatedness (e.g., social interactions), and growth (e.g., esteem and self-actualization). Unlike Maslow’s proposed hierarchy, Alderfer argued that these three needs can affect a person simultaneously. Much of the research on this theory, conducted by Alderfer himself, yielded mixed results (Pfeffer, 1982).<sup>13</sup>

### Job Characteristics

“A good theory is one that holds together long enough to get you to a better theory” (Hebb, 1969). McGregor (1960, p. x) had argued that without minimizing the importance of the work that has been done to improve the selection of people, the most important problems lie elsewhere:

The reason is that we have not learned enough about the utilization of talent, about the creation of an organizational climate conducive to human growth. The blunt fact is that we are a long way from realizing the potential represented by the human resources we now recruit into industry. We have much to accomplish with respect to utilization before further improvements in selection will become important. (p. 21)

McGregor (1960) quoted approvingly from a comprehensive study published in a book a year earlier by Herzberg and his colleagues (1959) that described how to design jobs that are conducive to satisfying needs for human growth:

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<sup>13</sup> An arguable flaw in Maslow’s theory regarding a universal hierarchy is that individuals prioritize their needs in accordance with their values.

A recent, highly significant study of the sources of job satisfaction and dissatisfaction among managerial and professional people suggests that these opportunities for “self-actualization” are the essential requirements of both job satisfaction and high performance. The researchers find that the wants of employees divide into two groups. One group revolves around the need to develop in one’s occupation as a source of personal growth. The second group operates as an essential base to the first and is associated with fair treatment in compensation, supervision, working conditions, and administrative practices. *The fulfillment of the needs of the second group does not motivate the individual to high levels of job satisfaction and . . . extra performance on the job* (Italics mine). All we can expect from satisfying [the second group of needs] is the prevention of dissatisfaction and poor job performance. (pp. 114–115)<sup>14</sup>

This book was the basis for what was to become known alternatively as the Two Factor Theory, Motivation-Hygiene Theory, or Job Enrichment. In reference to Herzberg’s research, Vroom, with his former mentor, Maier, wrote in the *Annual Review of Psychology* that until this point in time: “The motivational effect of the nature of the tasks performed by the individual continues to be a neglected problem in psychology” (Vroom & Maier, 1961, p. 432). Characteristics of the job, Herzberg believed, facilitate or hinder satisfaction of the “growth needs” for self-esteem and self-satisfaction.

Frederick Herzberg obtained his Ph.D. under the supervision of John Flanagan at the University of Pittsburgh. Herzberg’s peers as a doctoral student included George Albee, who would become a clinical psychologist, and William W. Ronan, who would become an I/O psychologist. Herzberg, torn between choosing a career in clinical or I/O psychology, decided to study the mental health of people in industry. In a doctoral seminar, he informed Flanagan that he wanted to use the critical incident technique (Flanagan, 1954) to collect data.<sup>15</sup> Flanagan responded dryly as to the inappropriateness of doing so because of the likelihood that people would attribute satisfying incidents to their own behavior

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<sup>14</sup>The word “mine” is McGregor’s.

<sup>15</sup>While a military officer in World War II, Flanagan was presented with the problem that many bombardiers were missing their targets. Flanagan’s solution was to focus on the behaviors that are critical for hitting a target, that is, the behaviors that differentiate the effective from the ineffective bombardier. His methodology, which he labeled the critical incident technique (CIT) involved interviews of incumbent’s supervisors, not the incumbents themselves. Today the CIT is among the most frequently used methods of job analysis, particularly for developing appraisal instruments. Following World War II, Flanagan founded the American Institutes for Research (AIR). Among the employees who went on to become famous in the areas of leadership and motivation are Ed Fleishman (who subsequently became president of AIR) and an employee he hired, Ed Locke.

and incidents that were dissatisfying to them to factors outside their control (Ronan, 1968, personal communication). The warning was ignored.

In the preface to their book, Herzberg and his colleagues (Herzberg, Mauser, & Snyderman, 1959) wrote that:

We are faced by significant unemployment, by an underutilization of our industrial plants, and by a shift of interest from the problems of boredom and a surfeit of material things to the serious problems of unemployment and industrial crisis. . . . In fact, it may be during hard times the edge that will determine whether a concern will survive will be given by the level of morale within the personnel. (p. 121)

Similar to Maslow and McGregor, Herzberg (1966) believed that “the primary function of any organization, whether religious, political, or industrial, should be to implement the needs for man to enjoy a meaningful existence” (p. x). He and his colleagues (Herzberg et al., 1959) analyzed the content of the critical incidents they collected from engineers and accountants regarding when these people felt exceptionally good or exceptionally bad about their jobs in order to determine ways to increase productivity, decrease turnover and absenteeism, and smooth labor relations. Just as Flanagan had predicted, the results showed that job content factors were reported by employees to be a primary source of motivation or satisfaction while context or hygiene factors were the source of dissatisfaction, hence the label, two-factor or motivation-hygiene theory.<sup>16</sup>

Herzberg’s most controversial conclusion was that job satisfaction and job dissatisfaction, rather than being on one continuum are two continua. That is, the opposite of dissatisfaction is not satisfaction but no dissatisfaction; similarly, the opposite of job satisfaction is not dissatisfaction but no job satisfaction. To enrich a job, Herzberg (1966) argued that attention should be given to the work itself (job content), recognition, responsibility, achievement, and opportunities for advancement. Contextual or hygiene factors such as working conditions, company policy, supervision (technical as well as interpersonal), and pay should be attended to only as ways of minimizing job dissatisfaction. Focusing on

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<sup>16</sup>In this same time period, Argyris (1957) was arguing that one’s personality can be stunted when confronted with an unchallenging job environment. He shared Maslow’s and Herzberg’s belief that needs are universal among people.

the latter, he said, will have little or no effect on a person's effort or performance.<sup>17</sup>

In his "Annual Review of Psychology" chapter, Dunnette (1962, p. 303) concluded that Herzberg's theory: "Offers great promise as a stimulator of future research on employee attitudes."<sup>18</sup> By the end of the decade, the bulk of the research on motivation was indeed concerned with considerations of Herzberg's two factor theory (Smith & Cranny, 1968).

As were Mayo and McGregor before him, Herzberg was masterful in getting the ear of the public. Reprints of his article in the *Harvard Business Review* (Herzberg, 1968) remain to this day among the most sought after papers published by that outlet. His lasting contribution to practitioners has been shifting their primary focus to the importance of the work itself rather than on what he called hygiene variables (e.g., employee benefits). He forcefully drove home the message that the job must be enriched in ways that will allow people to become motivated to perform effectively.

The two-factor aspect of Herzberg's theory was subsequently explained by Vroom (1964) in his book, and again (Vroom, 1967) to a standing-room-only symposium at APA where Herzberg was a presenter, to be a methodological artifact. Herzberg's results were replicated only when the critical incident technique was used, a technique that had been originally designed by his mentor, Flanagan, for job analysis.<sup>19</sup> Other psychologists agreed with Vroom's criticism (e.g., King, 1970; Schneider & Locke, 1971). The same events caused both satisfaction and dissatisfaction, but different agents were perceived by employees as responsible—the self for satisfying events, and variables other than the self for dissatisfying events (Locke, 1976).

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<sup>17</sup>One can see why McGregor, who championed Maslow's theory, also endorsed Herzberg's work. Herzberg too was concerned with a person's needs. The contextual or hygiene factors were similar to Maslow's emphasis on satisfying physiological and security needs; the job content or motivators were similar conceptually to Maslow's emphasis on a person's needs for self-esteem and self-actualization. By changing characteristics of the job environment, Herzberg and his colleagues argued that an employee's needs would be satisfied. Needs impel behavior. Therefore, implicit in Maslow's and Herzberg's theories is the assumption that one does not directly motivate another person, one creates an environment where people can motivate themselves.

<sup>18</sup>It was during this time period Dunnette's colleagues developed the Minnesota Satisfaction Questionnaire or MSQ (Weiss, Dawis, England, & Lofquist, 1967). MSQ assesses an employee's intrinsic (e.g., the job itself, sense of achievement) and extrinsic satisfaction (e.g., pay, benefits).

<sup>19</sup>Despite Vroom's criticism (1964, p. 129), he agreed that: "Herzberg and his associates deserve credit for directing attention toward the psychological effects of job content, a problem of great importance in a world of rapidly changing technology."

Herzberg (1966, pp. 130–131) responded in vain to this attack:

The supposition that people would prefer to blame hygiene factors rather than the motivators for their job unhappiness in order to make themselves look good is naïve. It does not take too much experience with job-attitude data to find that the opposite is more often true. Employees who wish to make themselves look good are much more prone to say they are unhappy because they do not have responsibility, are not getting ahead, have uninteresting work, and see no possibility for growth.<sup>20</sup>

Blood and Hulin (1967) were among the first to caution against universal application of job enrichment/enlargement methods. An employee's values, they said, moderate employee affective responses to tasks. Specifically they found that the values of blue collar workers in urban locations correlate negatively with satisfaction with enriched jobs; for non-alienated employees, such as white collar workers as well as blue collar workers from rural areas, the relationship is positive.

A subsequent version of job enrichment theory was formulated by Richard Hackman and his doctoral student Gregory Oldham (1975, 1976). Hackman's colleagues and Oldham's professors at Yale, where the authors formulated the theory, included Alderfer, Argyris, Lawler, and Schneider. They, rather than Herzberg, influenced the authors' choice of variables. Consequently, Herzberg viewed the theory and the authors with disdain (Oldham, 2005, personal communication). In brief, Hackman and Oldham developed a job diagnostic survey to assess the motivating potential of a job, and the employee's growth needs for personal accomplishment, learning, and development. These psychological needs, they said, are threefold: (a) experienced meaningfulness (need for job experiences "to connect" or be aligned with one's values), (b) responsibility (need to feel accountable or responsible for the work one does), and (c) knowledge of results (wanting knowledge for how well one is performing in one's job). The essence of this theory is that people who have high growth needs are more satisfied and perform better than those who have low growth needs when they are placed in an enriched job. Thus

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<sup>20</sup>In 1975 Herzberg gave an address to a large audience of managers in Seattle. Upon introducing myself to Fred as a former student of Bill Ronan's, he replied with little humor, "The trouble with you industrial psychologists is that when you climb down into a mine you ask a miner, 'when you have to pee, can you always do so, generally do so, sometimes do so, seldom do so, or never do so?' I simply ask, 'what do you do when you have to pee while you are down here?'" Fred had distanced himself from a discipline that he believed had unfairly attacked him and his work. Criticism, however, is a cornerstone of science. As difficult as criticism is to read regarding one's work, it must be embraced in order for the field to advance, not to mention the quality of one's own work.

the theory, unlike Herzberg's, takes into account individual differences among employees.<sup>21</sup> An enriched job is one that scores high on skill variety, task identity, task significance, autonomy, and task feedback. The likelihood that an employee with high growth needs will experience meaningfulness increases to the extent that a job provides skill variety, task identity, and task significance. Responsibility is likely to be experienced if the job allows for autonomy. Knowledge of results, as the name implies, occurs to the extent that feedback regarding one's performance is relatively direct and immediate. This version of job enrichment, embraced by many academics (e.g., Korman, Greenhaus, & Badin, 1977), never received the applause of the public that was given to Herzberg's theory of job enrichment.<sup>22</sup> The relationship between job characteristics to an employee's absenteeism and performance was not found to be as strong as expected. They did correlate highly with a person's job satisfaction and motivation, that is, experienced meaningfulness and responsibility (Hackman & Oldham, 1976).

In his *Annual Review of Psychology* chapter, Mitchell (1979) concluded that few significant results with regard to job performance were obtained with Hackman and Oldham's theory, and there was little or no consistency in the interpretation of the results. Roberts and Glick (1981) attacked the theory for its lack of discriminant validity with other attitudinal measures as well as halo error among perceived characteristics of jobs. Fried and Ferris (1987) showed that the formula for calculating a

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<sup>21</sup>Dawis (1996) noted that: "The psychology of individual differences (also called *differential psychology* or *correlational psychology*) originated from two intellectually revolutionary achievements of Francis Galton, both occurring before the beginning of this century: The discovery that statistical models (initially, the normal curve) provided a robust rationale for psychological measurement, and the invention of correlation as a powerful technique for data analysis (see Dawis, 1992, for more detail). The contributions of individual differences psychology to the science of psychology have been enormous and pervasive, especially in the assessment of human psychological attributes (particularly intelligence, abilities, interests, values, and personality traits)" (pp. 231–232).

<sup>22</sup>Both Blood and Hulin's (1967) study and Hackman and Oldham's theory ushered in the concept of moderators in research on motivation. Conceptually a moderator is a conditional variable or boundary condition. Why does a job enrichment intervention work under some conditions but not under others? Some people believe that its effectiveness is moderated (enhanced) by a person's higher order need strength. In those conditions where employees have high needs for esteem and self actualization, introducing job enrichment is likely to prove to be effective. A boundary condition or limitation of the effectiveness of this intervention is where the majority of employees have a low need "to grow" in their job. Knowing the moderator variable(s) enhances the likelihood that an intervention will be effective; it will not be introduced under inappropriate conditions. Interestingly, Herzberg believed there were no boundary variables affecting a job enrichment intervention. Hackman and Oldham disagreed with him.

Motivating Potential Score is no more predictive of outcomes than a simple index that is computed by merely adding up the scores given to the five core job characteristics. Subsequent studies showed that moderating effects of individual differences on task or job design were not significant. "Enriched jobs seem to exert positive affective and behavior effects regardless of an incumbent's desire for higher order need satisfaction, need for achievement, need for autonomy, etc." (Cummings, 1982, p. 546). Yankelovich's (1974) surveys of job-related attitudes among American youth revealed a strong preference for careers involving self-control over one's job activities and a desire for interesting work as well as material rewards, regardless of education level. The surveys also revealed that people in general define success in terms of self-fulfillment. Moreover, consistent with what Maslow would have predicted in this economic time period, the respondents indicated little or no fear of financial hardship and thus were free to explore ways to satisfy "higher needs." These findings tended to eliminate studies in which demographic variables such as age, sex, or race are examined as moderator variables because they usually did not correlate with anything (Schneider, 1985).

Working independently of Herzberg and Hackman and Oldham, Eric Trist and his colleagues at the Tavistock Institute in the United Kingdom developed a theory of socio-technical systems as a way of enriching jobs.<sup>23</sup> As the name implies, the emphasis is on the integration of the technical aspects of the job with the social needs of the worker (Emery & Trist, 1965; Trist & Bamworth, 1951). Similar to both Herzberg and Hackman and Oldham's theories, socio-technical systems theory views people as resources to be developed; it emphasizes the importance of autonomous work teams, responsibility for production process, and feedback (Trist, 1981). Socio-technical systems is used widely by industry (e.g., Weyerhaeuser Company) to the present day. Interestingly, it has been relatively ignored by motivation researchers in North America, possibly because the unit of analysis is the group rather than the individual.

### Equity Theory

Herzberg's theory of job enrichment states that money, or the lack thereof, can be a major source of dissatisfaction. The theory says little about what the person will do as a result of this dissatisfaction. Equity

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<sup>23</sup>Trist later took a faculty position at York University in Toronto.



theory, developed by Jean “Stacy” Adams, filled in the blank. Adams, born in Belgium, received his Ph.D. at the University of North Carolina, Chapel Hill. His theory was developed as a result of his association at Stanford University with Leon Festinger as well as his own work at the General Electric Company.

Adams was influenced by Festinger’s (1957) cognitive dissonance theory which states that to the extent that a person perceives there is a discrepancy between one’s belief and one’s behavior, the person is motivated to reduce it; the greater the perceived discrepancy, the greater the motivation. In addition, the theory states that people evaluate information sources in terms of personal relevance, using similar others for comparison.

Equity theory deals primarily with money. In brief, the theory (Adams, 1963, 1965) states that people examine the ratio of their “outcomes” (denominator) relative to their “inputs” (numerator) relative to those of a comparison other.<sup>24</sup> Inputs include the person’s effort, education, and experience. Outcomes include money, recognition, and working conditions. Equity theory states that unequal ratios produce tension within the person. This tension can be alleviated by cognitively distorting one’s inputs or outcomes, leaving/quitting the situation, changing the inputs (e.g., increase/decrease effort or quality of one’s performance) or outcomes, or changing one’s comparison other (e.g., for me personally it would be focusing on my peers in universities rather than on those in the private sector). The solution most likely to be used to reduce inequity is the one that a person perceives as having the least cost.

The theory subsequently was attacked for lack of precision. Robert Pritchard (1969), a former student of John Campbell and Marvin Dunnette, argued that the modes of inequity resolution are the weakest part of the theory. Methods for reducing inequity are so numerous, he said, that individual differences undoubtedly exist regarding preferences among methods. Campbell, Dunnette, Lawler, and Weick (1970) concluded that:

Predictions from equity theory are made very difficult by the complexity making up the input-output package and the multitude of ways in which inequity can be

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<sup>24</sup>In 1958, Newell, Shaw, and Simon presented their theory of human problem solving that emphasized an information processing model. Shortly thereafter, the study of motivation in the workplace went cognitive; the employee was now immersed in thought. Years later Cappelli and Scherer (1991) blamed the “cognitive revolution” for limiting appreciation of the importance of context on organizational behavior.

resolved. However, the theory presents a clear warning to organizations that they must learn a great deal more about the nature of the input-output comparisons and the way they develop and change. (p. 382)

Because of these criticisms and because another theory—expectancy theory—was viewed by influential psychologists, particularly Lawler (1970),<sup>25</sup> as having greater predictive and explanatory power regarding performance in paid work settings than equity theory, the attention of I/O psychologists shifted to this theory.<sup>26</sup>

### Expectancy Theory

Victor Vroom, a Canadian from Montreal, earned his undergraduate and master's degree from McGill, and his Ph.D. from the University of Michigan where he studied under N. R. F. Maier.<sup>27</sup> Rather than focus on factors in a job that energize and sustain behavior, Vroom (1964, p. 6) used "the term motivation to refer to processes governing choices made by persons or lower organisms among alternative forms of voluntary

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<sup>25</sup>Lawler was a catalyst in the fields of HRM, I/O, and OB from the moment he came out of graduate school, especially in the domains of motivation and satisfaction in the workplace. Two primary themes of his work are the importance of participation in decision making and the importance of money. The criterion he uses in judging his work and the work of others is whether it has "high impact." Among the ways I gained credibility as a newly minted Ph.D. with the Weyerhaeuser Company's senior management team was to show Lawler's work to them. Lawler is currently the founder and director of the Center for Effective Organizations at the University of Southern California, where he and his colleagues do leading edge work in HRM.

<sup>26</sup>Adams's (1968) response was that: "The contrast between equity theory and expectancy theory implies that performance in work situations must be accounted for by either one or the other. Multiple motivation states may determine behavior, though one state may be dominant in an individual and in a group of individuals at a particular point in time. Under particular conditions the motivation to achieve equity may dominate, under others maximizing gain (expectancy) may be salient and under some conditions the two may be pitted each against the other. . . . I doubt that anyone seriously questions the fact that desire to manage outcomes is a powerful determinant of behavior, and there is now ample evidence that desire to achieve justice has considerable influence on behavior. The question of importance is not whether equity or expectancy theory accounts for such behavior as work productivity or quality, but under what conditions equity motives and gain maximizing motives account for certain proportions of observed performance variance" (p. 316). In a subsequent review of the literature, Mowday (1991) concluded that there is general support for the theory's predictions, particularly regarding piece-rate and hourly over-payment. People who believe they are overpaid perform higher than those who perceive that they are equitably paid.

<sup>27</sup>Vroom originally wanted to become a jazz musician. As an entering undergraduate student, he took the Strong Vocational Interest Test. It showed his love of music. He had been playing the clarinet and the saxophone for 5 years. His second highest score on the Strong Interest Test was psychology. The counselor who administered the Strong successfully convinced him of the wisdom of pursuing a career in the latter area. Nevertheless music has remained an important part of his life (Vroom, 2005).

activity.” Influenced by the research of Tolman,<sup>28</sup> an experimental psychologist, as well as Lewin, a social psychologist, Vroom developed a cognitive theory based on a person’s expectancies, valences, choices, and instrumentalities. Central to the theory are two propositions (Vroom, 1964).

*Proposition 1.* The valence of an outcome is a monotonically increasing function of the algebraic sum of the products of the valences for all other outcomes and his conceptions of its instrumentality for the attainment of these other outcomes.

*Proposition 2.* The force on a person to perform an act is a monotonically increasing function of the algebraic sum of the products of the valences of all outcomes and the strength of his experiences that the act will be followed by the attainment of these outcomes. (pp. 17–19)

That is, (1) the effort that people exert is a function of their expectation or subjective probability estimate that certain outcomes will occur as a result of their performance; and (2) the valence for them of those outcomes. The greater the valence of any outcome, the more likely the person is to choose to exert effort to take action. The valence of an outcome is, in turn, a function of its instrumentality for obtaining other outcomes and the valence of those other outcomes. Hence this theory is alternatively known as VIE theory (i.e., valence, instrumentality, expectancy).

Similar to equity theory, this theory states that people base their actions on their perceptions and beliefs. Unlike equity theory, which focuses solely on the outcomes of one’s perceptions of fairness relative to a comparison other, expectancy theory was developed to explain virtually all work-related behavior ranging from occupational choice to performance on the job. Thus, expectancy theory was the first cognitive broad range theory of motivation developed by an I/O psychologist. The theory focuses on choice, effort, and persistence. In Vroom’s words, the theory is “very similar to, almost taken from Kurt Lewin’s field theory. The terms ‘valence’ and ‘force’ have exactly the same properties as in Lewin’s writings. The concept of expectancy is a recasting of the term ‘psychological distance,’ which Lewin never well defined but had to do

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<sup>28</sup>Tolman, an experimental psychologist at the University of California–Berkeley, was influenced by the Gestalt psychologists’ research on goal directed action and the related positive and negative valences of objects, as well as the differences between drive like involuntary action vs. intentional acts. “Behavior as behavior, that is, as molar, is purposive and cognitive. These purposes and cognitions are of its immediate warp and woof” (Tolman, 1932, p. 6).

with the number of regions in the life space that had to be crossed in order to get to a goal. It also has some similarity to the notion that people choose in such a way as to maximize expected utility, although the terms ‘utility’ and ‘valence of outcome’ have different properties—utility implying a much greater degree of stability not subject to arousal. It’s also very similar to Jack Atkinson’s conceptions of aroused motivation being a function of motive, incentive and expectation, and to a similar formulation by Tolman” (Vroom, 2003, personal communication).

In short, expectancy theory operationalizes motivation in terms of four components. The first is effort. The second is the intrinsic valence in the outcome of high performance emanating from effort, the degree to which effective performance is desired for its own sake. Third, there is instrumentality—one’s perceived causal connection between one’s performance and the rewards one expects to receive as a result of this performance. Finally, there is the valence to the employee of the rewards (Vroom, 2003, personal communication).

Steers and Mowday, former students of Porter, along with Shapiro have described how Porter and Lawler (1968) expanded expectancy theory to take into account the employee’s ability as well as role clarity in linking a person’s effort to job performance (Steers, Mowday, & Shapiro, 2004).<sup>29</sup> Specifically, Porter and Lawler added a feedback loop to Vroom’s theory to emphasize learning on the part of an employee regarding past relationships.<sup>30</sup>

In the previous decade, the belief that job satisfaction affects job performance had been shattered by Brayfield and Crockett. On the basis of expectancy theory, Lawler and his former mentor, Porter (Lawler & Porter, 1967), argued that it is nevertheless important to measure the satisfaction level that exists in organizations because it influences both employee attendance and turnover.<sup>31</sup> They then proposed the radical

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<sup>29</sup>Lyman Porter (University of California, Berkeley, University of California, Irvine) mentored many doctoral students who subsequently made significant contributions to organizational psychology and behavior. In addition, to Edward Lawler, Rick Mowday and Richard Steers, these people include David Krackhart, Eugene Stone, and John Van Maanen.

<sup>30</sup>Although Vroom continued to publish extensively subsequent to his 1964 book on expectancy theory, none of it dealt with or even mentions valence, expectancy, or instrumentality. “For me the task was done” (Vroom, 2005, p. 252).

<sup>31</sup>Lawler’s first doctoral student was Martin Evans. Based on his knowledge of expectancy theory, Evans developed the theory of path-goal leadership for his doctoral dissertation. Upon accepting a faculty position at the University of Toronto, Evans collaborated with Robert House, who was also at the University of Toronto, to refine the theory. Interestingly, the two did not publish together.

notion that rather than being a cause of performance, satisfaction is caused by it. They concluded that organizations should find ways of maximizing the relationship between performance and satisfaction rather than satisfaction itself.

Platt (1964) argued that a theory that cannot be mortally endangered cannot be alive. That expectancy theory was very much alive is evident by the voluminous research conducted to test it. In less than a decade there were two comprehensive reviews of this literature published in the prestigious *Psychological Bulletin* (Heneman & Schwab, 1972; Mitchell & Biglan, 1971). But by the mid-1970s, Miner and Dachler (1973, p. 381) concluded that “a closer examination of the literature reveals a number of inconsistent findings” and that it “is remarkably weak and contradictory in other respects” (p. 382). Locke (1975, p. 458) noted that “there are no consistent findings regarding which components are the best predictors of performance.” Moreover, the results were suspect, he said, in that the theory predicts self-ratings of effort, attitude, and performance better than supervisory evaluations. Furthermore, Locke argued that the theory was incorrect in assuming (a) that people choose to maximize outcomes, or (b) that they usually perform complex calculations in making choices that will enable them to maximize outcomes. Finally, Frank Schmidt (1973) pointed out that the formulas involved in the theory assume a ratio scale when there is no known way of measuring valences on this scale. In an enumerative review of 31 studies testing the theory, House, Shapiro, and Wahba (1974) reached similar conclusions in their critique of the theory. A meta-analysis by Van Eerde and Thierry (1996) indicated that there is at best support for the individual components of Vroom’s theory. The authors pointed out, however, that the vast majority of studies based on expectancy theory examined performance between groups of individuals. This was arguably inappropriate. Expectancy theory first and foremost provides a “within individuals” framework for predicting and explaining the choices a person makes. Yet very few experiments were conducted in this manner.

Years later, Vroom (2003, personal communication) himself stated: “The notion that people consider all possible outcomes in expectancy theory is implausible. Furthermore, the thought that they multiply these terms and add them up is really inconsistent with knowledge of information processing and cognitive psychology. They clearly don’t do that, and I knew they didn’t do that. But, I didn’t have a theory of arousal—about what goals or expectations would be aroused in any

given moment. That's the chief limitation of expectancy theory. It has naïve assumptions about arousal. I think the same thing was true of Kurt Lewin when he talked about valences being reflections of the tension systems that are aroused. So, that criticism of expectancy theory is a general one, and I completely agree with it." Vroom (2005) also acknowledged that eliminating the mathematical formulations might have helped to convey his belief that expectancy theory should be used for its heuristic value in providing a language for formulating questions about the role of beliefs and motives in work performance.

### Behavior Modification

Following Vroom's heuristic theory based in part on research in experimental psychology, I/O psychologists ignored the concerns voiced two decades earlier by Ryan and Smith and began to examine the applicability of behaviorism to the workplace. The champion of environmental determinism in this time-period continued to be an experimental psychologist at Harvard University, B. F. Skinner.

In Skinner's (1974) advocacy of environmental determinism, behavior is said to be a function of reinforcers.

Remove the gratuitous physiologizing, and the point is made that motives and purposes are in people while contingences of reinforcement are in the environment, but motives and purposes are at best the effect of reinforcements. The change wrought by reinforcements is often spoken of as the "acquisition of purpose or intention," and we are said to "give a person a purpose," by reinforcing him in a given way. These are convenient expressions, but the basic fact is that when a person is "aware of his purpose" he is feeling or observing introspectively a condition produced by reinforcement. (p. 58)

The frequency of a response, Skinner argued, can be changed by changing the schedule on which a reinforcer is presented. Systematic change, which alters the frequency of a response, is called operant conditioning (responses operating on the environment) or behavior modification as the emphasis is on observable behavior. Thus operant researchers, as had the founders of behaviorism, Thorndike (1911) and Watson (1925) continued to dismiss internal determinants, namely cognitions, as explanatory fictions.<sup>32</sup> Cognitions were said to be merely

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<sup>32</sup>Ironically, Skinner himself was admitting to an explanatory determinant of behavior which resides inside the organism, namely, the organism's implanted history of reinforcement. As Bandura (2005a) noted, this history is an inferred inner cause rather than one that is directly observable.

epiphenomena of conditioned responses. Behavior, Skinner argued, is a function of its consequences. People learn contingent relationships between what they do and the concomitant result; it is these contingencies that determine their subsequent behavior, not cognition and certainly not the need hierarchy that Maslow espoused.

In an influential essay, Nord (1969) argued the similarities between McGregor's basic arguments and Skinner's emphasis on the environment in shaping a person's behavior. John Campbell (1971) endorsed Nord's viewpoint: "The operant conditioning model, in truth, has a great deal of structured similarity to the motivational theories of McGregor, Maslow and Herzberg. It simply gets to the heart of the matter more quickly" (p. 571). John Campbell argued further that it is behavior that is at issue rather than underlying causes or internal mediators.

Well-trained in experimental methods, I/O psychologists in this time period increasingly turned to both laboratory and field experiments in order to provide rigorous tests of phenomena that had been identified in correlational and case studies in the field. For example, Yukl, Wexley, and Seymore (1972), in a laboratory experiment, obtained results that were contrary to what might be predicted by instrumentality beliefs as posited by expectancy theory. Their results were consistent with Skinner's (e.g., Ferster & Skinner, 1957) research with rats and pigeons. Performance was higher when people were paid on a variable ratio schedule of reinforcement rather than on a continuous one.

Although rodents are highly prized in laboratory settings, the opposite is true in forest products companies. A mountain beaver is essentially a large rat with a hamster-like tail. Because it is largely a creature of habit, traps can be set effectively without bait to kill them. The necessity for doing so stems from the fact that they devour newly planted seedlings. A Weyerhaeuser Company VP became so frustrated with these rodents as well as with the employees whose job it was to trap them that he angrily exclaimed that he could step on more rodents than those employees could catch. Moreover, both the union executive committee and company managers were annoyed by the employees constantly filing nonsensical grievances because of job dissatisfaction due largely to boredom. The employees complained that the seats in the bus that took them to the woods were uncomfortable. They complained about the wind and the rain that resulted in them choosing to stay in the bus rather than persisting in trapping the rodents. They complained about their long hours. My solution—bring Las Vegas to the woods.

The trappers working side by side were randomly assigned to one of two groups. In group A, the trappers were paid on a continuous schedule

of reinforcement. Each trapper received a \$1.00 bonus over and above his hourly rate for each rodent he trapped. At the end of four weeks, the trappers were switched to a variable ratio four (VR-4) schedule in which they received \$4.00 contingent upon trapping a rodent and correctly guessing the color of one of four marbles prior to drawing it from a bag held by the supervisor. Thus, each trapped rodent became the equivalent of a poker chip that a trapper could use to see how lucky he was in correctly predicting the color of a marble. In group B, the order of the schedules was reversed. Not only did employee productivity soar, but the grievances stopped. Excitement at the prospect of winning money replaced boredom in the workplace. Consistent with findings from animals studied in the laboratory, trappers who were experienced had higher productivity on the VR-4 than on the continuous schedule, while their inexperienced counterparts had higher productivity on the continuous schedule. Both the inexperienced and the experienced employees preferred the VR-4 schedule for monetary payments (Latham & Dossett, 1978).

Employee excitement with the reinforcement schedules that were used for distributing the monetary bonuses continued for years. Not a single grievance was ever filed. In examining employee reactions to the two schedules, Lise Saari and I found that the VR-4 schedule contributed to feelings of task accomplishment, recognition, and meaningfulness of the work (Saari & Latham, 1982). In addition, the trappers began to set goals regarding the number of rodents they would catch. A journal reviewer insisted that this fact be omitted from the article. There is no denying the efficacy of operant techniques. There is denial on the part of behaviorists of cognitive variables as root causes of a person's behavior.

In less than a decade following Nord's essay, Luthans and Kreitner (1975) published a book on ways to use behavior modification methodology in organizational settings. John Campbell's former mentor, Marvin Dunnette, (1976) referred to this methodology as one of seven milestones in I/O psychology because it makes explicit the operations that must be followed to increase the probability that an intervention will bring about a relatively permanent change in behavior. The methodology makes explicit the types of data that should be collected and the operations that should be followed in collecting these data. A *Handbook of Organizational Behavior Management* was published (Frederiksen, 1982). The *Journal of Organizational Behavior Management* was born. This journal publishes articles to the present day on the application of operant principles to issues in organizational settings.



Feeney (1973), a vice president at Emery Air Freight, popularized the notion that knowledge of results or feedback is explainable within a behavioristic framework. Scholars such as Komaki (1981) agreed with him. She showed that when performance during a baseline period is compared with performance after the introduction of feedback, often in the form of praise or recognition, performance invariably increases dramatically.

With few exceptions (e.g., Komaki, 1998, 2003), the interest of I/O psychologists in behaviorism quickly waned in the final quarter of the 20th century. Experimental psychologists such as Dulaney (1968) showed that even the simplest forms of learning may not occur unless people are conscious of what is required of them. Kaufman, Baron, and Kopp (1966) found that cognitive influences can weaken, distort, or nullify the effect of different reinforcement schedules. They showed that when people are rewarded on the same schedule, those who are told that they are being reinforced once every minute (a fixed interval schedule) produce a very low response rate (mean = 6); those who are led to believe that they are being reinforced on a variable ratio schedule maintain an exceedingly high response rate (mean = 259); while those who are correctly informed that their behavior will be rewarded, on average, every minute (a variable interval schedule), display an intermediate response rate. In short, identical environmental consequences can have different behavioral effects depending upon what the person is led to believe (cognition).

Many I/O psychologists were troubled by the philosophy of behaviorism, especially determinism and epiphenomenalism. Mitchell (1975) acknowledged that although the principles of behaviorism allow for the prediction of behavior, they do not permit an adequate explanation of why the behavior occurs.<sup>33</sup> Moreover, the exclusion of cognitive variables because they are not directly observable, he stated, is foolhardy. Drawing on the arguments of Nagle (1961), Mitchell pointed out that other sciences, including physics and astronomy, refer to unobservables as causal variables.

These unobservables can be indirectly measured through their effects on other variables and eventually on observables. Through what is called a "logic of theoretical networks" (Cronbach & Meehl, 1955), we can ascribe meaning to these constructs and through a process of empirical confirmation provide support for this meaning. Thus . . . a logical positivists position is both an unnecessary

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<sup>33</sup>Brief and Dukerich (1991) have stressed the point that sheer predictive power in itself is inadequate for explanation. Understanding the how, that is, the process, is the goal of scientific theory.

limitation on scientific inquiry and a poor representation of current thought in the philosophy of science (Kaplan, 1964). (Mitchell, 1975, p. 65)

In addition, Locke (1977, 1978) pointed out how behavior modification researchers in I/O psychology implicitly include cognitive processes. In disagreement with Komaki (1981), he (Locke, 1980) argued that the effect of feedback on performance cannot be interpreted as supporting behaviorism, because feedback is mediated by goal setting. As he and I subsequently noted, feedback is information (Locke & Latham, 1990a). Only when there is a standard for evaluating the feedback can it be appraised. A goal provides a standard by which the person can judge whether the feedback conveys “good,” “neutral,” or “bad” performance. In short, to explain the effect of feedback on behavior, one must know the goal or standard that was used by an individual to evaluate it.

Neither Locke nor I deny that people are influenced by environmental factors (Locke & Latham, 2004). But the causal effect is not deterministic. Rather, the effects of the environment depend on what people attend to and what conclusions they draw from the experiences they have and the situations they encounter. Much of Ben Schneider’s work, to be discussed later, has looked at the issue of the effect of the environment on one’s behavior in the reverse direction. His primary thesis is that an environment is formed by the people behaving in it.

### Goal-Setting Theory

Edwin Locke was educated at Harvard University, the bastion of behaviorism in that time period. He subsequently did his Ph.D. at Cornell under the supervision of T. A. (Art) Ryan<sup>34</sup> and Patricia Cain Smith.<sup>35</sup> There he became an ardent critic of behaviorism.

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<sup>34</sup>Art Ryan, recalled Pat Smith (2003, personal communication), was a brilliant researcher who was admired greatly by his doctoral students. Yet he was not a stellar teacher of undergraduates. Fearing that Art’s low undergraduate teaching evaluations would be hurtful, a doctoral student broke into the room at Cornell where the evaluations were stored so that he could alter them for Art’s benefit. Neither the administration nor Art ever learned of the incident. The perpetrator was not Ed Locke.

<sup>35</sup>In 1969 Patricia Cain Smith and two of her former doctoral students, Lorne Kendall and Charles Hulin, published what was to become among the most widely used scales to this day for measuring job satisfaction, the Job Descriptive Index or JDI (Smith, Kendall, & Hulin, 1969). Patricia Cain Smith earned her undergraduate degree from Nebraska under the supervision of J.P. Guilford, and her Ph.D. under the supervision of T.A. (Art) Ryan at Cornell. She is the grand dame of I/O psychology, not only because she is arguably the first woman to achieve prominence internationally

(Continued)

Ryan (Ryan, 1947, 1970; Ryan & Smith, 1954) argued that behavior is regulated by intentions. Needs, beliefs/attitudes, he said, affect behavior through intentions. Thus, once they are formed, intentions are the immediate antecedents for predicting and explaining behavior. Neither equity nor expectancy theory explicitly address intentions.

Locke's (1964) doctoral dissertation was based on a series of laboratory experiments to test Ryan's hypothesis regarding the effect of intentions. The culmination of these experiments (Locke, 1968) led to three propositions that would subsequently lead to the development of goal setting theory in 1990: (1) Specific high goals lead to higher performance than no goals or even an abstract goal such as "do your best"; (2) given goal commitment, the higher the goal the higher the performance, and (3) variables such as monetary incentives, participation in decision making, feedback, or knowledge of results affect performance only to the extent that they lead to the setting of and commitment to specific high goals. In short, goals have the effect of directing attention and action (*choice*), mobilizing energy expenditure or *effort*, prolonging effort over time (*persistence*), and motivating the individual to develop relevant strategies (*cognition*) for goal attainment (Locke, Shaw, Saari, & Latham, 1981). Given goal commitment, job performance improves because the goal provides a regulatory mechanism that allows the employee to observe, monitor, subjectively evaluate, and adjust job behavior in order to attain the goal.<sup>36</sup> Goal setting taps a fundamental attribute of human

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(Continued)

as an I/O scholar, but because of the number of people who also achieved prominence under her mentorship, either as the chair or a member of their dissertation committee (e.g., John Bernardin, Charles Hulin, Lorne Kendall, Frank Landy, Ed Locke, Harry Triandis, Sheldon Zedeck). Lorne Kendall was among the kindest, brightest people I have had the privilege of calling my friend. As a Department Chair in Psychology, he could break the news of a non-tenure decision in such a way that the person thanked him before leaving his office. Sitting in my living room one night he closed his eyes and said that some people have difficulty thinking in three dimensions yet he had no difficulty thinking in five. He easily convinced me to join him at Simon Fraser University in Vancouver (Burnaby). After signing the requisite acceptance papers, we talked excitedly by phone. Three hours or so later, his wife, Mary telephoned me. While walking across the ice on March 27, 1977 following a curling game, she stopped as she observed Lorne bend over to, she initially believed, tie his shoes. Lorne never got up. He died that moment at the age of 43. He had once casually told me at a CPA convention in 1976 that he'd been born with a faulty heart valve and would likely die without a moment's notice. Sadly, he was correct. I no longer had a reason to accept Simon Fraser's job offer. I had lost a good friend.

<sup>36</sup>Originally, Locke and I used the term goal acceptance because the goals were assigned in our laboratory and field experiments. Later when our research interests, and those of colleagues expanded to include participatively set and self-set goals, we used the broader term, goal commitment.

behavior, namely, goal directedness (Lee, Locke, & Latham, 1989). In their reviews of the literature, both Austin and Vancouver (1996) as well as Mitchell and Daniels (2003) concluded that the one overriding common theme among almost all psychological approaches to motivation is goals.

As noted by Pervin (1989), the concept of goal as a motivational construct has a number of advantages over a sole focus on needs or external reinforcers. By emphasizing the cognitive representation or image of a goal, the employee is freed from the immediacy of a current stimulus. The employee is oriented toward the future as far as cognitive capacity permits.

The results regarding goal difficulty seemingly contradict those of Atkinson (1958), a social psychologist who had been a student of McClelland. Atkinson's theory of need for achievement states that task difficulty, measured as probability of task success, is related to performance in a curvilinear, inverse function. The highest level of effort is expended on tasks that are moderately difficult. Atkinson, however, did not measure personal preference goals or goal difficulty. His findings have not been replicated when task performance goals were measured.

McClelland (1961), a social psychologist, argued that people have a need to achieve success and avoid failure. He argued further that only the Thematic Apperception Test (TAT), a projective test should be used to assess this need because only this test assesses this need at the subconscious motive level. Among the few studies that used the TAT in work settings, null or negative results were obtained with regard to goal choice or performance (e.g., Roberson-Bennett, 1983; Howard & Bray, 1988). Matsui, Okada, and Kakuyama (1982), who did not use the TAT, found that achievement motivation has no effect on performance independently of goals that are set. Gary Yukl and I found that the goals people set predict their performance and level of satisfaction better than do personality measures of achievement (Yukl & Latham, 1978). However, R. Kanfer and Heggestad (1997) developed a 48-item scale that assesses a person's general motivation. Using this scale, they found that people who have high achievement and low anxiety traits excel in self-regulation. But, Bandura (1997) argued that empirical evidence shows that goal setting is a better predictor of ongoing level of performance than are measures of need for achievement. This lends causal priority to goal setting. Moreover, goal-setting theory, he stated, explains rapid shifts in motivational level through changes in mediating self-processes, whereas quick changes in a person's behavior pose

explanatory difficulties for a dispositional motive determinant such as need for achievement. Nevertheless, Schneider (2004, personal communication) observed that McClelland's work,

... it is true, has not been adopted by I/O, but the work has been very useful in the training of people to be more achievement oriented, especially in India. I know I am terribly biased towards nAch, but if you read Roger Brown's (*Social Psychology*, 1965) description of the work you come away feeling that it was very worthwhile, astonishingly creative, and widely overlooked—likely because it rests on projective techniques.

A close reading of the book, however, suggests that McClelland's intervention included goal setting.

With regard to job satisfaction, Locke (1970), similar to Lawler and Porter (1967) viewed satisfaction as resulting from performance. However, he argued that it is the result of goal-directed behavior and value attainment as a result of reaching one's goal(s). Goal specificity delineates the conditional requirements for positive self-evaluation. An abstract goal such as "do your best" is at best a placebo. It provides little or no basis for regulating one's efforts, let alone for evaluating how one is doing. Its vagueness is too compatible with a wide variety of performance attainments.

In reviewing Locke's laboratory experiments, Hinrichs (1970, p. 525) questioned whether similar results "will carry through in the complex behaviors required in organizations." Similarly, in their review of expectancy theory, Heneman and Schwab (1972) stated,

A noteworthy aspect of research on expectancy theory is the emphasis on investigating employees in their natural work environments, thus providing a high degree of external validity. In the case of motivation . . . this is in direct contrast to research on . . . goal setting theory (Locke, 1968) which has usually entailed student subjects working on laboratory tasks in experimental settings. The cost of external validity has been of course, a general inability to make causal inferences. (p. 8)

This was about to change with my work at the American Pulpwood Association (Latham & Kinne, 1974; Ronan, Latham, & Kinne, 1973), followed by my research conducted at the Weyerhaeuser Company (e.g. Latham & Yukl, 1975). Locke and I met in New Orleans in 1974 at the annual meeting of the American Psychological Association where we began a career-long collaboration on goal-setting theory (e.g., Latham & Locke, 1975, 1991; Locke & Latham, 1990a, 2002, 2005).

## Concluding Comments

Disputes among researchers often lead to a change in theoretical insights. An article by Salancik and Pfeffer (1977) not only summarized the theories developed in this time period, it called into question need-satisfaction theories of motivation, specifically, Maslow's, Herzberg's, Hackman, and Oldham's, and even Vroom's expectancy theory.<sup>37</sup> The assumptions underlying these theories, they said, is that needs are universal, stable dimensions of people. Motivation is presumed to be the result of correspondence between a person's needs and the realities in the environment, namely, characteristics of one's job. To the extent the correspondence is high, people become satisfied and more motivated to perform their job because characteristics of their jobs are compatible with their needs. Liking one's job is assumed to be a component of arousal, leading to a behavioral reaction involving approach to rather than avoidance of one's job. Thus Oldham (1976), they pointed out, defined motivation in terms of satisfaction with one's work. Similarly, Hackman and Lawler (1971) defined motivation with the satisfaction of higher order needs with regard to an employee's reactions to characteristics of the job. Thus job design was viewed as a strategy to improve employee motivation. This is because people take action on the job to satisfy their needs. Needs are the origin of action.

Among Salancik and Pfeffer's criticisms of these statements were the following:

1. Drawing on attribution theory, they stated that people are able to see their environment more than they are able to see themselves behaving in the environment. Thus they select information from the environment which explains their behavior only because of its relative saliency. When a person behaves in an environment where there are few if any salient cues that are consistent with the behavior, a person is likely to use a personal construct such as "my attitude" to explain the behavior.
2. Need satisfaction models do not allow for the possibility that instead of reacting to an environment (e.g., job characteristics), people can take steps to change it or seek another one. Further, people can "construct meaning" in ways that make their job both satisfying and motivating for them.

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<sup>37</sup>Lawler (1969) drew upon Vroom's expectancy theory in his study of job characteristics: A person will exert effort to the extent that effort leads to performance, and performance leads to valued outcomes. Outcomes Lawler said, are valued to the extent that they satisfy one's needs.

3. Needs are not completely biological; they are at least in part socially conditioned, that is, learned. They are modifiable through operant techniques.

4. Needs are poorly defined as evidenced by the ongoing debates as to the meaning of self-actualization. Poorly defined terms make it difficult to do research that can refute their applicability.

5. The characterization of job is a process. Who is to characterize it? Is the answer an employee, a supervisor, a researcher, or a naïve observer? Moreover, the way in which a person characterizes a job can be manipulated. Thus it does not appear that a job has absolute fixed characteristics. Therefore job characteristics are arbitrarily defined as a function of an observer.

6. Consistency effects occur on an attitude survey as a result of a person's awareness of his or her responses to one or more questions. The answers become salient information for respondents, which in turn constrain subsequent responses to items on the survey questionnaire. An employee's responses to: "To what extent would you like to have autonomy in your work?" "How much challenge does your job provide?" influence the person's response to, "How satisfied are you with your job?" In short, a previous response to an item on a questionnaire constrains a person's answer to a subsequent question.

7. A person's attitude is derived from whatever information is available when asked about the attitude. Through priming, it is possible to present a standard set of questions to people and then manipulate the results.

In short, they argued that job characteristics are socially constructed realities. Consistency and priming effects can explain the beneficial results of job environment studies rather than the alleged satisfaction of a person's needs. Finally, Salancik and Pfeffer questioned the focus of need satisfaction theories on an employee's attitudes, which they labeled an epiphenomenon, rather than on an employee's behavior.

Following Salancik and Pfeffer's critique, on top of those critiques described previously, few studies on Maslow's need hierarchy, Herzberg's job enrichment theory, Hackman and Oldham's job characteristics theory, or Vroom's expectancy theory were subsequently conducted in the 20th century.

With the concomitant decline of behaviorism in I/O psychology, a new theory was about to dominate the literature on motivation for the remainder of the 20th century, namely goal setting.