Repetitive Work: Contrast and Conflict

CARL R. PHILLIPS*
Southeastern Louisiana University
ARTHUR G. BEDEIAN
Louisiana State University
CLARK MOLSTAD
California State University, San Bernardino

Implicit in the organizational behavior literature is a general model of repetitive work as causing boredom which, in turn, leads to job dissatisfaction and other undesirable outcomes such as absenteeism, turnover, and output restriction (Hanlon, 1981). While there is an extensive research base supporting this model (e.g., Blauner, 1964; Caplan, Cobb, French, Van Harrison, & Pinneau, 1975; Cox, 1985; Davis, 1971; Kohn & Schooler, 1983; Kornhauser, 1965; Loher, Noe, Moeller, & Fitzgerald, 1985; Rousseau, 1977; Walker & Guest, 1952), there are also troubling inconsistencies involving individuals who express surprisingly high levels of satisfaction with work which is typically considered repetitive and, therefore, boring (e.g., Baldamus, 1961; Form, 1976; Hulin & Blood, 1968; Taylor, 1979; Turner & Lawrence, 1965; Turner & Miclette, 1962). The repetitive work → boredom → job dissatisfaction model is thus seemingly unable to account for all individual differences among workers.

Acknowledging this fact, this article takes a balanced view of repetitive work, reviewing literature representative of contrasting perspectives. In doing so, repetitive and monotonous work are defined. Criticisms of this type of work

* Direct all correspondence to: Carl R. Phillips, Department of Management, Southeastern Louisiana University, Hammond, LA 70402.

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are noted. Additionally, trends in job design which accent the intrinsic features of work are discussed. Second, studies of individual differences vis-à-vis worker preferences for repetitive tasks are explained. Special attention is given to studies involving central life interests, instrumentality, *X*-efficiency, lack of control, and social information processing. These studies demonstrate that there are individuals who prefer repetitive tasks. Finally, various directions for future research and managerial implications are identified.

REPETITIVE WORK: CRITICISMS

In an effort to curb the growing trend toward job simplification and job specialization, many companies over the last 30 years have turned to job redesign. Numerous theorists (e.g., Argyris, 1957; Kornhauser, 1965; Likert, 1961) have contended that monotony occurs as jobs become more specialized and simplified. Furthermore, they have asserted that monotony is associated with boredom, which leads to job dissatisfaction and other undesirable outcomes such as absenteeism, turnover, and output restriction.

Consistent with this contention, Hackman and Oldham (1976) reasoned that employees desire challenging, nonrepetitive jobs. Their job enrichment model holds that employees will experience greater job satisfaction, higher work motivation, and diminished desire to change jobs when positive job characteristics such as skill variety, task identity, task significance, autonomy, and feedback increase. A number of empirical studies have supported this logic. For example, Eichar and Thompson (1986) found that nonalienated employees (those whose work is intrinsically rewarding) experience higher levels of job satisfaction than do alienated employees. Other representative empirical studies providing similar support include Aldag and Brief (1975), Griffin (1982), Loher et al. (1985), O'Reilly, Parlette, and Bloom (1980), Pokorney, Gilmore, and Beehr (1980), and Rousseau (1977).

Further, Smith (1985) noted that there are health consequences of paced work, including biophysical disturbances, psychological disorders, and psychosomatic illness. Smith contended that these become more pronounced as machine control increases and cycle time decreases. More specifically, he posited that machine-paced work is unnatural and can be disruptive to biological rhythms, causing discontinuous sleep, psychological disturbances, and gastrointestinal disorders. Cox (1985), citing other studies, described bored workers as repressors of hostility who are more neurotic, less mentally healthy, more anxious, and more depressed.

Repetitive Work and Performance

It has generally been found that employees performing short-cycled repetitive tasks perform not only more slowly, but more irregularly, and make more numerous

errors (Fiske, 1961; Murrell, 1965; Welford, 1968). However, there is disagreement as to when this degradation of performance actually occurs; findings vary from several to 30 minutes or longer (for a review see Cox, 1980). The primary reason for lowered performance is that repetitive work decreases levels of arousal (Cox, 1980; Thackray, 1981). Further, Martin, Ackerman, Udris, and Dergeli (1980) reported that repetitive work may impair problem-solving behavior.

More recently, Drory (1982) reported finding that boredom is negatively related to effectiveness. Further, his findings indicate that the relationship between boredom and work effectiveness is significantly moderated by personal characteristics. Specifically, he found boredom to be more strongly related to work effectiveness at lower levels of individual capacity.

COUNTEREVIDENCE

Individual Differences

Although counter to prevailing humanistic sentiments, there is evidence that some employees actually prefer repetitive as opposed to enriched jobs with greater complexity and variety. Smith (1953, 1955) conducted studies in a small knitwear mill in northern Pennsylvania to determine differences among employees concerning susceptibility to monotony. She concluded that there are individual differences among employees performing the same job. Hence, workers react differently to work with a short life cycle; some perceive monotony whereas others do not. Smith (1953, 1955) found that the following groups are more likely to experience monotony and in turn, boredom: younger employees; employees who are more restless in their daily habits and leisure-time activities; and employees who are less satisfied with their personal, home, and work situations in areas not directly concerned with repetitiveness or uniformity. However, she did not find support for hypotheses which asserted that employees susceptible to monotony are more ambitious, more introverted, or more intelligent.

Turner and Miclette (1962), in a study of 400 assembly operators, found that monotony was not an important source of dissatisfaction or frustration despite the highly repetitive nature of the work performed. Furthermore, they contended that repetitive jobs can be associated with favorable job outcomes when the good produced is attractive, when pride in an unusual quality and type of skill is possible, and when a good's manufacture is not interrupted by excessive problems with incoming material and equipment, too much pressure for quantity, or by outsiders.

In a later study, Turner and Lawrence (1965) could not confirm a hypothesized direct relationship between job complexity and job satisfaction. Follow-up analysis showed that urban workers had higher levels of job satisfaction with repetitive work, while more rural "town" workers had greater satisfaction with complex work. Turner and Lawrence speculated that this

difference might be caused by the urban cultural conditions of a more anomic, normless, unambitious lifestyle which led urban workers to avoid personal involvement in their work. Whyte (1955) found similar urban-rural cultural differences in his analysis of "rate busters" and "quota restricters."

Blood and Hulin (1967) contributed to this line of argument with a study showing further urban-rural differences in job satisfaction. They argued that these differences reflected the urban workers' "alienation from middle-class norms." In a later paper they elaborated:

> There is no compelling reason to suspect that workers in large industrialized cities would adhere to the dominant work value systems of the white middle-class groups. In fact, it would be somewhat surprising if these workers whose grandfathers and fathers had (likely) worked as unskilled or semiskilled laborers and had failed to rise above their initial job or, even worse, had been replaced by a machine or younger workers at age 50 would behave in the way demanded by the Protestant ethic. (Work hard and you will get ahead. You are responsible for your own destiny. Acceptance into the Kingdom of Heaven is dependent on hard work on this mortal earth.) (Hulin & Blood, 1968, p. 48)

Hackman and Oldham (1976) followed in this line of analysis by developing the concept of growth-need strength as an intervening variable between job complexity and job satisfaction. This concept provides for the empirical measurement of individual differences but ignores the cultural explanation of alienated urban worker values. Hackman and Oldham found high growth-need strength to be correlated with *present* place of residence and work, but not with previous residence or "location of socialization." They concluded, "Evidently current experiences are more responsible for determining an individual's desire for growth satisfaction than are items of personal history, and therefore are more likely to moderate the relationships between job characteristics and outcome variables" (p. 275). A recent meta-analysis by Spector (1985) supports Hackman and Oldham's finding that growth-need strength moderates the relationship between job scope and outcomes such as job satisfaction, motivation, and performance, with the evidence for job satisfaction being strongest.

Karasek (1979) also called into question the work of Turner and Lawrence (1965) and Hulin and Blood (1968) on both conceptual and methodological grounds. Karasek argued that low "decision latitude" (control, or authority to make and carry out decisions) is a primary cause of worker dissatisfaction in low-level jobs (see Molstad, 1986, for a similar analysis). Karasek faulted previous researchers for failing to distinguish conceptually between job demands and the control which workers are allowed to exercise, and pointed out that jobs with high demand levels (such as high production quotas) combined with low control can generate mental strain and dissatisfaction.

Vroom (1960) and Walker and Marriott (1951) similarly asserted that not all workers want to participate in making decisions or want jobs with variety and change. They contended that there are employees who do not want to make decisions and prefer routine, repetitive, and specific work methods since they are simple, straightforward, and carry no responsibility.

Central Life Interests

Research also exists suggesting that some employees express a central life interest in their work and workplace whereas others do not. Dubin, Hedley, and Taveggia (1976) defined a central life interest as an expressed preference for a certain situation or locale in carrying out an activity. They contended that employees who view work as a central life interest see the workplace as their most important social sector, whereas employees who do not espouse this view see the workplace as only one of many important social sectors in which they participate. They noted, however, that despite not viewing work as a central life interest, the latter can develop a strong attachment to impersonal features in their work environment (Dubin et al., 1976). Could it be that workers who do not view their work as a central life interest have more favorable job attitudes concerning repetitive work? Dubin et al. (1976) asserted that the answer to this question is yes. Based on a study of over 3,500 industrial and clerical workers, they concluded that employees who view their work and workplace as a central life interest are more concerned with their company and its products, their craft or profession, workplace autonomy, and their career. Conversely, employees who do not hold this view place more emphasis on items such as perquisites and supervisor relations. This, it seems that employees who do not see their work and workplace as a central life interest would be poor candidates for job redesign since not only do they prefer repetitive tasks, but they may also be better at them.

Instrumentality

A related concept, instrumentality, was proposed by Goldthorpe, Lockwood, Bechhofer, and Platt (1968). They asserted that there are workers who view work as a means to an end rather than an end in itself. These employees see work only as a way to obtain income necessary to support their way of life. This view posits that individuals will only work for an organization as long as it provides them the best economic return available; thus intended employee involvement is minimal. In addition, since work is defined as a mandatory and instrumental activity rather than as an activity valued for itself, employees do not become engrossed in their work and work setting. In other words, employees do not rely on work for emotionally significant experiences, social relationships, or self-realization. Work is not a central life interest. Finally, employees are unlikely to carry job interests home or be involved in social activities at work.

In a recent study, Sverko (1989) offered a possible explanation of why work is instrumental to some and not to others. He found that the importance of work is determined primarily by individuals' perceptions of the possibilities offered by work for attainment of salient work values.

Further, Goldthorpe et al. (1968) asserted that job satisfaction must be considered in conjunction with an employee's orientation toward work. They contended that employees who attach an instrumental meaning to work are satisfied with jobs that provide a high level of economic return, even though the work may provide few intrinsic rewards.

X-Efficiency

Related to instrumentality is Leibenstein's (1969, 1975, 1978, 1979) concept of *X*-efficiency. He defined *X*-efficiency as an increase in output with the same inputs. Conversely, *X*-inefficiency is defined as the extent to which actual output is less than maximum output for given inputs (Leibenstein, 1969). Leibenstein (1975) noted in his basic *X*-efficiency hypothesis that individuals are not as productive as they can be. He contended that often they do not take advantage of opportunities for gain. Although these instances would increase utility, the costs of changing from the present effort level to the required effort level would exceed the utility of the net gain to be received. Therefore, at some point, there is diminishing utility to effort and, eventually, even negative marginal utility (Leibenstein, 1969).

Applying this to the boredom area, individuals may recognize that enriched jobs would be better for them in terms of job satisfaction and performance; however, they may feel that the required increased effort level would exceed the benefits to be gained. Thus, they prefer to continue in their present positions.

Lack of Control

Evidence likewise exists showing that some employees choose repetitive work since it provides them with a way to retreat from situations in which they have little or no control (cf. Karasek, 1979). Inherently, some employees might prefer more challenging and responsible positions; however, this preference may disappear when they realize that their control does not match their responsibility (Molstad, 1986). In other words, they have responsibility and accountability, even though they have little or no control over their work. It is perhaps for this reason that some workers prefer repetitive tasks. As a result of being less likely to be interrupted by supervisors, employees may be able to establish a routine and rhythm and, hopefully, some identity with their jobs.

Along these same lines, Molstad (1986) contended that in deciding on job preferences employees often compare the costs (hassles, pressure, stress) and benefits (autonomy, responsibility, intrinsic value) associated with nonrepetitive work to the costs (boredom, no intrinsic value) and benefits (less pressure and

stress) associated with repetitive work. As a result, workers in many situations find reason to prefer repetitive work.

Social Information Processing

Social information processing theory argues that the meanings which individuals give to objects and activities are socially constructed via a process of searching, learning, and allowing oneself to be socially influenced (Salancik & Pfeffer, 1978). Employees learn, from superiors and peers, that tolerance of repetitive tasks is a common and socially acceptable attitude. When new employees begin to tire of the boredom and repetition of their work, their supervisors or peers often tell them that they have a good, easy job which they will soon master and which they should learn to like.

Research suggests that this process of social influence is both common and effective. Salancik and Pfeffer (1978) reviewed a number of studies which support information processing theory. Griffin (1983) demonstrated in both laboratory and field settings that informational cues from supervisors have significant effects on how employees perceive job tasks. In a survey of nurses, O'Reilly et al. (1980) found that "perceptual assessments of task characteristics vary with the individual's frame of reference and job attitudes" (p. 118). In four different experiments, informational cues were shown to influence work perceptions significantly (O'Connor & Barrett, 1980; O'Reilly & Caldwell, 1979; Weiss & Shaw, 1979; White & Mitchell, 1979).

DIRECTIONS FOR FUTURE RESEARCH

The preceding analysis questions common conceptualizations of repetitive work as invariably causing boredom which, in turn, leads to job dissatisfaction and other undesirable outcomes, and shows the need for more thoughtful analysis and elaboration. The general model of repetitive work can be conceptualized as a three-link chain: that is, repetitive work leading to boredom which, in turn, leads to negative outcomes. This chain can be broken in three places. First, a worker who is performing a job which seems to be repetitive may not perceive it as repetitive and thus not be bored. Second, a worker may perceive a job as repetitive but still not find it boring. Third, a worker may find a job boring and monotonous but still not experience negative outcomes. All three links offer directions for future research.

The first link suggests that some employees find bits of interesting variety in their jobs and do not perceive them as repetitive even when others might. The interests they find presumably provide an important outlet which allows them to avoid being bored. Yet, for others, these interests are only weak substitutes for more substantial involvements and do not override feelings of boredom. As yet, the individual differences and work characteristics that would create such a circumstance are unknown.

The second link in the chain involves employees who do not find their jobs boring even though they acknowledge their repetitiveness. These employees enjoy the routine of their jobs. They may yield, at least temporarily, to the momentum of their job, or what Baldamus (1961) has labeled "traction." They may see their job as "a haven of escape when harassed by social and domestic cares" (Pederson-Krag, 1951, p. 450). They may daydream, talk to others, play games, or otherwise entertain themselves while they work (Garson, 1975; Molstad, 1986; Roy, 1960). But again, all those who finds ways of entertaining themselves while doing repetitive jobs are not necessarily discontent.

Finally, there are employees who acknowledge their boredom with repetitive jobs but do not express negative outcomes. They may have low expectations in specific jobs and for the world of work in general. Further, they may feel that they are doing well just to be employed, and may thus be very tolerant of their work situation, concentrating on extrinsic rewards (Dubin et al. 1976; Goldthorpe et al., 1968). They may cope with boredom by finding workplace distractions such as documented by Roy (1960) or by seeking to increase their control (Molstad, 1988). Each of these possibilities represents avenues of potential research.

Finally, as employees perform their jobs they usually have a variety of reactions, being bored at one moment, being content with the routine at another, and feeling dull and lethargic at a third. Thus, anger, contentment, and passivity are not mutually exclusive but are all to be expected over time (Molstad, 1986; Roy, 1960).

IMPLICATIONS

Some employees prefer challenging jobs with varied tasks whereas others favor the opposite. A direct and obvious implication of the preceding review is that organizations should be more cognizant of individual preferences for work. It should not be assumed that all employees want enriched or enlarged jobs. This inaccurate assumption could prove costly in terms of turnover, absenteeism, morale, and ultimately, profitability.

Organizations may wish to determine and assess individual preferences for work during recruitment. In line with contingency theory, conscientious attempts should be made to match employees with jobs whose tasks concur with individual preferences. In addition, organizations may wish to reassess employees' preferences periodically to ascertain that they are still in alignment with tasks they are currently performing. Only then may organizations be sure that they are helping to maximize employee productivity. As a bonus, organizations will also know that they are helping employees find fulfillment in their work.

REFERENCES

Aldag, R. J., and A. P. Brief. (1975). Impact of individual differences on employee affective responses to task characteristics, *Journal of Business Research* 3:311-321.

Argyris, C. (1957). *Personality and organization.* New York: Harper & Row.

Baldamus, W. (1961). *Efficiency and effort.* London: Tavistock.

Blauner, R. (1964). *Alienation and freedom.* Chicago: University of Chicago Press.

Blood, M. R., and C. L. Hulin. (1967). Alienation, environmental characteristics, and worker responses, *Journal of Applied Psychology* 51:284-290.

Caplan, R. D., S. Cobb, J. R. French, R. Van Harrison, and S. R. Pinneau. (1975). *Job demands and worker health.* Washington, DC: HEW.

Cox, T. (1980). Repetitive work. Pp. 23-41 in *Current concerns in occupational stress,* edited by C. L. Cooper and R. Payne. New York: John Wiley & Sons.

Cox, T. (1985). Repetitive work: Occupational stress and health. Pp. 85-112 in *Job stress and blue collar work,* edited by C. L. Cooper and M. J. Smith. New York: John Wiley & Sons.

Davis, L. E. (1971). Job satisfaction research: The post industrial view, *Industrial Relations,* 10:176-193.

Drory, A. (1982). Individual differences in boredom proneness and task effectiveness at work, *Personnel Psychology* 35:141-151.

Dubin, R., R. A. Hedley, and T. C. Taveggia. (1976). Attachment to work. Pp. 281-334 in *Handbook of work, organization, and society,* edited by R. Dubin. Chicago: Rand McNally.

Eichar, D. M., and J. P. Thompson. (1986). Alienation, occupational self-direction, and worker consciousness, *Work and Occupations* 13:47-65.

Fiske, D. W. (1961). Effects of monotonous and restricted stimulation. Pp. 106-144 in *Functions of varied experience,* edited by D. W. Fiske and S. R. Maddi. Homewood, IL: Dorsey Press.

Form, W. H. (1976). *Blue-collar stratification.* Princeton, NJ: Princeton University Press.

Garson, B. (1975). *All the livelong day.* New York: Penguin.

Goldthorpe, J. H., D. Lockwood, F. Bechhofer, and J. Platt. (1968). *The affluent worker: Industrial attitudes and behaviour.* Cambridge, England: Cambridge University Press.

Griffin, R. W. (1982). Perceived task characteristics and employee productivity and satisfaction, *Human Relations* 35:927-938.

Griffin, R. W. (1983). Objective and social sources of information in task redesign: A field experiment, *Administrative Science Quarterly* 28:184-200.

Hackman, J. R., and G. R. Oldham. (1976). Motivation through the design of work: Test of a theory, *Organizational Behavior and Human Performance* 16:250-279.

Hanlon, J. F. (1981). Boredom: Practical consequences and a theory, *Acta Psychologica* 49:53-82.

Hulin, C. L., and M. R. Blood. (1968). Job enlargement, individual differences, and worker responses, *Psychological Bulletin* 69:41-55.

Karasek, R. A. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign, *Administrative Science Quarterly* 24:285-308.

Kohn, M. L., and C. Schooler. (1983). *Work and personality: An inquiry into the impact of social stratification.* Norwood, NJ: Ablex.

Kornhauser, A. (1965). *Mental health of the industrial worker.* New York: Wiley.

Leibenstein, H. (1969). Organizational or fictional equilibria, *X*-efficiency, and the rate of innovation, *Quarterly Journal of Economics* 83:600-623.

Leibenstein, H. (1975). Aspects of the *X*-efficiency theory of the firm, *Bell Journal of Economics* 6:580-606.

Leibenstein, H. (1978). *General X-efficiency theory and economic development.* New York: Oxford University Press.

Leibenstein, H. (1979). A branch of economics is missing: Micro-micro theory, *Journal of Economic Literature* 17:477-502.

Likert, R. (1961). *New patterns of management.* New York: McGraw-Hill.

Loher, B. T., R. A. Noe, N. L. Moeller, and M. P. Fitzgerald. (1985). A meta-analysis of the relation of job characteristics to job satisfaction, *Journal of Applied Psychology* 70:280-289.

Marlin, E., U. Ackerman, I. Udris, and K. Dergeli. (1980). *Monatonie in der industrie.* Bern, Germany: Hans Huber Verlag.

Molstad, C. (1986). Choosing and coping with boring work, *Urban Life* 15:215-236.

Molstad, C. (1988). Control strategies used by industrial brewery workers: Work avoidance, impression management and solidarity, *Human Organization* 47:354-360.

Murrell, K. F. (1965). *Ergonomics*. London: Chapman & Hall.

O'Connor, E. J., and G. V. Barrett. (1980). Informational cues and individual differences as determinants of subjective perceptions of task enrichment, *Academy of Management Journal* 23:697-716.

O'Reilly, C. A., and D. F. Caldwell. (1979). Informational influence as a determinant of perceived task characteristics and job satisfaction, *Journal of Applied Psychology* 64:157-165.

O'Reilly, C. A., G. N. Parlette, and J. R. Bloom. (1980). Perceptual measures of task characteristics: The biasing effects of differing frames of reference and job attitudes, *Academy of Management Journal* 23:118-131.

Pederson-Krag, G. (1951). A psychoanalytic approach to mass production, *Psychoanalytic Quarterly* 20:434-451.

Pokorney, J., D. Gilmore, and T. Beehr. (1980). Job diagnostic survey dimensions: Moderating effect of growth needs and correspondence with dimensions of job rating form, *Organizational Behavior and Human Performance* 26:222-237.

Rousseau, D. M. (1977). Technological differences in job characteristics, employee satisfaction, and motivation: A synthesis of job design research and sociotechnical systems theory, *Organizational Behavior and Human Performance* 19:18-42.

Roy, D. (1960). Banana time job satisfaction and informal interaction, *Human Organization* 18:158-168.

Salancik, G. R., and J. Pfeffer. (1978). A social information processing approach to job attitudes and task design, *Administrative Science Quarterly* 23:224-253.

Smith, M. J. (1985). Machine-paced work and stress. Pp. 51-64 in *Job stress and blue collar work*, edited by C. L. Cooper and M. J. Smith. New York: John Wiley & Sons.

Smith, P. C. (1953). The curve of output as a criterion of boredom, *Journal of Applied Psychology* 37:69-74.

Smith, P. C. (1955). The prediction of individual differences in susceptibility to industrial monotony, *Journal of Applied Psychology* 39:322-329.

Smith, R. P. (1981). Boredom: A review, *Human Factors* 23(3):329-340.

Spector, P. (1985). Higher-order need strength as a moderator of the job scope-employee outcome relationship: A meta-analysis, *Journal of Occupational Psychology* 58:119-127.

Sverko, B. (1989). Origin of individual differences in importance attached to work: A model and a contribution to its evaluation, *Journal of Vocational Behavior* 34:28-39.

Taylor, J. C. (1979). Job satisfaction and quality of working life: A reassessment. Pp. 125-134 in *Design of jobs*, edited by L. E. Davis and J. C. Taylor. Santa Monica: Goodyear.

Thackray, R. I. (1981). The stress of boredom and monotony: A consideration of the evidence, *Psychosomatic Medicine* 43(2):165-176.

Turner, A. N., and R. P. Lawrence. (1965). *Industrial jobs and the worker*. Cambridge, MA: Harvard University Press.

Turner, A. N., and A. L. Miclette. (1962). Sources of satisfaction in repetitive work, *Occupational Psychology* 36:215-231.

Vroom, V. H. (1960). *Some personality determinants of the effects of participation*. Englewood Cliffs, NJ: Prentice-Hall.

Walker, C. R., and R. H. Guest. (1952). *The man on the assembly line*. Cambridge, MA: Harvard University Press.

Walker, C. R., and R. Marriott. (1951). A study of attitudes to factory work, *Occupational Psychology* 25:181-191.

Weiss, H. M., and J. B. Shaw. (1979). Social influences on judgements about tasks, *Organizational Behavior and Human Performance* 24:126-140.

Welford, A. T. (1968). *Fundamentals of skill*. London: Methuen.

White, S. E., and T. R. Mitchell. (1979). Job enrichment versus social cues: A comparison and competitive test, *Journal of Applied Psychology* 64:1-9.

Whyte, W. F. (1955). *Money and motivation*. New York: Harper & Row.