

Human Resource Considerations in Textile Work Redesign¹

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Evidence is presented that the textile industry is beginning to recognize the severity of the employee turnover problem. Work redesign has been a proposed solution in other industries whereby the intent was to provide employees with work that satisfied their psychological and social needs. However, research has not shown work redesign to produce consistently positive results. Investigators have concluded that individual reactions to job characteristics may be moderated by such variables as their background (urban vs. rural), the existence of a Protestant Work Ethic (strong vs. weak) and the individual's need strength (high vs. low). If the textile industry does undertake work redesign as a solution to the turnover problem, it would be of extreme importance to know what moderates individual reactions to job characteristics. The results of this research indicate that individual need strength is a better moderator than Protestant Work Ethic for employees in a Southeastern textile mill. The authors present alternative ways of dealing with individual reactions to job characteristics so that results of work redesign will be positive.

INTRODUCTION

Since A. K. Rice's (1953, 1955) classic study of the effects of technological change and reorganization in an Indian textile mill, there have

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been few published reports of applying behavioral science theories and methods to operative jobs in the textile industry. This lack of behavioral science application seems surprising given the manpower problems existing in the textile industry. A recent manpower survey of the textile mills in the states of Alabama, Georgia, South Carolina, and North Carolina revealed that the annual labor turnover has increased dramatically from 15% in 1950, to 28% in 1960, to 52% in 1970, and is anticipated to reach 100% by 1980 unless some effective means to retain textile workers are implemented (*Textile World*, 1974). The cause of this turnover is not believed to be related to the current intense level of activity in the textile industry or to be of a temporary nature, but is felt to be related to job dissatisfaction, poor working conditions, monotonous work, and the changing values of today's younger generation (*Financial World*, 1973, p. 7). In line with this reasoning, Day (1973) contends that "it will become increasingly difficult to attract innovative and talented people to [the textile] industry, unless more routine jobs are replaced by meaningful and stimulating non-routine jobs" (p. 270).

What makes jobs meaningful has been the subject of much research. As Porter, Lawler, and Hackman (1975) have suggested, jobs which are meaningful and stimulating contain four core dimensions, viz., (a) variety, (b) autonomy, (c) task identity, and (d) task feedback. High-variety jobs are those that provide opportunities for workers to utilize "a variety of valued skills and abilities" (Porter et al., 1975, p. 303). Jobs high on the autonomy dimension are those that give workers a sense of personal responsibility for the outcome of their efforts. Jobs with a high task identity allow workers to feel that they have produced a "whole" piece of work. And, jobs high on the dimension of task feedback provide workers with feedback about how well they are doing (Porter et al., 1975).

While these four core dimensions would appeal to a person's psychological needs, another type of need must also be satisfied, i.e., the social need. This social need would be affected by (a) the opportunities for social interaction (friendship), and (b) required social interaction (dealing with others) (Hackman & Lawler, 1971).

Researchers have emphasized the importance of individuals' satisfying psychological and social needs on the job (Hackman & Lawler, 1971; Herzberg, 1968; Turner & Lawrence, 1965). More specifically, however, Rice (1953) has emphasized the importance of textile weavers' satisfying psychological and social needs on the job. Miller (1975) has noted that "many studies have shown that attempts to maximize efficiency of the technical system, if social and psychological needs are not also satisfied, lead to suboptimal performance; the converse is also true" (p. 350). Therefore, any

attempt to redesign textile jobs must focus on psychological and social considerations as well as technical considerations.

Job redesign has been employed by numerous organizations in order to reduce absenteeism and employee turnover as well as to increase job satisfaction and productivity. Based on current theories of motivation, some researchers (Herzberg, 1968) have argued that meaningful and stimulating (referred to as positive attributes) jobs provide greater employee satisfaction, reducing absenteeism and turnover, and thereby increasing productivity. Experiments in job redesign, however, have produced mixed results. Some redesign attempts have been very successful (Ford, 1969; Hughes, 1966); while others have been less than successful (Dunnette, Campbell, & Hakel, 1967). These mixed results have stimulated several investigations into why certain workers, contrary to proposed theory, seem to prefer to perform jobs with negative attributes. Turner and Lawrence (1965), for example, concluded that workers with urban backgrounds failed to develop strong work-oriented values and as a result preferred jobs with negative attributes. Additional findings from Blood and Hulin (1967) indicated that workers from urban backgrounds were *not* deficient in work-oriented values but had been alienated by work strategies originating from management.

Hackman and Lawler (1971) found that individuals who possess a strong desire to satisfy higher-order needs (e.g., esteem and self-actualization needs) were (a) more satisfied with jobs that had perceived positive job attributes or (b) less satisfied with jobs that had perceived negative job attributes.

In an attempt to integrate the contrasting conclusions of Turner and Lawrence (1965) and Blood and Hulin (1967) with the work of Hackman and Lawler (1971), Wanous (1974) performed a study in which sample subjects were categorized by three dichotomous moderator variables: (a) high and low individual need strength; (b) strong and weak Protestant Work Ethic; and (c) urban and rural background. He concluded that individual need strength was more useful in predicting the success or failure of job redesign programs. Moreover, individuals with high need strength were hypothesized as being more likely to respond positively to job redesign efforts than individuals with low need strength.

These findings seem to be extremely relevant to the textile industry. The current concern for labor turnover appears to have triggered an interest in more intense applications of behavioral science to the textile industry. This view can be supported by a review of the current articles appearing in textile journals (e.g., Howarth, 1975; Relligman, 1974; *Textile Industries*, 1975). Further, it would be important to the textile industry if the findings

of Wanous could be extended to workers employed in textile mills. If behavioral science theories and methods are going to be employed in the textile jobs certainly it would be useful to know beforehand the likelihood of success. This could be determined by knowing which moderator variable(s) would identify those individuals desiring jobs with positive attributes.

The present study was an attempt to identify, in a rural setting, which of two moderator variables (individual need strength and Protestant Work Ethic) would be most useful in identifying those textile workers who demonstrate a positive relationship between job characteristics and job satisfaction. The study was not an attempt to investigate the urban-rural dimension as a moderator variable.

METHOD

The present study contributes to the existing literature by presenting the results of research conducted (using spinners and weavers) in a Southeastern textile mill. Data were collected on 58 employees, of whom 73% were female. Average age of the respondents was 44 years. Formal educational level averaged 11 years, and average tenure with the company was about 20 years.

Questionnaires were explained and distributed on company time to groups varying in size from four to six employees. A total of 160 spinners and weavers were given the questionnaire for completion and a self-addressed stamped envelope for its return. A total of 55 usable questionnaires were received and constitute the data base for this research.

There were a total of 57 items on the instrument, which included items developed by Hackman and Lawler (1971) and four items from Blood's (1969) Protestant Ethic scale. Thirteen composite variables were obtained by combining several of the items and computing means for each composite variable. The composite variables thus formed were labeled variety, autonomy, task identity, task feedback, friendship, dealing with others, job satisfaction, individual need strength, Protestant Work Ethic, experienced work motivation, focus of employee motivation, job involvement, and general job satisfaction.

This research reports the results of an analysis employing nine of these composite variables. Table I summarizes the variables used, the number of items comprising each variable, a sample item from each composite variable, and the response alternative for each sample item in the composite. Forming composite variables by grouping the individual items was preferred since the intercorrelations of the items contained in each composite were high. As a result, the reliability of the composite variables would be

Table I. Composite Variables Utilized and Related Information

Composite variable	No. of items	Sample item	Response alternatives
1. Variety (V)	3	How much variety is there in your job?	Seven-cell scale anchored by (1) very little: I do pretty much the same things over and over and use the same pieces of equipment and procedures almost all the time; to (7) very much: I do many different things and use a wide variety of equipment and procedures.
2. Autonomy (A)	3	The freedom to do pretty much what I want to do on my job.	Seven-cell scale anchored by (1) none or a minimum amount to (7) a maximum amount.
3. Task identity (TID)	3	The opportunity to do a job from beginning to end (that is the chance to do a whole job).	Seven-cell scale anchored by (1) none or a minimum amount to (7) a maximum amount.
4. Task feedback (TFB)	3	The opportunity to find out how well I am doing in my job.	Seven-cell scale anchored by (1) none or a minimum amount to (7) a maximum amount.
5. Friendship (F)	3	The opportunity, in my job, to get to know other people.	Seven-cell scale anchored by (1) none or a minimum amount to (7) a maximum amount.
6. Dealing w/others (DWO)	2	The opportunity, in my job, to give help to other people.	Seven-cell scale anchored by (1) none or a minimum amount to (7) a maximum amount.
7. Job satisfaction	12	The feeling of worthwhile accomplishment in my job.	Seven-cell scale anchored by (1) extremely dissatisfied to (7) extremely satisfied.
8. Individual need strength (INS)	12	The opportunity for independent thought and action on my job.	Seven-cell scale anchored by (1) I would like to have none or a minimum amount to (7) I would like to have a maximum amount.
9. Protestant work ethic (PWE)	4	A good indication of a person's worth is how well he does his job.	Six-cell scale anchored by (1) strongly disagree to (6) strongly agree.

higher than the individual items. For example, the composite variable job satisfaction consisted of 12 individual items. The smallest intercorrelation coefficient was .30 (significant at $p < .05$) with the remaining correlations being greater than .40.

Tests of significance were performed between the spinners ($N = 20$) and weavers ($N = 35$) on the perceived job characteristics, i.e., variety, autonomy, task identity, task feedback, friendship, and dealing with others, and none was found to be statistically significant. These groups did not perceive their jobs differently on these dimensions. For this reason, the data were combined into one group, textile workers ($N = 55$).

Based on this grouping, the individual need strength and Protestant Work Ethic dimensions were analyzed to determine their usefulness in serving as moderator variables. Responses to the 12 items that measured individual need strength (Hackman & Lawler, 1971) were combined to form a composite variable and a median split (median = 5.24) was used to group those responses into high need strength (HNS) and low need strength (LNS) categories. Similarly, responses to the four items that measured Protestant Work Ethic (Blood, 1969) were combined to form a composite variable, and a median split (median = 4.46) was used to group those into strong Protestant Ethic (SPE) and weak Protestant Ethic (WPE) categories.

RESULTS

In order to test the efficacy of the two moderator variables, INS and PWE, Pearson product moment correlations were computed between job satisfaction and each job characteristic for HNS, LNS, SPE, and WPE individuals. These results are presented in Table II.³

For the moderator variable individual need strength there existed a significant positive correlation between job satisfaction and each job characteristic except variety for the HNS individuals. For the LNS individuals, only one significant correlation coefficient was found, that being between task feedback and job satisfaction (see Table II). This would indicate that HNS individuals were more consistent in their relationship between job satisfaction and each job characteristic than the LNS individuals. Consequently, one could more easily predict a HNS individual's level of satisfaction to the extent the job characteristics were known. Thus, HNS individuals would be expected to demonstrate a high level of satisfaction on a job high on the autonomy dimension and to show a low level of satisfaction on a job which was low on the autonomy dimension. This reasoning can be ex-

³A table containing the means and standard deviations for each of the nine composite variables may be obtained from the authors.

Table II. Correlations Between Job Characteristics and Job Satisfaction for Moderator Variables, Need Strength, and Protestant Work Ethic^a

Characteristic	Individual need strength		Protestant Work Ethic	
	High need strength (N = 28)	Low need strength (N = 27)	Strong Protestant Ethic (N = 28)	Weak Protestant Ethic (N = 27)
	Variety	.28	.09	.15
Autonomy	<u>.80**</u>	.03	<u>.39</u>	<u>.51</u>
Task identity	<u>.47*</u>	-.10	.22	.23
Task feedback	<u>.66</u>	<u>.38</u>	<u>.50</u>	<u>.55</u>
Friendship	<u>.79**</u>	.05	<u>.43</u>	<u>.48</u>
Dealing with others	<u>.53**</u>	-.06	.19	.32

^aCorrelation coefficients marked by asterisks indicate that a one-tailed z-test computed for the difference between paired correlations for each moderator variable was found to be significant at the designated level of significance. All underlined correlation coefficients are significant at $p < .05$.

* $p < .05$.

** $p < .001$.

tended to the other five job characteristics of variety, task identity, task feedback, friendship, and dealing with others.

LNS individuals, however, were not as consistent as the HNS individuals. With the exception of task feedback, one could *not* predict, with any degree of accuracy, the level of satisfaction for a LNS individual performing a job high or low on any of the remaining five dimensions.

For the moderator variable Protestant Work Ethic three correlation coefficients for SPE individuals were significant ($p < .05$). The correlations were between job satisfaction and the job characteristics of autonomy, task feedback, and friendship. This should be interpreted to mean that SPE individuals demonstrated a relatively high level of satisfaction for jobs high on autonomy, task feedback, and friendship. The reverse was also true. However, WPE individuals showed the same relationships with job satisfaction and autonomy, task feedback, and friendship. Therefore, there appears to be virtually no distinction between SPE individuals and WPE individuals, because the same job dimensions show a significant positive correlation with job satisfaction.

It may be concluded, then, that the moderator variable individual need strength is more discriminating than is Protestant Work Ethic. This conclusion is based on two findings. First, of the six job characteristics, four of the correlations for HNS individuals are significantly different from LNS individuals. Autonomy, friendship, and dealing with others were sig-

nificantly different at $p < .001$ and task identity was significantly different at $p < .05$ (see Table II). Therefore, knowing that individuals are classified as HNS will enable one to predict more accurately their level of satisfaction.

Second, none of the correlations for SPE individuals was significantly different from the correlations for the WPE individuals (see Table II). Therefore, being able to identify individuals as being SPE does not enable one to predict satisfaction any more accurately than being able to identify individuals as being WPE.

DISCUSSION

It would appear that the textile industry may be moving toward job redesign as a possible solution to the turnover problem. In order to make job redesign move as smoothly as possible one should be aware that reaction to job redesign may be moderated by some variable or combination of variables. This research has shown that the reaction to job characteristics of individuals employed as spinners and weavers in a textile company was moderated by their individual need strength. One might hypothesize from the results of this research that HNS individuals would demonstrate higher levels of satisfaction with jobs that offer more amounts of the job characteristics, *viz.*, variety, autonomy, task identity, task feedback, friendship, and dealing with others. A similar directional hypothesis cannot be formulated for LNS individuals, however.

Any organization, then, whether a textile company or any other, has at least four alternatives in dealing with LNS individuals. One alternative is to decide not to redesign the jobs performed by LNS individuals. The consequence of this alternative is uncertain. Even though there is little or no relationship between the job characteristics and job satisfaction for LNS individuals as a group, there may be some additional moderator that may provide an explanation of the results. This is described in more detail below.

A second alternative is to replace the LNS with HNS individuals—an alternative which is impractical considering the moral and legal ramifications. A third is to provide special training to LNS individuals much like the training that McClelland (1965) has documented as being successful in India and Mexico. This alternative offers considerable promise in that returns in terms of absenteeism, turnover, motivation, and personal growth and development can be obtained with a reasonable investment. A fourth alternative is to attempt, through organizational socialization, to raise the LNS individuals' need strength by purposely mixing the two classifications of individuals. This alternative, however, may lead to a leveling effect; thus,

the organization should seek guidance, counseling, and direction so that the mixture of HNS and LNS individuals would not result in the undesired effects.

Use of Moderator Variables in Research on Task Design

One final note that may be of use in understanding the results of the present research should be discussed. The two moderator variables used here (INS and PWE) as well as those in many other similar studies may be referred to as "simple" moderators. For example, a moderator variable may be INS dichotomized into HNS and LNS. But if a "complex" moderator is operationalized (see, for example, Feild, Lissitz, & Schoenfeldt, 1975), the HNS and LNS groupings could be further classified as to sex, age, race, and/or any other relevant variable(s).

For the present research, one may ask, "do male workers in the LNS group have different reactions to job characteristics than female workers in the same group?" This kind of question is beyond the scope of the present work because of the inability to further divide the simple moderator variables in use. However, if this kind of question could be answered, one might be able to develop additional alternatives in dealing with LNS individuals. It would appear, then, that the notion of a complex moderator would be of research interest in future investigations of individual reactions to job characteristics.

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BIOGRAPHICAL NOTES

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